Iowa Department of Transportation

MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

May 15, 2006

Members Present:	Tom Reis, Chair	Specifications Section
	Daniel Harness, Secretary	Specifications Section
	Keith Norris	District 2-District Materials Engineer
	Gary Novey	Office of Bridges & Structures
	John Smythe	Office of Construction
	Roger Bierbaum	Office of Contracts
	Larry Jesse	Office of Local Systems
	Jim Berger	Office of Materials
	Doug McDonald	District 1-Marshalltown RCE Office
Members Not Present:	John Adam	Statewide Operations Bureau
	Bruce Kuehl	District 6-District Const. Engineer
	Troy Jerman	Office of Traffic & Safety
	Mike Kennerly	Office of Design
Advisory Members Present:	Lisa Rold	FHWA
Advisory Members Not Present:	Jim Rost	Office of Location & Environment
	Larry Stevens	SUDAS
Others Present:	Deanna Maifield	Office of Design
	Wayne Sunday	Office of Construction

Tom Reis, Specifications Engineer, opened the meeting. The following items were discussed in accordance with the agenda dated May 12, 2006:

1. Article 2102.01, Roadway and Borrow Excavation.

The Office of Construction requested a change to Article 2102.01 that will link Sections 2102 and 2107 together for better clarity.

2. Division 21, Settlement Plates.

The Office of Design requests a new section be added to the Standard Specifications to cover Settlement Plates.

3. Article 2214.05, Limitations (Pavement Scarification).

The Office of Construction requested a re-discussion of the change to Article 2214.05 that was originally approved at the March 9, 2006 Specification Committee meeting.

4. Article, 2303.03, D, Placement (HMA).

The Office of Construction requested a change to Article 2303.03 that will clarify the intent of the specification and limit the length of lane closure and exposure to pavement edge drop-off.

5. Section 2412, New Concrete floors on Bridge Decks.

The Office of Construction requested a change to Section 2412 that will require all tining and grooving to be longitudinal.

6. Article 2412.07, Curing (New Concrete Floors on Bridge Decks).

The Office of Construction requested a change to Article 2412.07 that will clarify the timing and application of curing compound and burlap.

7. Section 2413, Surfacing and Repair and Overlay of Bridge Floors.

The Office of Construction requested changes to Section 2413 that will eliminate transverse grooving or tining of bridge deck overlays and associated approaches.

8. Article 2413.08, Curing (Surfacing and Repair and Overlay of Bridge Floors).

The Office of Construction requested a change to Article 2413.08 that will eliminate transverse tining for bridge deck overlays and make changes to the curing of the concrete.

9. **Article 2501.07, Determination of Length of Piles.**

The Office of Construction requests changes to Article 2501.07 that will change the plan length of steel H and steel pipe pile to match standard stock lengths of producers.

10. **Article 2501.20, Method of Measurement (Piles and Pile Driving).**

The Office of Construction requests changes to Article 2501.20 that will eliminate the use of furnish and drive items for piling and change the measured length to plan quantity.

11. **Article 2501.21, Basis of Payment (Piles and Pile Driving).**

The Office of Construction requests changes to Article 2501.21 that will eliminate the use of furnish and drive items for piling and change the basis of payment for jetting from a predetermined price to change order.

12. **Section 2505, Removal and Construction of Guardrail.**

The Office of Construction requested changes to Section 2505 that will provide a bid item and specifications for removal and reinstallation of guardrail that restricts paved shoulder construction.

13. Article 4127.01, Description (Type A Aggregate for HMA).

The District 2 Materials Engineer requests a change to Article 4127.01 that will clarify the requirements for producing crushed gravel and allow gravel aggregate with little plus No. 4 sieve material to be accepted in a manner similar to fine aggregate.

14. Discussion of Standard Specification Manual Format.

The Specifications Section requests a discussion of various formatting options for the next Standard Specifications manual.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / John Vu	**Office:** Construction	**Item 1**
Submittal Date: May 10, 2006	**Proposed Effective Date:** October 2006	
Article No.: 2102.01 **Title:** Description	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Recommended Text.

Comments: See Reason for Revision.

Specification Section Recommended Text:

2102.01, Description.

Add as the fourth paragraph.

Preparation of the site and construction of the embankment shall be done per Section 2107.

Comments:

Notes from April 13, 2006 Specification Committee meeting.

District 6 Construction noted that quantities for benching into existing slopes is not always included in the plans. Although not directly spelled out in the Specifications, this quantity could be considered Class 10 excavation. The Office of Design explained that currently they do not have a means for calculating this quantity automatically. They also realize designers occasionally miss this item. They are looking into how to best solve the problem. The Office of Contracts suggested making the item incidental to excavation. The Office of Construction noted that the Standard Road Plan showing benching requirements would need to be included in the plans. The Specifications Section suggested getting input from industry. The committee decided to defer this item to the next meeting. The Specifications Section will contact industry for their input.

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

Add the following paragraph at the end of Article 2102.01.

Preparation of the site and construction of the embankment shall be done per Section 2107.

Reason for Revision: There is no clear connection between Section 2102 and Section 2107. Section 2102 covers soil types and classes. Section 2107 covers embankment construction. The plans sometimes only have 2102 items. Thus, it may be difficult to enforce Section 2107 for site preparation.

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:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Mike Kennerly / Deanna Maifield	**Office:** Design	**Item 2**
Submittal Date: March 31, 2006	**Proposed Effective Date:** October 17, 2006	
Article No.: NEW, 2102, 2526 **Title:** Settlement Plates	**Other:**	

Specification Committee Action: Approved. Include suggested changes.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

Add new section:

Section 2106. Settlement Plates.

2106.01 DESCRIPTION.
This work consists of furnishing and installing settlement plates consisting of a base plate, steel bar, steel riser pipe sections, PVC casing, inspection cover, and any additional hardware and couplers which may be required as shown in the contract documents.

This work also consists of monitoring settlement plate installations and reporting settlement results.

The number of settlement plates will be shown in the contract documents.

2106.02 MATERIALS.
Materials shall meet the requirements of Division 41.

A. Base Plate and Steel Bar.
Section 4153 shall apply.

B. PVC Casing.
Article 4146.04 shall apply.

2106.03 CONSTRUCTION.
Settlement plates shall be furnished and installed by the Contractor at locations specified in the contract documents. Benchmarks shall be established in the adjacent area before settlement plates are installed. The method of determining alignments and elevations and the method of preserving control points shall be subject to the review and approval by the Engineer. This approval shall not act to relieve the Contractor of the responsibility for the correctness of the survey work. Plan cross-sections shall not be used for vertical or horizontal control. Settlement plates shall be approved by the Engineer before beginning embankment construction.

A. Initial Installation.
The base plate shall be installed at least 6 inches (150 mm) below natural ground, firmly seated on a level surface. The PVC casing shall be placed on the base plate, centered on the steel bar attached to the base plate. The void between the casing and bar shall be filled with commercial grade oakum, tightly packed, in order to keep the casing centered on the bar.

An inspection cover shall be constructed as shown in the contract documents and placed over the top of the casing. The cover shall remain in place at all times, except when inspection or monitoring of the riser pipe is being performed.

B. Adding Extensions.
Riser pipe extensions and couplers shall be added, as necessary, in 3 foot (1 m) increments as construction of the embankment progresses. The Contractor shall install extensions in a plumb line.

Sections of PVC casing and couplers shall also be added, as necessary, in order to prevent fill material from coming into contact with the steel pipe extensions.

C. Final Cleanup.
After all embankment construction and monitoring has been completed, the tops of the riser pipe and PVC casing shall be adjusted so they terminate below the final elevation of the embankment.

The Contractor shall remove riser pipe sections protruding above the surface of the embankment. The PVC casing shall then be cut at a point below the surface of the embankment and covered with a PVC cap, solvent welded to the casing, in order to prevent the intrusion of soil and water.

D. Monitoring.
Monitoring shall consist of inspecting the riser pipe, accurately measuring the elevation of top of the riser pipe, and recording to the nearest 0.01 foot (0.3 mm) the elevation readings on a form supplied by the Engineer.

The Contractor shall record elevation readings daily during normal construction and weekly during any delays and following the completion of embankment construction. During the course of embankment construction, completed forms shall be submitted to the Engineer weekly. Following the completion of embankment construction, forms shall be submitted weekly unless otherwise directed by the Engineer.

During periods of work suspension, the Engineer will record elevation readings.

E. Limitations.
All necessary precautions shall be taken to keep the alignment of the riser pipe and PVC casing in a plumb position. The Contractor shall operate equipment so that the riser pipe and PVC casing are not damaged, displaced, or tilted out of plumb. All pipes that are damaged, displaced, or tilted out of plumb shall be repaired or replaced, at the discretion of the Engineer and at no additional cost to the Contracting Authority.

2106.04 METHOD OF MEASUREMENT.
Settlement plates will not be measured directly for payment.

2106.05 BASIS OF PAYMENT.
The cost of furnishing, installing, extending, and monitoring settlement plates shall be considered incidental to embankment or excavation.

Comments: The Office of Construction asked who would monitor settlement if the Contractor is off of the project. The Specifications Section suggested adding a third paragraph to Article 21xx.03, D stating that: “During periods of suspension, the Engineer will record elevation readings.”

The Office of Design asked if the following text should be included as a third sentence in Article 21xx.03: "The maximum distance between benchmarks and settlement plates should be reasonable and appropriate for the survey equipment used and the required accuracy." The Committee decided this language isn't needed. The Office of Construction noted that the following text from Section 2526, Construction Survey, should be added: "The method of determining alignments and elevations and the method of preserving control points shall be subject to the review and approval by the Engineer. This approval shall not act to relieve the Contractor of the responsibility for the correctness of the survey work. Plan cross-sections shall not be used for vertical or horizontal control." The Office of Design asked if "to the nearest 0.01 foot" should be added in the first paragraph of Article 21xx.03, D after "and recording". The Committee agreed this language should be added. Office of Design also asked if the following text should be added to the end of the second sentence in 21xx.03, E: "or tilted out of plumb." The Committee agreed to add this language.

District 2 Materials suggested deleting the reference to Section 4151 in Article 21xx.02, C. It was also noted that metric units need to be added into Article 21xx.03, A.

Specification Section Recommended Text:

Add new section:

Section 21xx. Settlement Plates.

21xx.01 DESCRIPTION.
This work consists of furnishing and installing settlement plates consisting of a base plate, steel bar, steel riser pipe sections, PVC casing, inspection cover, and any additional hardware and couplers which may be required as shown in the contract documents.

This work also consists of monitoring settlement plate installations and reporting settlement results.

The number of settlement plates will be shown in the contract documents.

21xx.02 MATERIALS.
Materials shall meet the requirements of Division 41.

A. Base Plate.
Section 4153 shall apply.

B. PVC Casing.
Article 4146.04 shall apply.

C. Steel Bar.
Section 4151 shall apply.

21xx.03 CONSTRUCTION.
Settlement plates shall be furnished and installed by the Contractor at locations specified in the contract documents. Permanent benchmarks shall be established in the adjacent area before settlement plates are installed. Settlement plates shall be approved by the Engineer before beginning embankment construction.

D. Initial Installation.
The base plate shall be installed at least 6 inches below natural ground, firmly seated on a level surface. The PVC casing shall be placed on the base plate, centered on the steel bar attached to the base plate. The void between the casing and bar shall be filled with commercial grade oakum, tightly packed, in order to keep the casing centered on the bar.

An inspection cover shall be constructed as shown in the contract documents and placed over the top of the casing. The cover shall remain in place at all times, except when inspection or monitoring of the riser pipe is being performed.

E. Adding Extensions.
Riser pipe extensions and couplers shall be added, as necessary, in 3 foot (1 m) increments as construction of the embankment progresses. The Contractor shall install extensions in a plumb line.

Sections of PVC casing and couplers shall also be added, as necessary, in order to prevent fill material from coming into contact with the steel pipe extensions.

F. Final Cleanup.
After all embankment construction and monitoring has been completed, the tops of the riser pipe and PVC casing shall be adjusted so they terminate below the final elevation of the embankment.

The Contractor shall remove riser pipe sections protruding above the surface of the embankment. The PVC casing shall then be cut at a point below the surface of the embankment and covered with a PVC cap, solvent welded to the casing, in order to prevent the intrusion of soil and water.

D. Monitoring.
Monitoring shall consist of inspecting the riser pipe, accurately measuring the elevation of top of the riser pipe, and recording the elevation readings on a form supplied by the Engineer.

The Contractor shall record elevation readings daily during normal construction and weekly during any delays and following the completion of embankment construction. During the course of embankment construction, completed forms shall be submitted to the Engineer weekly. Following the completion of embankment construction, forms shall be submitted weekly unless otherwise directed by the Engineer.

E. LIMITATIONS.
All necessary precautions shall be taken to keep the alignment of the riser pipe and PVC casing in a plumb position. The Contractor shall operate equipment so that the riser pipe and PVC casing are not damaged or displaced. Any pipes that are damaged or displaced shall be repaired or replaced, at the discretion of the Engineer and at no additional expense to the Contracting Authority.

21xx.04 METHOD OF MEASUREMENT.
Settlement plates will not be measured directly for payment.

21xx.05 BASIS OF PAYMENT.
The cost of furnishing, installing, extending, and monitoring settlement plates shall be considered incidental to embankment or excavation.

Comments:

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

Section xxxx. Settlement Plates.

xxxx.01 DESCRIPTION.
This work shall consist of furnishing and installing settlement plates consisting of a base plate, steel bar, steel riser pipe sections, PVC casing, an inspection cover, and any additional hardware and couplers which may be required as shown in the contract documents.

This work shall also consist of monitoring settlement plate installations and reporting settlement results.

An estimated number of settlement plates will be shown in the contract documents. However, the exact number and locations may be adjusted by the Engineer.

xxxx.02 MATERIALS.
Materials shall meet the requirements of Division 41.

xxxx.03 CONSTRUCTION.
Settlement plates shall be furnished and installed by the Contractor at the locations specified in the contract documents. As necessary, permanent benchmarks shall be established in the adjacent area before settlement plates are installed. Settlement plates shall be approved by the Engineer before embankment construction is begun.

G. Initial Installation.
The base plate shall be installed at least 6 inches below natural ground, firmly seated on a level surface. The PVC casing shall be placed on the base plate, centered around the steel bar of the base plate. The void space between the casing and the bar shall be filled with commercial grade oakum, tightly packed, in order to keep the casing centered around the bar.

An inspection cover shall be constructed as shown in the contract documents and placed over the top opening of the casing. The cover shall remain in place at all times, except when inspection and monitoring of the riser pipe is being conducted.

H. Adding Extensions.
Riser pipe extensions and couplers shall be added, as necessary, in 3 foot increments as construction of the embankment progresses. The Contractor shall take care to install pipe extensions in a plumb line.

Sections of PVC casing and couplers shall also be added, as necessary, in order to prevent fill material from coming into contact with the steel pipe extensions.

I. Final Cleanup.
After all embankment construction and monitoring has been completed, the tops of the riser pipe and PVC casing shall be adjusted so that they terminate below the final elevation of the embankment surface.

The Contractor shall remove any riser pipe sections protruding above the surface of the embankment. The PVC casing shall then be cut at a point below the surface of the embankment and covered with a PVC cap, solvent welded to the casing, in order to prevent the intrusion of soil and water.

xxxx.04 MONITORING.
Monitoring shall consist of inspecting the riser pipe, accurately measuring the elevation of top of the riser pipe, and recording the elevation readings on a form supplied by the Engineer.

The Contractor shall record elevation readings daily during normal construction and weekly during any delays and following the completion of embankment construction. During the course of embankment construction, completed forms shall be submitted to the Engineer weekly. Following the completion of embankment construction, completed forms shall be submitted at a time interval advised by the Engineer.

xxxx.05 LIMITATIONS.
All necessary precautions shall be taken to keep the alignment of the riser pipe and PVC casing in a plumb position at all times. The Contractor shall operate equipment so that the riser pipe and PVC casing are not damaged or displaced. Any pipes that are damaged or displaced shall be repaired or replaced, to the satisfaction of the Engineer, at the Contractor's expense.

xxxx.06 METHOD OF MEASUREMENT.
Furnishing and installing settlement plates, including all necessary extensions, shall be considered incidental to excavation and will not be measured separately for payment.

Monitoring of settlement plates shall be considered incidental to construction survey and will not be measured separately for payment.

xxxx.07 BASIS OF PAYMENT.
The cost of furnishing and installing settlement plates shall be considered incidental to excavation and shall be included in the contract unit price for excavation.

The cost of monitoring settlement plates shall be considered incidental to construction survey and shall be included in the contract unit price for construction survey.

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Kevin Merryman	**Office:** Construction	**Item 3**
Submittal Date: May 10, 2006	**Proposed Effective Date:** October 2006 GS	
Article No.: 2214.05 **Title:** Limitations (Pavement Scarification)	**Other:**	

Specification Committee Action: Approved. The Office of Construction and the Specifications Section will work on wording.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2214.05, LIMITATIONS.

Add as the eighth paragraph:

Scarification shall be performed following full-depth patching.

Replace the first and second sentences of the ninth paragraph:

The Contractor shall begin HMA or PCC placement operations within 10 working days after completion of the scarification operation. Once started, ~~HMA~~ placement operations shall occur on each working day until such time that the scarified surface is completely covered ~~with HMA~~. Failure to comply with these requirements will result in the assessment of a price adjustment equal to the liquidated damages stated in the contract documents. The Contractor shall be responsible for repair of ~~any~~ damage to the scarified surface occurring during a time period for which liquidated damages are being assessed.

Replace the first sentence of the tenth paragraph:

When ~~HMA~~ resurfacing is part of the contract, all scarified surfaces shall be covered with at least one full lift of HMA prior to winter shutdown. The Contractor shall leave no vertical edges or fillets.

Comments: The Office of Construction noted that it is the tenth paragraph that is being added. They also noted that in that paragraph, “but prior to resurfacing” isn’t really needed. They also noted that 10 working days will not likely be time enough if patching is done after scarification, or if widening is involved. They further suggested breaking things out for HMA and PCC. The Office of Construction suggested working with the Specifications Section to work on the wording. The Specifications Section agreed.

The Office of Construction and the Specifications Section met after the meeting. The decision was made to base the specification on patching occurring before scarification. If patching or other operations such as base widening or subdrains are to be completed after scarification, resulting in the need to extend the 10 working day time period, this will be handled elsewhere in the contract documents. The text in Specification Committee Approved Text is the text agreed upon by the Office of Construction and the Specifications Section.

Specification Section Recommended Text:

2214.05, LIMITATIONS.

Replace the first and second sentences of the eighth paragraph:

The Contractor shall begin ~~HMA placement~~ resurfacing operations within 10 working days after completion of the scarification operation. Once started, ~~HMA~~ placement shall occur on each working day until such time that the scarified surface is completely covered ~~with HMA~~. Failure to comply with these requirements will result in the assessment of a price adjustment equal to the liquidated damages stated in the contract documents. The Contractor shall be responsible for repair of any damage to the scarified surface occurring during a time period for which liquidated damages are being assessed.

Add as the eighth paragraph:

Scarification shall be performed following full-depth patching, but prior to resurfacing unless otherwise indicated in the contract documents.

Replace the first sentence of the ninth paragraph:

When HMA resurfacing is part of the contract, all scarified surfaces shall be covered with at least one full lift of HMA prior to winter shutdown. The Contractor shall leave no vertical edges or fillets.

Comments:

Notes from April 13, 2006 Specification Committee meeting:

Some concern was expressed that 10 working days may be too tight for the contractor to get all the work done, especially if shoulder widening is involved or if patching is to be done after scarification. The committee agreed that the type and length of project has a significant impact. They also agreed that it is undesirable to have a scarified surfaced exposed for several weeks. The idea of stating a default was proposed. The Specifications Section suggested listing the normal items of work and their order of completion. If a different order is required, or if an extended period of time beyond 10 working days would be required, this could be noted in the plans. The Specifications Sections suggested deferring this item to the next meeting. They will come up with an order for work items, which will be the default. Changes to the order of items would be noted in the contract documents.

Originally approved at the March 9, 2006 Specification Committee meeting, but it was requested to discuss this item again due potential conflicts.

Note from Construction: As we discussed, there is a problem with the change that was approved as Item 5 at the March spec committee regarding limitations included for pavement scarification. The change approved in March made the limitations generic to HMA or PCC. However, it reestablished the required operation as "resurfacing", which was eliminated during the previous change of this article to accommodate a widening operation prior to resurfacing.

Also, the issue of patching has been raised. Some Districts are requiring contractors to perform patching after the scarification to better determine the size of patch needed. If this sequence is required, the 10 days allowed may not be sufficient to accomplish the patching without adversely affecting the production and cost of the HMA operations.

Member's Requested Change (Redline/Strikeout):

Make the following changes to the 8th and 9th paragraphs of Article 2214.05 LIMITATIONS:

The Contractor shall begin ~~HMA placement~~ resurfacing operations within 10 working days after completion of the scarification operation. Once started, ~~HMA~~ placement shall occur on each working day until such time that the scarified surface is completely covered ~~with HMA~~. Failure to comply with these requirements will result in the assessment of a price adjustment equal to the liquidated damages stated in the contract documents. The Contractor shall be responsible for repair of any damage to the scarified surface occurring during a time period for which liquidated damages are being assessed.

When HMA resurfacing is part of the contract, all scarified surfaces shall be covered with at least one full lift of HMA prior to winter shutdown. The Contractor shall leave no vertical edges or fillets.

Reason for Revision: When changes were made to this article in the April 2006 GS, language was added to the above paragraphs that was specific to HMA resurfacing. However, this article can apply to both HMA and PCC resurfacing work. The proposed changes restore the article to a more generic form that can apply to both types of work.

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:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Jeff Schmitt	**Office:** Construction	**Item 4**
Submittal Date: May 10, 2006	**Proposed Effective Date:** October 2006	
Article No.: 2303.03, D **Title:** Placement (Construction)	**Other:**	

Specification Committee Action: Approved. Address centerline dropoffs.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2303.03, D, Placement.

Replace the first sentence of the ninth paragraph:

~~When placing two adjacent lanes, not more than 1 1/2 days of rated plant production capacity shall be paved in a lane before the adjacent lane(s) is paved.~~The Contractor shall limit lane line or centerline dropoffs to a maximum of 1 1/2 days of normal plant production. The Contractor shall not spread more mixture than can be compacted in the specified working hours of the same working day. At the close of each working day, the roadbed shall be free of any construction equipment.

Comments: Initially, the Office of Construction didn't concur with wording. The Specifications Section suggested going with original submittal. The Office of Local Systems and Office of Contracts felt that original wording submitted was ambiguous. The Office of Construction noted that the idea is to eliminate the possibility of having a 1 1/2 day exposure to dropoffs indefinitely through the project. The Office of Bridges expressed that the Specification Section Recommended Text should address that concern. The Office of Construction agreed, but asked that centerlines also be addressed.

Specification Section Recommended Text:

2303.03, D, Placement.

Replace the first sentence and **Add** new second sentence to the ninth paragraph:

The Contractor shall limit lane line dropoffs to a maximum of 1 1/2 days of normal plant production. ~~When placing two adjacent lanes, not more than 1 1/2 days of ratednormal plant production capacity shall be paved in a lane before the adjacent lane(s) is paved. The adjacent lane shall be placed to match the first lane during the next day of plant production.~~ The Contractor shall not spread more mixture than can be compacted in the specified working hours of the same working day. At the close of each working day, the roadbed shall be free of any construction equipment.

Comments:

Notes from April 13, 2006 Specification Committee meeting:

> The committee determined that ultimately the 1 1/2 days production limit is in place to limit exposure to a dropoff to no more than 1 1/2 days. The Specifications Section will reword to focus more on limiting exposure to dropoff.

Member's Requested Change (DO NOT USE "TRACK CHANGES," use Strikeout/Highlight):

Revise paragraph 9 of Article 2303.03, D., Placement, as follows:

When placing two adjacent lanes, not more than 1 1/2 days of ~~rated~~normal plant production ~~capacity~~ shall be paved in a lane before the adjacent lane(s) is paved. The adjacent lane shall be placed to match the first lane during the next day of plant production. The Contractor shall not spread more mixture than can be compacted in the specified working hours of the same working day. At the close of each working day, the roadbed shall be free of any construction equipment.

Reason for Revision: Clarify intent of specification. Limits the length of lane closure and exposure to pavement edge drop-off.

County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments: This proposed change has been discussed informally with several members of APAI Specification Committee.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Wayne Sunday	**Office:** Construction	**Item 5**
Submittal Date: May 10, 2006	**Proposed Effective Date:** October 17, 2006	
Article No.: 2412.06 **Title:** Surface Finish **Article No.:** 2412.11 **Title:** Method of Measurement and Basis of Payment	**Other:**	

Specification Committee Action: Approved. Include suggested changes.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/16	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2412.06, Surface Finish.

Replace the fourth paragraph:

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. ~~When the surface being placed is the wearing course, the entire surface, except the area within approximately 2 feet (0.6 m) of the curbs, shall be given a suitable grooving by hand methods. Grooving shall be similar to that described in Article 2301.16, A, with the following exceptions:~~ 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.

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

2412.06, A, Interstate and Primary Projects.

Add new article:

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 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.

2412.06, B, Other Projects.

Add new article:

B. Other Projects:

When the surface being placed is the wearing course, the entire surface, except the area within approximately 2 feet (0.6 m) of the curbs, shall be given a suitable grooving by hand methods. Grooving shall be similar to that described in Article 2301.16, A, with the following exceptions:

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

2412.11, Method of Measurement and Basis of Payment.

Add as the fifth paragraph:

The quantity of Longitudinal Grooving in Concrete, in square yards (square meters), will be the plan quantity shown in the contract documents. The Contractor will be paid the contract unit price for longitudinal grooving in concrete per square yard (square meter).

Comments: The Office of Construction questioned if the fourth, fifth, and sixth paragraphs of Article 2412.06 are what is to be replaced. The Specifications Section noted that it should be just the fourth paragraph that is to be replaced. Office of Construction asked if the new text in Article 2412.11 could state that the quantity of Longitudinal Grooving of Concrete will be the plan quantity shown in the contract documents. The Specifications Section will add that text in. The Office of Bridges and Structures noted that with the specification being split into two tiers, the added sentence in Article 2412.06 doesn't apply. The Office of Construction explained that it does still apply to Interstate and Primary projects. The Specifications Section will add that language in. The Office of Bridges and Structures also noted that in the April meeting, the Committee agreed to add language stating that for multi-lane roadways, longitudinal grooving for bridge approach sections (Interstate and Primary) shall be applied to areas extending out to within 6 inches of the outside lane line. The Specification Section will add that language.

Specification Section Recommended Text:

2412.06, Surface Finish.

Replace the fourth, fifth, and sixth paragraphs:

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 coarse bridge floors 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 of single reinforced bridge approach sections and non-reinforced bridge approach sections shall be applied only to areas within 12 feet (3.6 m) of centerline of roadway.

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.

B. Other Projects:

When the surface being placed is the wearing course, the entire surface, except the area within approximately 2 feet (0.6 m) of the curbs, shall be given a suitable grooving by hand methods. Grooving shall be similar to that described in Article 2301.16, A, with the following exceptions:

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

When the surface being placed is the final surface of a bridge sidewalk, the surface of sidewalk shall be given a transverse coarse broom texture.

2412.11, Method of Measurement and Basis of Payment.

Add as the fifth paragraph:

The quantity of Longitudinal Grooving in Concrete, in square yards (square meters), will be the quantity shown in the contract documents. The Contractor will be paid the contract unit price for longitudinal grooving in concrete per square yard (square meter).

Comments:

Notes from the April 13, 2006 Specification Committee meeting.

The Office of Construction noted that longitudinal grooving is required on decks, overlays, approaches and overlay approaches. This is being handled with plan notes. The Office of Construction would like this to be covered in the Standard Specifications. Counties and cities would need to include a note in their plans if they did not want longitudinal grooving. The Office of Local Systems noted that a majority of bridges built are with counties and cities. A majority of bridge projects would require a note deleting longitudinal grooving. The Specifications Section suggested calling this out in the specifications. Iowa County asked why the change to longitudinal grooving is being made. The Office of Construction responded the change is to address concerns with noise reduction. An additional benefit is allowing curing to be applied sooner. Iowa County suggested a tiered specification. The Office of Contracts agreed with this idea, adding that if the specification is not tiered, then the specifications should call for tining, with longitudinal grooving being covered in the plans. The Specifications Section will rewrite so the specification is tiered. The Office of Design noted that application of grooving to multi-lane single or non-reinforced approaches is not covered in the proposed language. The Office of Construction replied that they are aware of this and have discussed it with the Office of Bridges and Structures. Language will be added to address this situation.

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 coarse bridge floors the final finished surface shall be the smoothed surface checked for smoothness without additional finishing.

A. Longitudinal Grooving In Concrete

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 any surface correction grinding is done.

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 ¾ inch (19 mm) intervals measured from center of groove 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 the bridge joints. Longitudinal grooving of the single reinforced bridge approach sections and the non-reinforced bridge approach sections shall be applied only to the areas within 12 feet (3.6 m) of centerline of roadway.

For staged bridge and bridge approach construction the contractor will have the option of cutting longitudinal grooves in the hardened concrete at the end of each stage of construction or waiting 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 will be required to establish temporary lane closures to accomplish longitudinal grooving for all stages. Traffic control for this will be done in accordance with Standard Road Plan RS-3. Cost of the temporary lanes closures is to be included in the price bid for “Traffic Control”. 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 will be cut into the hardened concrete in order to establish an acceptable driving surface texture for the winter season.

~~When the surface being placed is the wearing course, the entire surface, except the area within approximately 2 feet (0.6 m) of the curbs, shall be given a suitable grooving by hand methods. Grooving shall be similar to that described in Article 2301.16, A, with the following exceptions:~~

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

~~When the surface being placed is the final surface of a bridge sidewalk, the surface of sidewalk shall be given a transverse coarse broom texture.~~

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

2412.11 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.
Structural concrete, reinforcement, and structural steel will be measured and paid for in accordance with Sections 2403, 2404, and 2408, respectively. These payments shall be full compensation for furnishing all materials, equipment, and labor and for performing all work necessary to complete the structure in conformance with the contract documents.

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

Deductions will not be made for the volume of concrete displaced by floor drains, expansion joints, shear lugs, beam flanges, and joint material. The cost of joint material and metal strips for sealing joints shall be included in the contract unit price per cubic yard (cubic meter) for structural concrete. The weight (mass) in pounds (kilograms) of structural steel paid for shall include all steel expansion plates, castings of steel or iron, welded shapes for floor drains, bearing plates, anchor bolts and other steel parts, except steel reinforcement for concrete and the metal fastenings therefor.

The cost of any additional concrete required to meet the requirements of Article 2412.04 shall be incidental to the cost of the structural concrete.

A. Longitudinal Grooving In Concrete

The quantity of longitudinal grooving in concrete, in square yards (square meters), will be the quantity shown in the contract documents. The contractor will be paid the contract unit price for longitudinal grooving in concrete per square yard (square meter).

Reason for Revision: The Bridge Design Office at the request of the Office of Construction is no longer allowing transverse grooving or tining in plastic concrete of bridge decks (and bridge approaches when included in the bridge project). The plans are currently requiring longitudinal grooves be cut in the hardened concrete. The reason for this change is to improve noise reduction, eliminate tining from the deck placement process to expedite curing, and to improve uniformity in texturing of bridge decks and bridge approaches. This specification once implemented will enable Bridge Design to remove the current notes on longitudinal grooving in concrete from the plans.

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 / Wayne Sunday	**Office:** Construction	**Item 6**
Submittal Date: April 10, 2006	**Proposed Effective Date:** October 17, 2006	
Article No.: 2412.07 **Title:** Curing	**Other:**	

Specification Committee Action: Approved.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2412.07, Curing.

Replace the first indented paragraph:

~~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).~~ The first layer of prewetted burlap shall be placed on the floor within ~~15~~ 10 minutes after final finishing or ~~(~~texturing.~~)~~ ~~and covering of concrete with white pigmented curing compound. The Engineer may adjust the time for placement of the first layer of prewetted burlap to minimize burlap damage to the transverse grooving.~~ Burlap shall be prewetted with sufficient water, prior to placement, to prevent absorption of moisture from the concrete surface. It shall be kept wet. As soon as practicable but not later than 2 hours after the first layer is placed, a second layer of burlap shall be placed on the floor. Water shall be applied to the burlap covering for a period of 4 calendar days by means of a pressure sprinkling system that is effective in keeping the burlap wet during the moist curing period. The system may be interrupted only to replenish the water supply, during periods of natural moisture, or during construction contiguous to the concrete being cured. Interruptions for periods longer than 4 hours may be approved by the Engineer on the basis of the method for keeping the concrete moist.

Comments: The Office of Construction expressed some concerns that placing burlap within 10 minutes may damage texturing. They suggested that white pigmented curing compound be placed if texturing is completed before applying burlap. The Committee decided to stay with its decision to eliminate white pigmented curing compound. It will be left to the Engineer to determine if texturing is being damaged by placing burlap within 10 minutes, and to make adjustments.

Specification Section Recommended Text:

2412.07, Curing.

Replace the first indented paragraph:

~~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).~~ The first layer of prewetted burlap shall be placed on the floor within ~~15~~ 10 minutes after final finishing or texturing. ~~When stated in the contract documents; prior to placement of the first layer of prewetted burlap, but 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 square meters per liter). Within 15 minutes of application of white pigmented curing compound, the first layer of prewetted burlap shall be placed. (texturing) and covering of concrete with white pigmented curing compound.~~ Burlap shall be prewetted with sufficient water, prior to placement, to prevent absorption of moisture from the concrete surface. ~~The Engineer may adjust the time for placement of the first layer of prewetted burlap to minimize burlap damage to the transverse grooving.~~ It shall be kept wet. As soon as practicable but not later than 2 hours after the first layer is placed, a second layer of burlap shall be placed on the floor. Water shall be applied to the burlap covering for a period of 4 calendar days by means of a pressure sprinkling system that is effective in keeping the burlap wet during the moist curing period. The system may be interrupted only to replenish the water supply, during periods of natural moisture, or during construction contiguous to the concrete being cured. Interruptions for periods longer than 4 hours may be approved by the Engineer on the basis of the method for keeping the concrete moist.

Comments:

Notes from the April 13, 2006 Specification Committee meeting:

The FHWA expressed concerns with placing prewetted burlap within 15 minutes of placing pigmented curing compound. There is a chance the curing compound will not be dry and will be soaked up into the burlap. The Office of Construction suggested eliminating the curing compound. They suggested instead that the wet burlap be placed within 10 minutes of tining. They also stated that they would be satisfied with a tiered specification if counties and cities want to continue using the specification as is. The Office of Local Systems stated that they would be satisfied with eliminating the curing compound. The Specifications Section noted that they will eliminate curing compound from the language and will add language requiring placement of wet burlap within 10 minutes of tining. The Office of Contracts explained that placing the Method of Measurement and Basis of Pavement for grooving is several separate sections would lead to separate bid items being created for the same work. The Specifications Section will look into the issue and determine the best location for Method of Measurement and Basis of Payment.

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

2412.07 CURING.

Concrete floors shall be cured as follows:

~~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).~~ The first layer of prewetted burlap shall be placed on the floor within ~~15~~ 10 minutes after final finishing. When stated in the contract documents, prior to placement of the first layer of prewetted burlap, 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 square meters per liter). Within 15 minutes of application of white pigmented curing compound, the first layer of prewetted burlap shall be placed. ~~(texturing) and covering of concrete with white pigmented curing compound~~. Burlap shall be prewetted prior to placement with sufficient water to prevent absorption of moisture from the concrete surface. ~~The Engineer may adjust the time for placement of the first layer of prewetted burlap to minimize burlap damage to the transverse grooving.~~ It shall be kept wet. As soon as practicable but not later than 2 hours after the first layer is placed, a second layer of burlap shall be placed on the floor. Water shall be applied to the burlap covering for a period of 4 calendar days by means of a pressure sprinkling system

that is effective in keeping the burlap wet during the moist curing period. The system may be interrupted only to replenish the water supply, during periods of natural moisture, or during construction contiguous to the concrete being cured. Interruptions for periods longer than 4 hours may be approved by the Engineer on the basis of the method for keeping the concrete moist.

Continuous contact, except as noted above, shall be maintained between all parts of the concrete floor and the burlap during the 4 calendar day moist curing period.

On concrete floors placed after October 1 and prior to April 1, after 20 hours of the application of water, the Contractor may substitute the application of a moisture proof plastic film not less than 3.4 mils (86 µm) thick over the wet burlap in lieu of applying water. Intimate contact must be maintained between the surface of the concrete, the burlap, and the plastic film.

Reason for Revision: Transverse tining in plastic concrete has been eliminated by plan notes which enables the wet burlap cure to be initiated sooner. Since the wet burlap placement is specified to occur within 10 minutes of final finishing there is also no need for application of white pigmented curing compound. This same curing requirement is standard for High Performance Concrete and Improved Durability Concrete Developmental Specifications.

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 / Wayne Sunday	**Office:** Construction	**Item 7**
Submittal Date: May 10, 2006	**Proposed Effective Date:** October 17, 2006	
Section No.: 2413 **Title:** Surfacing and Repair and Overlay of Bridge Floors	**Other:**	

Specification Committee Action: Approved. Include suggested changes.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2413.07, Placing and Finishing.

Replace the third and fourth paragraphs:

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.

2413.11, Method of Measurement.

Add as the fourth paragraph:

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

2413.12, Basis of Payment.

Add as the third paragraph:

Longitudinal Grooving in Concrete will be paid for in accordance with Article 2412.11.

Comments: The Office of Construction noted that it is the third and fourth indented paragraphs of the ninth paragraph that are being replaced. They also asked that in Article 2413.07, 11 the quantity be defined as the plan quantity shown in the contract documents. They also noted that in the third paragraph of Article 2413.07, A should be rewritten to state that longitudinal grooving shall not be applied within 6 inches of the edge of the outside lane line. The Office of Contracts asked if the same bid item will be used for Longitudinal Grooving in Concrete as is used in Section 2412. The Specifications Section verified this and will change the text to reflect that.

Specification Section Recommended Text:

2413.07, Placing and Finishing.

Replace the third and fourth paragraghs:

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 bridge approach overlay sections and non-reinforced bridge approach overlay sections shall be applied only to areas within 12 feet (3.6 m) of centerline of roadway.

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.

2413.11, Method of Measurement.

Add new article:

A. Longitudinal Grooving In Concrete.

The quantity of Longitudinal Grooving in Concrete, in square yards (square meters), measured will be the quantity shown in the contract documents.

2413.12, Basis of Payment.

Add new article:

A. Longitudinal Grooving In Concrete

For the quantity of Longitudinal Grooving in Concrete measured the Contractor will be paid the contract unit price per square yard (square meter).

Comments:

Notes from April 13, 2006 Specification Committee meeting.

District 6 commented that this as written does not allow transverse tining or grooving, and wanted to know what counties and cities should do. The Office of Construction noted that this specification will also need to be tiered in the same manner as section 2412. The Office of Contracts asked what will happen of grooving is not completed within 30 calendar days. The

Office of Contracts explained that the situation will be handled in a similar manner to miscellaneous finishing items.

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

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, 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.

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

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.

B. Longitudinal Grooving In Concrete

Transverse grooving or tining in the plastic concrete of the bridge deck overlay (and bridge approach overlay when included in the bridge deck overlay 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 any surface correction grinding is done.

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 ¾ inch (19 mm) intervals measured from center of groove to center of groove.

Longitudinal grooving on the 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 the bridge joints. Longitudinal grooving of the single reinforced bridge approach overlay sections and the non-reinforced bridge approach overlay sections shall be applied only to the areas within 12 feet (3.6 m) of centerline of roadway.

For staged bridge deck overlay and bridge approach overlay construction the contractor will have the option of cutting longitudinal grooves in the hardened concrete at the end of each stage of construction or waiting 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 will be required to establish temporary lane closures to accomplish longitudinal grooving for all stages. Traffic control for this will be done in accordance with Standard Road Plan RS-3. Cost of the temporary lanes closures is to be included in the price bid for “Traffic Control”. 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 will be cut into the hardened concrete in order to establish an acceptable driving surface texture for the winter season.

~~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.

2413.11 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 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.

A. Longitudinal Grooving In Concrete

The quantity of longitudinal grooving in concrete, in square yards (square meters), for which payment will be made will be the quantity shown in the contract documents.

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.

A. Longitudinal Grooving In Concrete

For the number of square yards (square meters) of longitudinal grooving in concrete constructed, the contractor will be paid the contract unit price per square yard (square meter).

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.

Reason for Revision: The Bridge Design Office at the request of the Office of Construction is no longer allowing transverse grooving or tining in plastic concrete of bridge deck overlays (and bridge approach overlays when included in the bridge deck overlay project). The plans are currently requiring longitudinal grooves be cut in the hardened concrete. The reason for this change is to improve noise reduction, eliminate tining from the deck placement process to expedite curing, and to improve uniformity in texturing of bridge decks overlays and bridge approach overlays. This specification once implemented will enable Bridge Design to remove the current notes on longitudinal grooving in concrete from the plans.

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 / Wayne Sunday	**Office:** Construction	**Item 8**
Submittal Date: May 10, 2006	**Proposed Effective Date:** October 17, 2006	
Article No.: 2413.08 **Title:** Curing	**Other:**	

Specification Committee Action: Approved. Include suggested changes.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2413.08, Curing.

Replace the first paragraph.

~~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:

Delete the fourth sentence **AND replace** the fifth sentence of the first indented paragraph.

~~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 because of failure to meet density requirements with initial vibration, ~~this~~ the time for placement of prewetted burlap will be extended 10 minutes.

Comments: The Office of Bridges and Structures asked if, in the first indented paragraph, the time for placement of prewetted burlap with should be extended 10 minutes, not 15. The Office of Construction agreed it should be 10 minutes.

Specification Section Recommended Text:

2413.08, Curing.

Replace the first paragraph.

~~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 within 10 minutes after final finishing. ~~When stated in the contract documents, prior to placement of the first layer of prewetted burlap, 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 square meters per liter).~~ Burlap shall be prewetted with sufficient water, prior to placement, to prevent absorption of moisture from the concrete surface. ~~and the~~ The concrete shall be cured as provided in the following paragraphs:

Delete the fourth sentence **AND replace** the fifth sentence of the first indented paragraph.

~~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 because of failure to meet density requirements with initial vibration, ~~this~~ the time for placement of prewetted burlap will be extended 10~~15~~ minutes.

Comments:

Notes from April 13, 2006 Specification Committee meeting.

The Office of Contracts emphasized that it is clear in Sections 2412 and 2413 that transverse tining is not allowed on Primary and Interstate routes. District 6 explained that on occasion only a short section of approach may be placed, for example if a backwall is being repaired. They wanted to know how to handle such situations. The Office of Contracts explained that exceptions can be placed in the plan notes that allow for transverse tining.

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

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 within 10 minutes after final finishing. When stated in the contract documents, prior to placement of the first layer of prewetted burlap, 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 square meters per liter). Burlap shall be prewetted prior to placement with sufficient water to prevent absorption of moisture from the concrete surface. and the The concrete shall be cured as provided in the following paragraphs:

For Portland cement 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 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.

Reason for Revision: Transverse tining in plastic concrete has been eliminated by plan notes which enables the wet burlap cure to be initiated sooner. Since the wet burlap placement is specified to occur within 10 minutes of final finishing there is also no need for application of white pigmented curing compound. This same curing requirement is standard for High Performance Concrete and Improved Durability Concrete Developmental Specifications.

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 / Kyle Frame	**Office:** Construction	**Item 9**
Submittal Date: 2/07/06	**Proposed Effective Date:** 10/06	
Article No.: 2501.07 **Title:** Determination of Length of Piles.	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Office of Bridges and Structures noted that in some cases enough piling is being ordered that lengths can be specified to the foot. The Committee decided those situations can best be handled by a plan note.

Specification Section Recommended Text:

2501.07 DETERMINATION OF LENGTH OF PILES.

Replace the second and third sentences:

When the length of piles is not specified, the Engineer will determine the length from the results obtained under the procedure specified in the contract documents. The length of wood piles will ~~shall~~ be in multiples of 2 feet (0.5 m) for lengths of 20 feet (6 m) and less, and in multiples of 5 feet (1.5 m) for lengths over 20 feet (6 m). Steel H-piles~~,~~ and steel pipe piles~~,~~ will be in multiples of 5 feet (1.5 m). ~~and p~~Precast concrete piles may be specified in any length of whole feet (to the nearest 0.5 m).

Comments:

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

Replace the entire article:

When the length of piles is not specified, the Engineer will determine the length from the results obtained under the procedure specified in the contract documents. The length of wood piles will ~~shall~~ be in multiples of 2 feet (0.5 m) for lengths of 20 feet (6 m) and less, and in multiples of 5 feet (1.5 m) for lengths over 20 feet (6 m). Steel H-piles~~,~~ and steel pipe piles will be in mulitiples of 5 feet (1.5 m). ~~and p~~Precast concrete piles may be specified in any length of whole feet (to the nearest 0.5 m).

Reason for Revision:

Change the plan length of steel H-pile and steel pipe pile to match standard stock lengths of producers.

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

Comments: Counties may use our specification for pile driving.					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments: Change requested by the Associated General Contractors of Iowa (AGC).					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Kyle Frame	**Office:** Construction	**Item 10**
Submittal Date: 2/07/06	**Proposed Effective Date:** 10/06	
Article No.: 2501.20 **Title:** Method of Measurement	**Other:**	

Specification Committee Action: Approved. Include suggested change.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2501.20 METHOD OF MEASUREMENT.

Replace the article:

~~The Engineer will measure, to the nearest foot (0.5 m), the length of all piles placed in the leads for driving. The length of cut-off will be measured to the nearest 0.1 foot (0.1 m).~~

~~When the length of piles has been changed from that specified in the contract documents, either by replacement with piles of greater length or by cutting piles to shorter length before driving, the Engineer will also measure the length of piles ordered and delivered, but not driven.~~

For the quantities of Wood Piles, Steel H-Piles (either encased or not), Steel Pipe Piles, Concrete Piles, and Steel Sheet Piles; the length measured for payment will be the plan length. The quantity may be modified by Article 2501.20, D or F.

A. Wood Piles.
~~For furnishing Wood Piles, the length measured for payment shall be the length incorporated in the structure plus three-fourths of the length cut off during or after driving, except that cut offs of 1.5 feet (0.5 m) or less shall be included with the length in the structure. If the cut off portion of a driven wood pile is subsequently used as a pile on the same contract, its length will be deducted from the total length of cut-offs but will be measured as provided above for furnishing wood piles.~~ When a wood pile is broken in driving through no fault of the Contractor, the ~~portion not driven will be considered as cut-off, and the portion in the ground will be considered as pile driven~~ length measured for payment will be the plan length.

~~For driving wood piles, the Engineer will calculate the length incorporated in the structure.~~

~~**B. Steel H-piles.**~~
~~For furnishing Steel H-piles, either encased or not, the length measured for payment will be the length incorporated in the structure plus 50% of the pile cut-off if it is over 5 feet (1.5 m). Cut-offs of 5 feet (1.5 m) or less will be measured as length in structure. Cut-off measurement may be modified by Paragraph G of this article.~~

~~For driving Steel H-piles, either encased or not, the Engineer will calculate the length incorporated in the structure.~~

~~**C. Steel Pipe Piles.**~~
~~For furnishing steel pipe piles the length measured for payment will be the length~~

~~incorporated in the structure plus 50% of the pile cut-off, if it is over 5 feet (1.5 m). Cut-offs of 5 feet (1.5 m) or less will be measured as length in structure. Cut-off measurement may be modified by Paragraph G of this article.~~

~~For driving and filling of steel pipe piles, the Engineer will calculate the length incorporated in the structure.~~

~~**D. Concrete Piles.**~~
~~For concrete piles, the length measured for payment shall be the plan length.~~

BE. Sheet Piles.
The area of walls of sheet piles will be determined from the plan length and the horizontal center line length measured to the nearest 0.1 foot (0.1 m) of wall.

CF. Concrete Encasement.
The length of concrete encasement of steel H-piles constructed will be measured to the nearest 0.1 foot (0.1 m).

DG. Extension and Splices.
~~When steel H-piles, either encased or not, or steel pipe piles are extended, the Engineer will specify the length of extension required, and will measure the length incorporated in the structure and length of the pile cut-off after driving. Portions of steel pile cut-offs used as extensions on the same contract will not be included with the cut-offs of the plan quantity piles. Portions removed to make the splice shall be treated as cut-off.~~

~~When concrete piles are extended, the length measured for payment shall be the length of the extension specified by the Engineer, plus the additional length required to be removed for splicing the reinforcement.~~

Wood, steel H (either encased or not), or steel pipe piles that are extended, the length measured for payment will be the length of the extension specified by the Engineer. Portions of pile cut-offs used as extensions on the same contract will not be remeasured as additional plan quantity.

Concrete piles that are extended, the length measured for payment will be the length of the extension specified by the Engineer, plus the additional length required to be removed for splicing the reinforcement.

EH. Prebored Holes.
The length of prebored holes will be calculated in linear feet (meters) from elevations as shown in the contract documents to the nearest 0.1 foot (0.1 m).

Preboring required by Article 2501.16 will be measured for payment to the nearest 0.1 foot (0.1 m).

FI. Extra Pile.
Extra piles ordered, in addition to the plan quantities, will be measured for payment.

Comments: The Office of Construction noted that in the first paragraph, the quantity may be modified by Paragraphs D or F, rather than Paragraphs E, F, or H.

Specification Section Recommended Text:

2501.20 METHOD OF MEASUREMENT.

Replace the article:

~~The Engineer will measure, to the nearest foot (0.5 m), the length of all piles placed in the leads for driving. The length of cut-off will be measured to the nearest 0.1 foot (0.1 m).~~
~~When the length of piles has been changed from that specified in the contract documents, either by replacement with piles of greater length or by cutting piles to shorter length before driving, the Engineer will also measure the length of piles ordered and delivered, but not driven.~~
For the quantities of wood piles, steel H-piles (either encased or not), steel pipe piles, and concrete piles; the length measured for payment will be the plan length. The quantity may be modified by Paragraphs E, F, or H.

A. Wood Piles.
~~For furnishing Wood Piles, the length measured for payment shall be the length incorporated in the structure plus three-fourths of the length cut off during or after driving, except that cut-offs of 1.5 feet (0.5 m) or less shall be included with the length in the structure. If the cut off portion of a driven wood pile is subsequently used as a pile on the same contract, its length will be deducted from the total length of cut-offs but will be measured as provided above for furnishing wood piles.~~ When a wood pile is broken in driving through no fault of the Contractor, the ~~portion not driven will be considered as cut-off, and the portion in the ground will be considered as pile driven~~ length measured for payment will be the plan length.

~~For driving wood piles, the Engineer will calculate the length incorporated in the structure.~~

~~**B. Steel H-piles.**~~
~~For furnishing Steel H-piles, either encased or not, the length measured for payment will be the length incorporated in the structure plus 50% of the pile cut-off if it is over 5 feet (1.5 m). Cut-offs of 5 feet (1.5 m) or less will be measured as length in structure. Cut-off measurement may be modified by Paragraph G of this article.~~

~~For driving Steel H-piles, either encased or not, the Engineer will calculate the length incorporated in the structure.~~

~~**C. Steel Pipe Piles.**~~
~~For furnishing steel pipe piles the length measured for payment will be the length incorporated in the structure plus 50% of the pile cut-off, if it is over 5 feet (1.5 m). Cut-offs of 5 feet (1.5 m) or less will be measured as length in structure. Cut-off measurement may be modified by Paragraph G of this article.~~

~~For driving and filling of steel pipe piles, the Engineer will calculate the length incorporated in the structure.~~

~~**D. Concrete Piles.**~~
~~For concrete piles, the length measured for payment shall be the plan length.~~

B~~E~~. Sheet Piles.
The area of walls of sheet piles will be determined from the plan length and the horizontal center line length measured to the nearest 0.1 foot (0.1 m) of wall.

C~~F~~. Concrete Encasement.
The length of concrete encasement of steel H-piles constructed will be measured to the

nearest 0.1 foot (0.1 m).

DG. Extension and Splices.
~~When steel H piles, either encased or not, or steel pipe piles are extended, the Engineer will specify the length of extension required, and will measure the length incorporated in the structure and length of the pile cut-off after driving. Portions of steel pile cut-offs used as extensions on the same contract will not be included with the cut-offs of the plan quantity piles. Portions removed to make the splice shall be treated as cut off.~~
~~When concrete piles are extended, the length measured for payment shall be the length of the extension specified by the Engineer, plus the additional length required to be removed for splicing the reinforcement.~~

Wood, steel H (either encased or not), or steel pipe piles that are extended, the length measured for payment will be the length of the extension specified by the Engineer. Portions of pile cut-offs used as extensions on the same contract will not be remeasured as additional plan quantity.

Concrete piles that are extended, the length measured for payment will be the length of the extension specified by the Engineer, plus the additional length required to be removed for splicing the reinforcement.

EH. Prebored Holes.
The length of prebored holes will be calculated in linear feet (meters) from elevations as shown in the contract documents to the nearest 0.1 foot (0.1 m).
Preboring required by Article 2501.16 will be measured for payment to the nearest 0.1 foot (0.1 m).

FI. Extra Pile.
Extra piles ordered, in addition to the plan quantities, will be measured for payment.

Comments:

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

Replace the entire article:

2501.20 METHOD OF MEASUREMENT.
~~The Engineer will measure, to the nearest foot (0.5 m), the length of all piles placed in the leads for driving. The length of cut-off will be measured to the nearest 0.1 foot (0.1 m).~~

~~When the length of piles has been changed from that specified in the contract documents, either by replacement with piles of greater length or by cutting piles to shorter length before driving, the Engineer will also measure the length of piles ordered and delivered, but not driven.~~

For the quantities of wood piles, steel H-piles (either encased or not), steel pipe piles, and concrete piles; the length measured for payment will be the plan length. The quantity may be modified by Paragraphs E, F, or H of this article.

A. Wood Piles.
~~For furnishing Wood Piles, the length measured for payment shall be the length incorporated in the structure plus three-fourths of the length cut off during or after driving, except that cut-offs of 1.5 feet (0.5 m) or less shall be included with the length in the structure. If the cut off portion of a driven wood pile is subsequently used as a pile on the same contract, its length will be deducted from the total length of cut-offs but will be~~

~~measured as provided above for furnishing wood piles.~~ When a wood pile is broken in driving through no fault of the Contractor, the ~~portion not driven will be considered as cut-off, and the portion in the ground will be considered as pile driven~~ length measured for payment will be the plan length.

~~For driving wood piles, the Engineer will calculate the length incorporated in the structure.~~

~~**B. Steel H-piles.**~~
~~For furnishing Steel H-piles, either encased or not, the length measured for payment will be the length incorporated in the structure plus 50% of the pile cut-off if it is over 5 feet (1.5 m). Cut-offs of 5 feet (1.5 m) or less will be measured as length in structure. Cut-off measurement may be modified by Paragraph G of this article.~~

~~For driving Steel H-piles, either encased or not, the Engineer will calculate the length incorporated in the structure.~~

~~**C. Steel Pipe Piles.**~~
~~For furnishing steel pipe piles the length measured for payment will be the length incorporated in the structure plus 50% of the pile cut-off, if it is over 5 feet (1.5 m). Cut-offs of 5 feet (1.5 m) or less will be measured as length in structure. Cut-off measurement may be modified by Paragraph G of this article.~~

~~For driving and filling of steel pipe piles, the Engineer will calculate the length incorporated in the structure.~~

~~**D. Concrete Piles.**~~
~~For concrete piles, the length measured for payment shall be the plan length.~~

B~~E~~. Sheet Piles.
The area of walls of sheet piles will be determined from the plan length and the horizontal center line length measured to the nearest 0.1 foot (0.1 m) of wall.

C~~F~~. Concrete Encasement.
The length of concrete encasement of steel H-piles constructed will be measured to the nearest 0.1 foot (0.1 m).

D~~G~~. Extension and Splices.
~~When steel H-piles, either encased or not, or steel pipe piles are extended, the Engineer will specify the length of extension required, and will measure the length incorporated in the structure and length of the pile cut-off after driving. Portions of steel pile cut-offs used as extensions on the same contract will not be included with the cut-offs of the plan quantity piles. Portions removed to make the splice shall be treated as cut-off.~~

~~When concrete piles are extended, the length measured for payment shall be the length of the extension specified by the Engineer, plus the additional length required to be removed for splicing the reinforcement.~~

Wood, steel H (either encased or not), or steel pipe piles that are extended, the length measured for payment will be the length of the extension specified by the engineer. Portions of pile cut-offs used as extensions on the same contract will not be remeasured as additional plan quantity.

Concrete piles that are extended, the length measured for payment will be the length of the extension specified by the Engineer, plus the additional length required to be removed for splicing the reinforcement.

EH. Prebored Holes.
The length of prebored holes will be calculated in linear feet (meters) from elevations as shown in the contract documents to the nearest 0.1 foot (0.1 m).

Preboring required by Article 2501.16 will be measured for payment to the nearest 0.1 foot (0.1 m).

FI. Extra Pile.
Extra piles ordered, in addition to the plan quantities, will be measured for payment.

Reason for Revision:

Eliminate the use of furnish and drive items for piling and pay plan quantity.

County or City Input Needed (X one)			**Yes** X	**No**	
Comments: Counties may use our specification for pile driving.					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	No
Comments: Changes requested by the Associated General Contractors of Iowa (AGC).					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Kyle Frame	**Office:** Construction	**Item 11**
Submittal Date: 2/07/06	**Proposed Effective Date:** 10/06	
Article No.: 2501.21 **Title:** Basis of Payment	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The bid items for furnishing pile and for driving pile will be combined: Furnishing Wood Pile and Driving Wood Pile will be combined into Wood Pile, Furnishing Steel Sheet Pile and Driving Steel Sheet Pile will be combined into Steel Sheet Pile, and so forth.

Specification Section Recommended Text:

2501.21 Basis of Payment.

Replace the article.

~~For the quantities of concrete piles and sheet piles, measured as provided above, the Contractor will be paid the contract unit price. For the length of wood piles; steel H-piles, either encased or not; and steel pipe piles incorporated in the structure; the Contractor will be paid the contract unit price per linear foot (meter) for furnishing and the contract unit price for driving the piles. Except as modified in following paragraphs of this Article, the price for furnishing this material, delivering it to the site, and the price for driving shall be full compensation for preparing, driving, cutting, and filling steel pipe piles.~~ For the quantities of Wood Piles, Steel H Piles (either encased or not), Steel Sheet Piles, Steel Pipe Piles, and Concrete Piles measured as provided above, the Contractor will be paid the contract unit price. The price bid for piles shall be full compensation for delivering piles to the site, preparing, driving, cutting, and filling (concrete pipe piles only) piles; except as modified in this article.

A. Increased or Decreased Length or Size of Piles.
~~When piles of any class are changed by the Engineer subsequent to awarding of the contract, the contract price will be adjusted, on an invoice basis, to reflect the cost of piles delivered to the site.~~ Unused piling; either ordered as directed by the Engineer or specified in the contract documents; and delivered to the job site, without having been placed in the leads; shall be returned to the supplier. Payment will be made for freight, restocking, and handling charges.

When the plans designate steel H-piles 60 feet (18 m) or shorter and the Engineer subsequently orders steel H-piles longer than 60 feet (18 m), the adjusted price for ~~furnishing~~ such piles will, when required, also include payment for one extension splice for each pile at the rate specified in Paragraph C.

If extensions or extra piles are furnished by the Contracting Authority, payment for driving will be paid according to Article 1109.03, B.

The Contracting Authority may purchase unused piles at the invoice cost plus 10% overhead charge. The Contractor's cost for handling and transporting shall be included in this cost.

B. Extension of Concrete Piles.
When concrete piles are extended, the Contractor ~~shall~~ will be paid for the extension at twice the contract unit price per linear foot (meter) of pile. The length of extension shall be as directed by the Engineer.

C. Extension of Steel H-piles or Pipe Piles.
~~When steel H-piles or pipe piles are extended, the Contractor will be paid the contract furnish price (adjusted as provided in Paragraphs A or H) and the contract driving price measured as provided in Article 2501.20. If the extensions or extra piles are furnished by the Contracting Authority, payment will be made for driving only.~~ When steel H-piles or pipe piles are required to be spliced to obtain lengths greater than specified in the contract, payment for each such splice, welded or mechanical, shall be at ten times the contract ~~furnish~~ unitprice per linear foot (three times per meter) and shall include all equipment, labor, and materials necessary to complete the splice.

D. Splicing of Wood Piles.
Splicing of wood piles will be paid for ~~as extra work as provided in~~ according to Article 1109.03, B.

~~**E. Extra Piles.**~~
~~Extra piles will be paid for as provided in the paragraphs above for the type of pile involved.~~

E. Pile Cut-Offs.
Pile cut-offs not used as extensions on the same contract shall become the property of the Contractor. Steel pile cut-offs that are used as extensions on the same contract will not be paid for as additional plan quantity.

All piles, or portions thereof, which become the property of the Contractor, shall be removed from the project site.

F. Encasement.
For the length of concrete encasement measured as provided above, the Contractor will be paid the contract unit price per linear foot (meter).

~~**G. Piles Ordered and Not Driven.**~~
~~All unused classes of piling not covered by Article 2501.20 which are ordered as directed by the Engineer or specified in the contract documents and delivered to the job site shall be returned to the supplier or become the property of the Contractor. When returned to the supplier, payment will be made on an invoice basis for all freight and any restocking charges. Payment will also be made for extra handling as provided in Article 1109.03, B. For piling which is not returnable, the Contractor will be paid 25% of the contract unit price for furnish, and the piles will become the property of the Contractor. Payment will not be made for unused piling which are damaged.~~

~~At the Engineer's option, unused piles may be purchased by the Contracting Authority at the invoice cost plus 10% as an overhead charge. The Contractor's expense for work of handling and transportation shall be included in computing the cost.~~

G~~H~~. Test Piles.
The contract may provide a lump sum item for test piles. If an item is not provided, test piles ordered by the Engineer and driven under the Engineer's supervision will be considered as extra work and will be paid for as provided in Article 1109.03, B.

HI. Pile Points.
When the contract documents require that points of piles be protected with metal points, these points shall be furnished without extra compensation. When metal points are not specified in the contract documents, they shall be furnished only upon direction of the Engineer, in which case payment shall be made as provided in Article 1109.03, B.

IJ. Sheet Piles.
When sheet piles are specified to become a part of the permanent structure, they shall be paid for at the contract unit price per square foot (square meter) for steel sheet piles of the specified weight (mass) and cross section for the area of the wall or walls placed.

JK. Pile Loading Tests.
When pile loading tests are required, they will be paid for at the contract lump sum price. This payment shall be full compensation for all labor, material, and equipment required to comply with the procedure shown in the contract documents, including the test and anchor piles, welding, and placing and removing the test beam.

For pile loading tests ordered by the Engineer, the Contractor will be paid a lump sum price of $3000. When this test is performed within a cofferdam, the lump sum price will be $6000 twice that amount. This payment shall be full compensation for all labor, material, welding, and equipment, for placing and removing the test beam, and for loss of time.

KL. Prebored Holes.
When prebored holes are required by the contract documents, they will be paid for at the contract unit price per linear foot (meter). This payment shall be full compensation for all labor, equipment, and materials including bentonite slurry.

Prebored holes required by Article 2501.16 will be paid for according to Article 1109.03, B, Extra Work.

LM. Dynamic Pile Test.
When required by the contract documents or ordered as directed by the Engineer the dynamic pile test will be paid for as a lump sum price. This payment will be $250 per test pile. The payment shall be full compensation for all labor, materials, equipment, and time associated with this test as outlined in Article 2501.13.

MN. Jetting.
When required by Article 2501.16, jetting will be paid for according to Article 1109.03, B. as a lump sum price. This payment will be $200 per pile. The payment shall be full compensation for all labor, materials, equipment, and time associated with this work.

O. Cut-Off.
Cut-off of all pile sections shall become the property of the Contractor. Cut-off lengths as determined in Article 2501.20 will be paid for at the contract unit price for furnishing.

If cut-off portions of piles are subsequently used elsewhere on the same contract, payment will be adjusted so that lengths incorporated are paid for at the contract price for furnish. The intent is to pay the contract unit price only once for any incorporated cut-offs.

All classes of piles, or portions of piles, which become the property of the Contractor shall be removed from the project site.

Comments:

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

Replace entire article.

2501.21 BASIS OF PAYMENT.

~~For the quantities of concrete piles and sheet piles, measured as provided above, the Contractor will be paid the contract unit price. For the length of wood piles; steel H-piles, either encased or not; and steel pipe piles incorporated in the structure; the Contractor will be paid the contract unit price per linear foot (meter) for furnishing and the contract unit price for driving the piles. Except as modified in following paragraphs of this Article, the price for furnishing this material, delivering it to the site, and the price for driving shall be full compensation for preparing, driving, cutting, and filling steel pipe piles.~~ For the quantities of piles (wood, steel H (either encased or not), steel sheet, steel pipe, and concrete) measured as provided above, the Contractor will be paid the contract unit price. The price bid for piles shall be full compensation for delivering piles to the site, preparing, driving, cutting, and filling (concrete pipe piles only) piles; except as modified in this article.

A. Increased or Decreased Length or Size of Piles.

~~When piles of any class are changed by the Engineer subsequent to awarding of the contract, the contract price will be adjusted, on an invoice basis, to reflect the cost of piles delivered to the site.~~ Unused piling; either ordered as directed by the Engineer or specified in the contract documents; and delivered to the job site, without having been placed in the leads; shall be returned to the supplier. Payment will be made for freight, restocking, and handling charges.

When the plans designate steel H-piles 60 feet (18 m) or shorter and the Engineer subsequently orders steel H-piles longer than 60 feet (18 m), the adjusted price for ~~furnishing~~ such piles will, when required, also include payment for one extension splice for each pile at the rate specified in Paragraph C.

If extensions or extra piles are furnished by the Contracting Authority, payment for driving will be paid according to Article 1109.03, B.

The Contracting Authority may purchase unused piles at the invoice cost plus 10% overhead charge. The Contractor's cost for handling and transporting shall be included in this cost.

B. Extension of Concrete Piles.

When concrete piles are extended, the Contractor ~~shall~~ will be paid for the extension at twice the contract unit price per linear foot (meter) of pile. The length of extension shall be as directed by the Engineer.

C. Extension of Steel H-piles or Pipe Piles.

~~When steel H-piles or pipe piles are extended, the Contractor will be paid the contract furnish price (adjusted as provided in Paragraphs A or H) and the contract driving price measured as provided in Article 2501.20. If the extensions or extra piles are furnished by the Contracting Authority, payment will be made for driving only.~~ When steel H-piles or pipe piles are required to be spliced to obtain lengths greater than specified in the contract, payment for each such splice, welded or mechanical, shall be at ten times the contract ~~furnish~~ unitprice per linear foot (three times per meter) and shall include all equipment, labor, and materials necessary to complete the splice.

D. Splicing of Wood Piles.

Splicing of wood piles will be paid for ~~as extra work as provided in~~ according to Article 1109.03, B.

~~**E. Extra Piles.**~~
~~Extra piles will be paid for as provided in the paragraphs above for the type of pile involved.~~

E. Pile Cut-Offs.
Pile cut-offs not used as extensions on the same contract shall become the property of the Contractor. Steel pile cut-offs that are used as extensions on the same contract will not be paid for as additional plan quantity.

All piles, or portions thereof, which become the property of the Contractor, shall be removed from the project site.

F. Encasement.
For the length of concrete encasement measured as provided above, the Contractor will be paid the contract unit price per linear foot (meter).

~~**G. Piles Ordered and Not Driven.**~~
~~All unused classes of piling not covered by Article 2501.20 which are ordered as directed by the Engineer or specified in the contract documents and delivered to the job site shall be returned to the supplier or become the property of the Contractor. When returned to the supplier, payment will be made on an invoice basis for all freight and any restocking charges. Payment will also be made for extra handling as provided in Article 1109.03, B. For piling which is not returnable, the Contractor will be paid 25% of the contract unit price for furnish, and the piles will become the property of the Contractor. Payment will not be made for unused piling which are damaged.~~

~~At the Engineer's option, unused piles may be purchased by the Contracting Authority at the invoice cost plus 10% as an overhead charge. The Contractor's expense for work of handling and transportation shall be included in computing the cost.~~

GH. Test Piles.
The contract may provide a lump sum item for test piles. If an item is not provided, test piles ordered by the Engineer and driven under the Engineer's supervision will be considered as extra work and will be paid for as provided in Article 1109.03, B.

HI. Pile Points.
When the contract documents require that points of piles be protected with metal points, these points shall be furnished without extra compensation. When metal points are not specified in the contract documents, they shall be furnished only upon direction of the Engineer, in which case payment shall be made as provided in Article 1109.03, B.

IJ. Sheet Piles.
When sheet piles are specified to become a part of the permanent structure, they shall be paid for at the contract unit price per square foot (square meter) for steel sheet piles of the specified weight (mass) and cross section for the area of the wall or walls placed.

JK. Pile Loading Tests.
When pile loading tests are required, they will be paid for at the contract lump sum price. This payment shall be full compensation for all labor, material, and equipment required to comply with the procedure shown in the contract documents, including the test and anchor piles, welding, and placing and removing the test beam.

For pile loading tests ordered by the Engineer, the Contractor will be paid a lump sum price of $3000. When this test is performed within a cofferdam, the lump sum price will be $6000 ~~twice that amount~~. This payment shall be full compensation for all labor, material, welding, and equipment, for placing and removing the test beam, and for loss of time.

KL. Prebored Holes.
When prebored holes are required by the contract documents, they will be paid for at the contract unit price per linear foot (meter). This payment shall be full compensation for all labor, equipment, and materials including bentonite slurry.

Prebored holes required by Article 2501.16 will be paid for according to Article 1109.03, B, Extra Work.

LM. Dynamic Pile Test.
When required by the contract documents or ordered as directed by the Engineer the dynamic pile test will be paid for as a lump sum price. This payment will be $250 per test pile. The payment shall be full compensation for all labor, materials, equipment, and time associated with this test as outlined in Article 2501.13.

MN. Jetting.
When required by Article 2501.16, jetting will be paid for according to Article 1109.03, B. as a lump sum price. This payment will be $200 per pile. The payment shall be full compensation for all labor, materials, equipment, and time associated with this work.

O. Cut-Off.
Cut-off of all pile sections shall become the property of the Contractor. Cut-off lengths as determined in Article 2501.20 will be paid for at the contract unit price for furnishing.

If cut-off portions of piles are subsequently used elsewhere on the same contract, payment will be adjusted so that lengths incorporated are paid for at the contract price for furnish. The intent is to pay the contract unit price only once for any incorporated cut-offs.

All classes of piles, or portions of piles, which become the property of the Contractor shall be removed from the project site.

Reason for Revision:

Eliminate the use of furnish and drive items for piling and pay plan quantity. Also changed the basis of payment for Jetting.

County or City Input Needed (X one)	**Yes** X	**No**
Comments: Counties may use our specification for pile driving.		

Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments: Changes requested by the Associated General Contractors of Iowa (AGC).					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Wayne Sunday	**Office:** Construction	**Item 12**
Submittal Date: May 10, 2006	**Proposed Effective Date:** October 17, 2006	
Article No.: 2505.03 **Title:** Removal and Construction of Guardrail **Article No.:** 2505.06 **Title:** Method of Measurement **Article No.:** 2505.07 **Title:** Basis of Payment	**Other:**	

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

Specification Committee Approved Text:

Comments: The Committee decided to withdraw this item. This will be handled with a plan detail.

Specification Section Recommended Text:

2505.03 REMOVAL AND CONSTRUCTION OF GUARDRAIL.

Add new article:

C. Remove and Reinstall Guardrail

The Contractor shall remove guardrail to provide access for work as specified in the contract documents. All materials removed shall be stockpiled and protected from damage. Following completion of work necessitating the removal, all guardrail materials shall be reinstalled. Material damaged by the Contractor shall be replaced with new material of the same kind at no additional cost to the Contracting Authority.

2505.03 Method of Measurement.

Add new article:

E. Remove and Reinstall Guardrail

The Engineer will measure the length of guardrail to be removed and reinstalled in linear feet (meters) to the nearest 0.1 foot (0.1 m) by measuring along the front of the rail from bolt hole to bolt hole.

2505.03 Basis of Payment.

Add new article:

E. Remove and Reinstall Guardrail

The Contractor will be paid the contract unit price per lineal foot (meter) for Removal and Reinstallation of Guardrail. This payment shall include removal of guardrail, blocks, and posts;

stockpiling and protection of removed materials; and reinstallation of all posts, blocks, and guardrail.

Comments:

Notes from April 13, 2006 Specification Committee meeting.

The Office of Construction explained that this revision was requested by the ADEs. Currently they handle this in the plans. They explained that many contractors want to remove rail and spacer blocks to get compaction right up to the post. Office of Contracts asked if we really need to measure to 0.1 foot. The Office of Construction suggested instead the Engineer compute to 0.5 foot, and they compute only amount removed. District 6 asked if posts are pulled. The Office of Construction responded that they are not. They also noted that some shouldering projects do not involve guardrail replacement, just shoulder work. The Office of Traffic and Safety asked what the sequence of construction would be if guardrail replacement is involved. The Office of Construction stated that would be contractor's choice, as long as it meets the 5 day window of Section 2505.05. The Office of Contracts stated they already have bid item for removing an installation (including posts) and putting it back in. If this revision is included as is, this item would then be changed to involve removing and reinstalling guardrail only for purpose of access. The suggestion was made to discuss this revision with the ADEs and take the position that it should be incidental since it is such a small item of work. The Office of Design will discuss this with the ADEs to get a consensus. The Specifications Section suggested changing the title to Removal of Rail and Spacer Blocks in order to reduce the confusion with whether posts are removed.

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

2505.03 REMOVAL AND CONSTRUCTION OF GUARDRAIL.

A. Removal of Guardrail.
The Contractor shall remove the guardrail as shown in the contract documents. The guardrail shall be removed so that all material considered suitable by the Engineer for future use may be salvaged. Guardrail material to be salvaged will be listed on the plans along with a location it should be delivered to. This Guardrail material shall remain the property of the Contracting Authority. Guardrail not suitable for future use shall be removed from the project and become the property of the Contractor.

Guardrail posts designated by the Engineer as being salvable shall be removed without damage. Those having no salvage value shall be pulled. All holes shall be backfilled with suitable soil. Sand or other granular materials are not acceptable for use as backfill. Backfill shall be placed in lifts not exceeding 4 inches (100 mm) and thoroughly compacted before the next lift is placed. All holes shall be filled and tamped within the same working day.

The Contractor shall carefully remove, disassemble, and clean the salvaged guardrail without damaging any parts. Material that is damaged by the Contractor shall be replaced with new material of the same kind by the Contractor at no additional cost to the Contracting Authority. The salvaged guardrail materials shall be stockpiled as indicated in the contract documents. The Contractor shall restore any area disturbed by the removal operation to an acceptable condition.

The Contractor shall remove the delineators and object markers as shown in the contract documents or as designated by the Engineer. The delineators and object markers shall be removed so that all material considered suitable by the Engineer for future use may be salvaged. The salvaged material shall remain the property of the Contracting Authority unless otherwise noted in the contract documents. The Contractor shall remove non-salvaged material off the project site.

B. Installation of Guardrail.
The guardrail shall be erected to the specified line and mounting height. Guardrail shall be constructed as follows:

1. Formed Steel Beam Guardrail.
Rail elements shall be W-beam or thrie-beam, as designated in the contract documents. When not designated, W-beam shall be installed.

The rail elements shall be ready for assembly when delivered to the project site. Punching, drilling, cutting, or welding will not be allowed in the field.

2. Guardrail Cable.

a. Three Cable Guardrail
Three cables shall be attached to the posts and end ~~anchorages~~ anchors in accordance with the contract documents. Compensation devices and turnbuckles shall be attached in such a manner as to not cause any interference with the function of any part of the installation. Cables shall be attached to the posts by means of an approved hook bolt or other means when specified in the contract documents.

Individual cables may be spliced by use of an approved device installed where no interference with any other function will occur. One splice will be allowed per cable. Cable may not be spliced within 250 feet (75 m) of another splice.

Tightening of individual cables shall be accomplished by mechanical means. Cables shall be stretched tight so that no sags occur between posts and so that, in the opinion of the Engineer, the finished installation presents a satisfactory appearance.

b. Wire Rope Safety Barrier.
The Contractor shall install wire rope safety barrier according to the manufacturer's recommendations. The barrier shall be tensioned according to the manufacturer's recommendations at the time of installation, and then checked and adjusted approximately 3 weeks after installation.

At least one turnbuckle per 1000 foot (300 meter) strand shall be included to allow for tensioning of the cables. For installations less than 1000 feet (300 meters) in length, one turnbuckle per strand shall be included near the center of the installation to allow for tensioning of the cables.

Concrete post foundations shall be constructed in accordance with Article 2505.03, B, 4.

3. Posts.
Posts shall be driven in a manner that does not damage the post. Posts required to be set in prebored holes shall be backfilled with material removed or other suitable soil. Backfill shall be placed in lifts not exceeding 4 inches (100 mm) and thoroughly compacted before the next lift is placed.

Regardless of the method of setting posts, the posts shall be firm, plumb, and at the location, spacing, and elevation designated.

4. End ~~Anchorages~~ Anchors and Terminals.
End ~~anchorage~~ anchors and terminal devices of the type shown in the contract documents shall be installed.

Concrete required for end ~~anchorages~~ anchors shall be cast-in-place. Concrete shall be Class C in accordance with Section 2403, except air content may vary from 4% to 7%. Exposed concrete shall be finished as directed by the Engineer. Class C can be subjected to loading of the rail in 3 calendar days. Concrete with high early strength may be necessary to meet requirements of Article 2505.05. The Contractor may furnish Class M concrete at no additional cost to the Contracting Authority. Concrete with these proportions can also be subjected to loading in 3 calendar days.

5. Guardrail Markers and Barrier Markers.
Guardrail markers and barrier markers of the required type meeting the requirements of Article 4186.08 shall be installed when indicated in the contract documents.

6. Delineators and Object Markers.
Delineators and object markers of the required type meeting the requirements of Article 4186.08 shall be installed when indicated in the contract documents.

C. Remove and Reinstall Guardrail to Allow Other Work

The contractor shall remove formed steel beam guardrail and wood spacer blocks to provide access for other work as specified in the contract documents. All materials removed shall be stockpiled and protected from damage. Following completion of other work all removed guardrail materials shall be reinstalled. Material that is damaged by the contractor shall be replaced with new material of the same kind by the contractor at no additional cost to the contracting authority.

2505.06 METHOD OF MEASUREMENT.

A. Removal of Guardrail.
The Engineer will measure the length of the formed steel beam guardrail to be removed in linear feet (meters) to the nearest 0.1 foot (0.1 m), by measuring along the front of the rail from bolt hole to bolt hole.

The Engineer will measure the length of the cable guardrail to be removed in linear feet (meters) to the nearest 0.1 foot (0.1 m), by measuring along the front of one of the three cables with no deductions for turnbuckles or compensating devices.

B. Installation of Guardrail.
The quantity of steel beam and cable guardrail installed for which payment will be made will be the quantity shown in the contract documents. This will be the sum of the A, T, and H distances shown in the project plans. Extra Guardrail lapped due to the Adjustment Section will be paid for in increments of 6.25 feet (1.91 m).

The cable guardrail quantity will be calculated using one of the cables of cable guardrail, with no deductions for turnbuckles or compensating devices. Any changes in the installed length must be approved by the Engineer. This will also include the length of installations continued across a bridge.

C. Beam Guardrail End ~~Anchorages~~ Anchors and Terminal Devices.
The Engineer will count the quantity of each type of beam guardrail end ~~anchorages~~ anchors and terminal devices constructed. Installations continued across a bridge will not be counted as end ~~anchorages~~ anchors.

D. Cable Guardrail End ~~Anchorages~~ Anchors.
~~The Engineer will count the quantity of Cable Guardrail End Anchorages constructed.~~

1. Three Cable Guardrail.
The Engineer will count the quantity of end anchors constructed.

2. Wire Rope Safety Barrier.
The Engineer will count the quantity of end anchors constructed.

E. Remove and Reinstall Guardrail to Allow Other Work

The Engineer will measure the length of formed steel beam guardrail to be removed and reinstalled in linear feet (meters) to the nearest 0.1 foot (0.1 m) by measuring along the front of the rail from bolt hole to bolt hole.

2505.07 BASIS OF PAYMENT.
Payment for guardrail will include the furnishing of all materials, equipment, tools, and labor necessary to complete the removal and installation of the guardrail, including excavation and backfilling. However, excavation in unexpected rock will be paid for as extra work in accordance with Article 1109.03. Unexpected rock will be considered as rock encountered during excavation that was not visible from the roadway and was not indicated in the contract documents. The Engineer may adjust the payment for guardrail in accordance with Article 2505.05.

A. Removal of Guardrail.
The Contractor will be paid the contract unit price per linear foot (meter) for removal of guardrail, including formed steel beam, thrie-beam, cable guardrail, end ~~anchorages~~ anchors, and terminals. This payment will include hauling salvaged material to the stockpile site. Backfill of post and end ~~anchorage~~ anchor footing holes will be incidental.

Payment for nested formed steel beam and thrie-beam will be included in the contract unit price. For formed steel beam and thrie beam guardrail the number of posts, spacer blocks, object markers, delineators, guardrail markers, barrier markers, offset brackets, end ~~anchorages~~ anchors, terminals, and remaining hardware will be incidental to the item.

For cable guardrail the number of posts, hook bolts, turnbuckles, compensating devices, end ~~anchorages~~ anchors, and remaining hardware will be incidental to the item.

B. Installation of Guardrail.
The Contractor will be paid the contract unit price per linear foot (meter) for the installation of guardrail, including formed steel beam, thrie-beam, and cable guardrail.

Payment for nested formed steel beam and thrie-beam shall be included in the contract unit price. The number of posts, spacer blocks, object markers, delineators, guardrail markers, barrier markers, offset brackets, and remaining hardware shall be incidental to the item.

For cable guardrail the number of posts, hook bolts, turnbuckles, compensating devices; concrete; and remaining hardware will be incidental to the item.

C. Beam Guardrail End ~~Anchorage~~ Anchor and Terminal Devices.
The Contractor will be paid the contract unit price for each type of beam guardrail end ~~anchorage~~ anchor or terminal device.

D. Cable Guardrail End ~~Anchorage~~ Anchor.
~~The Contractor will be paid the contract unit price for each Cable Guardrail End Anchor~~.

1. Three Cable Guardrail.
The Contractor will be paid the contract unit price for each end anchor.

2. Wire Rope Safety Barrier.
The Contractor will be paid the contract unit price for each end anchor.

E. Remove and Reinstall Guardrail to Allow Other Work

The contractor will be paid the contract unit price per lineal foot (meter) for removal and reinstallation of formed steel beam guardrail and wood spacer blocks. This payment will include stockpiling and protection of removed guardrail materials until reinstallation has been completed.

Reason for Revision: Provide a bid item and specifications for removal and reinstallation of guardrail which restricts paved shoulder construction (ie: HMA paved shoulders) when the existing guardrail is not planned to be replaced or upgraded.

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: Keith Norris	**Office:** District 2 Materials	**Item 13**
Submittal Date: 8 May 2006	**Proposed Effective Date:** October 2006	
Article No.: 4127.01 **Title:** Description (Type A Aggregate for HMA).	**Other:**	

Specification Committee Action: Approved. Include requested change.

Deferred:	**Not Approved:**	**Approved Date:** 5/15/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

4127.01, Description.

Replace the entire article:

Crushed stone, gravel, slag, sand, and filler from an approved source. Crushed gravel may be used to satisfy crushed particle and Friction Type 3 requirements for HMA mixtures. Produce crushed gravel as a separate operation by crushing ~~a gravel aggregate retained on a screen at least 1/4 inch (6 mm) larger than the aggregate size specified~~ the portion of a gravel aggregate retained on a screen at least 1/4 inch (6 mm) larger than the sieve size that 100% of the gravel will pass after crushing.

If a gravel aggregate has less than 5% retained on the No. 4 sieve (6 mm), the Engineer may replace the requirements of Table 4127.02 with the requirements of Article 4127.03.

Comments: District 2 Materials requested that all of the text in the requested change be included.

Specification Section Recommended Text:

4127.01, Description.

Replace the entire article:

Crushed stone, gravel, slag, sand, and filler from an approved source.

Crushed gravel may be used to satisfy crushed particle and Friction Type 3 requirements for HMA mixtures. Produce crushed gravel as a separate operation by crushing a gravel aggregate retained on a screen at least 1/4 inch (6 mm) larger than the aggregate size specified.

If a gravel aggregate has less than 5% retained on the No. 4 sieve (6 mm), the Engineer may replace the requirements of Table 4127.02 with the requirements of Article 4127.03.

Comments:

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

4127, Aggregate for Hot Mix Asphalt.

Replace **the entire section:**

4127.01 DESCRIPTION.

Crushed stone, gravel, slag, sand, and filler from an approved source.

Crushed gravel may be used to satisfy crushed particle and friction Type 3 requirements for HMA mixtures. Produce crushed gravel as a separate operation by crushing the portion of a gravel aggregate retained on a screen at least 1/4 inch (6 mm) larger than the sieve size that 100 percent of the gravel will pass after crushing.

If a gravel aggregate has less than 5 percent retained on the No. 4 sieve (6 mm), the engineer may replace the requirements of Table 4127.02 with the requirements of Section 4127.03, Fine Aggregate.

Reason for Revision: Clarify the requirements for producing crushed gravel and allow gravel aggregate with little plus No. 4 sieve material to be accepted in a manner similar to fine aggregate.

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

Discussion of Standard Specification Manual Format. **Item 14**

The Specifications Section sent committee members four formatting options for the next Standard Specifications manual:

Option 1: Conversion to imperative mood/active voice; maintain 6” X 9” page. This is similar to what Texas and North Carolina have done.

Option 2: Conversion to imperative mood/active voice, but switch to an 8 1/2" X 11" book (about half a dozen other states have 8 1/2" X 11" manuals, for example Wisconsin and New York).

Option 3: Conversion to imperative mood/active voice with higher level of outlining (similar to the AASHTO Guide Specifications and SUDAS), but maintain 6" X 9" page.

Option 4: Conversion to imperative mood/active voice with higher level of outlining and switch to an 8 1/2" X 11" book.

The decision of the Committee at the April 13, 2006 meeting was to proceed with option 4.

The Specifications Section asked committee members to share these options with field personnel to get their opinions.

Districts 2 and 6 indicated that their field personnel favored **Option 4 (Conversion to imperative mood/active voice with higher level of outlining and 8.5” by 11” pages).**

The Committee decided to work towards **releasing a new book effective with the October 2008 letting.** With this goal, the cutoff for including information in the new manual will be the November 2008 Specification Committee meeting. Printing should be completed by July 2008. The Committee also recognized that there may be a need to push the release back 6 months. The Office of Construction suggested creating a list of sections that are to be rewritten for the new book in order to set a schedule of completion dates.