New Jersey Department of Transportation
1035 Parkway Avenue, PO Box 600, Trenton, New Jersey 08625-0600

Baseline Document Change Announcement

Guide Rail End Treatment and Materials

BDC06S-07

December 11, 2006

SUBJECT: Revision to Subsections 404.13, 405.02, 612.04, 901.04, 901.05, 901.12, 912.06, 912.07, 913.04, 914.03, 915.03, & 919.17 of the *2001 Standard Specifications* and 501.02, 908.08, as they appear in *2001 Standard Inputs* in both English and Metric units regarding Guide Rail end treatment and several other materials related specifications

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Subsections 404.13, 405.02, 501.02, 612.04, 901.04, 901.05, 901.12, 908.08, 912.06, 912.07, 913.04, 914.03, 915.03, & 919.17 have been revised to correct some errors, inconsistencies, and to incorporate the requirements of CAN No. 013 regarding the Guide Rail end treatment. These modifications are substantially identical to the upcoming specifications book. This will allow for an earlier implementation of these needed modifications.

CAN No. 013 dated 07/28/98 is hereby superseded.

The following revisions have been incorporated in both the English unit *Standard Input SI2001E1* and Metric unit *Standard Input SI2001M1* as of December 11, 2006.

The following revisions are incorporated in the English unit *Standard Input SI2001E1:*

SECTION 404 – HOT MIX ASPHALT (HMA)

404.13 Weather Limitations.
THE LAST PARAGRAPH IS DELETED:

SECTION 405 - CONCRETE SURFACE COURSE

405.02 Materials.
THE FOURTH AND FIFTH PARAGRAPHS ARE CHANGED TO:

Epoxy grout shall meet the requirements of ASTM C 881, Type I, Grade 3, Class B or C. Certifications of compliance shall be furnished according to Subsection 106.04.

SECTION 501 - CONCRETE STRUCTURES

501.02 Materials.
THE SECOND THROUGH SIX PARAGRAPHS ARE CHANGED TO:

The pressure injected epoxy shall meet the requirements of ASTM C 881, Type I or IV, Grade 1, Class B or C. The epoxy crack sealant shall be recommended by the pressure injected epoxy manufacturer. Certifications of compliance shall be furnished according to Subsection 106.04.

The pressure injected epoxy shall be capable of penetrating the cracks to their full depth and capable of bonding to the surfaces of cracked concrete.

In the production of HPC, in order to achieve the desired resistance to chloride penetration, an appropriate pozzalonic or other cementitious material; such as, silica fume, fly ash or ground granulated blast furnace slag shall be provided in the mix design.

Silica fume shall not be used as a sole material to achieve the desired resistance to chlorides. When used, silica fume's content shall be limited to a maximum of 5 percent of the total cement content and a proportion of fly ash or ground granulated blast furnace slag shall be included to obtain the resistance specified in 914.02 to chloride penetration. The fly ash and ground granulated blast furnace slag limitations specified in 914.02 may be increased in the fabrication of HPC.

The maximum water cement ratio shall be maintained at 0.40. In the fabrication of HPC, the cement content should not be increased for the purpose of achieving high early strength.

SECTION 612 – BEAM GUIDE RAIL

612.04 Beam Guide Rail End Treatment.
THE SECOND, THIRD AND FOURTH PARAGRAPHS ARE CHANGED TO:

Slotted guide rail (flared) terminals shall be FLEAT 350 (Flared Energy Absorbing Terminal) as manufactured by Road Systems, Inc.

Extruder (tangent) terminals shall be either ET-2000 PLUS (Guardrail End Treatment) by Trinity Highway Safety Products, Inc. or SKT 350 (Sequential Kinking Terminal) by Road Systems, Inc. For the ET-2000 PLUS, the 50 foot configuration shall be used with 12 foot 6 inch panels. Seven "SYT" and one "HBA" posts shall be used.

Telescoping guide rail end terminals shall be either CAT 350 (Crash Cushion Attenuating Terminal) by Trinity Highway Safety Products, Inc. or Brakemaster 350 by Energy Absorption Systems.

SECTION 901 - AGGREGATES

901.04 Broken Stone.
THE FIFTH THROUGH SEVENTH LINES IN THE TABLE IN THE FIRST PARAGRAPH ARE CHANGED TO:

Absorption in cold water	
No. 8 and larger	1.8
No. 89 and 9	1.8

901.05 Washed Gravel.
THE THIRD THROUGH FIFTH LINES IN THE TABLE FOLLOWING THE FIRST PARAGRAPH ARE CHANGED TO:

Absorption in cold water

No. 8 and larger ..... 1.8 maximum
No. 89 and 9 ..... 1.8 maximum

901.12 Aggregates for Portland Cement Concrete, Mortar, and Grout
B. Fine Aggregate.
THE SIXTH LINE IN THE TABLE FOLLOWING THE FIRST PARAGRAPH IS CHANGED TO:

No. 30 ..... 25 - 65

SECTION 908 – JOINT MATERIALS

THE FOLLOWING NEW SUBSECTION IS ADDED:
908.08 Polymerized Joint Adhesive.

Polymerized joint adhesive shall be hot-applied asphaltic joint adhesive/sealer and shall conform to the physical properties in Table 908-6 below.

Table 908-6 Tests for Identification

Property	ASTM Test Procedure	Physical Requirements
Cone Penetration, 77ºF	D 5329	60-100
Flow, 140ºF	D 5329	5 mm maximum
Resilience, 77ºF	D 5329	30% minimum
Ductility, 77ºF	D 113	30 cm minimum
Ductility, 39.2ºF	D 113	30 cm minimum
Tensile Adhesion, 77ºF	D 5329	500% minimum
Softening Point	D 36	77ºC minimum
Asphalt Compatibility	D 5329	Pass

The polymerized joint adhesive shall have a viscosity at the recommended pour temperature to allow for proper application of the material. The manufacturer of the joint adhesive shall provide documentation of recommended pour temperature and safe heating temperature for the material and shall submit certifications of compliance according to Subsection 106.04. Test results shall be attached to the certification.

SECTION 912 – PAINTS, COATINGS, AND MARKINGS

912.06 Epoxy Bonding Coat.
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Epoxy bonding coat shall be a two-component, epoxy resin, bonding system for application to concrete that meets the requirements of ASTM C 881, Type II, Grade 1 or 2, Class B or C. Certifications of compliance shall be furnished according to Subsection 106.04.

912.07 Epoxy Waterproofing Seal Coat.
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Epoxy waterproofing seal coat shall meet the requirements of ASTM C 881, Type VII; Grade 1, 2, or 3; Class D, E, or F. The seal coat shall be gray in color to match the adjacent concrete. Certifications of compliance shall be furnished according to Subsection 106.04.

SECTION 913 - PIPE

913.04 Concrete Pipe
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

In the manufacture of concrete pipe, concrete shall be composed of cement, coarse aggregate, fine aggregate, and water. Concrete may include admixtures, fly ash, or GGBFS. The materials shall conform to the following:

Aggregates	901.12
Air-Entraining Admixture	905.01
Chemical Admixture	905.02
Fly Ash	ASTM C 618, Class C or F
GGBFS	919.18
Portland Cement or Blended Hydraulic Cement	919.11
Water	919.15

If fly ash is used to control alkali-silica reactivity, Class F fly ash shall be used.

Reinforced concrete culvert pipe, storm drain, and sewer pipe shall conform to AASHTO M 170, Class III, Wall B, unless otherwise designated. For jacked pipe, reinforced concrete culvert pipe shall conform to AASHTO M 170, Class V, Wall B. Reinforced concrete elliptical culvert, storm drain, and sewer pipe shall conform to AASHTO M 207, Class HE-III, unless otherwise designated.

If required for watertight flexible joints, preformed flexible joint sealants conforming to AASHTO M 198 shall be used.

The manufacturer of the pipe shall notify the Bureau of Materials at least 2 days before shipping pipe to the Project. Pipe will be inspected and approved in the manufacturer's yard. For approval of the concrete pipe, three-point loading shall be performed in the manufacturer's yard at a frequency directed by the Engineer.

SECTION 914 – PORTLAND CEMENT CONCRETE, MORTAR, AND GROUT

914.03 Mortar and Grout.
THE LAST PARAGRAPH IS CHANGED TO:

Epoxy grout conforming to the requirements of ASTM C 881, Type I; Grade 3; Class B or C may be used as a non-shrink grout.

SECTION 915 – REINFORCEMENT STEEL

915.03 Reinforcement Steel for Concrete Base and Concrete Surface Courses
SUBPART 5 TEXT IS CHANGED TO:

5. **Dowels.** Dowel bars in transverse joints shall be epoxy-coated, Grade 60, plain reinforcement steel conforming to ASTM A 615. If specified, dowel bars shall be fitted with end caps. The end caps shall be non-metallic and designed to prevent the entrance of grout or mortar into the expansion void. End caps shall have a maximum length of 2 1/2 inches and shall allow a minimum of 3/4 inch of movement.

SECTION 919 – MISCELLANEOUS

919.17 Epoxy Bedding and Bonding Compound.
THE ENTIRE SUBSECTION TEXT IS CHANGED TO:

Epoxy bedding and bonding compound shall be a 2-part, non-sag gel, rapid-setting epoxy adhesive conforming to the requirements of ASTM C 881, Type IV, Grade 3, Class B or C. Certifications of compliance shall be furnished according to Subsection 106.04.

The following revisions are incorporated in the Metric unit *Standard Input SI2001M1:*

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Softening Point	D 36	77ºC minimum

Asphalt Compatibility	D 5329	Pass

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SUBPART 5 TEXT IS CHANGED TO:

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SECTION 919 – MISCELLANEOUS

919.17 Epoxy Bedding and Bonding Compound.
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Epoxy bedding and bonding compound shall be a 2-part, non-sag gel, rapid-setting epoxy adhesive conforming to the requirements of ASTM C 881, Type IV, Grade 3, Class B or C. Certifications of compliance shall be furnished according to Subsection 106.04.

Implementation Code R (ROUTINE)

Changes must be implemented in all applicable Department projects scheduled for Final Design Submission at least one month after the date of the BDC announcement. This will allow designers to make necessary plan, specifications, and estimate/proposal changes without requiring the need for an addenda or postponement of advertisement or receipt of bids.

Recommended By:

ORIGINAL SIGNED

Lynn D. Rich
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Quality Management Services

Approved By:

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