

# GS-01003

## General Supplemental Specifications for Highway and Bridge Construction

Effective Date  
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THE STANDARD SPECIFICATIONS, SERIES OF 2001, ARE AMENDED BY THE FOLLOWING MODIFICATIONS, ADDITIONS, AND DELETIONS. THESE ARE GENERAL SUPPLEMENTAL SPECIFICATIONS AND SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

NOTE: Changes made since the previous GS issue are indicated by shading in the Table of Contents, in the instruction line, and in the text. Previous changes have been incorporated and are no longer called out by shading or strikeout.

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## Division 11. General Requirements and Covenants.

### Section 1101

#### 1101.02, Definitions of Abbreviations

Replace "ACT" with "ACI" in the list of abbreviations.

#### 1101.03, Definition of Terms

Add definitions:

**Completion Date.**

The date on which all work specified in the contract is completed.

**Optionally Combined Proposal.**

The projects from two or more proposals combined by the Contracting Authority to allow the Contractor to bid all the projects as one contract.

**Responsible Bid.**

A bid submitted by a Contractor which is determined not to be an irregular proposal as defined by Article 1102.10 and fulfills the good faith effort recruitment requirements in Article 1102.17.

### Section 1102

#### 1102.01, C, CPA Audit Statement

Replace the third sentence of the second paragraph:

However, a prospective bidder shall be considered to have an "Unlimited" bidding capacity with the Department if they were awarded over \$50 million of work (including that from other Contracting Authorities) during their past fiscal year and have a prequalification limit, by the formula, over \$100 million.

#### 1102.04, Contents of Proposal Forms

Replace the second paragraph:

The statement, "By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa where applicable," which is on the bidding document shall not be applicable to contracts involving Federal-aid participation in construction.

#### 1102.09, Preparation of Proposals

Replace the second sentence of the first paragraph:

For bids submitted to the Department that exceed \$600,000, the Contractor shall use subparagraph B or subparagraph C below. The Department may wave this requirement for unique or isolated situations.

#### 1102.09, B (following the first paragraph)

Delete the word "Expedite".

#### 1102.09, C (following the first paragraph)

Replace the entire paragraph:

Submit an electronic bid with digital signature using the bidding software furnished by the Department using the electronic bid submittal procedures of the Department.

#### 1102.11, Proposal Guaranty

Replace the first sentence of the first paragraph:

Each proposal shall be supported by a proposal guaranty in the form and amount prescribed in the proposal.

**Replace** the last sentence of the second paragraph:

Certified checks and credit union share drafts shall be certified, or the cashier's check shall be drawn and endorsed, in an amount not less than prescribed in the proposal.

**Replace** "Form 650041" with "Form 650043" in the first sentence of the last paragraph.

### 1102.12, Filing of Proposal

**Add** second paragraph:

The Contracting Authority may take bids on the same project as an individual proposal or part of an Optionally Combined Proposal. When an Optionally Combined Proposal is designated, the consideration for award of contracts will be based on which of the following gives the lowest total cost:

1. The sum of the lowest responsible bid on each of the individual proposals.
2. The lowest responsible bid on the Optionally Combined Proposal.

### 1102.13, Withdrawal of Proposal

**Add** after the first paragraph:

The bidder will be permitted to withdraw their proposal under the following three conditions:

- A.** The bidder may withdraw a proposal unopened if such a request is made in writing and received at the Department prior to the time specified in the advertisement for receiving bids. A proposal so withdrawn may be resubmitted as long as it is resubmitted prior to the deadline for receipt of bids.
- B.** If, after bids are open, the low bidder should claim a serious error in the preparation of the bid, and can support such a claim with evidence satisfactory to the Department, the bidder may be permitted to withdraw the bid and the bid guarantee may be returned. In such an event, action on the remaining bids will be considered as if the withdrawn bid had not been received. Under no circumstances will the bidder be permitted to alter the bid after the bids have been opened.

The Department will keep the bidder's proposal guarantee unless the bidder satisfies all four of the following conditions:

1. The mistake must be a clerical mistake as opposed to a mistake involving poor judgment concerning a construction process. The bidder must be able to produce bid preparation documentation to show how the clerical error occurred.
  2. The bidder must immediately notify the Department as soon as the error is observed.
  3. The scope of the mistake must be significant. The size of the mistake when compared to the overall project must be significant enough to cause major financial difficulties if the bidder is forced to complete the project at the price quoted.
  4. The Department should not be placed in a worse position than if the bid had never been submitted.
- C.** The bidder may withdraw their bid from consideration if a contract has not been offered them within 30 calendar days after the letting and the bidder has not requested approval for award be deferred.

### 1102.17, D, 3, c, Contractors with History of Utilizing DBEs

**Replace** the first two paragraphs.

A bidder who has demonstrated their ability to utilize DBE firms on both Federal-aid and non-Federal-aid projects let by the Department in the ~~previous Federal fiscal year~~ ~~previous Federal fiscal year~~ **24 months prior to the letting** will be assumed to have made a Good Faith Effort to achieve the project goal.



The Department's objective evaluation of prior usage of DBE firms will include all contracts let by the Department that were awarded to the Contractor during the ~~previous Federal fiscal year and the year-to-date of the current fiscal year~~ ~~previous Federal fiscal year and the year-to-date of the current fiscal year~~ **24 months prior to the letting**. The calculation will include the sum of the following:

#### **1102.17, D, 3, c, 1**

**Replace** the first paragraph.

- 1) One point for each percentage of average DBE subcontracted dollars for the ~~previous Federal fiscal year and the year-to-date~~ ~~previous Federal fiscal year and year-to-date~~ **24 months prior to the letting** (e.g. an average 7.5% dollars subcontracted to DBE equals 7.5 points)

#### **1102.18, C, Positive TSB Effort Documentation**

**Add** as the second paragraph:

On proposals where a specific TSB goal has been established, the Contractor will be required to submit the TSB form with their bid. The TSB form will be provided by the Contracting Authority and used to document the TSB participation that shall be attained. The Contracting Authority will determine if the bidder has made adequate Good Faith Effort to meet the established goal. Bidders who fail to make such Good Faith Effort may have their bid rejected on the basis of being non-responsive to meeting the established TSB goal.

#### **1102.19, F, 1, c, 3**

**Replace** "Article 1102.19/F, 2, b" with "Article 1102.19, F, 2, b"

### **Section 1104**

#### **1104.09, Right-of-Way**

**Add** as last sentence of Article:

Permission of the property owner may be necessary to access some parcels prior to the letting.

### **Section 1105**

#### **1105.04, Conformity with and Coordination of the Contract Documents**

**Replace** the list in **Article 1105.04, Conformity with and Coordination of the Contract Documents**.

1. Addendum
2. Proposal Form
3. Special Provision
4. Plans
- 5. Developmental Specification**
- ~~5-6. Supplemental Specifications~~
- ~~6-7. Standard Specifications~~
- ~~7-8. Materials I.M.~~

#### **1105.06, Construction **Survey Stakes****

**Add** as first sentence of first paragraph:

Minimum standards for Construction Survey provided by the Engineer will meet the requirements of Section 2526.

### **Section 1106**

#### **1106.01, Source of Supply and Quality Requirements**

**Replace** "Materials I.M.s 209 and 210" with "Materials I.M.s 209 and 213" in the fourth paragraph.

## Section 1107

### 1107.07, Safety, Health, Pollution, and Sanitation

**Delete** the second paragraph.

~~A safety inspection will be required at the beginning of each major phase of the operation. Repeated inspections may be necessary for phases of long duration. All safety inspections shall be made and reported by the Contractor's safety officer, even though that phase of the operation may be subcontracted. The times of these inspections should be identified at the preconstruction conference or before work is started. The Engineer shall be given reasonable notice with an opportunity to witness the inspection, and the Engineer shall receive a copy of a written report.~~

## Section 1108

### 1108.01, Subletting of Contract

**Replace** the second paragraph with a new second and third paragraph:

Except for the furnishing and transportation of materials, no portion of the contract shall be sublet, assigned, or otherwise disposed of except with written consent of the Contracting Authority. Where a subcontract has been approved, the approved subcontractor shall be responsible to complete that portion of the contract with its own organization.

Where a subcontract does not exist, but a DBE firm is manufacturing, supplying, or trucking materials to the job site; terms of the agreement shall be described and documented on the Subcontract Request and Approval form (Form 830231). This will assure the Engineer that a Contractor is meeting commitments previously stated on the Statement of DBE Commitments form (Form 102115). This dollar value will not be used to determine the percent subcontracted as specified previously. Where Davis/Bacon wage requirements apply, the Contractor shall be responsible for collecting and submitting certified payrolls for all drivers. Owner/operators shall be listed on the certified payrolls as owner/operators.

### 1108.02, D, Charging of Working Days

**Replace** the first paragraph:

The Contractor will be charged working days as defined in Article 1101.03 and this article. For multiple site contracts, working day charges for each site will be charged independently based on the controlling operation for the site.

**Add** this indented paragraph after the numbered list in the second paragraph:

However, working days will not be charged prior to 15 calendar days after the contract has been signed by the Contracting Authority, as long as the Contractor furnished the signed contract, performance bond, and proof of insurance within the time allowed by Article 1103.07; and has not begun work on the contract.

**Add** as first two sentences of fourth paragraph:

The Contractor will be charged 1/2 working day when weather or other conditions beyond the control of the Contractor permit work for at least 1/2 but less than 3/4 of a working day. The Contractor will not be charged a working day when weather or other conditions beyond the control of the Contractor prevent work less than 1/2 of a working day.

**Delete** the third paragraph:

~~For multiple site contracts, working day charges for each site will be charged independently based on the controlling operation for the site.~~

## Section 1109

### 1109.05, A, Progress Payments

**Replace** the first two sentences of the first paragraph:

For work extending over a period of more than one month, the Contractor will receive monthly progress estimate payments based on the amount of work completed in an acceptable manner. For primary and

secondary projects in which the Contracting Authority is the Department or a county Board of Supervisors, these progress payments will be bi-weekly if requested by the Contractor.

## **Division 20. Equipment Requirements.**

## **Division 21. Earthwork, Subgrades, and Subbases.**

### **Section 2102**

#### **2102.05, Rock Cuts**

**Add** new paragraph:

The contract documents may require that part or all of the Class 12 Excavation be crushed. When crushing is required, the contract documents will specify the size and/or gradation the rock shall be crushed to, and specify where the crushed material is to be stockpiled or used in the contract.

#### **2102.13, G, Crushing of Class 12 Excavation**

**Add** as Paragraph G:

##### **G. Crushing of Class 12 Excavation.**

The quantity in cubic yards (cubic meters) shown in the contract documents for Crushing of Class 12 Excavation will be the volume paid. Prior to the start of this work, if either the Engineer or the Contractor desires actual measurement the Engineer will determine in cubic yards (cubic meters) the quantity of Class 12 Excavation that will be crushed computed from the cross section measurements by the average end area method based on soil borings.

#### **2102.14, D, Special Backfill Material**

**Add** a second paragraph:

The contract will have a separate item for Special Backfill, Place Only, **in tons (Mg) or cubic yards (m<sup>3</sup>)**, when the Contracting Authority is providing the material or if the material is available from mandatory crushing of pavement or pavement scarification on the contract. The cost of crushing or pavement scarification should be included in the Contractor's price for special backfill if recycling is not required but the Contractor chooses to crush the pavement removed or scarify the HMA surfacing for special backfill.

#### **2102.14, G, Crushing of Class 12 Excavation**

**Add** as Paragraph G:

##### **G. Crushing of Class 12 Excavation.**

The Contractor will be paid the contract unit price per cubic yard (cubic meter) for the volume of Class 12 Excavation crushed.

### **Section 2107**

#### **2107.10, Rock Fills**

**Replace** "ow" with "below" in the third sentence of the second paragraph.

#### **2107.14, Use of Unsuitable Soils**

**Replace** "RL-1" with "RL-1B" in the first sentence.

### **Section 2111**

#### **2111.09, Basis of Payment**

**Add** as the second and third sentences of the first paragraph:

The contract will have a separate item for Granular Subbase, Place Only, **in square yards (m<sup>2</sup>)**, when the Contracting Authority is providing the material or if the material is available from mandatory crushing on the contract. The cost of crushing should be included in the Contractor's price for granular subbase if recycling is not required but the Contractor chooses to crush the pavement removed for granular subbase.

### Section 2115

#### 2115.06, Basis of Payment

**Add** as the third and fourth sentences of the first paragraph:

The contract will have a separate item for Modified Subbase, Place Only, **in cubic yards (m<sup>3</sup>)**, when the Contracting Authority is providing the material or if the material is available from mandatory crushing on the contract. The cost of crushing should be included in the Contractor's price for modified subbase if recycling is not required but the Contractor chooses to crush the pavement removed for modified subbase.

### Section 2121

#### 2121.05, A, Earth Shoulder Fill

**Replace** the first sentence:

This work involves construction of a shoulder fill to such elevation below that of the pavement edge as to allow for placement of granular shoulders as shown in the contract documents.

**Add** as the second and third sentences:

Material shall be select treatment materials of Article 2102.06, A, 1, if available and coordinated with the Engineer, or suitable soils of Article 2102.06, A, 2. Material shall not be unsuitable soils of Article 2102.06, A, 3, or topsoil.

#### 2121.09, Basis of Payment

**Add** as the last paragraph:

The contract will have a separate item for Granular Shoulders, Place Only, **of the type specified in tons (Mg)**, when the Contracting Authority is providing the material or if the material is available from mandatory crushing on the contract. The cost of crushing should be included in the Contractor's price for granular shoulders if recycling is not required but the Contractor chooses to crush the pavement removal for granular shoulder material.

### Section 2122

#### 2122.02, A, Type B Hot Mix Asphalt Mixture

**Replace** the title and sentence.

**A. Hot Mix Asphalt Mixtures.**

HMA 1,000,000 ESAL base mixture shall be of materials specified in Section 2303.

#### 2122.04, Preparation of Shoulder Area

**Replace** the first paragraph:

This work may involve construction of an earth fill and a special backfill to allow placement of paved shoulders. The earth fill shall be spread and compacted in accordance with the requirements of Section 2109. Material shall be select treatment materials of Article 2102.06, A, 1, if available and coordinated with the Engineer, or suitable soils of Article 2102.06, A, 2. Material shall not be unsuitable soils of Article 2102.06, A, 3, or topsoil.

**Section 2123****2123.02, Construction**

**Replace** the second sentence:

Material deposited above an elevation 6 inches (150 mm) below subgrade elevation shall be select treatment materials of Article 2102.06, A,1, if available and coordinated with the Engineer, or suitable soils of Article 2102.06, A, 2.

**Add** as the third sentence:

Material shall not be unsuitable soils of Article 2102.06, A, 3, or topsoil.

**Division 22. Base Courses.****Section 2213****2213.14, D, Hot Mix Asphalt Base Widening**

**Replace** entire article:

HMA base used for base widening will be measured in accordance with Article 2303.05, A.

**2213.14, G, Samples**

**Replace** entire article:

Article 2303.05, H, shall apply for HMA base widening. Article 2301.34, I, shall apply for PCC base widening.

**2213.14, H, Portland Cement Concrete Base Widening**

**Add** new article:

PCC used for base widening will be measured in accordance with Article 2301.34, A.

**2213.15, D, Hot Mix Asphalt Base Widening**

**Replace** entire article:

HMA base used for base widening will be paid in accordance with Article 2303.06.

**2213.15, F, Primer or Tack Coat Bitumen**

**Replace** the title and sentence.

F. Intentionally Left Blank.

**2213.15, G, Samples**

**Replace** entire article:

HMA base widening samples will be paid for in accordance with Article 2303.06, F. PCC base widening samples will be paid for in accordance with Article 2301.35, I.

**2213.15, H, Portland Cement Concrete Base Widening**

**Add** new article:

PCC used for base widening will be paid for in accordance with Article 2301.35, A.

**Division 23. Surface Courses.****Section 2301****2301.04, C, Entrained Air Content****Replace** the entire article:

Air entrainment shall be accomplished by addition of an approved air entraining agent. Air content as determined by Materials I.M. 318, shall be determined on each day of production as early and as frequently as necessary until the air content is consistently acceptable. The intended air content of finished concrete is 6.0% and the target air content shall be determined to account for air loss during consolidation of concrete during slip form paving. The difference between before and after the paver air contents for a given location shall be considered the air loss.

On the first day of paving, the first load shall be tested at the plant. The air content shall be between 8.0% and 12.0%. The next ten loads will be accepted on the basis of this complying air test. Starting with the twelfth load all samples shall be taken at the point of acceptance and the air content before the paver shall be 7.5% plus 1.5% or minus 1.0%. The air loss shall be determined at two locations. The air loss from both locations shall be averaged and added to 6.0% to establish the target air content, rounded to the next higher 0.5%. After the air loss has been established, the air content before the paver shall be the target air content plus 1.5% or minus 1.0%.

After the first day of paving, the air content before the paver shall be the target air content plus 1.5% or minus 1.0%. A new target air content shall be established if the average air loss from two consecutive tests deviates by more than 0.5% from the air loss. The air loss shall be determined at one location per half day. At the option of the Engineer, air loss determination may be reduced if the air loss is consistent.

For projects less than 5000 square yards (4000 m<sup>2</sup>) the air content before the paver shall be 7.5% plus 1.5% or minus 1.0%. At the option of the Contractor, the target air content may be established using the air loss.

The air content for non-slip form paving shall be 7.0% plus 1.5% or minus 1.0%.

**2301.12, Placing Reinforcement****Add** as the seventh paragraph:

Cutting the tie wires of the load transfer assemblies shall be the option of the Contractor.

**2301.16, C, 2, a, Transverse Grooving****Replace** the second paragraph:

On pavement where transverse tining is to be used, a 4 inch to 6 inch (100 mm to 150 mm) wide strip of pavement surface shall not be tined for the length of each transverse joint, providing an untined surface centered over the transverse joint.

**2301.18, End of Run****Replace** entire article:

Whenever 30 minutes or more have elapsed since the last concrete has been deposited on the subgrade or if such a delay is anticipated, an approved header shall be installed.

Header joints shall not be constructed within 5 feet (1.5 m) of an intended or previously placed contraction joint. Header joints shall not be constructed opposite a contraction joint in multiple lane construction.

When a header joint is installed, resumption of paving which abuts the header shall not commence for a minimum of 6 hours.

When the end of the day's run occurs in curb section, sufficient curb shall be omitted to accommodate equipment that must be backed out of the way. Construction of the portion of curb omitted shall be as shown in the contract documents and in accordance with Article 2301.17.

**A. Headers Constructed in Plastic Concrete.**

The header shall be constructed true to line and grade with the face perpendicular to the surface and at right angles to the centerline of the pavement. The tie bar reinforcement shall be level, true to line and grade, and normal to the header joint.

Concrete collected by a finishing machine during its first passage shall not be used adjacent to the header board. Concrete screeded over the header during finishing shall be promptly removed.

Concrete shall be well consolidated against the header and finished with an edging tool.

The header board and all supports shall be removed before paving is resumed.

**B. Headers Constructed in Hardened Concrete.**

The Contractor may pave past the location of the header. After the concrete has hardened, the pavement shall be sawed perpendicular to the centerline of the pavement, creating a vertical face. Holes for the tie bar reinforcement shall be drilled and reinforcement grouted into the holes, in accordance with Article 2301.12. The paving operations may begin adjacent to the header after a minimum of 1 hour after the placement of the reinforcement bars.

**2301.28, Concrete Headers and Incidental Concrete**

Replace the title and entire article.

**2301.28 CONCRETE HEADERS AND INCIDENTAL CONCRETESLABS.**

Concrete headers and incidental concrete slabs shall be constructed of concrete of the same class as specified for the pavement, and shall be placed, finished, and cured as directed by the Engineer in conformance with the contract documents in accordance with Section 2517.

**2301.31, Time for Opening Pavement for Use**

Replace "burnish" with "furnish" in the last sentence of the second paragraph.

Replace "with" with "when" in the first sentence of the third paragraph.

Replace "certified plant inspector" and "certified inspector" with "certified technician" in the fifth paragraph.

**2301.34,D, Incidental Concrete**

Replace the title and entire article.

**D.—Incidental Concrete Intentionally left blank.**

The volume of incidental concrete for headers or other incidental construction will be computed in cubic yards (cubic meters) from measurements of the volume placed.

**2301.35, A, Portland Cement Concrete Pavement.**

Replace "-26-67" with "-26.67" in Row 10, Column 3 of the Payment Schedule Table.

**2301.35, D, Incidental Concrete**

Replace the title and entire article.

**D. Incidental Concrete Intentionally left blank.**

For the number of cubic yards (cubic meters) of incidental concrete placed, including headers, the Contractor will be paid the contract unit price per cubic yard (cubic meters) for incidental concrete. When the quantity of incidental concrete is small and no unit price is provided in the contract, the price per cubic yard (cubic meter)

of incidental concrete shall be determined by multiplying the contract unit price per square yard (square meter) for new main line concrete pavement by 12.0.



## Section 2303

## 2303.02, B, 1, Individual Aggregates

**Replace** the first sentence of the second paragraph:

When frictional classification of the coarse aggregate is required, the contract documents will specify the friction level and location.

**Add** a third sentence and table to the second paragraph:

The aggregate retained on the No. 4 (4.75 mm) sieve shall meet or exceed the following amount for each classification:

FRICTION AGGREGATE CLASSIFICATION			
Friction Level	Type 2	Type 3	Type 4
L-2	25%		80%
L-3		45% <sup>(1)</sup>	80%
L-4			50%

<sup>(1)</sup> A minimum of 30% of Type 2 friction aggregate may be substituted for the Type 3 aggregate.

## 2303.02, B, 2, Blended Aggregate

**Delete** the first paragraph:

~~Combined gradations for mixtures on projects with greater than 10,000,000 design (20 year) ESALs shall be designed outside of the “restricted zone” gradation control. For mixtures on projects between 3,000,000 and 10,000,000 ESALs, the combined gradation may be designed outside the “restricted zone” or may be designed to pass through the “restricted zone” from a larger particle size above the maximum density line to a smaller particle size below the maximum density line. For shoulders placed as a separate operation and all other mixtures, it is the Contractor’s option to design mixes outside the “restricted zone.”~~

**Replace** paragraphs a - d:

- a. It is the Contractor’s option to design mixes outside the “restricted zone”.
- b. Combined gradations for surface and intermediate mixtures on projects with greater than 10,000,000 design (20 year) ESALs shall be designed with an added gradation control point of 28% maximum passing the No. 16 (1.18 mm) sieve for a 3/4 inch (19 mm) mix size and 32% for 1/2 inch (12.5 mm) mixes. For surface and intermediate mixtures on projects between 3,000,000 and 10,000,000 ESALs, the combined gradation shall be designed with an added gradation control point of 24% maximum passing the No. 30 (600 µm) for a 3/4 inch (19 mm) mix size and 25% for 1/2 inch (12.5 mm) mixes.
- c. Aggregate consensus properties are specified in Materials I.M. 510.
- d. When mixtures include RAP, the blended mineral aggregate gradation shall be a mixture of extracted RAP aggregate combined with virgin aggregate.

## 2303.02, D, Hot Mix Asphalt Mixture

**Replace** the reference to “AASHTO PP28-9700” with “Materials I.M. 510”.

**Replace** the reference to “AASHTO MP2-9700” with “Materials I.M. 510”.

**Delete** the last paragraph.

~~The following criteria will be standard for all projects:~~

~~Designs will be based on an average 7-day maximum air temperature of <39°C  
V<sub>t</sub> at N<sub>design</sub> = 4.0% for base, intermediate, and surface mixtures;~~

- 3.5% for base mixtures on projects with less than 3,000,000 ESALs
- 3.0% for shoulders placed as a separate operation.
- VMA at  $N_{design}$  — Set by Nominal Maximum Size of Aggregate (refer to AASHTO MP2-00)
- VMA at  $N_{design}$  — Set by design ESALs (refer to AASHTO MP2-00)
- See Table 1 for density — gyratory compaction criteria
- Filler/bitumen ratio ( $P_{200}/P_{be}$ ) — 0.6 to 1.4
- Binder film thickness (microns) 8.0 — 15.0

Where:

- $V_t$  = Target percent air voids
- $G_{mm}$  = Maximum specific gravity of uncompacted mixture
- $N_{initial}$  = Initial number of gyrations
- $N_{design}$  = Design number of gyrations
- $N_{max}$  = Maximum number of gyrations
- VMA = Voids in mineral aggregates
- VFA = Voids filled with asphalt
- $P_{200}$  = Percent passing No. 200 (75  $\mu$ m) sieve
- $P_{be}$  = Effective asphalt content

**Table 1—Gyratory Mix Design Criteria**

20 Year ESALs	Density (expressed as % $G_{mm}$ )		
	@ $N_{initial}$	@ $N_{design}$	@ $N_{max}$
< 300,000	= 91.5		
< 1,000,000	= 90.5		
< 3,000,000	= 89.5	96.0	< 98.0
$\geq$ 3,000,000	= 89.0		

**2303.04, A, Mix Design - Job Mix Formula**

Replace “\$500” with “\$1000” in the last sentence of the last paragraph.

**2303.04, B, 1, Sampling and Testing**

Replace “Materials I.M. 510” with “Materials I.M. 325G” in the first indented paragraph under the seventh paragraph.

Replace “Materials I.M. 510” with “Materials I.M. 501” in the last sentence:

**2303.04, B, 2, Production Control**

Replace “Materials I.M. 510” with “Materials I.M. 501” in the first sentence of the eighth paragraph:

**2303.04, C, 3, Smoothness**

Add the title and paragraph:

**3. Smoothness.**

Smoothness of the surface course shall be in accordance with Section 2316.

**2303.04, D, 1, Loose Material Requirements**

Replace the first sentence of the second paragraph:

Samples of loose HMA mixture shall be taken in accordance with Materials I.M. 322, weigh at least 60 pounds (28 kg), and shall be transported to the test facility in a way to retain heat to facilitate sample splitting procedures.

Delete the third paragraph:

~~When requested by the Engineer, normally once per day, an additional 50 pounds (25 kg) box sample will be required for correlation and validation testing.~~

### Section 2310

#### 2310.02, A, 3, Concrete

**Delete** the last paragraph:

~~At the Contractor's option, Mix No. F-4WR, F-4WR-C, FF-4WR and FF-4WR-C may also be used.~~

### Section 2316

#### 2316.01, B, Exclusions

**Replace** the first paragraph:

Areas excluded from smoothness testing are crossovers, shoulders, , and sections less than 50 feet (15 m) long.

#### 2316.02, Measurement

**Replace** the second sentence of the fourth paragraph:

The profilogram shall include the 15 feet (5 m) at the ends of the section.

#### 2316.02, B, Bridge Approach Sections

**Replace** the entire article:

Bridge approach sections shall be tested with the profilograph. Each lane of each approach will be an individual segment and will not be considered a part of a pavement segment, section, or project. Testing will be at the center of each traffic lane of travel.

#### 2316.04, A, Pavement

**Replace** the first paragraph:

A profile index shall be calculated for each segment from the profilogram in accordance with Materials I.M. 341 except for:

1. Side road connections less than 600 feet (180 m) in length.
2. Single lift pavement overlays 2 inches (50 mm) or less in thickness unless the existing surface has been corrected by milling or scarification.
3. Storage lanes, turn lanes, and pavement less than 8.5 feet (2.6 m) in width.
4. The 15 feet (5 m) at the ends of the section when the Contractor is not responsible for the adjoining surface.

**Replace** the first sentence of the third paragraph:

Bumps and dips shall be separately identified on all profilograms.

#### 2316.04, B, Bridge Approach Sections

**Replace** the entire article:

A profile index shall be calculated for each bridge approach section in accordance with Materials I.M. 341 except for plan lengths less than 50 feet (15 m) which will be checked for bumps and dips only.

#### 2316.06, A, Bumps

**Replace** the second sentence of the second paragraph:

For all bumps under Schedule B not corrected, the Contractor will be assessed a penalty for each bump over 0.5 inch (13 mm) except when located within 15 feet (5 m) of the end of the section or taper where the Contractor is not responsible for the adjoining pavement.

**2316.06, B, Dips**

**Replace** the second sentence of the first paragraph:

The Contractor will be assessed a penalty for dips of 0.5 inch (13 mm) to 1.0 inch (25 mm) that are not corrected except when located within 15 feet (5 m) of the end of the section or taper where the Contractor is not responsible for the adjoining pavement.

**2316.07, C, Pavement Adjacent to Existing Pavement**

**Replace** the third paragraph

Areas not included in the profilograph shall be checked longitudinally with a 10 feet (3 m) straight edge and the surface shall not deviate from a straight line by more than 1/8 inch in 10 feet (3 mm in 3 m). If correction is necessary, it shall meet requirements of Article 2316.05.

**Section 2317****2317.01, A, Exclusions**

**Replace** the unnumbered paragraph:

All excluded areas will be checked for 1/2 inch (13 mm) bumps on the bridge, and for 1/2 inch (13mm) bumps and dips on the approach pavement, respectively.

**2317.04, Profile Index**

**Add** a fourth sentence:

These areas will be checked for 1/2 inch (13 mm) bumps on the bridge, and for 1/2 inch (13 mm) bumps and dips on the approach pavement, respectively.

**2317.06, Smoothness**

**Replace** the second and third sentences of the first paragraph:

Correction will also be required, in lengths excluded from the profilograph index analysis areas. Bumps exceeding 1/2 inch (13 mm) shall be corrected to less than 3/10 inch (8 mm) on the bridge; and bumps and dips exceeding 1/2 inch (13 mm) shall be corrected to less than 3/10 inch (8 mm) on approach pavements.

**Section 2318****2318.04, A, Preparation**

**Replace** the title:

**A. Surface Preparation.**

**Delete** the last sentence:

~~Removal of this vegetation and debris shall be in accordance to Article 1104.08.~~

**2318.07, A, Basis of Payment**

**Replace** the last sentence:

This payment shall be full compensation for all labor, material (including mixing water), and equipment necessary for surface preparation, milling, mixing, spreading, placing, shaping, and compaction of the completed In-Place Recycled Asphalt Pavement.

## Division 24. Structures.

### Section 2403

#### 2403.01, A, Class D Concrete

**Replace** the entire article.

~~Bridge curbs and medians, bridge barrier rails and sidewalks of bridges shall be Class D concrete. Bridge barrier rails of bridges shall be Class BR or Class D concrete.~~

#### 2403.01, C, Class C Concrete

**Replace** the entire article.

~~Refer to Article 2412.02 for concrete used for one course bridge floors and the first course of two course bridge floors. All other structural concrete shall also be Class C concrete. Refer to Article 2412.02 for concrete used for one course bridge floors and the first course of two course bridge floors. All other structural concrete, including concrete for bridge curbs, bridge medians, and bridge sidewalks, shall also be Class C concrete.~~

#### 2403.03, C, Other Admixtures

**Add** second and third paragraphs:

Approved retarding admixture complying with Section 4103 may be required by the contract documents or by the Engineer. The retarding admixture shall be used in amounts recommended by the manufacturer for conditions which prevail on the project and as approved by the Engineer. When used, it shall be introduced into the mixer after all other ingredients are in the mixer. Other procedures may be approved by the Engineer.

All retarding admixtures used shall be compatible with the air entraining agent used. Previous experience, satisfactory to the Engineer, will be required to indicate the approximate adjustments in proportions made necessary by the addition of the admixture and compatibility with other materials to be used. The retarding admixture shall be agitated prior to and during its use.

#### 2403.18, A, Forms Which May be Removed in Less than 5 Calendar Days

**Add** as the last sentence:

When Maturity Method, in accordance with I.M. 383, for strength determination is used the above stated flexural strengths will be required, but the days of age will be dependent on the Maturity Curve for the concrete mix used.

#### 2403.18, B, Forms Which Must Remain in Place 5 Calendar Days or Longer

**Add** as the second sentence:

When Maturity Method, in accordance with I.M. 383, for strength determination is used the flexural strength of 550 psi (3.8 MPa) will be required, but the days of age will be dependent on the Maturity Curve for the concrete mix used.

#### 2403.19, B, Loads Producing Flexural Stresses

**Add** following the third paragraph:

Unless otherwise specified in the contract documents, at the Contractor's option, the time for subjecting to loads may be determined through the use of the maturity method as described in Materials I.M. 383. When the maturity method is used, the time for loading will be based on strength requirements only, as specified above. The Contractor shall furnish all labor, equipment, and materials necessary for the development of the maturity-strength relationship as described in Materials I.M. 383.

Determining that sufficient strength has been achieved for loading a part of a structure shall remain the responsibility of the Engineer when the maturity method is used. The Contractor's maturity testing may be used as the basis for this determination. The Contractor shall provide sufficient documentation of maturity testing before a part of a structure may be loaded or opened to traffic.

The following shall apply when the maturity method is used:

1. Should circumstances arise which are beyond the Contractor's or Engineer's control and strength cannot be determined by maturity method, the minimum age, minimum flexural strength, and fly ash restrictions shall apply. Flexural strength specimens shall be cured under conditions similar to those of the concrete in the structure.
2. Any changes of a material source or proportion in the concrete mixture shall require a new maturity curve.

Personnel performing maturity testing shall be Level I PCC certified technicians, with training for maturity testing. This certified technician may supervise other persons who may then perform the temperature testing of the constructed structure.

#### **2403.23, Basis of Payment**

**Replace** the seventh paragraph:

When an admixture is required to be added by the contract documents or by the Engineer for the purpose of retarding the set, the cost of the retarding admixture shall be considered incidental to the contract unit price per cubic yard (cubic meter) of structural concrete.

### **Section 2405**

#### **2405.09, Setting Anchor Bolts for Bridge Bearings**

**Replace** the title and first paragraph:

##### **Anchor Bolts for Bridge Bearing**

Unless otherwise specified in the contract documents, anchor bolts to be embedded in the concrete substructures shall be set in drilled holes. Anchor bolts shall be set prior to the time the concrete is placed, when specified in the contract documents. Anchor bolts shall meet the requirements of ASTM A 307, Grade C, be full-length galvanized, and have a full-body diameter. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in green to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.

### **Section 2407**

#### **2407.02, A, Aggregates**

**Add** a second paragraph:

The coarse aggregate shall be either durability class 3 or 3i as described in Article 4115.04.

#### **2407.02, H, Cement**

**Add** as the first sentence:

Section 4101 shall apply.

#### **2407.02, I, Fly Ash**

**Replace** the entire article:

I. Mineral Admixtures

Section 4108 shall apply.

Fly ash may be substituted for Portland cement. The substitution rate shall not be more than 15% by weight (mass).

GGBFS may be substituted for Portland cement. The substitution rate for GGBFS as a mineral admixture shall not exceed 35% by weight (mass).

### 2407.03, Concrete

**Replace** the first sentence of the second paragraph:

If the units are to form curbs or floors of structures, air entrainment shall be required and be accomplished by addition of an approved air-entraining admixture.

### 2407.04, C, Stressing Equipment

**Replace** the entire article:

Equipment used to tension tendons shall be of a type such that the prestressing force may be accurately known. Load cells, dynamometers, and hydraulic gages of hydraulic pump and jacking systems shall be capable of measuring the force applied to the tendons within 2% of the actual force. This equipment shall be calibrated at least once every 12 months or anytime the tensioning system indicates erratic results. Hydraulic gages, pumps, hoses, and connections shall be calibrated as a system.

All tensioning equipment calibrations shall be performed using load cells calibrated by a testing laboratory or calibration service. Equipment used for calibration purposes shall have current calibration references. The Engineer shall be allowed opportunity to witness calibration of equipment during the Engineer's normal working hours or at a mutually agreeable time.

### 2407.08, Post Tensioned Prestressed Concrete

**Replace** the numbering:

2407.0811, Post Tensioned Prestressed Concrete.

### 2407.06, Prestressing Steel Stresses and 2407.07, Pretensioned Prestressed Concrete

**Replace** all of both articles:

#### **Article 2407.06 Prestressing Steel Stresses.**

The number, size, and position of individual tendons (7-wire strand) and the prestressing force shall be as shown in the contract documents.

If anchored at other than 70°F (20°C), the initial prestressing force shall be adjusted as follows:

<u>Temperature of Tendons</u>	<u>Initial Prestressing Force</u>
70°F (20°C)	As shown in the contract documents
Below 70°F (20°C)	Increase 1.0% per 10°F (5°C)
Above 70°F (20°C)	Decrease 1.0% per 10°F (5°C)

After the tendons have been positioned, an initial force between 1,000 and 4,500 pounds (4.5 kN and 20 kN) shall be applied to each tendon. The initial force shall be measured within a tolerance of  $\pm 100$  pounds (0.5 kN) for initial forces under 3,000 pounds (13 kN) and a tolerance of  $\pm 200$  pounds (1 kN) for initial forces of 3,000 pounds (13 kN) or more.

The theoretical elongation of the tendons is calculated from material properties furnished by the manufacturer and allowable losses. Allowable losses may include seating losses, bed shortening, abutment movement, and temperature adjustments.

The pretensioning shall be measured by the net elongation of the tendons. The calculated theoretical net elongation shall be considered the target. A tolerance of  $\pm 1/2$  inch (13 mm) from the calculated net elongation, after seating, may be allowed.

The tensioning procedure shall be conducted so the indicated stress, measured by the tensioning system, is within 5% of the calculated stress, based upon the corresponding elongation. The distribution of the stress shall be within 5% of the calculated stress at all points along the tendon or when measured at the end of the bed.

Temporary overstressing of the tendons is allowed, but shall at no time exceed 80% of the specified tensile strength of the tendons. Tendons shall not be seated in this overstress condition.

Tendons shall be tensioned between fixed end anchorages by means of jacks either separately or in a group. Several units may be cast in one continuous line in which case they shall be tensioned simultaneously.

Deflected tendons may be tensioned in place. Alternatively, deflected tendons may be partially tensioned and then raised to the predetermined final position at the beam ends, achieving the required prestressing force. Tendons may be raised simultaneously to the predetermined final position or at any one point, in a single lift, provided the sequence of lifting commences at the point nearest the center of the bed and then progresses alternately at points equidistant from the center to the ends.

Tendons shall be supported at each deflection point on a freely rotating metal pulley not less than 3/4 inch (19 mm) in diameter.

The number of broken strand wires shall not exceed 2% of the total number of strand wires nor one broken wire of any one strand.

#### **2407.08 PRESTRESS TRANSFER.**

When accelerated heat curing is used, prestress transfer shall be performed immediately after the curing period is completed and while the concrete is warm and moist.

Deflected tendons, if any, are to be released first, either by lowering holdup devices at beam ends as nearly simultaneously as practical, or if this is not feasible, deflected tendons shall be flame cut in each beam interval in rotation until all deflected tendons are released. The procedure for flame cutting deflected tendons shall be subject to approval by the Engineer.

The hold down devices shall then be released from the bed and the straight line tendons released simultaneously and gradually with the jack. If this is not feasible, heating of the individual tendons shall be employed as follows:

Heating of each individual tendon shall be done simultaneously on the tendon at a minimum of two locations along the casting bed. Heating shall be done along the tendon over a minimum 5 inch (125 mm) distance. The application of heat shall be controlled so that failure of the first wire in the tendon does not occur for at least five seconds after heat is applied, followed by a gradual elongation and failure of the remaining wires. The tendon shall also be heated until failure occurs at each beam interval before proceeding to the next tendon. The sequence of prestress transfer between individual tendons shall be such that there is minimum eccentricity of prestress load. Alternate procedures for releasing deflected or straight-line tendons may be submitted for the Engineer's approval.

The camber due to prestress shall be measured while the beam is on the bed by checking the beam profile within three hours after prestress transfer.

#### **2407.09, Proportioning, Mixing, and Placing Concrete**

**Change** the article number 2407.0907

#### **2407.0907, Proportioning, Mixing, and Placing Concrete**

**Replace** in the first sentence of the second paragraph of the new 2407.07:

Concrete shall not be placed when the ambient temperature is below 35°F (2°C) unless the plant has been approved by the Engineer for cold weather concrete placement.

**Delete** the last sentence of the third paragraph of the new 2407.07:

~~All surfaces which will be exposed in the finished structure shall be finished as provided in Article 2403.21, Paragraph B.~~



**2407.10, Curing**

**Change** the article number 2407.4009

**2407.4009, Curing**

**Replace** "artificial" with "accelerated" the first sentence of the third paragraph of 2407.4009, Curing:

**Replace** the first sentence of the fourth paragraph of 2407.09, Curing:

In all cases, the concrete shall be covered and remain covered until curing is completed.

**2407.11, Removal of Forms**

**Change** the article number 2407.10

**2407.12, B, Precast Prestressed Units**

**Replace** the 7<sup>th</sup> item:

Sweep (deviations from straight line parallel to center line of member): L/80 (L in feet, sweep is in inches (L in meters, sweep is in millimeters))

**Add** as the 14th item in the list:

Deviation from net theoretical  
elongation after final seating:  $\pm 1/2$  inch (13 mm)

**2407.14, Finish**

**Replace** the entire article:

All surfaces, which will be exposed in the finished structure, shall be finished as provided in Article 2403.21, B, and be free of honeycomb or surface defects. Structural Repair procedures shall be submitted to the Engineer for approval.

The outer surface of exterior beams shall be finished as follows:

As soon as practicable after removal of the forms, all fins and other surface projections shall be removed, and a prepared grout shall be brushed or sprayed onto the prewetted surface.

The grout shall consist of one part of silica sand and one part of Portland cement blended with acrylic bonding agent and water to produce a consistency sufficient to fill the cavities. The Engineer may require white Portland cement to be used in amounts necessary to obtain a uniform finish.

~~This grout shall consist of 1.5 parts of fine sand, one part of Portland cement, and sufficient water to produce a consistency of thick paint. The Engineer may require white Portland cement to be used in amounts necessary to obtain a uniform finish.~~

Immediately after application of the grout, the surface shall receive a float finish with a cork or other suitable float. This operation shall completely fill all holes and depressions on the surface. When the grout is of such plasticity that it will not be pulled from holes or depressions, a float of sponge rubber shall be used to remove excess grout. When the surface is thoroughly dry, it shall be rubbed vigorously with dry burlap to completely remove excess dried grout. The surface finish shall be cured in a manner satisfactory to the Engineer, and heat curing may be required in cold weather. When finished, the surface shall be free from stain and have a uniform color.

Tendon projections shall be cut and bent as detailed in the contract documents. Where the tendon end will be exposed in the completed structure, it shall be cut off reasonably flush with the concrete. The end of each cut off tendon shall be cleaned to a bright appearance.

Beam ends exposed in the completed structure shall be coated and sealed with an approved gray or clear epoxy listed in Materials I.M. 491.12, Appendix A. The epoxy coating and sealing of beam ends shall be as indicated on the plans and shall be applied at the fabricating plant.

### Section 2408

#### 2408.16, Camber of Rolled Beam and Plate Girder Spans

**Delete** the last paragraph:

~~The erection diagram on the shop drawings shall show camber offsets at bearing points and splice points, and at midpoints of individually cambered beams or girders.~~

#### 2408.19, Shop Assembly

**Replace** the first sentence of the last paragraph:

Members to be welded shall be brought into correct alignment and held in position by bolts, clamps, wedges, guylines, struts, tack welds, or other suitable devices, until welding has been completed.

#### 2408.30, A, Surface Preparation

**Replace** the first and second sentences of the first paragraph:

All steel surfaces to be painted shall be given a near white metal blast cleaning in accordance with SSPC-SP10. Bearing assemblies shall be cleaned of any surface contamination using suitable solvents in accordance with SSPC-SP1 and then given a near white metal blast cleaning in accordance with SSPC-SP10.

#### 2408.30, A, 2, Weathering Structural Steel

**Replace** the second paragraph:

To ensure uniform weathering, all unpainted areas of outside surfaces of the facia girders shall receive, after blasting, at least three uniform applications of water mist at 24 hour interval between applications. Each application shall be applied on dry surfaces. The water mist application shall be performed within 48 hours after the painted surfaces have been properly cured. All water mist application shall be witnessed by a representative of the Contracting Authority.

#### 2408.30, B, 1, c, Top Coat

**Replace** the first sentence of the first paragraph:

When designated by the contract documents, a top coat of waterborne acrylic paint shall be shop applied to all primed surfaces. The galvanized fasteners shall be painted in accordance with Article 2408.30, B, 1, d after bolting.

**Add** as the fourth sentence of the first paragraph:

To avoid moisture condensation, top coat shall be kept under a roof, protected from dirt, dust, and moisture, in an area where the temperature is maintained above 40°F (5°C) for a minimum of 24 hours after painting is completed.

#### 2408.30, B, 1, e, Cleaning of Paint System

**Replace** the title:

**e. Cleaning of Paint Surfaces.**

#### 2408.30, B, 2, Weathering Structural Steel Applications

**Replace** the seventh sentence of the first paragraph:

The top coat shall cover all the primed surfaces except faying surfaces of bolted joints with a uniform film of paint.

**2408.30, B, 2, d, Weathering Structural Steel Applications**

**Replace** the entire article:

- d. Exterior surfaces of all galvanized components which are indicated in the plans to be painted and all galvanized floor drains shall be prepared according to the written recommendations of the paint manufacturer and painted with the same type of waterborne acrylic paint used for top coat as noted in this specification.

**Section 2409****2409.11, Bracing**

**Replace** the first sentence:

The ends of bracing shall be bolted through the pile, post, or cap with bolts not less than 5/8 inch (16 mm) in diameter.

**Section 2412****2412.02, Materials**

**Replace** the first sentence of the ~~third~~ ~~second~~ paragraph:

Concrete used shall meet the requirements for C-4WR and C-L4WR concrete mixtures, as specified in Materials I.M. 529.

**Replace** the fourth and fifth paragraphs:

Retarding admixture may be required by the contract documents or by the Engineer. When required, use of retarding admixture shall be in accordance with Section 2403 and shall be used in lieu of the water reducing admixture.

**2412.07, Curing**

**Replace** the second sentence of the first indented paragraph.

~~As soon as it can be placed without marring the surface~~ ~~As soon as it can be placed without marring the surface,~~ a layer of prewetted burlap shall be placed on the concrete. The first layer of prewetted burlap shall be placed on the floor within 15 minutes after final finishing (texturing) and covering of concrete with white pigmented curing compound. The Engineer may adjust the time for placement of the first layer of prewetted burlap to minimize burlap damage to the transverse grooving.

**Section 2413****2413.12, Basis of Payment**

**Replace** the first sentence of the fourth indented paragraph:

When there is no item for Class B Bridge Floor Repair, but such work is required, payment for each square yard for 5 square yards (square meter for 4 m<sup>2</sup>) or less will be at three times the contract unit price per square yard (square meter) for Class A Bridge Floor Repair.

**Section 2414****2414.07, A, Concrete Railings**

**Add** as the last paragraph:

When the contract documents include an item for Electrical Circuits, measurement will be in accordance with Article 2523.22, B. When electrical conduit and junction boxes are installed as part of Article 2525, measurement will be in accordance with Article 2525.10. Otherwise, electrical conduit and junction boxes will not be measured.

**2414.08, A, Concrete Railings**

**Add** as the third paragraph:

When the contract documents include an item for Electrical Circuits, payment will be in accordance with Article 2523.23, B. When electrical conduit and junction boxes are installed as part of Article 2525, payment will be in accordance with Article 2525.10. Otherwise, electrical conduit and junction boxes will be incidental to the concrete railing.

## Section 2416

### 2416.054, E, Joints for Concrete Pipe

Replace "Type C-1" with "Type C" in the first sentence of the third paragraph.

### 2416.05 Method of Measurement

Replace the first three paragraphs:

The quantity of pipe culvert, in feet (meters), will be the quantity shown in the contract documents for each culvert to the nearest foot (0.1 m) with no deductions for elbows, tees, and other fittings, but not including aprons. The quantity of pipe will be determined along the axis.

Type C adapters required by the contract documents or installed to correct faulty work will not be measured for payment. Type C adapters not shown in the contract documents, but required because of change in alignment, shall be paid for in accordance with Article 1109.03, B.

The quantity of aprons, elbows, tees, and other fitting will be the quantity shown in the contract documents. Pipe laterals terminating at a tee will be from the point of inlet to a point 6 inches (150 mm) from the outside of the main, less the length of the apron, if any.

### 2416.06 Basis of Payment

Replace the first paragraph with a new first and second paragraph:

The Contractor will be paid the contract unit price for pipe culvert of the type and size specified per linear foot (meter). The cost of wrapping pipe joints and Type C adapters shall be included in the price per linear foot (meter) for pipe.

For the quantity of excavation for roadway culverts and the quantity of extra excavation for embankments, the Contractor will be paid the contract unit price per cubic yard (cubic meter). For entrance culverts, excavation shall be considered as incidental to pipe installation and will not be paid for separately. Sand required for Class B bedding shall be incidental to pipe installation and will not be paid for separately.

Replace "laying" with "laid" in the second sentence of the third paragraph.

Delete "in conformance with the contract documents" in the sixth paragraph.

## Section 2417

### 2417.06, Method of Measurement

Replace the first and second paragraphs:

The quantity of corrugated pipe culvert, in feet (meters), will be the quantity shown in the contract documents, for each culvert to the nearest foot (0.1 m), but not including aprons. The quantity of pipe will be determined along the axis. Pipe laterals terminating at a tee will be from the point of inlet to a point 6 inches (150 mm) from the outside of the main, less the length of the apron, if any.

The quantity of aprons, elbows, tees, and other fittings will be the quantity shown in the contract documents.

### 2417.07, Basis of Payment

Replace the first and second paragraphs with a new first through fourth paragraph:

The Contractor will be paid the contract unit price for corrugated pipe culvert of the type and size specified per linear foot (meter).

For the quantity of excavation for roadway culverts and the quantity of extra excavation for embankments, the Contractor will be paid the contract unit price per cubic yard (cubic meter).

For entrance culverts, excavation will be considered as incidental to pipe installation and will not be paid for separately.

For the number of aprons, elbows, tees, and other fittings installed, of the size specified, the Contractor will be paid the contract unit price for each. These payments, plus the payment for length allowed as laid length of pipe, shall be full compensation for the fitting installed.

**Delete** "in conformance with the contract documents" in the seventh paragraph.

**Section 2418**

**2418.06, Method of Measurement**

**Replace** the first paragraph:

The quantity of jacked pipe culvert, in feet (meters), will be the quantity shown on the contract documents, for each jacked pipe culvert to the nearest foot (0.1 m), but not including aprons. The quantity of jacked pipe culvert will be determined along the axis.

**2418.07 Basis of Payment**

**Replace** the entire article:

The Contractor will be paid the contract unit price for jacked pipe culvert of the type and size specified per linear foot (meter). This payment shall be full compensation for materials, labor, and equipment necessary to complete the work. Culverts that consist of both jacked pipe culvert and conventionally placed pipe culvert will include separate bid items for each portion.

**Section 2420**

**2420.12, Method of Measurement**

**Replace** the first paragraph:

The quantity of structural pipe culvert, in feet (meters), will be the quantity shown in the contract documents for each culvert to the nearest foot (0.1 m). The quantity of pipe will be determined as follows:

**2420.13, Basis of Payment**

**Replace** the entire article:

The Contractor will be paid the contract unit price for structural pipe culvert of the type and size specified per linear foot (meter). This payment shall be full compensation for furnishing all materials, labor, and equipment necessary to complete the work.

Excavation for structures, structural concrete, and reinforcement will be paid for separately.

**Section 2422**

**2422.02, Materials for Unclassified Pipe Culvert**

**Add** as the last table in this article:

<b>UNCLASSIFIED ROADWAY LETDOWN PIPE CULVERT</b>	
Coated Corrugated Iron or Steel	Section 2417
Polyethylene Pipe	Section 2417

**2422.04 Method of Measurement**

**Replace** the first paragraph:

Unclassified pipe culverts will be measured as provided in Articles 2416.05 and 2417.06.

**2422.05 Basis of Payment**

**Replace** the entire article:

Payment for unclassified pipe culverts will be as provided in Articles 2416.06 or 2417.07.

**Division 25. Miscellaneous Construction.****Section 2503****2503.02, Materials**

**Replace** "Article 4149.02" with "Article 4149.03" in the second paragraph.

**2503.03, B, Laying and Placing Pipe**

**Replace** "Type C-1 connections" with "Type C adapters" in the second sentence of the second paragraph.

**2503.04, Method of Measurement**

**Replace** the first paragraph with a new first and second paragraphs:

The quantity of storm sewer pipe, in feet (meters), will be the quantity shown in the contract documents, for each storm sewer to the nearest foot (0.1 m). Such lengths shall exclude the space across catch basins, intakes, and utility access where pipe is not actually placed.

Type C adapters required by the contract documents or installed to correct faulty work will not be measured for payment. Type C adapters not shown in the contract documents, but required because of change in alignment, shall be paid for in accordance with Article 1109.03, B.

**2503.05, Basis of Payment**

**Replace** the first paragraph:

The Contractor will be paid the contract unit price for storm sewer pipe of the type and size specified as follows:

**Replace** "as extra work" with "in accordance with Article 1109.03, B" in the last paragraph.

**2503.05, E**

**Replace** the entire article:

**E.** Type C adapters shown in the contract documents or installed to correct faulty quality of work will be included in the cost per foot (meter) of pipe. Type C adapters required because of change in alignment will be paid for in accordance with Article 1109.03, B.

**2503.05, F**

**Replace** "as extra work as provided in" with "in accordance with" in the second sentence.

**Section 2504****2504.05, Method of Measurement**

**Replace** the first sentence:

The quantity of sanitary sewer pipe, in feet (meters), to the nearest foot (0.1 m), of each size of sanitary sewer placed will be the quantity shown in the contract documents. The number of utility accesses and lamp holes will be the quantity shown in the contract documents.

#### **2504.06, Basis of Payment**

**Replace** the first paragraph:

When the contract documents indicate the depth of sanitary sewer excavation and the pipes have been laid substantially to the elevation of the flow line indicated, the Contractor will be paid the contract unit price per linear foot (meter) of sanitary sewer complete and the contract unit price for each lamp hole and utility access complete. The Contractor will be paid the contract unit price for sanitary sewer pipe of the type and size specified per linear foot (meter).

**Replace** “as extra work as provided in” with “in accordance with” in the first sentence of the third paragraph.

**Replace** the fourth paragraph:

This payment shall be full compensation for furnishing all material, labor, and equipment necessary to complete the work tools, and labor and for the performance of all work necessary to construct the sewer, in accordance with the contract documents; including excavation, furnishing and placing pipe, backfilling, constructing utility accesses and lamp holes, special shaping through utility accesses and lamp holes, and removal of excess material from the project.

#### **Section 2506**

#### **2506.06, Placement of Mortar as Culvert Backfill**

**Replace** “Section 4133” with “Article 2506.02, G,” in the first sentence of the third paragraph.

#### **Section 2507**

#### **2507.02, C, Filter Blanket**

**Add** title and article.

#### **C. Filter Blanket**

Article 2107.11 shall apply.

#### **Section 2508**

#### **2508.01, B, 7, f, Prior to Painting**

**Replace** “Article 2508.01, B, 6, e” with “2508.02, E, 4” in the first paragraph.

**Replace** “Article 2508.01, B, 6, e” with “2508.02, B, 2” in the second paragraph.

**Replace** “Article 2508.01, B, 6, e” with “2508.02, E, 7” in the third paragraph.

#### **2508.04, A, Bridge Cleaning**

**Replace** the title and first sentence:

A. Bridge Cleaning for Painting.

The Contractor will be paid the lump sum contract price for Bridge Cleaning for Painting.

#### **Section 2510**

#### **2510.02, Removal of Pavement**

**Delete** the last sentence of the second paragraph:

~~If processing is require, the processing will be defined elsewhere in the contract documents.~~

#### **2510.02, C, PCC Pavement with HMA Resurfacing (Composite Pavement Section)**

**Replace** the entire article:

The contract documents may specify that the HMA Resurfacing be removed from the PCC pavement as a separate operation. When not specified, the Contractor may remove the composite pavement as a single operation.

#### **2510.02, D, Removal and Crushing of Pavement**

**Add** as article D:

##### **D. Removal and Crushing of Pavement.**

The contract documents may require the pavement be removed and crushed. When required, the contract documents will specify the size and/or gradation the pavement shall be crushed to, and specify where the crushed material is to be stockpiled or used in the contract.

#### **2510.04, D, Pavement Scarification**

**Add** as article D:

##### **D. Pavement Scarification.**

The quantity of pavement in square yards (square meters) where the HMA Resurfacing has been scarified prior to the removal of the pavement will be considered the area of pavement scarification. HMA Resurfacing removed and crushed with the PCC pavement will be included in the area of pavement scarification if the composite crushed material meets the gradation and composition required by the contract documents.

#### **2510.04, E, Removal and Crushing of Pavement**

**Add** as article E:

##### **E. Removal and Crushing of Pavement.**

The quantity removed and crushed, of pavement in square yards (square meters) in accordance with the contract documents will be considered the area of removal and crushing of pavement.

#### **2510.05, A, Removal of Pavement**

**Delete** the last sentence of the first paragraph:

~~The cost of saw cut, removal of utility accesses, intakes, and integral and separate curb shall be included in the contract unit price for the removal and crushing of pavement.~~

**Add** as the second and third paragraphs:

When recycling is not mandatory, the cost of recycling pavement removal into granular subbase, granular shoulders, or special backfill shall be included into the cost of the items for which the recycled pavement material will be used.

The cost of saw cut, removal of utility accesses, intakes, and integral and separate curb shall be included in the contract unit price for the Removal of Pavement, Pavement Scarification, or Removal and Crushing of Pavement.

#### **2510.05, D, Pavement Scarification**

**Add** as article D:

##### **D. Pavement Scarification.**

The quantity of pavement where the HMA Resurfacing has been scarified, in square yards (square meters), will be paid for at the contract unit price.

#### **2510.05, E, Removal and Crushing of Pavement**

**Add** as article E:

##### **E. Removal and Crushing of Pavement.**



The quantity of pavement removed and crushed, in square yards (square meters), in accordance with the contract documents will be paid for at the contract unit price.

**Section 2511****2511.03, Concrete and Proportions**

**Replace** "Class D" with "Class C" in the second paragraph.

**Section 2513****2513.01, Description**

**Replace** the first sentence of the first paragraph:

The provisions of this section shall apply to production and construction of concrete barrier, both permanent and temporary, as shown in the contract documents.

**Add** as the second sentence of the last paragraph:

F-shape TBR, Type A, as defined in the Standard Road Plans, shall be used in all situations requiring the railing to be in place during the winter work period as defined in Article 1108.02, paragraph E.

**2513.03, A, Precast**

**Replace** the last paragraph:

The air content of fresh, unvibrated concrete shall be ~~6.5%~~ 7.0%, as a target value, with a maximum variation of ~~± 1.0%~~ plus 1.5% or minus 1.0%.

**2513.03, B, 4**

**Replace** the third sentence:

The air content of fresh, unvibrated concrete shall be ~~6.5%~~ 7.0%, as a target value, with a maximum variation of ~~± 1.0%~~ plus 1.5% or minus 1.0%.

**Section 2517****2517.03, Construction**

**Replace** entire article.

When the plans for bituminous base and surface courses provide for construction of PCC header slabs at junctions with railroad crossings or other locations, **the following shall apply:**

**A. Paving Projects.**

**The concrete shall be of the same class as specified for the pavement, and shall be placed, finished, and cured in accordance with the contract documents.**

**B. Non-paving Projects.**

The PCC used may be as specified for Class C or M concrete, in Section 2301. When Class M concrete is used, headers may be opened to traffic in accordance with Article 2301.31. At the Contractor's option, the header may be constructed after all base and surface courses have been completed or prior to placing hot mixed Type A or B HMA base, intermediate, and surface courses, but all other base shall be placed before excavation for the concrete header slab. Bases shall be constructed and thoroughly compacted to the desired grade and elevation to a line not less than 2 feet (0.6 m) beyond the edge of the concrete slab before excavating for the header slab. The excavation shall provide for the header slab of the dimensions shown in the contract documents. Concrete of the header slab shall be placed and consolidated against a smooth face of undisturbed base to provide a smooth riding surface at the correct elevation. Any reinforcing required shall be installed in the concrete as shown.

The Engineer may require the header slab to be placed one lane at a time for the convenience of the traveling public. When the header slab is constructed in two sections, a centerline joint shall be constructed as shown in the contract documents. When the joint is not provided for, 1/2 inch (No. 15) tie bars shall be placed not more than 4 feet (1.2 m) apart and shall extend not less than 18 inches (450 mm) into each section.

The concrete shall be placed, consolidated, finished, and cured as provided in Section 2301.

#### **2517.04, Method of Measurement**

##### **Replace** entire article.

The volume of concrete for ~~headers~~ **Concrete Header Slabs and Railroad Approach Sections**, in cubic yards (cubic meters), will be the quantity shown in the contract documents.

#### **2517.05, Basis of Payment**

##### **Replace** the first sentence.

~~For the number of cubic yards (cubic meters) of PCC for header slabs, shown in the contract documents, the Contractor will be paid the contract unit price per cubic yard (cubic meter) for Concrete Header Slabs and Railroad Approach Section of the type specified, as shown in the contract documents.~~

### **Section 2521**

#### **2521.02, Requirements**

**Replace** "Materials I.M. 213 and 214" with "Materials I.M. 213".

### **Section 2522**

#### **2522.04, D**

##### **Replace** the entire article:

Each anchor bolt shall be furnished with one leveling nut and two anchoring nuts. Anchor bolts shall meet the requirements of ASTM F 1554, Grade 105 (724 MPa), be full-length galvanized, and be high-strength low alloy steel. Unless otherwise specified, anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in red to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.

### **Section 2525**

#### **2525.03, A, 6, Uninterrupted Timing**

**Replace** "Article 2525.04, A, 11, and A, 12, a" with "Article 2525.03, A, 2, b, and Article 2525.03, A, 5" in the first sentence .

#### **2525.03, C, 11, i, 1, Connecting Cables**

**Delete** "correlations shall be made with connecting cable plug and controller jack as described in Article 2525.05, A, 2, 6." In the last sentence.

#### **2525.03, C, 11, ~~i, 2,~~ j, 1, Incoming AC Line**

**Replace** "Article 2525.05, A, 12, d, 2, a" with "Article 2525.03, C, 11, i, 2, a".

#### **2525.03, F, 4, d**

**Replace** "Paragraph A, 10, of this Article" with "2525.03, C".

**2525.06, B, 2**

**Replace** the entire article:

The anchor bolts shall meet the requirements of ASTM F 1554, Grade 105 (724 MPa), be full-length galvanized, and have a full-body diameter. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in red to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.

**2525.07 Method of Measurement and Basis of Payment**

**Replace** the second sentence of the first paragraph

Payment will be made at the lump sum contract unit price for traffic signalization. The Contractor will be paid the contract lump sum price for Traffic Signalization.

**Section 2526****2526.01, A, 3**

**Replace** the entire article:

Grade checks 1 every 100 feet (20 m) for bottoms of subgrade treatments.

**2526.01, A, 4**

**Replace** the entire article:

Finish grade stakes (blue tops) at 100 foot (20 m) intervals or less at each shoulder line. In superelevated curves, also place a line of finish grade stakes at 100 foot (20 m) intervals on the upper side of the curve at the edge of the proposed pavement.

**2526.01, D, 7**

**Add** a seventh numbered paragraph:

7. Elevations of beams as erected. Provide the elevations to the Engineer for computation of finish elevations. Locations for determining beam elevations shall be in accordance with the contract documents.

**2526.01, E, 1**

**Replace** the entire article:

Elevations on both sides at 50 foot (10 m) intervals on straight and level sections and at 25 foot (10 m) intervals on horizontal and vertical curves.

**2526.01, Description**

**Replace** the third to the last paragraph:

The Engineer will compute finish elevations (using Contractor provided beam elevations) and furnish them to the Contractor for deck construction, locate and take elevations of settlement plates, and re-establish land corners and permanent reference marker.

**2526.02, Method of Measurement and Basis of Payment**

**Replace** the second sentence:

This payment shall be full compensation for the survey work required for the project as let, including any interpolations that may be necessary between cross-section and field staking.

## Section 2527

**2527.02, B, 2, Epoxy**

**Replace** the title and entire article:

**2. Epoxy Durable Paint Pavement Markings.**

Epoxy traffic paint Durable paint pavement markings shall meet requirements of Article 4183.04. for epoxy paint. The epoxy paint pavement marking material shall be heated to the manufacturer's recommendation temperature before application to the pavement.

Epoxy pavement markings shall have a targeted thickness of 20 mils (500 µm) with an acceptable range of 19 to 25 mils (475 µm to 625 µm) without the glass beads. Glass beads shall be applied at a rate of at least 25 pounds of beads per gallon (3 kg/L) of paint. A heavier bead application may be necessary to achieve the minimum retroreflectivity requirements. The marking thickness and reflective beads shall be applied according to Materials I.M. 483.04.

**2527.03, Construction**

**Replace** "epoxy" with "durable paint" in the third paragraph.

**Delete** the last sentence of the fourth paragraph:

For tape products, the manufacturer's recommendations shall be followed for surface dryness and other surface preparation requirements.

**Add** a new sixth paragraph with subparagraphs:

For tape products, the manufacturer's recommendations shall be followed for surface dryness, primers, adhesives, and other surface preparation requirements. Unless otherwise specified by the tape manufacturer the following test shall be met for determining surface dryness before applying the tape.

1. In an area of direct sunlight where the tape will be applied, place an 18 inch x 18 inch (450 mm x 450 mm) piece of polyethylene (a green or black garbage bag may be used). There should not be any holes or tears in the polyethylene.
2. Tape down all the edges of the polyethylene sheet to seal all the edges and not allow any air movement to get under the polyethylene.
3. Firmly tamp the tape using the tamper cart or by foot tamping.
4. Allow 20-25 minutes for the polyethylene to be exposed to the direct sunlight.
5. Remove the polyethylene from the road surface. If no moisture is present on the under side of the polyethylene or on the road surface, the tape can be applied.
6. If any moisture is present, allow another hour to pass and repeat the test until no moisture is found.

**2527.03, B, Removal of Pavement Markings**

**Replace** the second sentence of the third paragraph:

Tightly adhering markings may remain in the bottom of the tining and other depressions on the pavement surface but shall not be visible to the motorist during daytime or night time.

**2527.03, D, Limitations**

**Replace** the seventh paragraph:

When the installation of preformed polymer pavement marking material or profiled pavement marking tape is in conjunction with placement of hot mix asphalt mixtures, the preformed polymer tape shall be inlaid by positioning on the hot mixture prior to the final rolling. The installation of preformed polymer marking material the tape shall be in accordance with the manufacturer's recommendations. If grooving is specified, tape shall not be inlaid into hot asphalt.

**2527.03, H, Defective Epoxy Paint Pavement Markings**

**Replace** the title.

**H. Defective Epoxy Paint Pavement Markings.**

**Replace** the first paragraph.

Markings that are low on initial retroreflectivity up to 20%, may at the discretion of the Engineer, be accepted with a price adjustment equal to the percent below the minimum retroreflectivity level. For example, if a section of marking is 15% below the minimum, the price paid for that section would be reduced by 15%.

**Delete** "epoxy paint" from the third paragraph.**2527.03, H, 1, Insufficient Film Thickness, Line Width, or Low Retroreflectivity****Delete** the title and entire article.**1. Insufficient Film Thickness, Line Width, or Low Retroreflectivity.**

**Repair Method.** Prepare the surface of the defective epoxy paint marking using methods found in Article 2527.03 in. Surface preparation shall be performed to the extent that a substantial amount of the retroreflective glass beads are removed and a roughened epoxy marking surface remains. Repair shall be made by restriping over the cleaned surface in accordance with the requirements of these specifications and at the full thickness.

**2527.03, H, 2, Insufficient Bond****Delete** the title and entire article.**2. Insufficient Bond.**

**Repair Method.** The defective epoxy paint marking shall be completely removed and cleaned to the underlying pavement surface in accordance with the requirements of Article 2527.03. The extent of removal shall be the defective area plus any adjacent epoxy paint pavement marking material extending 1 foot (300 mm) in any direction. After surface preparation work is complete, repair shall be made by reapplying epoxy paint over the cleaned pavement surface in accordance with the requirements of these specifications.

**2527.03, I, Surface Preparation for Profiled Marking Tapes****Replace** the title.**I. Surface Preparation for Profiled Marking Tapes Grooving for Pavement Markings.****Replace** the first sentence of the first paragraph.

All profiled When specified, pavement markings shall be placed in a groove cut into the pavement surface.

**2527.03, I, 2, Groove depth****Replace** the entire article.

0.065 inches  $\pm$  0.020 inches (1.6 mm  $\pm$  0.5 mm) For profiled marking tape the grooved depth shall be 0.080 inches  $\pm$  0.010 inches (2.0 mm  $\pm$  0.03 mm).

For all other markings, the groove depth shall be as recommended by the pavement marking manufacturer.

**2527.03, I, 6, Groove cleaning.****Replace** the last sentence.

The surface to receive the tape shall be free from dust, dirt, or other contaminants that may interfere with the tape properly bonding, and shall pass the following moisture test before tape is placed:

**2527.03, I, 6, a, Moisture Test of Pavement Surface****Delete** the title and entire article.**a. Moisture Test of Pavement Surface.**

1) In an area of direct sunlight where the tape will be applied, place an 18 inch x 18 inch (450 mm x 450 mm) piece of polyethylene (a green or black garbage bag can be used). There should not be any holes or tears in the polyethylene.

2) Tape down all the edges of the polyethylene sheet using duct tape or pavement marking tape. The tape should seal all the edges and not allow any air movement to get under the polyethylene.

~~3) Firmly tamp the tape using the tamper cart or by foot tamping.~~

~~4) Allow 20-25 minutes for the polyethylene to be exposed to the direct sunlight.~~

~~5) Remove the polyethylene from the road surface. If no moisture is present on the back side of the polyethylene or on the road surface, the tape can be applied.~~

~~6) If any moisture is present, allow another hour to pass and repeat the test until no moisture is found.~~

#### **2527.03, I, 7, Adhesive**

**Delete** the title and entire article.

##### ~~7. Adhesive.~~

~~The Contractor shall apply adhesive according to the manufacturer's instructions.~~

#### **2527.05, K, Grooves Cut for Tape**

**Replace** the title and entire article.

##### **K. Grooves Cut for Tape Pavement Markings.**

~~For Grooves Cut for Profiled Marking Tape,~~ The Engineer will measure the number of stations (meters) of Grooves Cut for **Tape Pavement Markings**. This quantity will be equivalent to the number of stations (meters) measured for the **tape pavement markings**. Additional width and transition length will be incidental.

#### **2527.06, K, Grooves Cut for Tape**

**Replace** the title and entire article.

##### **K. Groves Cut for Tape Pavement Markings.**

For the number of stations (meters) of Grooves Cut for **Tape Pavement Markings**, the Contractor will be paid the unit price per station (meter).

### **Section 2528**

#### **2528.01, Description**

**Replace** the third sentence of the seventh paragraph:

After January 1, 2002, all category II traffic control devices used on Interstate and Primary road projects shall meet NCHRP Report 350, except Type III barricades with attached signs. Type III barricades with attached signs used on all Interstate and Primary Road projects shall meet NCHRP Report 350 by January 1, 2003.

#### **2528.01, B, Traffic Quality Control**

**Replace** the last paragraph:

The Contractor shall have a technician on staff that has attended and passed the exam in an ATSSA Traffic Control Technician or International Municipal Signal Association (IMSA) Work Zone Traffic Control training class even though the Traffic Control portion of the contract may be subcontracted. This Traffic Control Technician shall be responsible for the overall management of the contractor's quality control program for traffic control.

### **Section 2529**

#### **2529.02, B, 6, Water Reducer**

**Replace** the first sentence:

A water reducing admixture may be used at the Contractor's option.

### **Section 2530**

#### **2530.03, B, 4, a, Slump**

**Replace** "(100 m)" with "(100 mm)" in the last sentence.

#### **2530.03, B, 4, f, Water Reducer**

**Replace** the first sentence:

A water reducing admixture may be used at the Contractor's option.

#### **Section 2535**

#### **2535.06, B, Backfill**

**Replace** the first paragraph:

Granular backfill furnished will be measured in cubic yards (cubic meters) or in tons (megagrams), as indicated in the contract documents and as provided in Article 2402.12, D.

#### **Section 2544**

#### **2544.05, Limitations**

**Replace** the second sentence of the first paragraph:

Except when this work is in preparation for a seal coat or slurry seal, crack filling will not be allowed on pavements from June 15 to September 15.

#### **Section 2546**

#### **2546.04, B, Concrete Grout for Gabions**

**Replace** "Article 2407.04, B" with "Article 2407.04"

#### **2546.05, B, Concrete Grout for Gabions**

**Replace** "Article 2407.05, B" with "Article 2407.05"

### **Division 26. Roadside Development.**

#### **Section 2601**

#### **2601.05, A, Stabilizing Crop Seed Mixtures**

**Replace** the second line under "Summer -- May 21 to July 20":

Annual Rye      35 lbs. per acre (39 kg/ha)

#### **2601.06, B, Application of Mulch**

**Replace** the second sentence:

The application rate for reasonably dry material shall be approximately 1 1/2 tons per acre (3.5 Mg/ha) of dry cereal straw, 2 tons per acre (4.5 Mg/ha) of wood excelsior, or 2 tons per acre (4.5 Mg/ha) of prairie hay, or other approved material, depending on the type of material furnished.

#### **Section 2602**

#### **2602.01, Description**

**Replace** the first sentence of the second paragraph:

Projects that are regulated by the requirements of IOWA DEPARTMENT OF NATURAL RESOURCES NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), GENERAL PERMIT NO. 2, FOR



**STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES, EFFECTIVE DATE - OCTOBER 1, 1997 THROUGH OCTOBER 1, 2002, Iowa DNR National Pollutant Discharge Elimination System (NPDES), General Permit No. 2, for Storm Water Discharge Associated with Industrial Activity for Construction Activities**, will be identified in the contract documents.

### Section 2610

#### 2610.03, I, Plant Establishment Period and Replacement

Replace "Article 2610.07" with "Article 2610.03, E" in the fourth and seventh paragraphs.

#### 2610.05, Basis of Payment

Delete the last sentence:

~~If the substitute is not a contract item, payment will be made as extra work in accordance with Article 1109.03, B.~~

### Section 2611

#### 2611.01, Description

Replace "Article 2610.03, 2610.06, 2610.07, or 2610.08" with "Article 2610.03, A; 2610.03, D; 2610.03, E; or 2610.03, F"

#### 2611.05, **A, After Initial Installation is Complete Basis of Payment**

Replace "75%" with "65%" in the first sentence.

## Division 41. Construction Materials.

### Section 4101

#### 4101.01, General Requirements

Replace the entire article:

##### **A. ASTM C 150 Cements.**

Unless otherwise specified, Portland cement shall meet the requirements of ASTM C 150 and the following requirements:

1. The maximum percent sulfur trioxide (SO<sub>3</sub>) shall be 3.0% for Type I and Type II cements and ASTM C 150 Table 1, Note D, shall not apply.
2. The alkali content expressed as total equivalent sodium oxide shall not be more than 0.60% for all cements.

##### **B. ASTM C 595 Cements.**

Unless otherwise specified, blended hydraulic cement shall meet requirements of ASTM C 595 and the following requirements:

1. The pozzolan constituent of Type IP cement shall not be more than 20 weight (mass) percent of the Portland-pozzolan cement.
2. The maximum sulfur trioxide (SO<sub>3</sub>) for Type IP and Type I(PM) cements shall be 3.5% and ASTM C 595 Table 1, Note B, shall not apply.
3. The slag constituent of Type IS cement shall not be more than 35 weight (mass) percent of the Portland blast-furnace slag cement.

- 4. Type IP or I(PM) cement shall not contain Class C fly ash.
- 5. Blended cements produced with Type I clinker or Type I cement shall contain 35% ground granulated blast furnace slag. All other blended cements shall be produced with Type II clinker.

**C. Cement Type Usage.**

Unless otherwise specified, cement type and usage in various pavements, structures, and other elements shall be as follows:

- 1. Type II cement shall be used in Interstate and Primary pavements, except for quantities less than 3600 square yards (3000 m<sup>2</sup>) furnished as transit mix concrete.
- 2. Type I or Type II cement may be used for all other applications. Type III cement may be used in precast and prestressed concrete only.
- 3. Type IP, Type I(PM), Type IS, or Type I(SM) cement may be furnished at the Contractor's option when Type I or Type II cement is specified. Type I cement with 35% substitution by weight of ground granulated blast furnace slag may be furnished at the Contractor's option when Type II cement is specified. The limitations of Articles 2301.04, 2403.03, or 2412.02 shall apply.
- 4. The unit volume of Type IP, Type I(PM), Type IS, or Type I(SM) cement in the concrete shall be that specified for Type I or Type II cement, unless otherwise specified.

Cement which contains 5.0% or more of lumps retained on a No. 20 (850 µm) sieve will be rejected. Cement which contains less than 1.0% of lumps may be used without adjustment in the batch. For each 1.0% or fraction thereof from 1.0% to 5.0% of lumps found by test, batch weights (mass) of cement used in either concrete pavement or structural concrete shall be increased by 2.0% of the original value.

Air entrainment of the concrete is to be accomplished by the addition, at the time of mixing, of as approved air entraining admixture specified in Section 4103. Air entraining cement shall not be used.

**Section 4109**

**4109.02, Testing Sieves**

**Replace** "75-100" with "75-90" in Grad. No. 31, Sieve Sz. 0.500" (12.5 mm) on the Aggregate Gradation Table.

**Section 4115**

**4115.04, C, Requirements for Use**

**Replace** the fifth and sixth sentences of the first paragraph:

Class 3 durability or better will be required for all prestressed concrete units. Class 2 durability or better will be required for all precast concrete units, Section 2407.

**Replace** the sixth line in Table 4115.04:

**Insert** a new seventh line in Table 4115.04:

Specification Number	Minimum Durability Class Required			Use
	3i	3	2	
2407 (See 2407.03)			X	Precast Units
2407 (See 2407.03)		X		Prestressed Units

**Section 4121**

**4121.01, A, Abrasion and Clay Content**

**Replace "45%" with "50%" in the first sentence.**

**Section 4127****4127.04, Coarse Aggregate**

**Add** as the first sentence of the fifth paragraph:

Coarse aggregate abrasion loss shall not exceed 45% as determined in accordance with AASHTO T 96.

**Section 4152****4152.02, Structural Steel**

**Replace** "(20 at 4" with "(20 at 4)" in the third line of Minimum Average Energy column of Table A.

**Section 4153****4153.06, B, High Strength Fasteners**

**Replace** the first sentence:

High strength bolts, nuts, and washers shall meet the requirements of the appropriate ASTM Specifications as follows: bolts - A 325, nuts - A 563 Grade DH3, and washers - F 436.

**4153.06, B, 2, a**

**Replace** entire article:

- a. Intentionally left blank.

**Section 4183****4183.03, B, 4, Packaging and Marking**

**Replace** "(2.5°C)" with "(25°C)" in the last paragraph.

**4183.04, Epoxy Traffic Paint**

**Replace** the title.

**Epoxy Traffic Durable Paint Pavement Markings.**

**Replace** the first paragraph.

**Epoxy traffic paint Durable paint pavement markings** shall meet the requirements of Materials I.M. 483.04.

**Section 4185****4185.02, A, Anchor Bolt and Slip-Base Plate Fasteners for Lighting Poles**

**Replace** the second paragraph:

The anchor bolts shall meet the requirements of ASTM F 1554, Grade 105 (724 MPa), be full-length galvanized, and have a full-body diameter. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in red to identify the grade. Slip base plate 1 inch by 4 1/2 inch (25 mm by 112 mm) bolts shall meet the requirements of ASTM A 325, be high-strength bolts, and be fully galvanized. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.

**Section 4186****4186.10, B, Steel Breakaway Posts for Type B Signs**

**Replace** the fifth sentence of the first paragraph:

The coating shall be applied by the hot dip process in compliance with ASTM A 123, Grade 85.

**Replace** the fifth paragraph:

Bolts (including anchor bolts), nuts, and washers, shall be galvanized according to ASTM A 153, Class A coating.

**Section 4187****4187.01, Description**

**Replace** the first paragraph:

Materials for aluminum alloy or galvanized overhead sign support structures shall meet the following requirements:

**4187.01, B, Reserved**

**Replace** the title and paragraph:

**B. Materials for Galvanized Steel Superstructures.**

Materials for galvanized steel superstructure shall be of the type and quality specified in the contract documents.

**4187.01, C, Fasteners for Aluminum Alloy**

**Replace** the title:

**C. Fasteners for Aluminum Alloy and Galvanized Steel Superstructures and Anchor Bolts.****4187.01, C, 2, Anchor Bolts, Nuts, and Washers**

**Replace** all paragraphs of item 2:

The anchor bolts shall meet the requirements of ASTM F 1554, Grade 105 (724 MPa), and be full-length galvanized. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in red to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.