Iowa Department of Transportation

GS-01002

General Supplemental Specifications for Highway and Bridge Construction

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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

1101.03, 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:
~~There is no other limitation with respect to this financial requirement.~~ 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 ~~face of the proposal form~~ 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:
~~Bids may be submitted using any of the following three options~~:. 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 ~~Expedite~~ 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 ~~notice to bidders~~ 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 ~~notice to bidders~~ 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.

1102.19, 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

1105.06, Construction Survey

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 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 it's 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 Class12 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, 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, 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 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 ~~of suitable material and~~ 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, 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 ~~suitable material,~~ 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 ~~suitable earth.~~ 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 ~~days~~ 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^2) 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 be~~ 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 paving operations resume, concrete shall be placed adjacent to the exposed face of the header, thoroughly consolidated, and finished with an edging tool at the joint. Sawing and sealing of this joint is not required.

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.

2301.31, 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.

2301.35, A, Portland Cement Concrete Pavement.

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

Section 2303

2303.02, B, 1, Individual Aggregates.

Replace the first sentence of the second paragraph:
When frictional classification of the coarse aggregate is ~~specified~~ required, the contract documents will specify the friction level and location. ~~amount, position in the structure, locations, and types specified~~.

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%(1)	80%
L-4			50%

(1) 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.~~

Replace paragraphs a - d:

~~a. Coarse aggregate angularity is omitted.~~

~~b. The percentage of crushed particles for each mixture designation will be shown in the contract documents.~~

~~d. Fine aggregate angularity of surface and intermediate mixtures for projects between 3,000,000 and 10,000,000 ESALs shall be 43% minimum.~~

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 3,000,0000 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.

~~c.~~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 PP28-97" with "Materials I.M. 510".

Replace the reference to "AASHTO MP2-97" 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_t at N_{design} – 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 (75µm) 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~~
~~≥ 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 ~~behind the paver~~ in accordance with Materials I.M. 322, weigh at least ~~50~~ 60 pounds (~~25~~ 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 ~~which~~ are ~~less than 600 feet (180 m) in length shall include side road connections unless otherwise excluded. Storage lanes, turn lanes,~~ crossovers, shoulders, ~~pavement less than 8.5 feet (2.6 m) in width~~, and sections less than 50 feet (15 m) long ~~shall also be excluded unless otherwise provided. Single lift pavement overlays 2 inches (50 mm) or less in thickness are also not included unless the existing surface has been corrected by milling or scarification.~~

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 ~~only when the Contractor is responsible for the adjoining surface~~.

2316.02, B, Bridge Approach Sections

Replace the entire article:

Bridge approach sections ~~with plan lengths longer than 50 feet (15 m)~~ 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. ~~Bridge approach sections with plan lengths less than 50 feet (15 m) will be checked with a surface checker by the Contracting Authority.~~ 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 test ~~(15 feet (5 m)) and any sections of pavement less than 50 feet (15 m), including short bridge approach sections,~~ 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. ~~with a surface checker by the Engineer and shall not exceed 1/8 inch in 10 feet (3 mm in 3 m).~~

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 ~~profilogram, for deviations exceeding 1/8 inch in 10 feet (3 mm in 3 m).~~ 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 an 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.

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Section 2403

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.

2402.18, 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 not specified but is ordered by the Engineer to be added to concrete for the purpose of retarding set, the contract unit price per cubic yard (cubic meter) will be increased $4.00 for each cubic yard ($5.25 per cubic meter) to which the admixture is added.~~ 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:

~~Setting~~ 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. Fly Ash.~~

~~Fly ash, when authorized, may be used.~~

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,~~ or if fly is used,~~ 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:

~~If hydraulic jacks are employed for tensioning steel tendons, they shall be equipped with gages accurate to within 5% of the working range. Should other types of jacks be used, calibrated proving rings or other devices shall be provided so the prestressing forces may be accurately known.~~

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.~~08~~11, 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 total initial prestressing force shall be the force specified in the contract documents.~~

~~In pretensioned work, the initial prestressing force shall be as shown in the contract documents;~~

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:

Temperature of Tendons	Initial Prestressing Force
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)

~~Prestress shall be measured by the elongation of the tendons computed from the length under stress and the strain for the load indicated as shown on the test report for the material with allowance for losses due to movement at end anchorages. Distribution of stress along a tendon shall be within plus or minus 5% of the calculated stress, determined by elongation, at all interior points in the line. Temporary over stressing of the strand is allowed, but at no time shall exceed 80% of the specified tensile strength of the strand. Strands should not be seated in the over stress condition.~~

~~2407.07 Pretensioned Prestressed Concrete.~~
~~In pretensioned construction, the number, size, and position of individual prestressing tendons (7-wire strand) and the initial prestressing force shall be as shown in the contract documents, except as modified for temperature in Article 2407.06.~~

~~Tendons shall be stretched 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 may be stressed tensioned simultaneously.~~

~~When some tendons are deflected to a raised position at beam ends, they may be separately stressed at the lower level to such a stress that raising them to required height at the beam ends will increase the stress to the required intensity. Hold down devices shall be located as shown in the contract documents. Tendons may be raised to the predetermined final position, 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.~~

~~Procedures for lifting tendons shall be approved by the Engineer. Each tendon shall be supported at each deflection point on a freely rotating metal pulley not less than ¾ inch in diameter.~~

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 ± 100 pounds (0.5 kN) for initial forces under 3,000 pounds (13 kN) and a tolerance of ± 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 ± 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.

~~The measured strain along each tendon after tensioning shall be within the 5% tolerance.~~

~~For pretensioned beams, the temperature of the beams and exposed tendons shall be maintained at normal curing temperature until the stress has been released from the end anchorages.~~

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 devises 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.

~~After all prestress is released into the beams, the tendon projections are to 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, cleaned by hand brushing, and painted as provided in Article 2509.06 with two coats of zinc rich paint.~~

The camber due to prestress shall be measured while the beam~~s are~~ is on the bed by checking the beam profile ~~immediately after separation of the beams~~ within three hours after prestress transfer.

2407.09, Proportioning, Mixing, and Placing Concrete

Change the article number 2407.~~09~~07

2407.~~09~~07, 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. ~~without written permission of the Engineer.~~

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.~~10~~09

2407.~~10~~09, Curing

Replace "artificial" with "accelerated" the first sentence of the third paragraph of 2407.~~10~~09, Curing:

Replace the first sentence of the fourth paragraph of 2407.~~10~~09, Curing:
In all cases, the concrete shall be covered and remain covered until ~~removed from the casting bed~~ curing is completed.

2407.11, Removal of Forms

Change the article number 2407.~~11~~10

2407.12, B, Precast Prestressed Units

Replace the 7th 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: ± 1/2 inch (13 mm)

2407.14, Finish

Replace the entire article:

~~All units shall be free from honey comb or surface defects. Patching operations done only under the direct supervision of the Engineer.~~ 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.

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~~, or other suitable devices~~.

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-SP~~5~~ 10. 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-SP~~5~~ 10.

2408.30, A, 2, Weathering Structural Steel

Replace the second paragraph:

To ensure uniform weathering ~~in weathering structural steel application, a water washing shall be performed. After blasting all unpainted areas of the outside/exterior surface of fascia girders shall receive at least two uniform applications of water mist at an interval of approximately 1/2 hour between applications. The mist application shall be performed within 48 hours after the painted surface has cured properly~~., 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 ~~field~~ shop applied to all primed surfaces. ~~including galvanized fasteners.~~ 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 ~~Systems~~ 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 (~~6~~ 16 mm) in diameter.

Section 2412

2412.02, Materials

Replace the first sentence of the third paragraph:

Concrete used shall meet the requirements for ~~C-4, C-L4, C-4-C, C-L4-C, C-4-F or C-L4-F~~ C-4WR and C-L4WR concrete mixtures, as specified in ~~the current~~ Materials I.M. 529.

Replace the fourth and fifth 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.~~

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.

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^2) or less ~~shall~~ will be at three times the contract unit price per square yard (square meter) for ~~Bridge Floor Overlay~~ 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

2416.05, E, Joints for Concrete Pipe

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

2416.05 Method of Measurement

Replace the first three paragraphs:

The ~~length~~ quantity of pipe culverts ~~will be determined by the nominal length of the sections installed~~, in feet (meters), will be the quantity shown in the contract documents for each culvert to the nearest foot (0.1 m) ~~exclusive of apron lengths~~ with no deductions for elbows, tees, and other fittings, but not including aprons. The quantity of pipe will be determined along the axis. ~~Pipe will not be measured for payment in excess of the specified length unless pipe installations have been ordered lengthened by the Engineer.~~

Type C~~-1~~ adapters required by the contract documents~~, or permitted and required because of poor quality~~ or installed to correct faulty work will not be measured for payment. Type C~~-1~~ adapters~~, installed at the direction~~

of the Engineer due to changes in pipe alignment, will be counted 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, Eelbows, bends, tees, and other fitting will be the quantity shown in the contract documents. special sections, except aprons, installed in accordance with the contract documents or as directed by the Engineer will be measured for payment along the axis of the pipe as length of pipe and in addition will be individually counted for payment. Pipe laterals terminating at a tee will be measured for payment 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. Aprons will be counted for payment, and any included length of pipe culvert will be measured for payment.

2416.06 Basis of Payment

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

For the length of concrete pipe installed, of the size specified as determined above, tThe 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-1 connections adapters shall be included in the price per linear foot (meter) for pipe, except when ordered as extra work.

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 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.

2417.06, Method of Measurement

Replace the first and second paragraphs:

Except for beveled end culverts, tThe length 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. s installed will be measured by the Engineer along the center line of each structure exclusive of apron lengths as designated in the contract documents. When beveled end culverts are installed, the length of pipe culvert installed will be measured along the center line at mid-height. The length will be to the nearest foot (0.1 m). The quantity of pipe will be determined along the axis. Pipe laterals terminating at a tee will be measured 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, as specified in the contract documents. Pipe will not be measured for payment in excess of the specified length unless pipe installations have been ordered lengthened by the Engineer.

The quantity of aprons, Eelbows, bends, tees, and other fittings will be the quantity shown in the contract documents. special sections, except aprons, installed in accordance with the contract documents or as directed by the Engineer, will be measured along the axis of the pipe as length of pipe and in addition will be individually counted. Aprons will be counted separately.

2417.07, Basis of Payment

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

For the length of pipe culvert installed, of the size specified, tThe 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, ~~aprons,~~ 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 ~~laying~~ laid length of pipe, shall be full compensation for the fitting installed.

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

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 ~~length~~ quantity of jacked pipe culvert will be determined along the axis. ~~specified shall be considered as the length end to end of jacked pipe culvert when assembled~~ ~~The length of culvert installed will be measured to the nearest foot (0.1 m), excluding the length of aprons.~~

2418.07 Basis of Payment

Replace the entire article:

~~For the length of Jacked Pipe Culvert installed, of the size specified, t~~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. ~~, excavation, installation, and for performing all the work according to the contract documents.~~ Culverts that consist of both jacked pipe culvert and conventionally placed pipe culvert will include separate bid items for each portion.

2420.12, Method of Measurement

Replace the first paragraph:

~~The Engineer will measure for payment the pipe, pipe arch, or arch, furnished and installed in place, completed and accepted,~~ 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). ~~Measurement will be~~ The quantity of pipe will be determined as follows:

2420.13, Basis of Payment

Replace the entire article:

~~For the length of structural plate pipe, arches, or pipe arches installed, of the size specified, t~~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 ~~according to the contract documents~~.

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:

UNCLASSIFIED ROADWAY LETDOWN PIPE CULVERT	
Coated Corrugated Iron or Steel	Section 2417
Polyethylene Pipe	Section 2417

2422.04 Method of Measurement

Replace the first paragraph:

Unclassified ~~entrance and roadway~~ 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 ~~entrance and roadway~~ pipe culverts will be as provided in Articles 2416.06 or 2417.07.

Division 25. Miscellaneous Construction.

Section 2503

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 ~~length~~ 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) ~~constructed will be measured in feet (meters) by the Engineer~~. Such ~~measurements~~ lengths shall exclude the space across catch basins, intakes, and utility access where pipe is not actually placed.

Type C~~-1 connections shown in~~ adapters required by the contract documents or installed to correct faulty work will not be measured for payment. ~~When Type C-1 connections are not shown, but are required because of change in alignment, they shall be installed as extra work.~~ 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:

~~For the length of storm sewer completed of the type and size specified, the Contractor will be compensated~~ 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~~-1 connections~~ 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~~-1 connections~~ adapters required because of change in alignment will be paid for ~~as extra work, as provided~~ 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 ~~Engineer will measure the length~~ quantity of sanitary sewer pipe, in feet (meters), to the nearest ~~0.1~~ 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. ~~and will determine the number of utility accesses and lamp holes constructed.~~

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 paragragh:

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 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:

~~Removal of composite pavements shall be as specified in the contract documents.~~ 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 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, ~~including new and retrofit concrete barrier for bridge structures,~~ 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.

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, l, 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 ~~on a~~ at the lump sum ~~basis~~ 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 7th 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 ~~25~~ 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

2527.03, H, 1, Insufficient Film Thickness, Line Width, or Low Retroreflectivity

Replace “Article 97036.03, B” with “Article 2527.03” in the first sentence.

2527.03, H, 2, Insufficient Bond

Replace “Article 97036.03, B” with “Article 2527.03” in the first sentence.

2527.05, K, Grooves Cut for Tape

Replace the second sentence:
This quantity will be equivalent to the number of stations (meters) measured for ~~Preformed Polymer Pavement Marking~~ the tape.

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 ~~an ATSSA Certified Traffic Control Technician on staff~~, even though the Traffic Control portion of the contract may be subcontracted. This ~~Certified~~ 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 ~~shall~~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 ~~shall~~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 ~~may~~ will not be allowed on pavements ~~in the months of July and August if tracking or soiling of the pavement becomes a problem~~ 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 ~~bu.~~ 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 (~~45~~ 4.5 Mg/ha) of prairie hay ~~per acre (hectare)~~, or other approved material, depending on the type of material furnished.

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, 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:

~~A.~~1. The maximum percent sulfur trioxide (SO_3) shall be 3.0% for Type I and Type II cements and ASTM C 150 Table 1, Note D, shall not apply.

~~B.~~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:

~~A.~~1. The pozzolan constituent of Type IP cement shall not be more than 20 weight (mass) percent of the Portland-pozzolan cement.

~~B.~~2. The maximum sulfur trioxide (SO_3) for Type IP and Type I(PM) cements shall be 3.5% and ASTM C 595 Table 1, Note B, shall not apply.

~~C. The alkali content expressed as total equivalent sodium oxide shall be not more than 0.75% for the clinker used in the production of Type IP or Type I(PM) cement.~~

~~D.~~3. The slag constituent of Type IS cement shall not be more than 35 weight (mass) percent of the Portland blast-furnace slag cement.

~~E.~~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:

~~A.~~1. Type II cement shall be used in Interstate and Primary pavements, except for quantities less than 3600 square yards (3000 m^2) furnished as transit mix concrete.

~~B.~~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.

~~C.~~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 ~~or Article 2403.12~~ shall apply.

~~D.~~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 ~~2~~ 3 durability or better ~~shall~~ will be required for ~~structural concrete, Section 2403, unless otherwise specified~~ all prestressed concrete units. Class 2 durability or better ~~shall~~ will be required for all ~~prestressed and~~ 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 ~~and Prestressed~~ Units
2407 (See 2407.03)		X		Prestressed Units

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 194/A 194M or~~ 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.

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 ~~at a rate of not less than 2.0 ounces per square foot (610 g/m2) of actual surface,~~ in compliance with ASTM A 123, Grade 85.

Replace the fifth paragraph:

Bolts (including anchor bolts), nuts, and washers, ~~including the upper end of anchor bolts~~ shall be galvanized according to ASTM A 153, Class ~~D coating~~ 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.