

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

(1-18-00) (Rev 8-21-12)

RI R07A

**Description**

This work consists of reconstructing each shoulder (including median shoulders as applicable) in accordance with Roadway Standard Nos. 560.01 and 560.02 of the *2012 Roadway Standard Drawings* except that the rate of slope and width will be as shown on typical section, or to the existing shoulder point, whichever is nearer, as long as the desired typical is achieved, and when completed, seeding and mulching. This work shall be performed immediately after the resurfacing operations are complete as directed by the Engineer.

**Materials**

The Contractor shall furnish all earth material necessary for the construction of the shoulders in accordance with Section 1019 of the *2012 Standard Specifications*. All soil is subject to test and acceptance or rejection by the Engineer.

The Contractor will have the option of using Aggregate Shoulder Borrow (ASB) which meets the following gradation on **Maps 1 and 7, and in environmentally sensitive areas on other maps as directed by the Engineer.**

| <u>Sieve</u> | <u>Percent Passing</u> |
|--------------|------------------------|
| 1 1/2"       | 100                    |
| 1/2"         | 55 – 95                |
| #4           | 35 – 74                |

**Construction Methods**

Obtain material from within the project limits or approved borrow source. Prior to adding borrow material, the existing shoulder shall be scarified to provide the proper bond and shall be compacted to the satisfaction of the Engineer.

Any excess material generated by the shoulder reconstruction shall be disposed of by the Contractor in an approved disposal site.

**Measurement and Payment**

*Shoulder Reconstruction* will be measured and paid 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.

*Borrow Excavation* will be paid in accordance with Section 230 of the *2012 Standard Specifications* for earth material furnished by the Contractor. The requirements of Article 104-5 of the *2012 Standard Specifications* pertaining to revised contract prices for overrunning minor items will not apply to the item of *Borrow Excavation*. If ASB is used for borrow, a unit weight of 140 pounds per cubic foot will be used to convert the weight of ASB to cubic yards.

Incidental Stone Base will be measured and paid as provided in Article 545-6 of the *2012 Standard Specifications*. If ASB is used for Incidental Stone Base, payment will be made for borrow as referenced above.

Seeding and Mulching will be measured and paid as shown elsewhere in the contract documents. Where ASB is used, seeding and mulching will not be required.

Payment will be made under:

| <b>Pay Item</b>         | <b>Pay Unit</b> |
|-------------------------|-----------------|
| Shoulder Reconstruction | Shoulder Mile   |
| Borrow Excavation       | Cubic Yard      |

**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>**

**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*.

**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 \$ **563.33** per ton.

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

**FINAL SURFACE TESTING:**

Final surface testing shall only be required on Map 1 of 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.

**RESURFACING EXISTING BRIDGES:**

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

SP6 R61BR

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 all bridges that are not to be resurfaced, mill a taper into existing pavement for a length of 25 feet per inch of final surface. A temporary asphalt wedge will be required immediately after milling to ensure smooth travel if the final layer of surface course is not placed on the same day as milling.

### **PATCHING EXISTING PAVEMENT:**

(1-15-02) (Rev.11-20-12)

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 1.25 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:

| <b>Pay Item</b>            | <b>Pay Unit</b> |
|----------------------------|-----------------|
| Patching Existing Pavement | Ton             |

**MATERIALS:**

(2-21-12) (Rev. 11-20-12)

1005, 1080, 1081, 1092

SP10 R01

Revise the 2012 Standard Specifications as follows:

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

| TABLE 1000-1<br>REQUIREMENTS FOR CONCRETE |  |                            |                           |                                   |                           |                           |                    |                |              |               |              |
|---|--|----------------------------|---------------------------|-----------------------------------|---------------------------|---------------------------|--------------------|----------------|--------------|---------------|--------------|
| Class of<br>Concrete                      | Min. Comp.<br>Strength<br>at 28 days                   | Maximum Water-Cement Ratio |                           |                                   |                           | Consistency<br>Max. Slump |                    | Cement Content |              |               |              |
|   |  | Air-Entrained<br>Concrete  |                           | Non Air-<br>Entrained<br>Concrete |                           | Vibrated                  | Non-<br>Vibrated   | Vibrated       |              | Non- Vibrated |              |
|   |  | Rounded<br>Aggregate       | Angular<br>Aggre-<br>gate | Rounded<br>Aggregate              | Angular<br>Aggre-<br>gate |                           |                    | 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<br>Form                           | 4,500  | 0.381                      | 0.426                     | -                                 | -                         | 1.5                       | -                  | 639            | 715          | -             | -            |
| Drilled Pier                              | 4,500  | -                          | -                         | 0.450                             | 0.450                     | -                         | 5-7 dry<br>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<br>Formed                          | 2,500  | 0.488                      | 0.567                     | -                                 | -                         | 1.5                       | -                  | 508            | -            | -             | -            |
| Sand Light-<br>weight                     | 4,500  | -                          | 0.420                     | -                                 | -                         | 4                         | -                  | 715            | -            | -             | -            |
| Latex<br>Modified                         | 3,000<br>7 day   | 0.400                      | 0.400                     | -                                 | -                         | 6                         | -                  | 658            | -            | -             | -            |
| Flowable<br>Fill<br>excavatable           | 150 max.<br>at 56 days                                 | as needed                  | as needed                 | as needed                         | as needed                 | -                         | Flow-<br>able      | -              | -            | 40            | 100          |
| Flowable<br>Fill<br>non-excavatable       | 125  | as needed                  | as needed                 | as needed                         | as needed                 | -                         | Flow-<br>able      | -              | -            | 100           | as<br>needed |
| Pavement                                  | 4,500<br>design,<br>field                              | 0.559                      | 0.559                     | -                                 | -                         | 1.5<br>slip<br>form       | -                  | 526            | -            | -             | -            |
| Precast                                   | 650<br>flexural,<br>design only<br>See Table<br>1077-1 | as needed                  | as needed                 | -                                 | -                         | 6                         | as<br>needed       | as<br>needed   | as<br>needed | as<br>needed  | as<br>needed |
| Prestress                                 | per<br>contract  | See Table<br>1078-1        | See<br>Table<br>1078-1    | -                                 | -                         | 8                         | -                  | 564            | as<br>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 | 4-12 <sup>B</sup> | Aggregate Base Course, Aggregate Stabilization             |         |
| ABC (M)                   | -                                     | 100    | 75-100 | -      | 45-79  | -      | 20-40  | -     | 0-25  | -    | -     | 0-12 <sup>B</sup> | Maintenance Stabilization                                  |         |
| Light-weight <sup>C</sup> | -                                     | -      | -      | -      | 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<br>Compressive<br>Strength<br>6,000 psi or less | 28 Day Design<br>Compressive<br>Strength<br>greater than<br>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:

**TABLE 1092-3  
MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A  
(Candelas Per Lux Per Square Meter)**

| 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                 |

**EROSION AND STORMWATER CONTROL FOR SHOULDER CONSTRUCTION AND RECONSTRUCTION:**

(11-16-10) (Rev. 8-21-12)

105-16, 225-2, Division 16

SP16 R03R

Land disturbing operations associated with shoulder construction/reconstruction may require erosion and sediment control/stormwater measure installation. National Pollutant Discharge Elimination System (NPDES) inspection and reporting may be required.

Erosion control measures shall be installed per the erosion control detail in any area where the vegetated buffer between the disturbed area and surface waters (streams, wetlands, or open waters) or drainage inlet is less than 10 feet. The Engineer may reduce the vegetated buffer threshold for this requirement to a value between 5 and 10 feet. Erosion control measures shall be spot checked every 14 days until permanent vegetative establishment.

In areas where shoulder construction/reconstruction includes disturbance or grading on the front slope or to the toe of fill, relocating ditch line or backslope, or removing vegetation from the ditch line or swale, NPDES inspection and monitoring are required every 14 days or within 24 hours of a rainfall event of 0.5" or greater. Maintain daily rainfall records. Install erosion control measures per detail.

In areas where the vegetated buffer is less than 10 feet between the disturbed area and waters of the State classified as High Quality Water (HQW), Outstanding Resource Water (ORW), Critical Areas, or Unique Wetlands, NPDES inspection and monitoring are required every 14 days or within 24 hours of a rainfall event of 0.5" or greater. The Engineer may reduce the vegetated buffer threshold for this requirement to a value between 5 and 10 feet. The plans or provisions will indicate the presence of these water classifications. Maintain daily rainfall records. Install erosion control measures per detail.

Land disturbances hardened with aggregate materials receiving sheet flow are considered non-erodible.

Sites that require lengthy sections of silt fence may substitute with rapid permanent seeding and mulching as directed by the Engineer.

NPDES documentation shall be performed by a Level II Erosion and Sediment Control/Stormwater certificate holder.

Materials used for erosion control will be measured and paid as stated in the contract.