Iowa Department of Transportation

MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

March 08, 2007

Members Present:	Tom Reis, Chair	Specifications Section
	Daniel Harness, Secretary	Specifications Section
	Keith Norris	District 2-District Materials
	Gary Novey	Office of Bridges & Structures
	John Smythe	Office of Construction
	Jim Berger	Office of Materials
	Bruce Kuehl	District 6-District Construction
	Roger Bierbaum	Office of Contracts
	Doug McDonald	District 1-Marshalltown RCE
Members Not Present:	John Adam	Statewide Operations Bureau
	Mike Kennerly	Office of Design
	Troy Jerman	Office of Traffic & Safety
	Larry Jesse	Office of Local Systems
Advisory Members Present:	Curtis Monk	FHWA
Others Present:	Chris Poole	Office of Design
	Kevin Jones	Office of Contracts
	Ashley Whitford	FHWA
	Wayne Sunday	Office of Construction

Tom Reis, Specifications Engineer, opened the meeting. The following items were discussed in accordance with the agenda dated March 1, 2007:

1. Article 2001.20, D, Equipment for Volumetric Proportioning.

The Office of Materials requested changes that will add requirements for batch ticket printers to the specifications.

2. Article 2301.08, Bridge Approach Sections.

The Office of Construction requested changes to clarify the requirements for epoxy coated reinforcing for bridge approach sections, paved shoulders, and full-width reinforcement of pavement.

3. Article 2301.12, A, Placing Reinforcement.
Article 2301.12, B, Placing Dowel Bars.

The Office of Construction requested changes to clarify the requirements for epoxy coated reinforcing placement for bridge approach sections, paved shoulders, and full-width reinforcement for pavement.

The Specifications Section also requested a change to delete a sentence inadvertently added with GS-01012.

4. Section 2317, Smoothness of Bridge Decks and Bridge Deck Overlays.

The Office of Materials requested changes to cover current QC/QA requirements, to match the new Section 2316language, and to clear up some confusion.

5. Article 2403.07, A, 1, Tremies.
Article 2403.07, B, Underwater Placement Equipment.

The Office of Construction requested a change to limit tremie size to 12 inches (300 mm).

6. Article 2403.08, C, Placing Concrete.

The Office of Construction requested a change to eliminate the requirement for using a tremie if concrete placement of an element has a maximum dimension of 12 inches (300 mm) or less.

7. Article 2407.02, A, Aggregates.

The Office of Materials requested changes to base acceptance on mix design, not gradation.

8. Article 2412.06, A, Interstate and Primary Projects.

The Office of Construction requested a change to establish an ungrooved area adjacent to curbs.

9. Section 2413, Preparation of Surface for Surfacing.

The Office of Construction and the Office of Materials are requesting changes to provide information for test wells and reference to the testing procedure used for nuclear density testing of Class O mix deck overlays, and to remove the latex modified overlay option and replace it with a high performance concrete overlay option.

10. Article 2513.06, A, Cast-in-Place and Precast.
Article 2513.06, C, Clear Curing Compound.

The Office of Construction requested a change to require the use of fugitive dyes in clear curing compounds to ensure visual identification of the coverage.

11. Article 2518.01, A, Road Closures.
Article 2518.01, B, Hazard Closures.

The Work Zone Traffic Safety Committee requested changes to address concerns brought up at the Iowa DOT/ATSSA Joint Specification Committee meeting.

12. Article 4105.07, Clear Compounds.

The Office of Materials requested a change to match proposed changes to Article 2513.06.

13. Article 4151.02, Pavement Reinforcement.

The Office of Construction requested a change to establish clear requirements for epoxy coated reinforcing for bridge approaches sections, paved shoulders, and full-width reinforcement for pavements.

14. DS-01043, Sanitary Sewer (SUDAS).
DS-01044, Storm Sewer (SUDAS).
DS-01046, Water Main (SUDAS).

The Specifications Section is requesting the Committee review the revisions to the SUDAS Developmental Specifications and prepare comments for the next meeting.

15. Adding Developmental and Supplemental Specifications and Special Provisions.

The Specifications Section requested a discussion to determine a day to lock down the Project Scheduling System each letting so that only the Office of Contracts can add Supplemental Specifications, Developmental Specifications, and Special Provisions.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 1**
Submittal Date: February 5, 2007	**Proposed Effective Date:** October 2007	
Article No.: 2001.20, D **Title:** Equipment for Volumetric Proportioning	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: FHWA asked if a batch ticket printer could be used with HPC overlays. The Office of Construction and Office of Materials both stated it is allowable.

Specification Section Recommended Text:

2001.20, D, Equipment for Volumetric Proportioning.

Add as the fifth and sixth sentences:

Equipment used on miscellaneous pours shall be equipped with a batch ticket printer to include the cement, coarse and fine aggregate, and water count. Equipment used in accordance with Section 2413 shall be equipped with a batch ticket printer for the cement count.

Comments:

Member's Requested Change (Redline/Strikeout):

D. Equipment for Volumetric Proportioning.

Volumetric proportioning equipment shall meet the applicable requirements of ASTM C 685, Sections 5, 6, 7, and 8 and the applicable requirements of Article 2413.03, B. This equipment shall be calibrated each time, when in the opinion of the Engineer, material or condition changes may affect the calibration. It is not intended that this equipment be used in lieu of conventional drum mixing equipment normally used for structures and paving applications. This equipment may be used on miscellaneous concrete pours, described in Materials I.M. 534, less than 50 cubic yards (50 cubic meters) per day. Equipment used on miscellaneous pours shall be equipped with a batch ticket printer to include the cement, coarse and fine aggregate, and water count. Equipment used in accordance with Article 2413 shall be equipped with a batch ticket printer for the cement count.

Reason for Revision:

County or City Input Needed (X one)	**Yes**	**No**

Comments:

Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Add the requirements for batch ticket printers to the specifications. All materials printed for miscellaneous pours since they will be using various mix designs. Cement only required for deck overlays since the O mix is used exclusively and cement gate setting controls the sand and rock gate settings. All overlay contractors except one currently have the cement batch ticket printer.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 2**
Submittal Date: February 6, 2007	**Proposed Effective Date:** October 16, 2007	
Article No.: 2301.08 **Title:** Bridge Approach Sections	**Other:**	

Specification Committee Action: Approved with changes as noted.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text:

2301.08, Bridge Approach Sections.

Replace the title and the entire article:

Bridge Approach Sections, Reinforced Paved Shoulders, and Full-width Reinforcement for Pavements.

Bridge approach sections, reinforced paved shoulders, and full-width reinforcement for pavements shall be constructed as shown in the contract documents. All reinforcing shall be epoxy coated in accordance with Article 4151.03, except that cut or sheared ends need not be recoated. Clear distance from face of concrete to near reinforcing steel shall be 2 inches (50 mm), unless otherwise noted in the contract documents. Class C concrete shall be used, with coarse aggregate durability in accordance with Article 4115.04.

Comments: The Office of Construction explained that bridge approach sections, reinforced paved shoulders, and full-width reinforced pave are basically structural elements, so they should be treated in the same manner as in structural elements. The Office of Bridges of Structures asked why paved shoulders have been added. The Office of Construction explained they did this to cover areas outside of the approaches. The shoulders have reinforcement that ties into the barriers, making the shoulders structural elements.

The Office of Design asked if this information should be included in Section 2404. The Office of Construction explained that it is best to include the information in Section 2301 since it pertains to paving.

The Office of Design noted the first sentence reads, "…reinforcement of pavements…" but the title reads, "…Reinforcement for Pavements." The Specifications Section noted they will clear up that inconsistency.

Specification Section Recommended Text:

2301.08, Bridge Approach Sections.

Replace the title and the entire article:

2301.08, Bridge Approach Sections, Reinforced Paved Shoulders, and Full-width Reinforcement for Pavements.

Bridge approach sections, reinforced paved shoulders, and full-width reinforcement of pavements shall be constructed as shown in the contract documents. All reinforcing shall be epoxy coated in accordance with Article 4151.03, except that cut or sheared ends need not be recoated. Clear distance from face of concrete to near reinforcing steel shall be 2 inches (50 mm), unless otherwise noted in the contract documents. Class C concrete shall be used, with coarse aggregate durability in accordance with Article 4115.04.

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

~~**2301.08 BRIDGE APPROACH SECTIONS**~~

~~Bridge approach sections shall be constructed as shown in the contract documents. All approach pavement reinforcing steel shall be epoxy coated. Clear distance from face of concrete to near reinforcing steel shall be 2 inches (50mm), unless otherwise noted in the contract documents. The Bridge Approach Section shall be Class C Concrete, with coarse aggregate durability in accordance with Article 4115.04.~~

2301.08 BRIDGE APPROACH SECTIONS, REINFORCED PAVED SHOULDERS, AND FULL-WIDTH REINFORCEMENT FOR PAVEMENTS.

Bridge approach sections, reinforced paved shoulders, and full-width reinforcement of pavements shall be constructed as shown in the contract documents. All reinforcing shall be epoxy coated in accordance with Article 4151.03, except that cut or sheared ends need not be recoated. Clear distance from face of concrete to near reinforcing steel shall be 2 inches (50mm), unless otherwise noted in the contract documents. Class C Concrete shall be used, with coarse aggregate durability in accordance with Article 4115.04.~~-~~

Reason for Revision: Establish clear requirements for epoxy coated reinforcing for bridge approach sections, paved shoulders, and full-width reinforcement of pavement.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 3**
Submittal Date: February 21, 2007	**Proposed Effective Date:** October 16, 2007	
Article No.: 2301.12, A **Title:** Placing Reinforcement **Article No.:** 2301.12, B **Title:** Placing Dowel and Tie Bars	**Other:**	

Specification Committee Action: Approved with changes as noted.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text:

2301.12, A, Placing Reinforcement.

Replace the first sentence of the first paragraph:

Reinforcement shall be installed prior to vibration so as to be in the intended position in the completed pavement in accordance with Article 2404.06.

Add as the second paragraph:

Reinforcement for bridge approach sections shall be supported by approved continuous bolsters with runners. The supports shall be placed transversely across the approach and spaced longitudinally no greater than 4 feet (1.2 m). For double reinforced approach sections the top layer of reinforcing may be chaired off the bottom layer of reinforcing using approved continuous high chairs with runners, provided they are positioned directly above the continuous bolsters with runners supporting the bottom layer of reinforcing. Epoxy coated reinforcing steel shall be held in place with epoxy or plastic coated bar supports and epoxy or plastic coated tie wires. Continuous bolsters with runners and continuous high chairs with runners, either plastic or steel, shall meet the requirements of Materials I.M. 451.01.

2301.12, B, Placing Dowel and Tie Bars.

Replace the title of the article:

Placing ~~Dowel Bars and Tie Bars~~ Load Transfer Devices.

Replace the first sentence of the first paragraph:

Load transfer devices ~~(dowel bars and/or tie bars)~~ may be required in the contract documents.

Delete the fifth sentence of the first paragraph:

~~Tie bars may be inserted using a mechanical tie bar inserter.~~

Replace the second sentence of the second paragraph:

Horizontal and vertical alignment of the load transfer bars shall not exceed 1/4 inch (5 mm) ~~form~~ from parallel to line and grade.

Comments: The Office of Construction noted that tie bars aren't actually load transfer devices and should be moved up to Placing Reinforcement.

Concern was expressed that placing tie bars under reinforcing would require the epoxy coating be repaired if damaged during placement (e.g. while bending the bars). This could add substantial labor and cost. There isn't any evidence showing that not repairing epoxy coating is detrimental to the joint. The Office of Construction suggested deleting the last sentence of Article 4151.02, A. This would eliminate the requirement for the Contractor to repair the epoxy coating.

Specification Section Recommended Text:

2301.12, A, Placing Reinforcement.

Replace the first sentence of the first paragraph:

Reinforcement shall be installed prior to vibration so as to be in the intended position in the completed pavement in accordance with Article 2404.06.

Add as the second paragraph:

Reinforcement for bridge approach sections shall be supported by approved continuous bolsters with runners. The supports shall be placed transverse across the approach and spaced longitudinally at not greater than 4 feet (1.2 m). For double reinforced approach sections the top layer of reinforcing may be chaired off the bottom layer of reinforcing using approved continuous high chairs with runners, provided they are positioned directly above the continuous bolsters with runners supporting the bottom layer of reinforcing. Epoxy coated reinforcing steel shall be held in place with epoxy or plastic coated bar supports and epoxy or plastic coated tie wires. Continuous bolsters with runners and continuous high chairs with runners, either plastic or steel, shall meet the requirements of Materials I.M. 451.01.

2301.12, B, Placing Dowel and Tie Bars.

Delete the fifth sentence of the first paragraph:

~~Tie bars may be inserted using a mechanical tie bar inserter.~~

Comments: The Specifications Section is also recommending the fifth sentence of the first paragraph of Article 2301.12, B, be deleted. This sentence was inadvertently added with GS-01012.

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

2301.12 PLACING REINFORCEMENT AND PLACING DOWEL AND TIE BARS.

A. Placing Reinforcement.

Reinforcement shall be installed prior to vibration so as to be in the intended position in the completed pavement in accordance with Article 2404.06. Reinforcing bars may be supported by approved chairs or may be placed in position by a machine or method subject to approval of the Engineer.

Reinforcement for bridge approach sections shall be supported by approved continuous bolsters with runners. The supports shall be placed transverse across the approach and spaced longitudinally at not greater than 4 feet. For double reinforced approach sections the top layer of reinforcing may be chaired off the bottom layer of reinforcing using approved continuous high chairs with runners provided they are positioned directly above the continuous bolsters with runners supporting the bottom layer of reinforcing. Epoxy coated reinforcing steel shall be held in place with epoxy or plastic coated bar supports and epoxy or plastic coated tie wires. Continuous bolsters with runners and continuous high chairs with runners, either plastic or steel, shall meet the requirements of Materials I.M. 451.01.

When welded wire fabric reinforcement is used, the concrete shall first be struck off at the elevation specified for the fabric reinforcement, and the sheets of fabric shall be placed as indicated in the contract documents. The sheets of fabric shall be flat, and care shall be used in handling and placing the fabric to ensure its installation in the proper position. The balance of the concrete shall then be deposited and vibrated in a manner to not displace or distort the fabric. Sheets that have become bent or kinked may be rejected.

Alternate methods of placing welded wire fabric reinforcement will be considered for approval.

Reason for Revision: Establish clear requirements for epoxy coated reinforcing placement for bridge approach sections, paved shoulders, and full-width reinforcement for pavement.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 4**
Submittal Date: February 19, 2007	**Proposed Effective Date:** October 2007	
Section No.: 2317 **Title:** Smoothness of Bridge Decks and Bridge Deck Overlays.	**Other:**	

Specification Committee Action: Approved with changes as noted.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text:

2317.03, Profile Testing.

Replace the entire article:

~~The Contractor shall perform testing and furnish the profilogram results to the Engineer. The testing and evaluation shall be done by a trained and certified person, and the evaluation shall be certified in accordance with Materials I.M. 341.~~

~~The Engineer may perform monitor testing. Any portion of the project may be tested if the Engineer determines that the Contractor certified test results are inaccurate. If the test results are inaccurate, the Contractor will be charged for this work at a rate of $150 per lane per mile (kilometer), with a minimum charge of $500. In addition, furnishing inaccurate test results could result in decertification.~~

~~If the placements are less than 100 feet (30 m), each lane shall be tested and evaluated. The final trace and index and the final evaluation shall be received by the Engineer within 14 calendar days of the completion of the deck.~~

~~On deck placements of 100 feet (30 m) and greater, the initial profile trace and index for each lane shall be received by the Engineer by noon of the fifth working day following each of the first two placements. On subsequent placements, the trace and index shall be submitted following every third placement until completion of the deck. On single pour bridges, the final profile trace and index and the final evaluation shall be submitted to the Engineer within 2 weeks of the completion of the deck.~~

The Contractor shall remove all objects and foreign material from the deck surface, including protective covers, if used, prior to testing by the Engineer. If appropriate, properly replace protective covers after testing.

A profilogram will be made by a test in each wheel path of each traffic lane. The profilogram will include a minimum of 16 feet (5 m) beyond the bridge section when there is adjoining pavement. Bridge decks and bridge deck overlays will be treated as one section. The profilogram will include a minimum of 100 feet (30 m) beyond the approach section when there is adjoining pavement.

For bridge lengths of 778 feet (240 m) or less, each traffic lane shall be a segment. For bridge longer than 778 feet (240 m), a segment shall be 0.1 miles (160 m) of the traffic lane. If the remaining segment is 250 feet (80 m) or less in length, it shall be included in the adjacent bridge segment. If the remaining segment is more than 250 feet (80 m) in length, it shall be evaluated on its own. When bridge deck overlay expansion joints are not adjusted, segments shall begin and end at the expansion joints.

Each bridge approach lane shall be a separate segment.

The Contractor shall perform quality control testing and furnish the profilogram results to the Engineer. The testing and evaluation shall be done by a trained and certified person, and the evaluation shall be certified in accordance with Materials I.M. 341.

Comments: The Office of Materials pointed out that in the fourth sentence of the second paragraph of Article 2317.02, (5 m) should be changed to (30 m).

The FHWA asked if both the Contractor and Department do testing. The Office of Materials verified this.

Specification Section Recommended Text:

2317.02, Measurement.

Replace the title and the entire article:

2317.02, Equipment.

~~Smoothness shall be measured with California type profilograph, which produces a profilogram (profile trace) of the surface tested, in accordance with Materials I.M. 341.~~

~~All objects and foreign material on the deck surface, including protective covers, if used, shall be removed by the Contractor prior to testing, and if appropriate, protective covers shall be properly replaced by the Contractor after testing.~~

~~A profilogram will be made by a test in each wheel path of each traffic lane. The profilogram will include a minimum of 16 feet (5 m) beyond the section when there is adjoining pavement. Bridge decks, and bridge deck overlays will be treated as one section. Each traffic lane will be divided into segments not exceeding 0.1 mile (160 m) if the bridge exceeds 778 feet (240 m) in length. On a bridge less than 778 feet (240 m) in length, each traffic lane of the bridge shall be considered as one segment.~~

~~Bridge deck overlays on which expansion joints are not adjusted will be did into segments beginning and ending at the expansion joints unless the distance between expansion joints exceeds 778 feet (240 m). If the distance between expansion joints exceeds 778 feet (240 m), the distance shall be divided into segments not to exceed 0.1 mile (160 m) nor less than 250 feet (80 m).~~

The Contractor shall provide and operate an Ames type or California type profilograph to produce a profilogram (profile trace) of the surface tested in accordance with Materials I.M. 341. Other types of profilographs or profilers that produce compatible results and meet the requirements of Materials I.M. 341 may be used.

2317.03, Profile Testing.

Replace the entire article:

~~The Contractor shall perform testing and furnish the profilogram results to the Engineer. The testing and evaluation shall be done by a trained and certified person, and the evaluation shall be certified in accordance with Materials I.M. 341.~~

~~The Engineer may perform monitor testing. Any portion of the project may be tested if the Engineer determines that the Contractor certified test results are inaccurate. If the test results are inaccurate, the Contractor will be charged for this work at a rate of $150 per lane per mile (kilometer), with a minimum charge of $500. In addition, furnishing inaccurate test results could result in decertification.~~

~~If the placements are less than 100 feet (30 m), each lane shall be tested and evaluated. The final trace and index and the final evaluation shall be received by the Engineer within 14 calendar days of the completion of the deck.~~

~~On deck placements of 100 feet (30 m) and greater, the initial profile trace and index for each lane shall be received by the Engineer by noon of the fifth working day following each of the first two placements. On subsequent placements, the trace and index shall be submitted following every third placement until completion of the deck. On single pour bridges, the final profile trace and index and the final evaluation shall be submitted to the Engineer within 2 weeks of the completion of the deck.~~

The Contractor shall remove all objects and foreign material from the deck surface, including protective covers, if used, prior to testing by the Engineer. If appropriate, properly replace protective covers after testing.

A profilogram will be made by a test in each wheel path of each traffic lane. The profilogram will include a minimum of 16 feet (5 m) beyond the bridge section when there is adjoining pavement. Bridge decks and bridge deck overlays will be treated as one section. The profilogram will include a minimum of 100 feet (5 m) beyond the approach section when there is adjoining pavement.

For bridge lengths of 778 feet (240 m) or less, each traffic lane shall be a segment. For bridge longer than 778 feet (240 m), a segment shall be 0.1 miles (160 m) of the traffic lane. If the remaining segment is 250 feet (80 m) or less in length, it shall be included in the adjacent bridge segment. If the remaining segment is more than 250 feet (80 m) in length, it shall be evaluated on its own. When bridge deck overlay expansion joints are not adjusted, segments shall begin and end at the expansion joints.

Each bridge approach lane shall be a separate segment.

The Contractor shall perform quality control testing and furnish the profilogram results to the Engineer. The testing and evaluation shall be done by a trained and certified person, and the evaluation shall be certified in accordance with Materials I.M. 341.

Section 2317.04, Profile Index.

Replace the first paragraph:

An ~~individual~~ average profile index shall be calculated for each segment from the two wheel path profilograms in accordance with Materials I.M. 341 except for:

1. Bridge decks or bridge deck overlays less than 100 feet (30 m) in length.
2. New bridge approach sections or bridge approach overlays less than 100 feet (30 m) in length.
~~**3.** Bridge deck overlays including overlay of approaches less than 100 feet (30 m) in length.~~
~~4~~3. Bridge decks for new concrete slab bridges.
~~5~~4. The 16 feet (5 m) at the ends of the section ~~when the Contractor is not responsible for the adjoining surface~~.
~~6~~5. The 16 feet (5 m) on each side of the expansion joints not adjusted.

Replace the second paragraph:

~~Tests in both wheel paths will be averaged for each lane.~~

Limits for average profile index per 0.1 mile (160 m) segment shall be as follows:

New Bridge Deck	less than 22.1 inches/mile (351 mm/km)
Bridge Deck Overlay	less than 15.1 inches/mile (241 mm/km)
Bridge Approach (New or Overlaid)	less than 22.1 inches/mile (351 mm/km)

The Engineer will perform verification testing to validate the Contractor's certified quality control testing. If the Engineer's verification test results validate the Contractor's test results, the Contractor's results will be used for acceptance. Disputes between the Contractor's and Engineer's test results will be resolved in accordance with Materials I.M. 341. The Engineer may test the entire project length if it is determined that the Contractor's certified test results are inaccurate, and the

Contractor will be charged for this work at a rate of $500 per bridge deck. In addition, providing inaccurate test results may result in decertification.

If the placements are less than 100 feet (30 m), each lane shall be tested and evaluated. The Contractor shall provide the Engineer with the final trace and index and the final evaluation within 14 calendar days of the completion of the deck.

On deck placements of 100 feet (30 m) and greater, the Contractor shall provide the Engineer with the initial profile trace and index for each lane by noon of the fifth working day following each of the first two placements. On subsequent placements, the Contractor shall provide the Engineer with the trace and index following every third placement until completion of the deck. On single-pour bridges, the Contractor shall provide the Engineer with the final profile trace and index and the final evaluation within 2 weeks of the completion of the deck.

2317.05, Surface Correction.

Replace the sixth paragraph:

~~Transverse grooving shall be re-established through the corrected areas using diamond blades to provide a surface similar to that of a new deck except the area within approximately 2 feet (0.6 m) from the curb.~~

Corrective grinding shall be done before longitudinal grooving.

2317.06, Smoothness.

Replace the title and **delete** the first two paragraphs:

2317.06, Bumps and Dips.

~~On bridge decks, new bridge approaches, bridge deck overlays and overlays of approaches the segments shall be constructed to an index of not greater than 22 inches per mile (350 mm/km) for new decks and approaches and 15 inches per mile (240 mm/km) for overlay of decks and approaches, except for areas identified in Article 2317.04.~~

~~Smoothness of new bridge approach sections or overlay of bridge approach sections will not be used in the calculations for incentive or price reduction of bridge decks or bridge deck overlays.~~

2317.06, A, Bumps.

Replace the first paragraph:

All bumps exceeding 0.5 inch (~~13~~ 12.7 mm) within a 25 foot (7.6 m) span, as indicated on the profilogram, shall be corrected except as stated in Article 2317.06, C.

2317.06, B, Dips.

Replace the first two sentences:

All dips exceeding 0.5 inch (~~13~~ 12.7 mm) in a 25 foot (7.6 m) span, as indicated on the profilogram, shall be corrected only when required by the Engineer except as stated in Article 2317.06, C. The Contractor will be assessed a price adjustment of $900 for each dip exceeding 0.5 inch (~~13~~ 12.7 mm) that is not corrected except as stated in Article 2317.06, C.

2317.06, C, Exceptions.

Replace the first sentence:

When the Contractor is not responsible for the adjoining surface, bumps and dips exceeding 0.5 inches (~~13~~ 12.7 mm) located within 16 feet (5 m) either side of the end of a section will be evaluated by the Engineer.

2317.07, A, Incentives.

Replace the second paragraph and the table following the third paragraph:

For ~~any portion~~ each segment of a bridge to be qualified for an incentive payment, the profilogram for ~~each~~ that segment before correction must meet the specification requirement so there is no price reduction.

INCENTIVES			
NEW BRIDGE DECKS		**BRIDGE DECK OVERLAYS**	
Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment	Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment
0 – 6.0 (0-95)	6000	0 – 2.0 (0-32)	2000
6.1 – 12.0 (~~95.1~~ 96-190)	3000	2.1 – 4.0 (~~32.1~~ 33-65)	1000
12.1 – 22.0 (~~190.1~~ 191-350)	Unit Price	4.1-15.0 (~~65.1~~ 66-240)	Unit Price

2317.07, B, Price Reduction.

Replace the third paragraph and the table following the third paragraph:

For each segment of bridge deck with a final index of 22.1 inches per mile (~~350.1~~ 351 mm/km) or greater or bridge deck overlay with a final index of 15.1 inches per mile (~~240.1~~ 241 mm/km) or greater, the contractor shall accept a price reduction in accordance with the following schedule:

PRICE REDUCTION			
NEW BRIDGE DECKS		**BRIDGE DECK OVERLAYS**	
Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment	Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment
22.1 – 30.0 (~~350~~ 351-470)	2000	15.1 – 20.0 (~~240.~~1 241-315)	1000
30.1 – 35.0 (~~470.1~~ 471-550)	4000	20.1 – 25.0 (~~315.1~~ 316-390)	2000
35.1 – 40.0 (~~550.1~~ 551-630)	6000	25.1 – 30.0 (~~390.1~~ 391-470)	3000
over 40.0 (over 630)	*	over 30.0 (over 470)	*
* Correction shall be required to an index of 15.0 inches per mile (240 mm/km) for overlays and to an index of 22.0 inches per mile (350 mm/km) for new decks.			

2317.07, C, Bridge Approach Sections and Overlay of Bridge Approach Sections.

Replace the entire article:

Bridge approach sections and overlay of bridge approach sections shall be corrected for smoothness as specified in ~~Article 2317.06~~ Article 2317.05 in lieu of a price reduction.

Comments:

Member's Requested Change (Redline/Strikeout):

Section 2317. Smoothness of Bridge Decks and Bridge Deck Overlays .

2317.01 GENERAL.
Smoothness shall be evaluated for all Interstate and Primary bridge decks, new approaches and bridge deck overlays, and overlaid approaches except when specifically excluded by the contract documents. Smoothness shall also be evaluated for all non-Primary bridge decks, new approaches and bridge deck overlays, and overlaid approaches for projects where the Department is the Contracting Authority, except when specifically excluded in the contract documents.

If this specification is required by contract documents on non-Primary projects let by the Department, it will be added in its entirety. Selected portions of the specification will not be deleted.

2317.02 ~~MEASUREMENT~~. EQUIPMENT
~~Smoothness shall be measured with California type profilograph, which produces a profilogram (profile trace) of the surface tested, in accordance with Materials I.M. 341~~.

The Contractor shall provide and operate an Ames type or California type profilograph to produce a profilogram (profile trace) of the surface tested in accordance with Materials I.M. 341. Other types of profilographs or profilers that produce compatible results and meet the requirements of Materials I.M. 341 may be used.

~~All objects and foreign material on the deck surface, including protective covers, if used, shall be removed by the Contractor prior to testing, and if appropriate, protective covers shall be properly replaced by the Contractor after testing~~.

2317.03 PROFILOGRAPH TESTING.

The Contractor shall remove all objects and foreign material on the deck surface, including protective covers, if used, prior to testing by the Engineer. If appropriate, properly replace protective covers after testing.

A profilogram will be made by a test in each wheel path of each traffic lane. The profilogram will include a minimum of 16 feet (5 m) beyond the bridge section when there is adjoining pavement. Bridge decks, and bridge deck overlays will be treated as one section. The profilogram will include a minimum of 100 feet (5 m) beyond the approach section when there is adjoining pavement.

For bridge lengths of 778 feet or less, each traffic lane shall be a segment. For bridge longer than 778 feet, a segment shall be 0.1 miles of the traffic lane. If the remaining segment is 250 feet or less in length, it shall be included in the adjacent bridge segment. If the remaining segment more than 250 feet in length, it shall be evaluated on its own. When bridge deck overlays expansion joints are not adjusted, segments shall begin and end at the expansion joints.

Each bridge approach lane shall be a separate segment.

~~Each traffic lane will be divided into segments not exceeding 0.1 mile (160 m) if the bridge exceeds 778 feet (240 m) in length. On a bridge less than 778 feet (240 m) in length, each traffic lane of the bridge shall be considered as one segment.~~

~~Bridge deck overlays on which expansion joints are not adjusted will be divided did into segments beginning and ending at the expansion joints unless the distance between expansion joints exceeds 778 feet (240 m). If the distance between expansion joints exceeds 778 feet (240 m), the distance shall be divided into segments not to exceed 0.1 mile (160 m) nor less than 250 feet (80 m).~~

~~2317.03 PROFILOGRAPH TESTING.~~

The Contractor shall perform quality control testing and furnish the profilogram results to the Engineer. The testing and evaluation shall be done by a trained and certified person, and the evaluation shall be certified in accordance with Materials I.M. 341.

~~The Engineer may perform monitor testing. Any portion of the project may be tested if the Engineer determines that the Contractor certified test results are inaccurate. If the test results are inaccurate, the Contractor will be charged for this work at a rate of $150 per lane per mile (kilometer), with a minimum charge of $500. In addition, furnishing inaccurate test results could result in decertification.~~

~~If the placements are less than 100 feet (30 m), each lane shall be tested and evaluated. The final trace and index and the final evaluation shall be received by the Engineer within 14 calendar days of the completion of the deck.~~

~~On deck placements of 100 feet (30 m) and greater, the initial profile trace and index for each lane shall be received by the Engineer by noon of the fifth working day following each of the first two placements. On subsequent placements, the trace and index shall be submitted following every third placement until completion of the deck. On single-pour bridges, the final profile trace and index and the final evaluation shall be submitted to the Engineer within 2 weeks of the completion of the deck.~~

2317.04 PROFILE INDEX.

An average profile ~~individual~~ index shall be calculated for each segment from the two wheel path profilograms in accordance with Materials I.M. 341 except for:

1. Bridge decks or bridge deck overlays less than 100 feet (30 m) in length.
2. New bridge approach sections or bridge approach overlays less than 100 feet (30 m) in length.
3~~. Bridge deck overlays including overlay of approaches less than 100 feet (30 m) in length~~.
4. Bridge decks for new concrete slab bridges.
5. The 16 feet (5 m) at the ends of the section ~~when the Contractor is not responsible for the adjoining surface~~.
6. The 16 feet (5 m) on each side of the expansion joints not adjusted.

~~Tests in both wheel paths will be averaged for each lane~~.

Limits for average profile index per 0.1-mile segment

- New Bridge Deck — less than 22.1 inches/mile
- Bridge Deck Overlay — less than 15.1 inches/mile
- Bridge Approach (New or Overlaid) — less than 22.1 inches/mile

The Engineer will perform verification testing to validate the Contractor's certified quality control testing. If the Engineer's verification test results validate the Contractor's test results, the Contractor's results will be used for acceptance. Disputes between the Contractor's and Engineer's test results will be resolved in accordance with Materials I.M. 341. The Engineer may test the entire project length if it is determined that the Contractor's certified test results are inaccurate, and the Contractor will be charged for this work at a rate of $500 per bridge deck. In addition, providing inaccurate test results may result in decertification.

If the placements are less than 100 feet (30 m), test and evaluate each lane. Provide the Engineer the final trace and index and the final evaluation within 14 calendar days of the completion of the deck.

On deck placements of 100 feet (30 m) and greater, provide the Engineer the initial profile trace and index for each lane by noon of the fifth working day following each of the first two placements. On subsequent placements, provide the Engineer the trace and index following every third placement until completion of the deck. On single-pour bridges, provide the Engineer the final profile trace and index and the final evaluation within 2 weeks of the completion of the deck.

2317.05 SURFACE CORRECTION.
Surface correction work shall be for the full segment width of the paved surface.

All correction work shall be subject to the approval by the Engineer. After all required correction work is completed, the final profile index shall be determined.

Surface correction shall be accomplished by grinding or by other methods approved by the Engineer. This work shall be as identified in Section 2532, Pavement Surface Repair (Diamond Grinding), except the cutting head shall have a minimum width of 24 inches (600 mm). Surface correction shall be performed parallel to lane lines or edge lines as directed by the Engineer and each pass shall be parallel to the previous passes. The ground surface shall be of uniform texture.

Adjacent passes shall not overlap more than 1 inch (25 mm) and they shall not have a vertical difference of more than 1/8 inch (3 mm) as measured from bottom of groove to bottom of groove. Smoothness correction shall begin and end at lines normal to the lane lines or edge lines within any one corrected area. The grinding shall proceed from the center line or lane line toward the edge to maintain cross slope.

Cross slope must be maintained throughout the corrected area.

~~Transverse grooving shall be re-established through the corrected areas using diamond blades to provide a surface similar to that of a new deck except the area within approximately 2 feet (0.6 m) from the curb.~~

Corrective grinding shall be done before longitudinal grooving.

2317.06 ~~SMOOTHNESS.~~ BUMPS AND DIPS.
~~On bridge decks, new bridge approaches, bridge deck overlays and overlays of approaches the segments shall be constructed to an index of not greater than 22 inches per mile (350 mm/km) for new decks and approaches and 15 inches per mile (240 mm/km) for overlay of decks and approaches, except for areas identified in Article 2317.04.~~

~~Smoothness of new bridge approach sections or overlay of bridge approach sections will not be used in the calculations for incentive or price reduction of bridge decks or bridge deck overlays.~~

Bumps and dips, including those at headers, on all surfaces for which smoothness is designated will be evaluated. Correction work will be required in accordance with the following criteria. Areas excluded from profilograph testing shall be corrected for deviations exceeding 1/8 inch in 10 feet (3 mm in 3 m).

A. Bumps.
All bumps exceeding 0.5 inch (12.7~~3~~ mm) within a 25 foot (7.6 m) span, as indicated on the profilogram, shall be corrected except as stated in Article 2317.06, C.

Corrected bumps will be considered satisfactory when measurement by the profilograph shows that the bumps were 0.3 inch (8 mm) or less in a 25 foot (7.6 m) span.

B. Dips.
All dips exceeding 0.5 inch (12.7~~3~~ mm) in a 25 foot (7.6 m) span, as indicated on the profilogram, shall be corrected only when required by the Engineer except as stated in Article 2317.06, C. The

Contractor will be assessed a price adjustment of $900 for each dip exceeding 0.5 inch (12.73 mm) that is not corrected except as stated in Article 2317.06, C. A dip in both wheel paths at a lane location will be considered a single dip when assessing a price adjustment. Corrected dips will be considered satisfactory when the profilogram shows the dips are less than 0.3 inch (8 mm) in a 25 foot (7.6 m) span.

C. Exceptions.
When the Contractor is not responsible for the adjoining surface, bumps and dips exceeding 0.5 inches (12.73 mm) located within 16 feet (5 m) either side of the end of a section will be evaluated by the Engineer. The Contractor will not receive a price adjustment for bumps and dips in this area. When instructed by the Engineer, the contractor will be paid to repair these bumps and dips in accordance with Article 1109.03, B.

2317.07 SCHEDULE OF PAYMENT.
The cost of certified profilograph testing and associated traffic control shall be incidental to the contract unit price for the item for which the testing is required.

A. Incentives
New bridge decks or bridge deck overlays which are designated for smoothness shall be evaluated for incentives using the initial profile index and the number of segments on the bridge.

For ~~any portion~~ each segment of a bridge to be qualified for an incentive payment, the profilogram for ~~each~~ that segment before correction must meet the specification requirement so there is no price reduction.

For each segment of the bridge deck or bridge deck overlay, the incentive index is 12.0 inches per mile (190 mm/km) for new bridge decks, and 4.0 inches per mile (65 mm/km) for bridge deck overlays. The incentive payment will be in accordance with the following schedule:

INCENTIVES

NEW BRIDGE DECKS		BRIDGE DECK OVERLAYS	
Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment	Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment
0 – 6.0 (0-95)	6000	0 – 2.0 (0-32)	2000
6.1 – 12.0 (965.1-190)	3000	2.1 – 4.0 (332.1-65)	1000
12.1 – 22.0 (1910.1-350)	Unit Price	4.1-15.0 (665.1-240)	Unit Price

B. Price Reduction
New bridge decks or bridge overlays which are designated for smoothness shall be evaluated for price reduction assessment using the final profile index and the number of segments.

The Contractor may grind the surface of the bridge deck to a final index of 22.0 inches per mile (350 mm/km) or less, or the surface of a bridge deck overlay to a final index of 15.0 inches per mile (240 mm/km) in lieu of a price reduction.

For each segment of bridge deck with a final index of 22.1 inches per mile (3510.1 mm/km) or greater or bridge deck overlay with a final index of 15.1 inches per mile (2410.1 mm/km) or greater, the contractor shall accept a price reduction in accordance with the following schedule:

PRICE REDUCTION

NEW BRIDGE DECKS		BRIDGE DECK OVERLAYS	
Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment	Initial Profile Index Inches Per Mile (mm/km) Per Segment	Dollars Per Segment
22.1 – 30.0 (3510-470)	2000	15.1 – 20.0 (2410.1-315)	1000
30.1 – 35.0 (4710.1-550)	4000	20.1 – 25.0 (3165.1-390)	2000
35.1 – 40.0 (5510.1-630)	6000	25.1 – 30.0 (3910.1-470)	3000
over 40.0 (over 630)	*	over 30.0 (over 470)	*
* Correction shall be required to an index of 15.0 inches per mile (240 mm/km) for overlays and to an index of 22.0 inches per mile (350 mm/km) for new decks.			

C. Bridge Approach Sections and Overlay of Bridge Approach Sections.
Bridge approach sections and overlay of bridge approach sections shall be corrected for smoothness as specified in ~~Article 2317.06~~ Article 2317.05 in lieu of a price reduction.

Reason for Revision: To cover current QC/QA requirements, to match the new 2316, and to clear up some confusion.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments: Wayne Sunday has notified industry.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 5**
Submittal Date: February 21, 2007	**Proposed Effective Date:** October 16, 2007	
Article No.: 2403.07, A, 1 **Title:** Tremies. **Article No.:** 2403.07, B **Title:** Underwater Placement Equipment.	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Office of Bridges and Structures asked if it is now up to the Contractor to choose a minimum size. The Office of Construction verified this and commented that on occasion contractors need a tremie smaller than the minimum 10 inch diameter previously required.

Specification Section Recommended Text:

2403.07, A, 1, Tremies.

Replace the first sentence:

When required, a tremie shall be used for depositing concrete in the dry. It shall not be ~~less than 10 inches (250 mm)~~ more than 12 inches (300 mm) in diameter and there shall be no aluminum parts in contact with the concrete.

2403.07, B, Underwater Placement Equipment.

Replace the second sentence of the second paragraph:

The tremie shall not be ~~less than 10 inches (250 mm)~~ more than 12 inches (300 mm) in diameter and there shall be no aluminum parts in contact with concrete.

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

2403.07 PLACING AND FINISHING EQUIPMENT.
Equipment for placing and finishing concrete shall comply with the following requirements:

A. Above Water or Dry Placement Equipment.

1. Tremies.
When required, a tremie shall be used for depositing concrete in the dry. It shall not be ~~less than 10 inches (250 mm)~~ more than 12 inches (300 mm) in diameter and there shall be no

aluminum parts in contact with the concrete. The length shall be sufficient to extend to the bottom of the placement area.

2. Chutes.
Chutes for depositing concrete shall be constructed of metal or with a metal lining. Aluminum shall not be allowed to be in contact with the concrete. The length shall be sufficient for the delivery point to be as close as possible to the point of deposit, and provide a slope to allow the concrete to flow slowly without segregation.

B. Underwater Placement Equipment.
Concrete placed under water shall be placed with a tremie, pump, or other equipment which meets the approval of the Engineer.

A tremie used to deposit concrete under water shall be constructed to be water tight and readily discharge concrete. The tremie shall not be ~~less than 10 inches (250 mm)~~ more than 12 inches (300 mm) in diameter and there shall be no aluminum parts in contact with concrete. The discharge end of the tremie shall be constructed to prevent water intrusion and permit free flow of concrete during placement operations. It shall have sufficient weight (mass) and length to rest on the bottom of the placement area prior to start of concrete placement. The tremie shall be supported so that it can be raised or lowered to increase or reduce the discharge of concrete.

Reason for Revision: Original tremie size limit of not less than 10 inches (250 mm) in diameter was based on ensuring concrete would reasonably flow through the tremie and not 'bulk-up' in the hopper. This control issue should be left to the contractor. The tremie size limit should focus on controlling mix flow and preventing segregation when placement heights exceed 6 feet. The tremie maximum size of 12 inches (300 mm) is reasonable considering that 12 inche culvert walls do not accommodate room for a tremie and the wall forms have essentially served as a tremie provided the concrete is placed in lifts and not allowed to build up and flow. This specification revision would also allow other wall type work with a maximum 12 inch (300 mm) dimension to be placed without the requirement of a tremie. Also for tremie placement under water the same rationale of maximum tremie size to control concrete flow and segregation would apply.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 6**
Submittal Date: February 21, 2007	**Proposed Effective Date:** October 16, 2007	
Article No.: 2403.08, C **Title:** Placing Concrete	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/10	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: See Item 5.

Specification Section Recommended Text:

2403.08, C, Placing Concrete.

Add as the second sentence:

A tremie will not be required for concrete placement of elements which have a maximum dimension no greater than 12 inches (300 mm) provided that the following Part D is adhered to and concrete is placed in lifts.

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

2403.08 PLACING CONCRETE.
Concrete mixed at the site of the work shall be placed immediately after mixing. Ready mixed concrete shall be placed as soon as practical after delivery, but in all cases within the specified time limit for the equipment used for delivery.

Concrete shall be placed in a manner which will avoid segregation or separation of the ingredients. In placing concrete, all the following precautions shall be observed:

A. In handling concrete from the mixer to the place of deposit, care shall be taken to avoid segregation.

B. When concrete is deposited through a chute, the slope of the chute shall be sloped to allow concrete to flow slowly without segregation. The delivery point of the chute shall be as close as possible to the point of deposit. Chutes and spouts shall be kept clean. They shall be thoroughly flushed with water before and after each run, and the water shall be discharged outside the forms.

Concrete shall not be pumped through aluminum conduit or tubing.

C. A tremie is not required when filling steel shell piles or encasing steel H-piles, but a tremie shall be used whenever the distance through which other concrete must be dropped vertically exceeds 6 feet (2 m), except a 3 foot (1 m) drop shall not be exceeded for bridge floors and culvert slabs. A tremie will not be required for concrete placement of elements which have a maximum

dimension no greater than 12 inches (300 mm) provided that the following Part D is adhered to and concrete is placed in lifts.					
Reason for Revision: Formed elements with a maximum dimension of no greater than 12 inches (300 mm) function essentially like a tremie in controlling/confining concrete and preventing segregation. Also in narrow elements with reinforcing steel there is typically insufficient space to insert a tremie for concrete placement (ie: RCB culvert walls).					
County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger / Mahbub Khoda	**Office:** Materials	**Item 7**
Submittal Date: 02-05-2007	**Proposed Effective Date:** October 2007	
Article No.: 2407.02, A **Title:** Aggregates.	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2407.02, A, Aggregates.

Replace the entire article:

Sections 4110, and 4115 shall apply, except the gradation requirements of Articles 4110.02 and 4115.03. The aggregate gradations and proportions shall be submitted with the mix design to the District Materials Engineer for approval. ~~of the coarse aggregate shall meet the requirements of Section 4109, Aggregate Gradation Table, Gradation No. 3, except that 100% shall pass the 1 inch (26.5 mm) sieve or Gradation No. 5. When the absolute volume of the coarse aggregate in a mixture is more than 55% of the absolute volume of the total aggregate, Gradation No. 5 shall be used.~~ Aggregates similar to Class V shall be used only when 30% or more of the total weight (mass) of aggregate is limestone.

Comments:

Member's Requested Change (Redline/Strikeout):

2407.02 MATERIALS.
The materials used in prestressed and precast concrete shall meet the requirements of Division 41 for the respective material, and the following:

A. Aggregates.
Sections 4110, and 4115 shall apply, except the gradation requirements of 4110.02 and 4115.03. The aggregate gradations and proportions shall be submitted with the mix design to the District Materials Engineer for approval. ~~of the coarse aggregate shall meet the requirements of~~ Section ~~4109, Aggregate Gradation Table, Gradation No. 3, except that 100% shall pass the 1 inch (26.5 mm) sieve or Gradation No. 5. When the absolute volume of the coarse aggregate in a mixture is more than 55% of the absolute volume of the total aggregate, Gradation No. 5 shall be used.~~
Aggregates similar to Class V shall be used only when 30% or more of the total weight (mass) of aggregate is limestone.

Reason for Revision: Acceptance based on mix design and not gradation.

County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes**	**No** X	**Industry Concurrence:**	**Yes**	**No** X
Comments: This will allow industry more flexibility in mix designs.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 8**
Submittal Date: February 6, 2007	**Proposed Effective Date:** October 16, 2007	
Article No.: 2412.06, A **Title:** Interstate and Primary Projects	**Other:**	

Specification Committee Action: Approved with changes as noted.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text:

2412.06, A, Interstate and Primary Projects.

Replace the first sentence of the third paragraph and **add** as the second and third sentences:

Longitudinal grooving ~~on the bridge deck and double reinforced bridge approach sections shall not be within the area approximately 2 feet (0.6 m) adjacent to the curbs and~~ shall terminate approximately 6 inches (150 mm) from bridge joints. Longitudinal grooving on bridge decks and double reinforced bridge approach sections shall not be within the area closer than 1.5 feet (0.5 m) adjacent to curbs. To accommodate varying widths of grooving equipment the width of the ungrooved area adjacent to curbs may be up to 3.0 feet (900 mm).

Comments:

The Office of Bridges and Structures asked why terminating longitudinal grooving 6 inches from bridge joints is being taken out. The Office of Construction noted that it shouldn't have been.

The Office of Design questioned using "approximately 1.5 feet" since this is a "shall" condition. The Office of Construction suggested using "closer than 1.5 feet" instead.

The Office of Bridges and Structures asked if the new requirements would create problems for contractors when they reach single reinforced and non reinforced sections of approaches. The Office of Construction explained that contractors will determine the best pattern for grooving the deck and approaches in order to meet the specifications.

Specification Section Recommended Text:

2412.06, A, Interstate and Primary Projects.

Replace the first sentence of the third paragraph:

~~Longitudinal grooving on the bridge deck and double reinforced bridge approach sections shall not be within the area approximately 2 feet (0.6 m) adjacent to the curbs and shall terminate approximately 6 inches (150 mm) from bridge joints.~~ Longitudinal grooving on bridge decks and double reinforced bridge approach sections shall not be within the area approximately 1.5 feet (0.5 m) adjacent to curbs. To accommodate varying widths of grooving equipment the width of the ungrooved area adjacent to curbs may be up to 3.0 feet (900 mm).

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

2412.06 SURFACE FINISH.
Promptly after the concrete has been placed and vibrated as provided in Articles 2403.08 and 2403.09, it shall be struck off with a template to provide a smooth surface with the proper crown. Supports for the strike off template shall be parallel to the center line of the structure, firmly fastened in place and set to the correct elevation, with proper allowance for deflection caused by the load of the concrete. These screed supports must extend sufficiently beyond each end of the bridge to accommodate the strike off template or finishing machine used and to provide support for bridges used when operating a longitudinal float. The Contractor may be required to provide any or all of the items specified in Article 2301.07 which may be adapted to the work.

In lieu of the above requirements, for all bridges exceeding 60 feet (20 m) in length, the following shall apply:

> Promptly after the concrete is deposited and vibrated, as provided in Articles 2403.08 and 2403.09, it shall be struck off to the proper elevation by means of an approved, self propelled and mechanically operated finishing machine. It shall operate on adequately supported rails adjusted to conform to the grade specified, with allowance for anticipated dead load deflection shown in the contract documents. Supporting rails shall extend beyond each end of the bridge a sufficient distance to accommodate the finishing machine. The load of the finishing machine shall not be so great as to cause undue deflection of the bridge members or falsework. The screeds of the finishing machine may be of metal or metal shod wood. Sufficient passes of the machine shall be made to obtain a void free surface struck off to the elevation specified. Finishing machines other than as described above will be considered for approval.

After the final pass of the finishing machine or after the floating operation, if used, the surface shall be smoothed to meet requirements of Article 2301.16 and checked with 10 foot (3 m) straightedges, and surface irregularities shall be corrected.

Promptly after smoothing and checking for smoothness and while the concrete is still plastic, the surface shall be given a final finish. When the contract documents show a second course of bridge floor surfacing or other wearing course, the surface of the first course shall be finished by a burlap drag. For one course bridge floors on Interstate and Primary projects, the final finished surface shall be smoothed and surface checked for smoothness without additional finishing.

> **A. Interstate and Primary Projects.**
> Transverse grooving or tining in the plastic concrete of the bridge deck (and bridge approaches when included in the bridge project) will not be allowed unless stated otherwise in the contract documents. Longitudinal grooves shall be cut into the hardened concrete surfaces using a mechanical cutting device. Longitudinal grooving shall be done after surface correction grinding.
>
> Longitudinal grooves shall be 1/8 inch +/- 1/64 inch (3 mm +/- 0.4 mm) in width, 1/8 inch +1/32 inch or -1/16 inch (3 mm +0.8 mm or -1.6 mm) in depth, and the grooves shall be uniformly spaced at 3/4 inch (19 mm) intervals measured center to center of groove.
>
> ~~Longitudinal grooving on the bridge deck and double reinforced bridge approach sections shall not be within the area approximately 2 feet (0.6 m) adjacent to the curbs and shall terminate approximately 6 inches (150 mm) from bridge joints.~~ Longitudinal grooving on the bridge deck and double reinforced bridge approach sections shall not be within the area approximately 1.5 feet (0.5 m) adjacent to curbs. To accommodate varying widths of grooving equipment the width of the ungrooved area adjacent to curbs may be up to 3.0 feet (0.9 m). Longitudinal grooving of single

reinforced and non-reinforced bridge approach sections shall not be applied within 6 inches (150 mm) of the edge of outside lane lines.

For staged bridge and bridge approach construction, the Contractor may cut longitudinal grooves in the hardened concrete at the end of each stage of construction or wait until all stages have been completed. If the Contractor elects to delay cutting of the longitudinal grooves until completion of all stages, the concrete deck and bridge approach for any stage opened to traffic shall receive an interim coarse broom finish during placement. Within 30 calendar days following completion of the last stage of the project, the Contractor shall establish temporary lane closures to accomplish longitudinal grooving for all stages. The interim coarse broom finish will not be allowed as a surface texture when opened to traffic over a winter season. If the interim coarse broom texture is present and the Contractor is not in a position to finish all stages of the project, longitudinal grooving shall be cut into the hardened concrete in order to establish an acceptable driving surface texture for the winter season.

Reason for Revision: The grooving equipment typically used for cutting longitudinal grooves has cutting heads with widths of approximately 3 feet and 4 feet. To accommodate these various cutting head widths and not overlay or gap grooving passes there needs to be a range of ungrooved area adjacent to curbs. This will enable the longitudinal grooving to be accomplished on bridges with different widths and still provide for an acceptable ungrooved area adjacent to curbs.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger/John Smythe	**Office:** Materials/Construction	**Item 9**
Submittal Date: 02-19-2007	**Proposed Effective Date:** October 2007	
Section No.: 2413 **Title:** Surfacing and Repair and Overlay of Bridge Floors.	**Other:**	

Specification Committee Action: Defer to the April meeting.

Deferred: X	**Not Approved:**	**Approved Date:**	**Effective Date:**

Specification Committee Approved Text:

Comments: The Office of Materials pointed out some editorial corrections needed. They also explained they have discovered contractors aren't using sand in the grout, so the Materials Lab mixed several samples with cement and water only. Although contractors suggested 7.5 gallons of water per bag, the Materials Laboratory determined 3 gallons per bag works best. The Office of Construction agreed with 3 gallons per bag, and if adjustments are necessary, they can be made with future revisions.

The Office of Construction asked if there should be an alternative bid item for HPC. The Office of Contracts asked if people are going to want to know which bridges were bid HPC. The Office of Construction stated it's very possible. The Specifications Section stated they can separate the bid items out for Class O and HPC.

The Office of Bridges and Structures noted that language regarding terminating longitudinal grooving 6 inches from bridge joints (Article 2413.07, A) is struck out. It shouldn't be. The Specifications Section will put that language back in.

District 6 noted there are some differences between the GS and ERL which cause confusion when counting paragraphs. The Specifications Section noted they had also encountered this problem, and had suggested a change as discussed in the comments below the Specification Section Recommended Text. District 6 noted it is difficult to follow the changes because there are so many. They asked if the changes could be inserted into the text to imitate how it would look in ERL. The Specifications Section will do that and include with the April agenda.

FHWA expressed concern with allowing air content up to 8.5%. They were concerned with durability issues. The Office of Construction explained that they do not want to see air contents below 5%. Air contents up to 8.5% don't have a detrimental effect on durability. They would prefer contractors error on the high side.

FHWA noted the first paragraph of Article 2413.08 states prewetted burlap is to be placed within 10 minutes of finishing. The first indented paragraph states after revibration, the time to place prewetted burlap is extended 15 minutes. They questioned if the first paragraph should state burlap is to be placed within 15 minutes rather than 10 minutes. The Office of Construction agreed it should be changed to 15 minutes to be consistent.

Specification Section Recommended Text:

2413.01, Description.

Delete the last paragraph:

~~Unless otherwise specified, the work shall be done using either Portland cement concrete or latex modified concrete, at the Contractor's option.~~

2413.02, Materials.

Replace the second sentence of the second paragraph:

Class O concrete mixtures shall not contain fly ash~~, Type IP cement, or Type I(PM) cement~~.

Add as the fourth paragraph:

Mix shall be either of the following:

Add as the fifth paragraph (placed after Article 2413.02, B):

Grout for bonding new concrete to previously placed concrete shall consist of about 3 gallons of water to each 94 pound bag (0.27 L/kg) of cement. The consistency shall be so that the slurry can be applied with a stiff brush or broom to the previously placed concrete in a thin, even coating that will not run or puddle in low spots. An equivalent grout of Portland cement and water, applied by pressure spray may be substituted with approval of the Engineer. For sealing vertical joints between adjacent lanes and at the curbs, this grout shall be thinned to paint consistency.

2413.02, A, Portland Cement Concrete.

Replace the first sentence of the first paragraph:

Class O PCC ~~is required and it~~ shall meet the requirements of Materials I.M. 529 and the following requirements:

Replace the second indented paragraph:

The intended air entrainment of the finished concrete is 6%, but the air content of fresh, unvibrated concrete at the time of placement, as determined by Materials I.M. 318 shall be 6.5%, with a maximum variation of ~~± 1.0%~~ plus 2.0% and minus 1.0%.

Delete the third indented paragraph:

~~Grout for bonding new concrete to previously placed concrete shall consist of equal parts by weight (mass) of Portland cement and fine aggregate for concrete mixed with sufficient water to form a stiff slurry. The consistency shall be so that the slurry can be applied with a stiff brush or broom to the previously placed concrete in a thin, even coating that will not run or puddle in low spots. An equivalent grout of Portland cement and water, to be applied by pressure spray may be substituted with approval of the Engineer. For sealing vertical joints between adjacent lanes and at the curbs, this grout shall be thinned to paint consistency.~~

2413.02, B, Latex Modified Concrete.

Replace the title and the entire article:

B. ~~Latex Modified~~ High Performance Concrete (HPC).

~~The latex modified concrete shall be a workable mixture having the following properties or limits:~~

PROPERTIES OF LATEX MODIFIED CONCRETE

Material or Property	Type 2 Concrete
Cement (parts by weight (mass))	1.0 (1.0)
Fine Aggr. (parts by weight (mass))	2.5 (2.5)
Coarse Aggr. (parts by weight (mass))	2.0 (2.0)
Latex Emulsion Admixture (gal/bag (L/kg) cement)	3.5 (0.3)
Air Content of Plastic Mix, % (Note 1)	3-6
Slump, inches (mm), maximum (Notes 1 and 2)	5 (125)

Note 1. Following sampling of the discharged, normally mixed material: the commencement of the tests shall be delayed from 4 to 4.5 minutes.

Note 2. Water may be added to obtain slump within the prescribed limits. Concrete with a slump less than 3 inches (75 mm) may be rejected if it is not placed satisfactorily and with a closed tight surface.

The formulated latex admixture shall be a nontoxic, film forming, polymeric emulsion in water to which all stabilizers have been added at the point of manufacture and shall be homogeneous and uniform in composition.

The physical properties of the latex modifier shall conform to the following requirements:

PHYSICAL PROPERTIES OF LATEX MODIFIER

Polymer type	Styrene butadiene
Stabilizers	
(a) Latex*	Nonionic surfactants
(b) Portland cement composition	Poly dimethyl siloxane
Percent solids	46.0 - 49.0
Weight per gallon (lb at 25°C)	8.4
(Mass per liter (kg at 25°C)	(1.0)
Color	White

*Chloride content of the latex must be less than 0.5%.

Latex admixture to be stored shall be kept in suitable enclosures which will protect it from freezing and from prolonged exposure to temperatures in excess of 85°F (30°C). Containers of latex admixture may be stored at the bridge site for a period not to exceed 10 calendar days. Such stored containers shall be covered completely with suitable insulating blanket material to avoid excessive temperatures.

Class HPC-O PCC shall meet the requirements of Materials I.M. 529 and the following requirements:

The slump, measured in accordance with Materials I.M. 317 shall be 1 inch (25 mm) with a maximum of 3 inch (75 mm) with a maximum of 4 inch (100 mm). Testing for slump of concrete from a continuous mixer shall commence within 2 to 4 minutes after the concrete is discharged. Testing for slump of concrete from ready mix shall be done prior to placement.

A mid-range water reducing admixture meeting the requirements of Materials I.M. 403, Appendix C, shall be used. Other admixtures may be approved by the Engineer.

Air content shall be the same as required for Class O concrete.

Type IS or Type IP cement shall be used. If Type I/II is used, 25% replacement with ground granulated blast furnace slag shall be required.

Fly ash substitution rate shall not exceed 15% replacement by weight.

2413.03, B, 1, Proportioning and Mixing Equipment.

Add as the third paragraph:

The cement, fly ash, and GGBFS for HPC shall be pre-blended by the producer of by using equipment capable of thoroughly mixing the materials to the tolerances in ASTM C 685 when the concrete is produced using a volumetric mixer. The cement, fly ash, and GGBFS for ready mixed concrete are not required to be pre-blended.

2413.03, B, 2, Proportioning and Mixing Equipment.

Delete the entire article:

~~**2.** Proportioning and mixing equipment for latex modified concrete shall be of a self contained, mobile continuous mixing type subject to the following:~~

~~**a.** The mixer shall have storage for sufficient bulk cement, fine and coarse aggregate, latex modifier, and water to produce, on the site, not less than 6 cubic yards (4 m3) of concrete. The mixer shall be capable of metering materials and producing uniform concrete.~~

~~**b.** The mixer shall be capable of positive measurement of cement being introduced into the mix. A cement meter register, visible at all times, shall indicate this quantity.~~

~~**c.** The mixer shall provide positive control of the flow of water and latex emulsion into the mixing chamber. Water use shall be indicated by a recording water meter. The flow shall be readily adjustable to provide for minor variations in aggregate moisture.~~

~~**d.** The mixer shall be capable of being calibrated to automatically proportion and blend all components of indicated composition on a continuous or intermittent basis, as required by the finishing operation, and shall discharge mixed material through a conventional chute directly in front of the finishing machine.~~

2413.03, C, Placing and Finishing Equipment.

Replace the second sentence of the first paragraph:

A self propelled finishing machine will be required for all surfacing and overlays~~, and the front screed shall be designed to consolidate the mixture to be placed to 100% of the rodded density~~.

Replace the third paragraph:

Internal vibration equipment will be required for consolidation at the edges of the placement for Class O concrete.

2413.03, C, 1, Portland Cement Concrete.

Add as the second sentence:

The front screed shall be designed to consolidate the mixture to be placed to 100% of the rodded density.

2413.03, C, 2, Latex Modified Concrete.

Replace the title and first paragraph:

2. ~~Latex Modified~~ High Performance Concrete (HPC).

~~The finishing machine shall be self propelled and shall be capable of forward and reverse movement under positive control. Provision shall be made for raising all screeds to clear the screeded surface for traveling in reverse.~~ The finishing machine shall meet the requirements of Article 2412.06 and be capable of finishing the surface to within 1 foot (0.3 m) of the edges of the area being placed.

2413.04, Preparation of Surface for Surfacing.

Replace the first sentence of the first paragraph and **add** as the second sentence:

Material for test ~~holes~~ wells (for PCC Class O concrete density testing) and all loose, disintegrated, or unsound concrete shall be removed from the bridge floor, as designated by the Engineer. Test wells for nuclear density checks shall have nominal dimensions of 1.5 inches x 10 inches x 10 inches (40 mm x 250 mm x 250 mm). Class A bridge floor repair removal areas may be used as test wells provided they meet the nominal dimensions and are located in the testing frequency areas. Nuclear density testing of Portland Cement Concrete Class O mix shall be in accordance with Materials I.M. 358.

Replace the first sentence of the fifth paragraph:

~~For the PCC mixture, i~~It is not intended or desired that existing concrete, prepared for surfacing, be presaturated before grout and new concrete is placed.

Delete the sixth paragraph:

~~For the latex modified concrete, the surface of existing concrete shall be saturated but free of standing water.~~

2413.05, D, General.

Replace the fifth sentence of the third paragraph:

~~For the Portland cement concrete, I~~It is not intended or desired that existing concrete, prepared for repair or overlay be presaturated with water before grout and new concrete is placed.

Replace the first sentence of the fourth paragraph:

At the time of placement of either PCC or ~~latex modified~~ HPC, the area shall be clean and the reinforcement free of rust; rust forming because of dew on clean reinforcement overnight will not be considered objectionable, but reinforcement with a greater amount of rust shall be subject to recleaning before the concrete is placed.

Delete the fifth paragraph:

~~For latex modified concrete, the surface shall be flushed with water and kept wet for at least 1 hour before concrete placement. Puddles of free water shall be removed before covering with concrete.~~

2413.06, Proportioning and Mixing.

Add as the second paragraph:

For HPC, ready mixed concrete equipment meeting the requirements of Articles 2001.20 and 2001.21 will be allowed.

Replace the third paragraph:

The water reducing admixture for improved workability of ~~Portland cement concrete~~ HPC shall be incorporated and mixed into the concrete in accordance with the manufacturer's recommendations and the Engineer's instructions.

2413.06, B, 7, Continuous Mixing Equipment.

Delete the entire article:

~~**7.** For latex modified concrete, mixing capability shall be such that finishing operations can proceed at a steady pace with final finishing completed before the formation of the plastic surface film.~~

2413.07, Placing and Finishing:

Delete the second paragraph:

~~For latex modified concrete, transverse bulkheads, equal in depth to the thickness of the surface, shall be installed to the required grade and profile prior to placing the concrete.~~

Replace the first sentence of the sixth paragraph:

After the surface has been cleaned and immediately before placing Portland cement concrete or HPC, a thin coating of bonding grout shall be scrubbed into the dry, prepared surface.

Add as the eighth paragraph:

The rodded density measurement is not required for HPC.

Replace the ninth paragraph:

For PCC Class O mix overlay, ~~A~~an internal vibrator shall be used for consolidation at the curb side, and along the longitudinal construction joint adjacent to a previously constructed lane.

Add as the third indented paragraph after the tenth paragraph:

The concrete temperature and theoretical evaporation rate shall be in accordance with Article 2412.05.

2413.07, A, Interstate and Primary Projects.

Replace the first sentence of the third paragraph:

~~Longitudinal grooving on bridge deck overlay and double reinforced bridge approach overlay sections shall not be within the area approximately 2 feet (0.6 m) adjacent to the curbs and shall terminate approximately 6 inches (150 mm) from bridge joints.~~ Longitudinal grooving on the bridge deck and bridge approach sections shall not be within the area approximately 1.5 feet (0.5 m) adjacent to curbs. To accommodate varying widths of grooving equipment the width of the ungrooved area adjacent to curbs may be up to 3.0 feet (0.9 m).

2413.07, B, Other Projects.

Delete the second paragraph:

~~Screed rails and/or construction dams shall be separated from newly placed latex modified concrete by passing a pointing trowel along their inside face. Care shall be exercised to assure~~

~~that this trowel cut is made for the entire depth and length of rails or dams after the mixture has stiffened sufficiently and that it does not flow back.~~

2413.08, Curing.

Replace the first sentence of the first indented paragraph:

For Portland cement concrete or HPC, the surface shall be cured for at least 72 hours.

Replace the fourth sentence of the first indented paragraph:

If ~~the~~ Class O mix concrete is revibrated because of failure to meet density requirements with initial vibration, the time for placement of prewetted burlap will be extended 10 minutes.

Delete the second indented paragraph:

~~For latex modified concrete, the surface shall be cured by wet burlap for at least 24 hours and be air cured for an additional 48 hours. Within 1 hour of covering with wet burlap, a layer of 4 mil (100 µm) polyethylene film shall be placed on the wet layer for the required 24 hour period for curing. The curing material shall then be removed for an additional 48 hour air cure. Burlap polyethylene sheets may be substituted for the polyethylene film with the approval of the Engineer. It is the nature of the latex modifier to form a plastic film at the surface upon drying, usually within 25 minutes in hot, dry weather. It is the intent of this specification that this film be protected from drying and cracking by prompt covering with wet burlap.~~

2413.09, Sealing.

Replace the second sentence:

In addition, for Portland cement concrete floor overlay or HPC overlay, the sealer shall be applied along each gutter line, extending 1 foot (0.3 m) onto the roadway.

2413.10, Limitations of Operations.

Delete the second and **replace** the third sentence of the third paragraph:

~~When daytime temperatures exceed 85°F (30°C) the Engineer may require placement of latex modified concrete to be made at night or in the early morning hours if a satisfactory surface finish is not being achieved. In either case, a~~Adequate lights for nighttime work shall be furnished at the direction of the Engineer by the Contractor without additional compensation.

Delete the second sentence of the sixth indented paragraph after the ninth paragraph:

~~Latex modified concrete shall not be placed when the air or floor temperature is below 45°F (7°C); however, it may be placed when these temperatures are 45°F (7°C) and a rising temperature is predicted.~~

2413.11, Method of Measurement.

Replace the second sentence of the first paragraph:

For bridge floor surfacing, concrete removal for Class O mix test wells may be required by the Engineer.

Comments: This item includes changes submitted by both the Office of Materials and the Office of Construction. The third paragraph of Article 2413.07, B needs to be moved out of that article and should be the fourth indented paragraph after the tenth paragraph.

Member's Requested Change (Redline/Strikeout):

2413.01 DESCRIPTION.
Surfacing bridge floors shall consist of placing a wearing course on a prepared surface, and other necessary work shown in the contract documents or specified herein.

Repair and overlay of bridge floors shall consist of removing concrete from the existing surface, replacing and overlaying with new concrete, and other necessary work shown in the contract documents or as specified. When structural repairs are included in the project, Class C or Class D concrete, as specified, may be mixed using equipment meeting requirements of Article 2413.03, B. The concrete mixture used for the overlay may be used for the repair; the water and consistency shall be as specified in Article 2403.03, A. Unless otherwise provided in the contract documents, overlay shall accomplish a raise of the existing roadway surface and shall cover the entire concrete floor surface, including those areas to be repaired. Bridge floor repair and overlay shall be classified as follows:

A. Class A Bridge Floor Repair.
Class A bridge floor repair shall consist of removing floor concrete below the level described for Bridge Floor Overlay, but less than full depth, transporting the existing concrete removed from the project, and replacing the excavated volume with concrete to a level bounding the Bridge Floor Overlay classification. Lower limit for Class A Bridge Floor Repair shall be to suitable existing concrete, as determined by the Engineer, but to at least the level of the top of the top reinforcing steel.

B. Class B Bridge Floor Repair.
Class B bridge floor repair shall consist of removing floor concrete below the level described for Bridge Floor Overlay for the full depth of the floor, transporting the existing concrete removed from the project, and replacing the excavated volume with concrete to a level bounding the Bridge Floor Overlay classification.

C. Bridge Floor Overlay.
Bridge floor overlay shall consist of removing floor concrete to a depth 1/4 inch (5 mm) below the existing, finished surface, except at drains and elsewhere as noted in the contract documents, transporting the existing concrete removed from the project, and overlaying with a concrete course of a depth designated. Thickness of the concrete overlay shall be measured from a level 1/4 inch (5 mm) below the original surface to a final raised surface as shown. Where removal to a level lower than 1/4 inch (5 mm) below the original surface is necessary because of surface fixtures, the

minimum thickness of abutting overlay shall be 3/4 inch (20 mm) and shall be tapered to the full designated thickness.

~~Unless otherwise specified, the work shall be done using either Portland cement concrete or latex modified concrete, at the Contractor's option.~~

2413.02 MATERIALS.
All materials shall meet requirements for the respective items in Division 41.

Only one brand of cement shall be used during an individual placement. Class O concrete mixtures shall not contain fly ash. ~~, Type IP cement, or Type I(PM) cement.~~

Sections 4110, and 4115 shall apply to the aggregates. Only those coarse aggregates specifically allowed by Article 4115.0~~6~~5 for this work shall be used.

Mix shall be either of the following:

A. Portland Cement Concrete.
Class O PCC ~~is required and it~~ shall meet the requirements of Materials I.M. 529 and the following requirements:

The slump, measured in accordance with Materials I.M. 317 shall be 3/4 inch (20 mm) with a maximum of 1 inch (25 mm) and no minimum requirement. Testing for slump of concrete from a continuous mixer shall commence within 2 to 4 minutes after the concrete is discharged.

The intended air entrainment of the finished concrete is 6%, but the air content of fresh, unvibrated concrete at the time of placement, as determined by Materials I.M. 318 shall be 6.5%, with a maximum variation of plus 2.0% and minus 1.0% ~~± 1.0%~~.

~~Grout for bonding new concrete to previously placed concrete shall consist of equal parts by weight (mass) of Portland cement and fine aggregate for concrete mixed with sufficient water to form a stiff slurry. The consistency shall be so that the slurry can be applied with a stiff brush or broom to the previously placed concrete in a thin, even coating that will not run or puddle in low spots. An equivalent grout of Portland cement and water, to be applied by pressure spray may be substituted with approval of the Engineer. For sealing vertical joints between adjacent lanes and at the curbs, this grout shall be thinned to paint consistency.~~

B. ~~Latex Modified~~ High Performance Concrete (HPC).
Class HPC-O PCC shall meet the requirements of Materials I.M. 529 and the following requirements:

The slump, measured in accordance with Materials I.M. 317 shall be 1 inch (25 mm) with a maximum of 3 inch (75 mm) with a maximum of 4 inch (100 mm). Testing for slump of concrete from a continuous mixer shall commence within 2 to 4 minutes after the concrete is discharged. Testing for slump of concrete from ready mix shall be done prior to placement.

A mid-range water reducing admixture meeting the requirements of Materials I.M. 403, Appendix C, shall be used. Other admixtures may be approved by the Engineer.

Air content shall be the same as required for Class O concrete.

Type IS or Type IP cement shall be used. If Type I/II is used, 25% replacement with ground granulated blast furnace slag shall be required.

Fly ash substitution rate shall not exceed 15% replacement by weight.

Grout for bonding new concrete to previously placed concrete shall consist of about 3 gallons of water to each 94 pound bag of cement. The consistency shall be so that the slurry can be applied with a stiff brush or broom to the previously placed concrete in a thin, even coating that will not run or puddle in low spots. An equivalent grout of Portland cement and water, to be applied by pressure spray may be substituted with approval of the Engineer. For sealing vertical joints between adjacent lanes and at the curbs, this grout shall be thinned to paint consistency.

~~The latex modified concrete shall be a workable mixture having the following properties or limits:~~

PROPERTIES OF LATEX MODIFIED CONCRETE	
Material or Property	Type 2 Concrete
Cement (parts by weight (mass)) Fine Aggr. (parts by weight (mass)) Coarse Aggr. (parts by weight (mass)) Latex Emulsion Admixture (gal/bag (L/kg) cement) Air Content of Plastic Mix, % (Note 1) Slump, inches (mm), maximum (Notes 1 and 2)	1.0 (1.0) 2.5 (2.5) 2.0 (2.0) 3.5 (0.3) 3-6 5 (125)
Note 1. Following sampling of the discharged, normally mixed material: the commencement of the tests shall be delayed from 4 to 4.5 minutes. Note 2. Water may be added to obtain slump within the prescribed limits. Concrete with a slump less than 3 inches (75 mm) may be rejected if it is not placed satisfactorily and with a closed tight surface.	

The formulated latex admixture shall be a nontoxic, film forming, polymeric emulsion in water to which all stabilizers have been added at the point of manufacture and shall be homogeneous and uniform in composition.

The physical properties of the latex modifier shall conform to the following requirements:

PHYSICAL PROPERTIES OF LATEX MODIFIER	
Polymer type Stabilizers (a) Latex* (b) Portland cement composition Percent solids Weight per gallon (lb at 25°C) (Mass per liter (kg at 25°C) Color	Styrene butadiene Nonionic surfactants Poly dimethyl siloxane 46.0 - 49.0 8.4 (1.0) White
*Chloride content of the latex must be less than 0.5%.	

Latex admixture to be stored shall be kept in suitable enclosures which will protect it from freezing and from prolonged exposure to temperatures in excess of 85°F (30°C). Containers of latex admixture may be stored at the bridge site for a period not to exceed 10 calendar days. Such stored containers shall be covered completely with suitable insulating blanket material to avoid excessive temperatures.

2413.03 EQUIPMENT.
Equipment used shall be subject to approval of the Engineer and shall comply with the following:

B. Proportioning and Mixing Equipment.

1. Proportioning and mixing equipment for Portland cement concrete shall meet requirements of Article 2001.20, D, and Article 2001.21, C. In addition, the device for proportioning water shall be accurate within 1.0%, and the mixer shall be a construction or stationary concrete mixer of the rotating paddle type. A continuous mixer used in

conjunction with volumetric proportioning, described above, may be used.

Sufficient mixing capacity or mixers shall be provided for either type of mixture to permit the intended quantity to be placed without interruption.

For HPC, the cement, fly ash, and GGBFS shall be a pre-blended by the producer or by using equipment capable of thoroughly mixing the materials to the tolerances in ASTM C 685 when concrete is produced using a volumetric mixer. For ready mixed concrete the cement, fly ash, and GGBFS are not required to be pre-blended.

~~**2.** Proportioning and mixing equipment for latex modified concrete shall be of a self contained, mobile continuous mixing type subject to the following:~~

~~**a.** The mixer shall have storage for sufficient bulk cement, fine and coarse aggregate, latex modifier, and water to produce, on the site, not less than 6 cubic yards (4 m^3) of concrete. The mixer shall be capable of metering materials and producing uniform concrete.~~

~~**b.** The mixer shall be capable of positive measurement of cement being introduced into the mix. A cement meter register, visible at all times, shall indicate this quantity.~~

~~**c.** The mixer shall provide positive control of the flow of water and latex emulsion into the mixing chamber. Water use shall be indicated by a recording water meter. The flow shall be readily adjustable to provide for minor variations in aggregate moisture.~~

~~**d.** The mixer shall be capable of being calibrated to automatically proportion and blend all components of indicated composition on a continuous or intermittent basis, as required by the finishing operation, and shall discharge mixed material through a conventional chute directly in front of the finishing machine.~~

C. Placing and Finishing Equipment.
Placing and finishing equipment shall include adequate hand tools for placement of the mixture and for working it down to approximately the correct level for striking off with the screed. A self propelled finishing machine will be required for all surfacing and overlays. ~~, and the front screed shall be designed to consolidate the mixture to be placed to 100% of the rodded density.~~ The machine shall operate on supporting rails which are adequately secured to the previously placed surface and are adjustable to the correct profile without shimming, which do not deflect under the load of the machine, and which may be removed without damage to the edge of the new surface that is to remain in place. When placing the mixture in a lane abutting a previously completed lane, that side of the finishing machine adjacent to the completed lane shall be suitably equipped to travel on the completed lane. The finishing machine shall be inspected and approved before work is started on each project.

The finishing machine shall meet the following additional requirements for the type of mixture to be placed:

1. Portland Cement Concrete.
The finishing machine shall meet requirements of Article 2412.06 and shall have a mechanical strike off to provide a uniform thickness of mixture in front of the screed designed to consolidate the mixture by vibration, as specified. The front screed shall be designed to consolidate the mixture to be placed to 100% of the rodded density. The

bottom face of this screed shall be at least 5 inches (125 mm) wide with a turned up or rounded leading edge to minimize tearing of the surface of the plastic concrete. Each screed shall have an effective weight (mass) of at least 75 pounds for each square foot (365 kg/m^2) of bottom face area. Each screed shall be provided with positive control of the vertical position, the angle of tilt, and the shape of the crown. Design of the finishing machine together with appurtenant equipment shall be such that positive machine screeding of the plastic concrete will be obtained within 1 inch (25 mm) of the face of the existing curbs. The length of the screed shall be sufficient to extend at least 6 inches (150 mm) beyond the line where a saw cut is intended to form the edge of a subsequent placement section, and shall overlap the sawed edge of a previously placed course at least 6 inches (150 mm). The finishing machine shall be capable of forward and reverse motion under positive control. Provision shall be made for raising the screeds to clear the screeded surface for traveling in reverse.

2. ~~Latex Modified~~ High Performance Concrete (HPC).

The finishing machine shall meet the requirements of Article 2412.06.

~~The finishing machine shall be self propelled and shall be capable of forward and reverse movement under positive control. Provision shall be made for raising all screeds to clear the screeded surface for traveling in reverse.~~ The finishing machine shall be capable of finishing the surface to within 1 foot (0.3 m) of the edges of the area being placed.

The screeds shall be provided with positive control of the vertical position.

Internal vibration equipment will be required for consolidation at the edges of the placement for Class O concrete.

2413.04 PREPARATION OF SURFACE FOR SURFACING.

Material for test holes (for PCC Class O concrete density tests) and all loose, disintegrated, or unsound concrete shall be removed from the bridge floor, as designated by the Engineer.

The thickness of all new concrete above the prepared surface shall be as specified in the contract documents. The clearance shall be checked in the following manner before concrete is placed.

A filler block having a thickness 1/4 inch (5 mm) less than the designated thickness shall be attached to the bottom of the screed; with screed guides in place, the screed shall be passed over the area to be concreted. As an alternate to passage of the finishing machine, an approved template, supported by the screed guides, may be passed over the area to be concreted. If the filler block does not clear the area to be concreted, the profile of the new surface shall be adjusted as approved by the Engineer.

In preparation for placement of new concrete, the surface shall be sandblasted or shot blasted, followed by an air blast. This cleaning shall remove all dirt, oil, and other foreign material, as well as any unsound concrete, laitance, or loose material from the surface and edges against which the surface mixture is to be placed. It is desired that the surface be roughened by the cleaning to provide satisfactory bond with the surfacing mixture. Metal floor drains and areas of the curb or railing above the proposed surface shall be protected from the cleaning.

~~For the PCC mixture, i~~It is not intended or desired that existing concrete, prepared for surfacing, be presaturated before grout and new concrete is placed. The prepared surface shall be dry to allow some absorption of the grout.

~~For the latex modified concrete, the surface of existing concrete shall be saturated but free of standing water.~~

2413.05 PREPARATION OF SURFACE FOR REPAIR AND OVERLAY.

D. General.
The thickness of concrete above the prepared surface or reinforcing steel shall be at least 3/4 inch (20 mm) and shall be greater if specified in the contract documents. The clearance shall be checked in the following manner before concrete is placed:

A filler block having a thickness 1/8 inch (3 mm) less than the overlay thickness shall be attached to the bottom of the screed; with screed guides in place, the screed shall be passed over the area to be concreted. As an alternate to passage of the finishing machine, an approved template, supported by the screed guides, may be passed over the overlay area. Where the intended clearance does not allow use of this method, a string line or other means shall be used, subject to approval of the Engineer. All old concrete which does not have sufficient clearance shall be removed. All reinforcing steel which does not have sufficient clearance shall be depressed and fastened down. It may be necessary to remove concrete beneath some reinforcement to permit depressing the reinforcement adequately. The minimum clear distance around these bars for placement of new concrete shall be 3/4 inch (20 mm).

Areas from which concrete has been removed shall be kept free of slurry produced by wet sawing of concrete joints. All of this slurry shall be removed from prepared areas before new concrete is placed.

Hand tools shall be used to remove final particles of concrete or to achieve the required depth. The entire surface, including curbs and exposed reinforcement, against which new concrete is to be placed shall be sandblasted or shot blasted. The cleaning shall be of an extent to remove all dirt, oil, and other foreign material, as well as any unsound concrete. Immediately before applying grout in preparation for placement of new concrete, the surface shall be cleaned with air blast. ~~For the Portland cement concrete,~~ It is not intended or desired that existing concrete, prepared for repair or overlay be presaturated with water before grout and new concrete is placed. The prepared surface shall be dry to allow some absorption of the grout.

At the time of placement of either PCC or ~~latex modified~~ high performance concrete, the area shall be clean and the reinforcement free of rust; rust forming because of dew on clean reinforcement overnight will not be considered objectionable, but reinforcement with a greater amount of rust shall be subject to recleaning before the concrete is placed. The area shall be cleaned by air blast before the concrete is placed.

~~For latex modified concrete, the surface shall be flushed with water and kept wet for at least 1 hour before concrete placement. Puddles of free water shall be removed before covering with concrete.~~

2413.06 PROPORTIONING AND MIXING.
For PCC, t~~T~~he mixture shall be proportioned and mixed at the project site. Ready mixed concrete will not be approved.

For HPC, ready mixed concrete equipment meeting the requirements of Articles 2001.20 and 2001.21 will be allowed.

The water reducing admixture for improved workability of ~~Portland cement~~ High Performance concrete shall be incorporated and mixed into the concrete in accordance with the manufacturer's recommendations and the Engineer's instructions.

A. Stationary Mixer.
When a construction or stationary mixer is used, proportioning and mixing shall be in accordance with applicable provisions of Article 2403.06.

B. Continuous Mixing Equipment.
When continuous mixing equipment is used, the following shall apply:

1. Mobile continuous mixers shall accurately proportion all materials for the specified mixture.

2. The proportioning equipment for each material shall be calibrated in the presence of the inspector, or the Engineer may accept a previous calibration and require satisfactory verification checks only, at the settings indicated by the previous calibration.

3. The proportioning equipment shall be operated at the speed recommended by the manufacturer during calibration, checks, or normal operation.

4. Continuous mixers shall be recharged at the site.

5. The Contractor may make yield checks or other checks and the inspector will cooperate in such checking.

6. The materials shall be mixed in an approved mixer within 1 mile (2 km) of the site of placement. They shall be mixed in accordance with the specified requirements for the equipment used. The mixture, as discharged from the mixer, shall be uniform in composition and consistency.

~~**7.** For latex modified concrete, mixing capability shall be such that finishing operations can proceed at a steady pace with final finishing completed before the formation of the plastic surface film.~~

2413.07 PLACING AND FINISHING.
An approved finishing machine will be required as specified in Article 2413.03, C. Supporting rails upon which the finishing machine travels shall be placed outside the area to be surfaced. Provisions for anchorage of supporting rails shall provide for horizontal and vertical stability; positive anchorage may be required by the Engineer. A hold down device shot into concrete will not be permitted unless the concrete is to be subsequently surfaced. Hold down devices of other types leaving holes in exposed areas will be approved provided the holes remaining are grouted full. Plans for anchoring support rails and the mixture placing procedure shall be submitted to the Engineer for approval.

~~For latex modified concrete, transverse bulkheads, equal in depth to the thickness of the surface, shall be installed to the required grade and profile prior to placing the concrete.~~

The locations of longitudinal joints may be shown in the contract documents. If not shown, the locations shall be subject to approval of the Engineer, and the approval will be based on avoiding joints in the wheel paths as much as practical.

In order to insure a junction with properly consolidated concrete, the surface course previously placed shall be sawed to a straight and vertical edge at longitudinal and transverse joints and removed before adjacent concrete is placed. The Engineer will determine the extent of such removal.

The Contractor shall take every reasonable precaution to secure a smooth riding bridge deck. Prior to placement operations, the Contractor shall review the equipment, procedures, personnel, and previous results with the Engineer, and the inspection procedures will be reviewed to assure coordination. Precautions shall include the following:

Assurance that concrete can be produced and placed within the specified limits, continuously and with uniformity.

After finishing, the Contractor shall check the surface with a 10 foot (3 m) straightedge; causes for irregularities exceeding 1/8 inch (3 mm) should be eliminated, and corrections should be made, if practical.

Each placement will be checked in accordance with Section 2317 the day following placement or before another section is placed.

After the surface has been cleaned and immediately before placing Portland cement concrete or High Performance Concrete, a thin coating of bonding grout shall be scrubbed into the dry, prepared surface. At the Contractor's option, the grout may be sprayed onto the surface in a manner subject to approval of the Engineer. Care shall be exercised to insure that all parts receive a thorough, even coating and that no excess grout is permitted to collect in pockets. The rate of progress in applying grout shall be limited so that the grout does not become dry before it is covered with new concrete. If the grout becomes dry, it shall be removed by sandblasting and new grout applied.

Concrete shall be placed in a continuous operation. The new concrete shall be manipulated and mechanically struck off slightly above final grade. It shall then be mechanically consolidated to 100% of the rodded density, with a minus tolerance of 2%, and screeded to final grade. The rodded density will be determined in accordance with Materials I.M. 358.

The rodded density measurement is not required for HPC.

An internal vibrator shall be used for consolidation at the curb side, and along the longitudinal construction joint adjacent to a previously constructed lane for PCC Class O mix overlay.

The following applies to repair and overlay work:

Although repair classes are considered to begin 1/4 inch (5 mm) below the original concrete surface, repair concrete shall be placed monolithically with the overlay course, except as described for larger areas of Class B repair. Fresh concrete, 3 inches (75 mm) or more in thickness, shall be vibrated internally in addition to the surface screed vibration.

Areas of Class B repair 2 square yards (2 m^2) or greater shall have floor forms supported by beams or stringers. These larger areas of Class B repair shall have individual concrete replacement to the lower boundary for the superimposed overlay. Floor repair concrete, described in Article 2413.02, or Class D structural concrete, meeting requirements of Sections 2403 and 2412, may be used for the partial placements. Surfaces of these individual placements are to be left rough, and all placements for each construction stage shall be complete before the overlay course is started. If a full depth repair is staged, a beveled keyway not less than 1 1/2 inch by 3 inches (35 mm by 75 mm) shall be provided at the vertical joint. Concrete placement and reinforcing support shall comply with applicable portions of these specifications except as modified

by the contract documents. The partial placement shall have a 72 hour cure as described for the overlay surface. After the cure, partial placements are to be surface dried, sandblasted or shot blasted, and cleaned prior to the application of the overlay course or grout.

~~When a tight, uniform surface has been achieved, the surface shall be given a suitable grooving, by hand methods, similar to that described in Article 2301.16, A, with the following exceptions:~~

- ~~Grooving shall be transverse to the centerline of roadway.~~
- ~~Transverse grooving shall be randomly spaced from 3/4 inch to 1 5/8 inches (20 mm by 40 mm) with no more than 50% of the spacings exceeding 1/4 inches (30 mm) with a minimum of four different spacings in a 2 foot (0.6 m) width.~~

~~This operation shall be done at a time and manner that the desired texture will be achieved while minimizing displacement of the larger aggregate particles. The texture should not extend into the areas within approximately 2 feet (0.5 m) of curbs. As soon as finishing has been completed, all vertical joints with adjacent concrete shall be sealed by painting with thinned grout.~~

The concrete temperature and theoretical evaporation rate shall be in accordance with Article 2412.05.

A. Interstate and Primary Projects.
Transverse grooving or tining in plastic concrete of bridge deck overlay (and bridge approach overlay when included in a bridge deck overlay project) will not be allowed. Longitudinal grooves shall be cut into the hardened concrete surfaces using a mechanical cutting device. Longitudinal grooving shall be done after surface correction grinding.

Longitudinal grooves shall be 1/8 inch +/- 1/64 inch (3 mm +/- 0.4 mm) in width, 1/8 inch +1/32 inch or -1/16 inch (3 mm +0.8 mm or -1.6 mm) in depth, and the grooves shall be uniformly spaced at 3/4 inch (19 mm) intervals measured from center to center of groove.

Longitudinal grooving on bridge deck overlay and double reinforced bridge approach overlay sections shall not be within the area approximately 2 feet (0.6 m) adjacent to the curbs and shall terminate approximately 6 inches (150 mm) from bridge joints. Longitudinal grooving of single reinforced and non-reinforced bridge approach sections shall not be applied within 6 inches (150 mm) of the edge of the outside lane lines.

For staged bridge deck overlay and bridge approach overlay construction the Contractor may cut longitudinal grooves in the hardened concrete at the end of each construction stage or wait until all stages have been completed. If the Contractor elects to delay cutting of the longitudinal grooves until completion of all stages, the concrete deck overlay and bridge approach overlay for any stage opened to traffic shall receive an interim coarse broom finish during placement. Within 30 calendar days following completion of the last stage of the project the Contractor shall establish temporary lane closures to accomplish longitudinal grooving for all stages. The interim coarse broom finish will not be allowed as a surface texture when opened to traffic over a winter season. If the interim coarse broom texture is present and the Contractor is not in a position to finish all stages of the project, longitudinal grooving shall be cut into the hardened concrete in order to establish an acceptable driving surface texture for the winter season.

B. Other Projects.
When a tight, uniform surface has been achieved, the surface shall be given a suitable grooving, by hand methods, similar to that described in Article 2301.16, A, with the following exceptions:

- Grooving shall be transverse to the centerline of roadway.
- Transverse grooving shall be randomly spaced from 3/4 inch to 1 5/8 inches (20 mm by 40 mm) with no more than 50% of the spacings exceeding 1/4 inches (30 mm) with a minimum of four different spacings in a 2 foot (0.6 m) width.

This operation shall be done at a time and manner that the desired texture will be achieved while minimizing displacement of the larger aggregate particles. The texture should not extend into the areas within approximately 2 feet (0.5 m) of curbs. As soon as finishing has been completed, all vertical joints with adjacent concrete shall be sealed by painting with thinned grout.

~~Screed rails and/or construction dams shall be separated from newly placed latex modified concrete by passing a pointing trowel along their inside face. Care shall be exercised to assure that this trowel cut is made for the entire depth and length of rails or dams after the mixture has stiffened sufficiently and that it does not flow back.~~

Section 2317 shall apply to smoothness of the completed deck overlay for Primary projects and when specifically required for other projects.

2413.08 CURING.

~~Immediately after final finishing, the area finished shall be covered with white pigmented curing compound, meeting requirements of Article 4105.05, applied at a rate of not more than 135 square feet per gallon (3.3 m^2/L) . As soon as it can be placed without marring the surface, a~~ The first layer of prewetted burlap shall be placed on the concrete~~, and~~ within 10 minutes after finishing. Burlap shall be prewetted with sufficient water, prior to placement, to prevent absorption of moisture from the concrete surface. ~~t~~The concrete shall be cured as provided in the following paragraphs:

For Portland cement concrete or High Performance Concrete, the surface shall be cured for at least 72 hours. For the first 24 hours, the burlap shall be kept continuously wet by means of an automatic sprinkling or wetting system. After 24 hours, the Contractor may cover the wet burlap with a layer of 4 mil (100 µm) polyethylene film for a minimum of 48 hours in lieu of using the sprinkling or wetting system. ~~The wet burlap shall be applied within 30 minutes after the concrete has been deposited on the floor, except when the surface will be excessively marred by so doing, as directed by the Engineer.~~ If the concrete is revibrated for Class O mix concrete because of failure to meet density requirements with initial vibration, ~~this~~ the time for placement of prewetted burlap will be extended 15 minutes. Failure to apply wet burlap within the required time shall be cause for rejecting the work so affected. Surface concrete in the rejected area shall be removed and replaced at no additional cost to the Contracting Authority.

~~For latex modified concrete, the surface shall be cured by wet burlap for at least 24 hours and be air cured for an additional 48 hours. Within 1 hour of covering with wet burlap, a layer of 4 mil (100 µm) polyethylene film shall be placed on the wet layer for the required 24 hour period for curing. The curing material shall then be removed for an additional 48 hour air cure. Burlap polyethylene sheets may be substituted for the polyethylene film with the approval of the Engineer. It is the nature of the latex modifier to form a plastic film at the surface upon drying, usually within 25 minutes in hot, dry weather. It is the intent of this specification that this film be protected from drying and cracking by prompt covering with wet burlap.~~

At the Contractor's option, partial depth concrete for Class B repair may be cured with white pigmented curing compound only. When this curing is completed, the surface shall be sandblasted and allowed to dry, and the existing concrete in that vicinity shall be sandblasted, prior to placement of the overlay course.

2413.09 SEALING.

The tops and traffic sides of curbs, retrofit barrier rails, and concrete barrier rails shall be sealed in accordance with Article 2403.21, D. In addition, for Portland cement concrete floor overlay or High Performance Concrete overlay, the sealer shall be applied along each gutter line, extending 1 foot (0.3 m) onto the roadway. Other areas requiring concrete sealer may be designated in the contract documents or by the Engineer.

2413.10 LIMITATIONS OF OPERATIONS.
Work on the surface shall not be commenced until the lower course meets the requirements of Article 2403.19, B.

If traffic is to be maintained during the construction period of this contract, it will be noted in the contract documents. The Contractor shall provide traffic controls that are required by the contract documents.

Night work will be permitted. ~~When daytime temperatures exceed 85°F (30°C) the Engineer may require placement of latex modified concrete to be made at night or in the early morning hours if a satisfactory surface finish is not being achieved. In either case,~~ aAdequate lights for nighttime work shall be furnished at the direction of the Engineer by the Contractor without additional compensation. The Engineer shall be given reasonable notice.

A construction dam or bulkhead shall be installed in case of major delay in the placement operation. During minor delays of 1 hour or less, the end of the placement may be protected from drying with several layers of wet burlap.

Adequate precautions shall be taken to protect freshly placed concrete from sudden or unexpected rain. The Engineer may order removal of any concrete damaged by rainfall.

Screed rails may be removed at any time after the concrete has taken initial set. Adequate precaution shall be taken during screed removal to protect the edge of the new surface from damage.

Concrete shall not be placed adjacent to a surface course less than 36 hours old, however, this restriction does not apply to a continuation of placement in a lane or strip beyond a joint in the same lane or strip.

If concrete placement is stopped or delayed for a period of 90 minutes or more, further placement shall be discontinued and may resume only after a period of not less than 12 hours. This restriction does not prohibit continuation of placement provided a gap is left in the lane or strip; the gap shall be sufficient in length for the finishing machine to clear previously placed concrete.

Preparation work will not be allowed in a lane or strip until the lane is closed to traffic. In areas where there is no traffic, preparation of the area may be started in a lane or strip adjacent to newly placed surface the day following its placement. If this work is started before the end of the 72 hour curing period, the work will be restricted as follows:

Sawing or other operations shall interfere with the curing process for the minimum practical time only, and in the immediate work area only, and the curing shall be resumed promptly.

Chipping hammers heavier than a nominal 15 pound (with a mass greater than 7 kg) class shall not be used.

Air compressors shall be operated on the floor only directly over the piers.

Loads other than construction equipment shall not be permitted on any portion of the bridge floor that has undergone preparation and prior to placement and curing of new concrete.

Traffic shall not be permitted on a finished surface course until 72 hours after placement. At temperatures below 55°F (13°C), the Engineer may require a longer waiting time.

PCC shall not be placed when the air or floor temperature is below 40°F (4°C). ~~Latex modified concrete shall not be placed when the air or floor temperature is below 45°F (7°C); however, it may be placed when these temperatures are 45°F (7°C) and a rising temperature is predicted.~~

Concrete mixture shall not be placed after October 1 and prior to April 1 without written approval of the Engineer.

2413.11 METHOD OF MEASUREMENT.
Bridge Floor Surfacing will be computed by the Engineer in square yards (square meters) from measurements of the areas surfaced. For bridge floor surfacing, concrete removal for Class O mix test wells may be required by the Engineer. This removal will not be measured for payment.

Class A Bridge Floor Repair, Class B Bridge Floor Repair, and Bridge Floor Overlay will be computed by the Engineer in square yards (square meters) from measurements of the areas repaired or overlaid.

Sealing, as required in Article 2413.09, will not be measured separately for payment.

Longitudinal Grooving in concrete shall be measured in accordance with Article 2412.11.

2413.12 BASIS OF PAYMENT.
For the performance of acceptable work, measured as provided above, the Contractor will be paid the contract unit price in accordance with the following provisions:

For the number of square yards (square meters) of Bridge Floor Surfacing constructed, the Contractor will be paid the contract unit price per square yard (square meter). This payment shall be full compensation for furnishing all material, equipment, forms, and labor necessary to complete this work in accordance with the contract documents.

When Section 2317 applies, payment may be modified as specified therein.

For the number of square yards (square meters) of Class A Bridge Floor Repair, Class B Bridge Floor Repair, and Bridge Floor Overlay constructed, the Contractor will be paid the respective contract unit price per square yard (square meters). This payment shall be full compensation for removal of excess concrete from the project and it becoming the property of the Contractor, for furnishing all material, equipment, forms, and labor necessary to complete the work in accordance with the contract documents.

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 will be at three times the contract unit price per square yard (square meter) for Class A Bridge Floor Repair. Should the quantity exceed 5 square yards (4 m^2), payment shall be made as extra work.

The cost of sealing as required in Article 2413.09 shall be included in the contract unit price for Bridge Floor Resurfacing, Class A Bridge Floor Repair, Class B Bridge Floor Repair, or Bridge Floor Overlay.

The profile may be improved by raising the finished overlay surfaces up to 1/2 inch (15 mm) above that shown in the contract documents with no additional compensation to the Contractor. At each location where the raise exceeds 1/2 inch (15 mm), the Contractor will be paid, as extra work, for the materials which represent the volume in excess of the 1/2 inch (15 mm) raise.

Longitudinal Grooving in Concrete will be paid for in accordance with Article 2412.11.					
Reason for Revision: Remove latex modified overlay option and replace with high performance concrete (HPC) overlay from DS.					
County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments: Wayne Sunday has notified industry.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 10**
Submittal Date: February 21, 2007	**Proposed Effective Date:** October 16, 2007	
Article No.: 2513.06, A **Title:** Cast-in-Place and Precast **Article No.:** 2513.06, C **Title:** Clear Curing Compound	**Other:**	

Specification Committee Action: Approved with changes as noted.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text:

2513.06, A, Cast-in-place and Precast.

Replace the fourth sentence of the second paragraph:

Once finishing and any necessary repairs have been accomplished, clear curing compound shall be applied to all exposed surfaces as specified.

2513.06, C, Clear Curing Compound.

Add as the third sentence:

To ensure uniform application and coverage, a fugitive dye shall be used with clear curing compounds meeting Article 4105.07.

Comments: The Office of Materials noted that this sentence should reference Article 4105.07 rather than the ASTM standards and Materials I.M.

The Office of Design asked if C applies to A and B, or just to B. The Office of Construction noted that it should apply to both. The last sentence of sentence of the second paragraph of A will be changed to reflect that.

Specification Section Recommended Text:

2513.06, C, Clear Curing Compound.

Add as the third sentence:

To ensure uniform application and coverage a fugitive dye shall be used with clear curing compounds meeting ASTM C 309 Type 1-D in accordance with Materials I.M. 405.07.

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

2513.06 CURING.

A. Cast-in-Place and Precast.
The method of curing shall prevent loss of moisture and maintain an internal concrete temperature of not less than 40°F (4°C) during the curing period. Article 2407.10, shall apply when elevated temperature curing is used.

When nonelevated temperature curing is used, the concrete barrier shall be kept dampened with wet burlap for a minimum of 12 hours after casting. If forms remain in place during the 12 hours, only the exposed concrete surface will require the wet burlap application. Finishing operations shall be accomplished after this period and shall be completed in an expedient manner. Once finishing and any necessary repairs have been accomplished, curing compound shall be applied to all exposed surfaces as specified.

B. Slip Form.
Slip formed concrete barrier shall be cured by application of a clear curing compound as specified. No moist cure period will be required. Clear curing compound shall be applied to the concrete barrier rail within 15 minutes after final finishing provided that the free water (sheen) has appreciably disappeared from the concrete surface.

C. Clear Curing Compound.
A clear curing compound shall be applied, when specified, to all exposed surfaces in a fine spray to form a continuous, uniform film on the surface and vertical edges of the pavement slab as soon as the free water has appreciably disappeared, but no later than 30 minutes after finishing. The application rate shall be not less than 200 square feet per gallon (5 m^2/L (0.2 L/m^2)). To ensure uniform application and coverage a fugitive dye shall be used with clear curing compounds meeting ASTM C309 Type 1-D in accordance with I.M. 405.07. Prior to application, the curing compound shall be well agitated in the supply drum immediately before transfer to the sprayer. This compound shall also be applied promptly and at the same rate to surfaces exposed after removal of forms following finishing. If the coating is damaged within 72 hours after being applied, the affected area shall be recoated without delay. Further sealing shall not be necessary.

Reason for Revision: Clear curing compounds are difficult to visually dtect when applied. The rate of application may appear as required, but the uniformity of application may be deficient especially in windy conditions. Requiring the use of fugitive dyes in clear curing compounds will ensure visual identification of the coverage.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Work Zone Traffic Safety Committee	**Office:**	**Item 11**
Submittal Date: February 1, 2007	**Proposed Effective Date:** October 2007 GS	
Article No.: 2518.01, A **Title:** Road Closures. **Article No.:** 2518.01, B **Title:** Hazard Closures.	**Other:**	

Specification Committee Action: Defer to the April meeting.

Deferred: X	**Not Approved:**	**Approved Date:**	**Effective Date:**

Specification Committee Approved Text: Deferred to April.

Comments: The Office of Construction questioned the practicality of using Type III barricades for hazard closures, since so many barricades would be required. The Specifications Section suggested making changes to only to road closures and leaving hazard closures as is.

The Office of Design asked if road closures and hazard closures should be separate bid items. The Office of Contracts agreed that they should.

FHWA asked if the Type III barricades for road closures be mounted permanently. The Office of Construction noted that they need to be NCHRP Report 350 compliant, so they would be held in place with sand bags.

The Office of Construction questioned the 6 inch gap between Type III barricades. They also asked if these changes should be reviewed by AGC. The Specifications Section will run these changes by AGC and provide comments at the April meeting.

Specification Section Recommended Text:

2518.01, A, Road Closures.

Replace the first paragraph:

A road closure shall consist of a series of Type III barricades meeting the requirements of Article 2528.03 ~~an orange mesh safety fence, meeting the requirements of Article 4188.03,~~ placed across the roadway from outside edge of shoulder to outside edge of shoulder. Gaps between the Type III barricades shall be no greater than 6 inches (150 mm). ~~The safety fence used in this situation shall be securely supported so the fence is in a vertical position without sagging. A type III barricade as described in Part VI of the MUTCD shall be placed immediately in front of the orange mesh safety fence at the approximate roadway centerline.~~ A ROAD CLOSED (R11-2) sign shall be mounted over the top two rails of the Type III barricade located closest to the approximate roadway centerline.

2518.01, B, Hazard Closures.

Replace the first paragraph:

A hazard closure shall consist of a series of Type III barricades meeting the requirements of Article 2528.03 ~~an orange mesh safety fence, meeting the requirements of Article 4188.03~~ placed across the roadway from outside edge of shoulder to outside edge of shoulder. Gaps between the Type III barricades shall be no greater than 6 inches (150 mm). ~~The safety fence used in this situation~~

~~shall be securely supported so the fence is in a vertical position without sagging. A Type III barricade as described in Part VI of the MUTCD shall be placed immediately in front of the orange mesh safety fence at the approximate roadway centerline.~~

Comments:

Member's Requested Change: (Do not use **'Track Changes'**, or **'Mark-Up'**. Use ~~**Strikeout**~~ and **Highlight**.

Delete the indented paragraphs A and B and replace them with the following new indented paragraphs:

A. Road Closures.
A road closure shall consist of a series of Type III barricades meeting the requirements of Article 2528.03 ~~an orange mesh safety fence, meeting the requirements of Article 4188.03,~~ placed across the roadway from outside edge of shoulder to outside edge of shoulder. Gaps between the Type III barricades shall be no greater than 6 inches (150 mm). ~~The safety fence used in this situation shall be securely supported so the fence is in a vertical position without sagging. A type III barricade as described in Part VI of the MUTCD shall be placed immediately in front of the orange mesh safety fence at the approximate roadway centerline.~~ A ROAD CLOSED (R11-2) sign shall be mounted over the top two rails of the Type III barricade located closest to the approximate roadway centerline.

The Contractor shall erect road closures as specified in the contract documents. Road Closures shall be erected on the mainline of the roadway where public traffic is diverted onto an on-site detour and where public traffic is prohibited from entering the work area. The Contractor shall be responsible for erecting road closures beginning with the start of the contract period as specified in the contract documents, or when the Contractor commences work.

B. Hazard Closure.
A hazard closure shall consist a series of Type III barricades meeting the requirements of Article 2528.03 ~~of an orange mesh safety fence, meeting the requirements of Article 4188.03~~ placed across the roadway from outside edge of shoulder to outside edge of shoulder. Gaps between the Type III barricades shall be no greater than 6 inches (150 mm). ~~The safety fence used in this situation shall be securely supported so the fence is in a vertical position without sagging. A Type III barricade as described in Part VI of the MUTCD shall be placed immediately in front of the orange mesh safety fence at the approximate roadway centerline.~~

The Contractor shall erect hazard closures as specified in the contract documents. Hazard closures shall be erected at locations within a work area when construction involves major hazards on existing or relocated roadways such as at streams, gullies, railroads, bridge approaches, and driveway locations. Through public traffic should not normally encounter a hazard closure. The Contractor shall be responsible for erecting hazard closures beginning with the start of the contract period as specified in the contract documents, or when the Contractor commences work.

Reason for Revision: Change design of safety closure.

Developmental Specifications or Supplemental Specifications Affected (X one)	**Yes**	**No X**
Comments:		

County or City Input Needed (X one)	**Yes**	**No** X
Comments:		

Industry Input Needed (X one)	**Yes** X	**No**

Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Specification change requested at the January joint Iowa DOT / Iowa ATSSA specification committee meting. Proposed language approved at the February work zone traffic safety committee meeting.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 12**
Submittal Date: February, 2007	**Proposed Effective Date:** October, 2007	
Article No.: 4105.07 **Title:** Clear Compounds	**Other:**	

Specification Committee Action: Approved as is.			
Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4105.07, Clear Compounds.

Replace the indented paragraph:

Clear liquid membrane curing compounds shall comply with requirements of AASHTO M 148, Type 1-D, Class A. Only one type of material shall be used on a structure.

Add as the second unindented paragraph:

Inspection and acceptance of clear compounds for curing will be in accordance with Materials I.M. 405.07.

Comments:

Member's Requested Change: (Do not use **'Track Changes'**, or **'Mark-Up'**. Use ~~**Strikeout**~~ and **Highlight**.

4105.07 CLEAR COMPOUNDS.
When clear curing compounds are specified, the following shall apply in lieu of other requirements of this section:

Clear liquid membrane curing compounds shall comply with requirements of AASHTO M 148, Type 1-D, Class A. Only one type of material shall be used on a structure.

Inspection and acceptance of clear compounds for curing will be in accordance with Materials I.M. 405.07.

Reason for Revision: To match proposed changes to 2513.06.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe	**Office:** Construction	**Item 13**
Submittal Date: February 21, 2007	**Proposed Effective Date:** October 16, 2007	
Article No.: 4151.02 **Title:** Pavement Reinforcement **Article No.:** 4151.02, A **Title:** Pavement Tie Bars.	**Other:**	

Specification Committee Action: Approved with changes as noted.

Deferred:	**Not Approved:**	**Approved Date:** 3/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text. Add the following change:

4151.02, A, Pavement Tie Bars.

Delete the sixth sentence:

~~All damage to epoxy coating during rebending shall be repaired by an approved patching material.~~

Comments: The Office of Construction suggested deleting the last sentence of Article 4151.02, A (see Item 3).

Specification Section Recommended Text:

4151.02, Pavement Reinforcement.

Delete the second paragraph:

~~Reinforcement for bridge approach sections shall be deformed bars meeting the requirements of ASTM A 615/A 615M, Grade 40 or 60 (300 or 400).~~

Add a new article:

C. Reinforcement For Bridge Approach Sections, Reinforced Paved Shoulders, and Full-Width Reinforcement of Pavements.

Reinforcement for bridge approach sections, reinforced paved shoulders, and full-width reinforcement of pavements shall be deformed bars meeting the requirements of ASTM A 615/A 615M, Grade 40 or 60 (300 or 400). Reinforcement shall be epoxy coated and shall meet the requirements of Article 4151.03, except that cut or sheared ends need not be recoated.

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

4151.01 DESCRIPTION.
Steel for reinforcement of concrete shall be of the size and type specified in the contract documents and shall meet the requirements for the type and use specified. Chairs, bolsters, and other support devices, either plastic or steel, shall meet the requirements of Materials I.M. 451.01.

4151.02 PAVEMENT REINFORCEMENT.
Reinforcement for pavements shall meet the requirements of Article 4151.03, and where mesh is specified, Article 4151.04.

~~Reinforcement for bridge approach sections shall be deformed bars meeting the requirements of ASTM A 615/A 615M, Grade 40 or 60 (300 or 400).~~

A. Pavement Tie Bars.
Tie bars to be used in pavement on all projects shall be epoxy coated. Epoxy coating shall be in accordance with Article 4151.03, B. Cut or sheared ends need not be recoated. Pavement tie bars which must be bent and later straightened shall be deformed bars meeting requirements of ASTM A 615/A 615M, Grade 40 or 60 (300 or 400). Tie bars shall be bent back reasonably straight. Tie bars broken during rebending shall be replaced by the Contractor at no cost to the Contracting Authority by drilling a hole and setting the bar in epoxy. All damage to epoxy coating during rebending shall be repaired by an approved patching material.

B. Pavement Dowel Bars.
Dowel bars shall be plain round bars meeting requirements of ASTM A 663/A 663M, Grade 60 (415) or higher, ASTM A 675/A 675M, Grade 60 (415) or higher, or of ASTM A 615/A 615M, Grade 40 (300) or higher. Approved manufacturers and suppliers of load transfer dowels and dowel assemblies are listed in Materials I.M. 451.03, B, Appendix C.

Dowels, with the exceptions of end of run and header joints shall be furnished in approved assemblies, suitable for skewed or perpendicular joints as shown in the contract documents. All dowels, including end of run and header dowels, shall have an epoxy coating applied by the electrostatic spray method in conformance with requirements of AASHTO M 254, Type B, with a minimum coating thickness of 6 mils (150 µm) after cure. Epoxy powders approved for use are listed in Materials I.M. 451.03, B, Appendix B. The ends of dowels may be saw cut or sheared. The sawed and sheared ends need not be coated. If the dowel bars are saw cut, they shall be free of burrs and projections; and the deformation of the bars from true round shape shall not exceed 0.04 inches (1 mm) in diameter or in thickness. The assemblies shall be dipped in a bond breaker prior to delivery to the work site. The bond breaker may be bituminous or paraffin. The bituminous bond breaker shall meet the requirements of Section 4137, 4138, or 4140.

C. Reinforcement For Bridge Approaches Sections, Reinforced Paved Shoulders, and Full-Width Reinforcement of Pavements.

Reinforcement for bridge approach sections, reinforced paved shoulders and full-width reinforcement of pavements shall be deformed bars meeting the requirements of ASTM A 615/A 615M, Grade 40 or 60 (300 or 400). Reinforcement shall be epoxy coated and shall meet the requirements of Article 4151.03, except that cut or sheared ends need not be recoated.

Reason for Revision: Establish clear requirements for epoxy coated reinforcing for bridge approaches sections, paved shoulders, and full-width reinforcement for pavements.

County or City Input Needed (X one)	**Yes**	**No**
Comments:		
Industry Input Needed (X one)	**Yes**	**No**

Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis / Daniel Harness	**Office:** Specifications	**Item 14**
Submittal Date: February 27, 2007	**Proposed Effective Date:** June 19, 2007	
Developmental Specification: DS-01043 **Title:** Sanitary Sewer (SUDAS) **Developmental Specification:** DS-01044 **Title:** Storm Sewer (SUDAS) **Developmental Specification:** DS-01046 **Title:** Water Main (SUDAS)	**Other:**	

Specification Committee Action:			
Deferred:	**Not Approved:**	**Approved Date:**	**Effective Date:**

Specification Committee Approved Text:

Comments: The Office of Contracts noted that the earliest changes could be applied to proposals would be the July, not the June, letting.

Specification Section Recommended Text:

Comments: These DSs will be discussed at the April Specification Committee meeting. Since these DSs are rather lengthy, they have been made available for Committee members to examine until the next meeting.

The proposed effective date is the June 2007 letting. Changes need to be approved at the April 2007 Specification Committee meeting for these to be added to proposals in the July 2007 letting.

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.**

See the Revised Developmental Specifications located at the following address:

W:\Highway\Specifications\Exchange\SUDAS DSs.

Reason for Revision: Update to revisions included in the latest SUDAS Specifications.

County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes**	**No** X	**Industry Concurrence:**	**Yes**	**No**
Comments:					

Item 15

Adding Developmental and Supplemental Specifications and Special Provisions.

At the January 2007 meeting, the Specification Committee discussed adding Developmental Specifications, Supplemental Specifications, and Special Provisions to the PSS. A request was made to investigate if the PSS could be locked down so that DSs, SSs, and SPs could not be added after the plan turn-in date, except by the Office of Contracts.

The Office of Contracts, Office of Construction, Office of Design, Specifications Section, and members of the Highway Division Support Team (HDST) met to discuss the possibilities. The HDST representatives explained that locking down the system is possible. Suggested times for locking the system down included the morning of plan turn-in, the evening of plan turn-in, and two weeks after plan turn-in (the last day for plan changes).

No definitive time frame was decided upon. It was pointed out that a Target Review meeting is held at 1:00 p.m. on plan turn-in day (first Tuesday of each month). After the Target Review meeting, the Office of Contracts enters the changes into the PSS. The group felt that right after changes have been entered would be a good time to lock the PSS down. The Specifications Section would like input from the Specification Committee for setting a time frame to lock the PSS down. Once the decision is made, the Specifications Section will process a service request to enable the programming changes to be scheduled.

Decision:

The Committee decided that Project Scheduling System should be locked down after the Target Review meeting as soon as changes have been entered.