

**PROJECT SPECIAL PROVISIONS****ROADWAY****BURNING RESTRICTIONS:**

(7-1-95)

200, 210, 215

SP2 R05

Open burning is not permitted on any portion of the right-of-way limits established for this project. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

**DETECTABLE WARNINGS FOR PROPOSED CURB RAMPS:**

(6-15-10) (Rev. 8-16-11)

848

SP8 R126

**Description**

Construct detectable warnings consisting of integrated raised truncated domes on proposed concrete curb ramps in accordance with the *2012 Standard Specifications*, plan details, the requirements of the *28 CFR Part 36 ADA Standards for Accessible Design* and this provision.

**Materials**

Detectable warning for proposed curb ramps shall consist of integrated raised truncated domes. The description, size and spacing shall conform to Section 848 of the *2012 Standard Specifications*.

Use material for detectable warning systems as shown herein. Material and coating specifications must be stated in the Manufacturers Type 3 Certification and all Detectable Warning systems must be on the NCDOT Approved Products List.

Install detectable warnings created from one of the following materials: precast concrete blocks or bricks, clay paving brick, gray or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile. Only one material type for detectable warning will be permitted per project, unless otherwise approved by the Engineer.

- (A) Detectable Warnings shall consist of a base with integrated raised truncated domes, and when constructed of precast concrete they shall conform to the material requirements of Article 848-2 of the *2012 Standard Specifications*.
- (B) Detectable Warnings shall consist of a base with integrated raised truncated domes, and may be comprised of other materials including, but not limited, to clay paving brick, gray iron or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile, which are cast into the concrete of the curb ramps. The material shall have an integral color throughout the thickness of the material. The detectable warning shall include fasteners or anchors for attachment in the concrete and shall be furnished as a system from the manufacturer.

Prior to installation, the Contractor shall submit to the Engineer assembling instructions from the manufacturer for each type of system used in accordance with Article 105-2 of the *2012 Standard Specifications*. The system shall be furnished as a kit containing all consumable materials and consumable tools, required for the application. They shall be capable of being affixed to or anchored in the concrete curb ramp, including green concrete (concrete that has set but not appreciably hardened). The system shall be solvent free and contain no volatile organic compounds (VOC). The static coefficient of friction shall be 0.8 or greater when measured on top of the truncated domes and when measured between the domes in accordance with ASTM C1028 (dry and wet). The system shall be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to degradation by motor fuels, lubricants and antifreeze.

- (C) When steel or gray iron or ductile iron casting products are provided, only products that meet the requirements of Subarticle 106-1(B) of the *2012 Standard Specifications* may be used. Submit to the Engineer a Type 6 Certification, catalog cuts and installation procedures at least 30 days prior to installation for all.

### **Construction Methods**

- (A) Prior to placing detectable warnings in proposed concrete curb ramps, adjust the existing subgrade to the proper grade and in accordance with Article 848-3 of the *2012 Standard Specifications*.
- (B) Install all detectable warning in proposed concrete curb ramps in accordance with the manufacturer's recommendations.

### **Measurement and Payment**

Detectable Warnings installed for construction of proposed curb ramps will not be paid for separately. Such payment will be included in the price bid for *Concrete Curb Ramps*.

**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:

| <b>TABLE 1000-1<br/>REQUIREMENTS FOR CONCRETE</b> |                                                                  |                                   |                              |                                            |                              |                                                 |                          |                       |              |                      |              |
|---------------------------------------------------|------------------------------------------------------------------|-----------------------------------|------------------------------|--------------------------------------------|------------------------------|-------------------------------------------------|--------------------------|-----------------------|--------------|----------------------|--------------|
| <b>Class of<br/>Concrete</b>                      | <b>Min. Comp.<br/>Strength<br/>at 28 days</b>                    | <b>Maximum Water-Cement Ratio</b> |                              |                                            |                              | <b>Consistency<br/>Max. Slump</b>               |                          | <b>Cement Content</b> |              |                      |              |
|                                                   |                                                                  | <b>Air-Entrained<br/>Concrete</b> |                              | <b>Non Air-<br/>Entrained<br/>Concrete</b> |                              | <b>Vibrated</b>                                 | <b>Non-<br/>Vibrated</b> | <b>Vibrated</b>       |              | <b>Non- Vibrated</b> |              |
|                                                   |                                                                  | <b>Rounded<br/>Aggregate</b>      | <b>Angular<br/>Aggregate</b> | <b>Rounded<br/>Aggregate</b>               | <b>Angular<br/>Aggregate</b> |                                                 |                          | <b>Min.</b>           | <b>Max.</b>  | <b>Min.</b>          | <b>Max.</b>  |
| <i>Units</i>                                      | <i>psi</i>                                                       |                                   |                              |                                            |                              | <i>inch</i>                                     | <i>inch</i>              | <i>lb/cy</i>          | <i>lb/cy</i> | <i>lb/cy</i>         | <i>lb/cy</i> |
| 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<br><br>650<br>flexural,<br>design only | 0.559                             | 0.559                        | -                                          | -                            | 1.5<br>slip<br>form<br><br>3.0<br>hand<br>place | -                        | 526                   | -            | -                    | -            |
| Precast                                           | 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.<br>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. Cong, 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 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**

| <b>Property</b>                           | <b>28 Day Design<br/>Compressive<br/>Strength<br/>6,000 psi or less</b> | <b>28 Day Design<br/>Compressive<br/>Strength<br/>greater than<br/>6,000 psi</b> |
|-------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 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:**

| <b>TABLE 1092-3</b><br><b>MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A</b><br><b>(Candelas Per Lux Per Square Meter)</b> |                                        |              |               |              |            |             |                                     |                               |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------|---------------|--------------|------------|-------------|-------------------------------------|-------------------------------|
| <b>Observation<br/>Angle, degrees</b>                                                                                             | <b>Entrance<br/>Angle,<br/>degrees</b> | <b>White</b> | <b>Yellow</b> | <b>Green</b> | <b>Red</b> | <b>Blue</b> | <b>Fluorescent<br/>Yellow Green</b> | <b>Fluorescent<br/>Yellow</b> |
| 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                                   | <b>120</b>   | 60            | 8            | 16         | 3.6         | 64                                  | 48                            |
| 1.0                                                                                                                               | 30.0                                   | 45           | 34            | 4.5          | 9          | 2           | 36                                  | 27                            |