MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

November 12, 2026

Members Present:	Christy Vanbuskirk	Fairfield RCE
	Daniel Harness	Design
	Eric Johnsen, Chair	Contracts & Specifications Bureau
	Scott Nixon	Construction & Materials Bureau
	Dillon Feldmann	Local Systems Bureau
	Shane Neuhaus	District 6 – Materials
	Michael Nop	Bridges & Structures Bureau
	Ben Hucker	Maintenance Bureau
Members Not Present:	Tony Gustafson	Chief Engineer
	Frank Leong	District 1 Construction Engineer
	Mark Dunn	Contracts & Specifications Bureau
	Willy Sorenson	Traffic & Safety Bureau
Advisory Members Present:	Brian Johnson	Construction & Materials Bureau
	Jeff DeVries	Construction & Materials Bureau
	Scott Sommers	Construction & Materials Bureau
	David Carney	SUDAS
	Nicholas Amelon	Iowa County
	Luke Bowdish	Fayette County
	Ryan Weidemann	Hamilton County
	Bret Wilkinson	Buena Vista County
	DeWayne Heintz	Jefferson County
	Nathan Thede	Project Management Bureau
	Melissa Serio	Construction & Materials Bureau
	Elijah Gansen	Construction & Materials Bureau
	Jeff Brinkman	Contracts & Specifications Bureau

The Specification Committee met on Thursday, November 12, 2026, at 9:00 a.m. Eric Johnsen, Specifications Engineer, opened the meeting. The items were discussed in accordance with the agenda dated November 2, 2026.

The minutes are as follows:

1. Article 2001.07, A, Weighing Equipment (General Equipment Requirements).

The Construction and Materials Bureau requested to give better guidance for weighing procedures.

2. Article 2301.04, G, Portland Cement Concrete Pavement Samples.

The Construction and Materials Bureau requested to add a bid item to accommodate Non-Destructive Thickness to pay for plates.

3. Article 2317.03, B, 2, c, Evaluation.

The Construction and Materials Bureau requested to clarify smoothness testing at Railroad Crossings.

4. Article 2527.03, A, Pavement Markings.

The Construction and Materials and Maintenance Bureaus requested the change based on feedback from the industry.

5. Article 2554.03, A, 7, e, Surface Water Crossings (Water Mains, Valves, Fire Hydrants, and Appurtenances).

Article 4150.02, F, Special Gaskets (Water Main, Valve, Fire Hydrant, and Appurtenance Materials).

Article 4150.02, G, 2, Materials (Water Main, Valve, Fire Hydrant, and Appurtenance Materials).

The Contracts and Specifications Bureau requested revisions approved by the SUDAS board.

6. Article 4183.03, B, 2, Fast Dry Waterborne Traffic Paints.

The Construction and Materials and Maintenance Bureaus requested the change based upon feedback from paint manufacturers and to bring us into alignment with other state DOT specifications.

7. DS-230XX, Hot-Applied Thermoplastic Pavement Markings.

The Construction and Materials and Maintenance Bureaus requested to add a Developmental Specification to reinstitute a Bid Item.

8. DS-23057, Work on Railroad Right-Of-Way (BNSF Railway).

The Contracts and Specifications Bureau requested to update the existing Developmental Specification.

9. DS-23086, Construction or Maintenance Work on Railroad Right-Of-Way (Chicago, Central, and Pacific Railroad Company, Cedar River Railroad Company, and Iowa Northern Railway Company)

The Contracts and Specifications Bureau requested to update the existing Developmental Specification.

10. DS-23087, Construction or Maintenance Work on Railroad Right-Of-Way (Dakota, Minnesota, & Eastern Railroad Corporation dba CPKC).

The Contracts and Specifications Bureau requested to update the existing Developmental Specification.

Form 510130 (07-24)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Nixon/ Johnson	**Bureau/Office:** Construction and Materials Bureau	**Item 1**
Submittal Date: 10-26-2026	**Proposed Effective Date:** April 2027	
Article No.: 2001.07, A **Title:** Weighing Equipment (General Equipment Requirements)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/12/26	**Effective Date:** 4/20/2027

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2001.07, A, Weighing Equipment:

Add the Article and **renumber** following Articles:

6. Complete check weighing on the first day of production and then once per week thereafter until production is complete. Complete verification weighing once per working day during production.

7. ~~**6.**~~ Except for automatic weighing, use a weighmaster, as defined in Iowa Code 214, to weigh all loads or load increments. Ensure the weighmaster, or operator for automatic weighing, signs the first scale ticket of each day and initials all subsequent tickets, or prints them using automatic equipment.

8. ~~**7.**~~ Check weighing and verification weighing may be made at any time as directed by the Engineer. The Engineer may check the operation of the equipment at any time. The verification weight shall not be different from the initial weight by more than 0.1%. When check weighing on a platform scale, the check weight shall not be different from the initial weight by more than 0.3%.

9. ~~**8.**~~ When the material is not weighed in the truck, (for example, weighing in a weigh hopper or determining weight from initial and final weighing of a weigh silo) perform check weighing on a certified truck scale. The net check weight shall not be different from the initial net weight (mass) by more than 100 pounds. A suitable fuel adjustment may be made.

10. ~~**9.**~~ If the weight is not within the tolerances stated above, the Engineer may adjust the weight of loads previously weighed on the weighing equipment that day, and the previous day, by the difference greater than the specified tolerance. Perform verification and check weighings at no additional cost to the Contracting Authority.

Comments:

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

2001.07 WEIGHING EQUIPMENT AND PROCEDURES.
This article describes equipment capability and procedures to be used when payment for an item is based on weight.

A. Weighing Equipment.

1. Use weighing equipment meeting the requirements of the Iowa Department of Agriculture for measuring pay items. Ensure truck weighing equipment is of sufficient length to weigh, at one time, the maximum truck and trailer combination, or situate separate equipment so that both truck and trailer can be weighed at the same time. Make available upon request, at least ten standard 50 pound test weights and suitable cradles and platforms for the purpose of testing weighing equipment.

2. Ensure weighing equipment is:
- Accurate to 0.2% of weight, and
- Sensitive to a weight equal to 0.1% of the quantity being weighed but not more than 20 pounds and no less than a weight equal to one of the minimum graduations on a beam or dial scale.

3. When electronic devices such as load cells, computers, and printers are a part of the weighing equipment, ensure they are sealed or otherwise protected to prevent any unauthorized adjustment. Weighing systems which have been tampered with may be rejected from further use until the system has been checked and/or recalibrated. Furnish a copy of the manufacturer's detailed step by step instructions for adjusting and/or checking for accuracy, sensitivity, and tolerance of the equipment.

4. Tare all trucks to be weighed before loading. Tare these trucks daily thereafter, preferably on a random time basis. Use the previous day's tare until a new tare is determined.

5. Provide a scale ticket to the Engineer with each load. Also, provide a scale ticket when tares are determined for verification and check weighing. "Verification weighing" is a second weighing of the same load on the same equipment. "Check weighing" is a second weighing of the same load on different weighing equipment. Perform check weighing on a certified truck scale. Ensure scale tickets, as a minimum, identify project number, date, truck number, type of material, and total net weight.

6. Check weighing should be done on the first day of production and then once per week thereafter until production is complete. Verification weighing should be done once per working day during production.

7. Except for automatic weighing, use a weighmaster, as defined in Iowa Code 214, to weigh all loads or load increments. Ensure the weighmaster, or operator for automatic weighing, signs the first scale ticket of each day and initials all subsequent tickets, or prints them using automatic equipment.

8. Check weighing and verification weighing may be made at any time as directed by the Engineer. The Engineer may check the operation of the equipment at any time. The verification weight shall not be different from the initial weight by more than 0.1%. When check weighing on a platform scale, the check weight shall not be different from the initial weight by more than 0.3%.

9. When the material is not weighed in the truck, (for example, weighing in a weigh hopper or determining weight from initial and final weighing of a weigh silo) perform check weighing on a certified truck scale. The net check weight shall not be different from the initial net weight (mass) by more than 100 pounds. A suitable fuel adjustment may be made.

10. If the weight is not within the tolerances stated above, the Engineer may adjust the weight of loads previously weighed on the weighing equipment that day, and the previous day, by the difference greater than the specified tolerance. Perform verification and check weighings at no additional cost to the Contracting Authority.

Reason for Revision: There have been questions about how often weighing equipment should be checked for accuracy. This will give better guidance for check weighing and verification weighing procedures.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X
Comments:		
County or City Comments:		
Industry Comments:		

Form 510130 (07-24)

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Scott Nixon	**Bureau/Office:** Construction & Materials	**Item 2**
Submittal Date: October 26, 2026	**Proposed Effective Date:** April 2027	
Article No.: 2301 **Title:** Portland Cement Concrete Pavement	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/12/26	**Effective Date:** 4/20/27

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: IM 346 spells out requirements for plates.

Specification Section Recommended Text:

2301.04, G, Portland Cement Concrete Pavement Samples

Replace the title:
Portland Cement Concrete Pavement Samples or Portland Cement Concrete Pavement Non-Destructive Thickness Determination.

2301.05, G, Portland Cement Concrete Pavement Samples

Replace the Article and title:
Portland Cement Concrete Pavement Samples or Portland Cement Concrete Pavement Non-Destructive Thickness Determination.

1. Lump sum contract price for furnishing samples of finished pavement or other course, or steel targets for non-destructive thickness, according to Article 2301.04, A, or when required in the contract documents.

2. Payment is full compensation for furnishing all such samples or steel targets for all courses or items of work.

Comments:

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

2301.04 METHOD OF MEASUREMENT.

G. Portland Cement Concrete Pavement Samples or Portland Cement Concrete Pavement Samples-Non-Destructive Thickness.
Not individually counted for payment when furnished according to Article 2301.04, A, or when required in the contract documents.

2301.05 BASIS OF PAYMENT.

G. Portland Cement Concrete Pavement Samples or Portland Cement Concrete Pavement Samples-Non-Destructive Thickness.

1. Lump sum contract price for furnishing samples of finished pavement or other course, or steel targets for non-destructive thickness, according to Article 2301.04, A, or when required in the contract documents.

2. Payment is full compensation for furnishing all such samples or steel targets for all courses or items of work.

Reason for Revision: To accommodate non-destructive thickness evaluation on projects for local systems.

New Bid Item Required (X one)	**Yes X**	**No**
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x

Comments: Add new bid item PCC Samples – Non-Destructive Thickness to pay for plates.

County or City Comments:

Industry Comments: Industry, CMB, met with Local Systems to agree with specification updates.

Form 510130 (07-24)

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Scott Nixon/ Jeff DeVries	**Bureau/Office:** Construction and Materials Bureau	**Item 3**
Submittal Date: 10/29/2026	**Proposed Effective Date:** April 2027	
Article No.: 2317.03, B, 1, c, Evaluation **Title:** Section 2317. Pavement Smoothness **Article No.:** 2317.03, B, 2, b, Evaluation **Title:** Section 2317. Pavement Smoothness	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/12/26	**Effective Date:** April 2027

Specification Committee Approved Text:

2317.03, B, 1, c.

Replace the Article:

Twenty feet on either side of railroad approach, bridges, bridge approaches, existing EF joints, manholes, or water valve boxes in the lane that the obstruction is located.

2317.03, B, 2, b.

Replace the Article:

Twenty feet on either side of railroad approach, bridges, bridge approaches, manholes, existing EF joints, or water valve boxes in the lane that the obstruction is located.

Comments: Misquoted the correct article in Agenda. This is the correct Article and added a second article.

Specification Section Recommended Text:

2317.03, B, 2, c. (referenced the incorrect Article)

Replace the Article:

Twenty feet on either side of railroad approach, bridges, bridge approaches, existing EF joints, manholes, or water valve boxes in the lane that the obstruction is located.

Comments:

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

. Evaluation.

1. Determine an MRI using the latest version of the ProVAL "Ride Quality" or "Smoothness Assurance" analysis and following the procedures shown in Materials I.M. 341 for each segment of

finished pavement surface with a posted speed or advisory speed over 45 mph except for:

a. Roads intersecting the mainline pavement less than 600 feet in length.

b. Road connections 150 feet before an intersection that end at a stop sign (or a yield sign at roundabouts).

c. Twenty feet on either side of railroad approach, bridges, bridge approaches, existing EF joints, manholes, or water valve boxes in the lane that the obstruction is located.

d. Ramps and loops.

e. Bridge approaches (evaluated according to Section 2428).

f. Storage lanes, turn lanes, and other auxiliary lanes less than 1000 feet.

g. Pavement less than 8.5 feet in width.

h. Single lift flexible pavement overlays 2 inches thick or less, unless the existing surface has been corrected by milling or scarification.

i. Single lift flexible pavement overlays 2 inches thick or less placed directly on PCC pavement.

j. Paved shoulders.

k. Detour pavement.

l. Crossovers.

m. Individual sections of pavement less than 100 feet in length.

n. Roundabouts

Reason for Revision: Proposing changes to the above based on current paving processes.		
New Bid Item Required (X one)	**Yes**	**No**
Bid Item Modification Required (X one)	**Yes**	**No**
Bid Item Obsoletion Required (X one)	**Yes**	**No**
Comments:		
County or City Comments:		
Industry Comments:		

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Scott Nixon / Ben Hucker	**Bureau/Office:** Construction and Materials / Maintenance	**Item 4**
Submittal Date: October 23, 2026	**Proposed Effective Date:** April 20, 2027	
Article No.: 2527.03, A, 8, 10, & 11 **Title:** Pavement Markings	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/12/26	**Effective Date:** April 2027

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2527.03, A, 8.

Replace the second sentence:

For permanent pavement marking applications placed in a groove, use both compressed air sprays and a power broom ahead of the application truck to achieve these requirements.

2527.03, A, 10.

Replace the first sentence:

For all permanent pavement markings, ~~T~~take a minimum of ~~ten~~ four width measurements per mile per line per color, spaced approximately ~~500~~ 1320 feet apart, for each line and each color.

2527.03, A, 11.

Add to the end of the Article:

Temporary pavement markings applied to all but the final lift on HMA projects, and markings applied to temporary/detour pavement that will be removed at the end of the project are exempt from the reporting requirement.

Comments:

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

2527.03 construction.

A. General.

8. For all pavement markings, ensure the pavement surface is dry and free from dirt, dust, oil, curing compound, and other contaminates which may interfere with markings properly bonding to the surface. For permanent pavement marking applications placed in a groove,

use both compressed air sprays and a power broom ahead of the application truck to achieve these requirements. Ensure the clean surface is at least 1 inch wider than the anticipated marking. Shoot an air blast on the pavement surface immediately prior to placing the new markings. The air blast is not intended to remove large amounts of dust, but only a very small amount of residue that might be left from the removal and cleaning operation.

10. For all permanent pavement markings, ~~T~~take a minimum of ~~ten~~ four width measurements per mile per line per color, spaced approximately ~~500~~ 1,320 feet apart, for each line and each color. Report these values and locations to the Engineer at the end of each working day. The Engineer may perform additional width checks. All measurements taken may be used to determine conformance with marking width requirements.

11. Take a minimum of three length measurements within the first 1000 feet of pavement markings applied each day, for each non-continuous line and each color. Measure both the length of each stripe and the gap between the stripes to ensure they are in conformance with the contract documents and Standard Road Plan PM-110. Report these values and locations to the Engineer at the end of each working day. The Engineer may perform additional length checks. All measurements taken may be used to determine conformance with marking length requirements. Temporary pavement markings applied to all but the final lift on HMA projects, and markings applied to temporary/detour pavement that will be removed at the end of the project are exempt from the reporting requirement.

Reason for Revision: Based on feedback and discussion with pavement marking contractors.		
New Bid Item Required (X one)	**Yes**	**No** x
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x
Comments:		
County or City Comments:		
Industry Comments:		

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Eric Johnsen	**Bureau/Office:** Specifications	**Item 5**
Submittal Date: 10/20/2026	**Proposed Effective Date:** 4/20/2027	
Article No.: 2554.03, A, 7, e **Title:** Surface Water Crossings (Water Mains, Valves, Fire Hydrants, and Appurtenances) **Article No.:** 4150.02, F **Title:** Special Gaskets (Water Main, Valve, Fire Hydrant, and Appurtenance Materials) **Article No.:** 4150.02, G, 2 **Title:** Materials (Water Main, Valve, Fire Hydrant, and Appurtenance Materials)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/12/26	**Effective Date:** 4/20/27

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None

Specification Section Recommended Text:

2554.03, A, 7, e, Surface Water Crossings.

Replace the first sentence:

Comply with Recommended Standards for Water Works, ~~2012~~ 2022 Edition.

4150.02, F, Special Gaskets.

Replace Articles 1 and 2:

1. For soils contaminated with ~~gasoline, use neoprene or nitrile gaskets~~ organic compounds, including, but not limited to gasoline, petroleum hydrocarbons, diesel, or unrefined fuels, nitrile (NBR) gaskets are strictly required. Neoprene (CR) and SBR rubbers are prohibited.

2. For soils ~~contaminated with volatile organic compounds, use nitrile or fluorocarbon gaskets~~ heavily contaminated with highly aggressive industrial organic solvents, aromatic blends exceeding baseline thresholds, or chlorinated hydrocarbons (e.g., trichloroethylene), fluorocarbon (FKM) gaskets are required.

4150.02, G, 2, Materials.

Add the Article:

f. Crosslinked Polyethylene (PEXa).

1) Comply with ASTM F 876 and ASTM F 877.
2) Certified NSF 14 and NSF 61.
3) Minimum pressure class 160 psi at 73ºF.

4) Copper tube size dimensions.
5) Co-extruded UV shield made from UV resistant high density polyethylene, color blue. Minimum recommended UV exposure time of 1 year when tested according to ASTM F 2657, or as per manufacturer's recommendations.
6) Approved by manufacturer for use with AWWA C800 fittings, using stainless steel inserts.
7) Compatible with cold expansion compression sleeve fittings certified to ASTM F 2080 for installations as cold as -40°F. Flared fittings are allowed for services less than 2 inches.

Comments:

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

Reason for Revision: To match SUDAS updates

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

County or City Comments: Revisions approved by regional committees and pending SUDAS board approval.

Industry Comments:

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Scott Nixon / Ben Hucker	**Bureau/Office:** Construction and Materials / Maintenance	**Item 6**
Submittal Date: 10/23/2026	**Proposed Effective Date:** April 2027	
Article No.: 4183.03, B, 2 **Title:** Fast Dry Waterborne Traffic Paints	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/12/26	**Effective Date:** 4/20/27

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4183.03, B, 2, a, 3.

Replace the Article:

The Daytime Luminance Factor, Y (%), shall be ~~75~~ 84 minimum for white and 45 Minimum for Yellow when tested per ASTM E 1349 and AASHTO M 348 requirements.

4183.03, B, 2, d, 2.

Replace the Article:

For yellow: ~~50.0~~ 45.0% minimum.

Comments:

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

2. Laboratory Test Requirements.

a. Color, Yellowness Index, and Daytime Luminance Factor.

1) The initial color of the unbeaded white and yellow paint shall satisfy the appropriate chromaticity coordinates indicated in Table 2 of AASHTO M 348 when tested in accordance with ASTM E 1349 and AASHTO M 348 requirements.

2) The Yellowness Index for White shall be 0.12 max when tested in accordance with ASTM E313.

3) The Daytime Luminance Factor, Y (%), shall be ~~75~~ 84 minimum for white and 45 Minimum for Yellow when tested per ASTM E 1349 and AASHTO M 348 requirements.

b. Viscosity.

1) For white: no less than 80 or no greater than 95 Krebs Units at 77°F.

2) For yellow: no less than 80 Kreb Units or no greater than 95 Krebs Units at 77°F.

3) Use ASTM D 562 to measure viscosity.

c. No-Pick-Up Time.

1) Less than 10 minutes.

2) Test according to the requirements of ASTM D 711.

d. Directional Reflectance (without Glass Spheres).

1) For white: 84.0% minimum.

2) For yellow: ~~50.0~~ 45.0% minimum.

e. Dry Opacity.

1) A minimum contrast ratio of 0.980.

2) Test according to the requirements of ASTM D 2805. Use a test stripe with a wet film thickness of 15 mil as measured by an Interchemical Wet Film Thickness Gage.

f. Flexibility.
No cracking or flaking shows when tested according to Federal Specification TT-P-1952b.

g. Pigment Particle Size.
Grind of no less than 3 on a Hegman Grind Gage when measured according to ASTM D 1210.

Reason for Revision: Based on feedback and discussion with paint manufacturers. This change also aligns our requirements with other state DOT specifications.

New Bid Item Required (X one)	**Yes**	**No** x
Bid Item Modification Required (X one)	**Yes**	**No** x
Bid Item Obsoletion Required (X one)	**Yes**	**No** x
Comments:		
County or City Comments:		
Industry Comments:		

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Scott Nixon / Ben Hucker	**Bureau/Office:** Construction and Materials / Maintenance	**Item 7**
Submittal Date: 10/23/26	**Proposed Effective Date:** 2/16/2027	
Article No.: **Title:**	**Other:** DS-XXXXX, Hot-Applied Thermoplastic Pavement Markings	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: Maintenance Bureau has some revisions to make to the DS before we review.

Specification Section Recommended Text: See attached draft Developmental Specifications for Hot-Applied Thermoplastic Pavement Markings. DS as written will be used for a project in the February letting as a special provision.

Comments:

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

See Attached

Reason for Revision: New Material Type for Pavement Markings

New Bid Item Required (X one)	**Yes** X	**No**
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments: Bid item has been obsolete since 9/15/2009 and will need to be resurrected.

County or City Comments:

Industry Comments: Taken to ATSSA October 2026. Comments incorporated.

DRAFT DS-230XX
(New)

DEVELOPMENTAL SPECIFICATIONS
FOR
HOT-APPLIED THERMOPLASTIC PAVEMENT MARKINGS

Effective Date
February 16, 2027

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

230XX.01 DESCRIPTION.
This specification covers thermoplastic materials suitable for use as retroreflective pavement markings on asphalt and Portland cement concrete pavements. The material is applied to the pavement in molten form. Glass beads are pre-mixed into the material furnished and dropped on the surface of the molten material immediately after it is applied to the pavement surface, at a rate specified as indicated below. Upon cooling to normal pavement temperature, it produces an adherent retroreflectorized stripe of specified thickness and width, capable of resisting deformation by traffic. This Specification is intended for short-to-medium lengths of lines where preformed thermoplastic lines are not easily utilized, such as within intersections, turn lane lines, and painted island hash marks. This specification is not intended for long-line application of pavement marking outside of these unique areas, or for creating symbols or legends. Specialized walk-behind equipment is typically needed for this product application.

230XX.02 MATERIALS.

A. General.
Do not commingle materials from different manufacturers.

B. Thermoplastic Material and Premix Beads.

1. Provide thermoplastic material that complies with AASHTO M 249 with the following restrictions and modifications:
- **a.** Only maleic modified glycerol ester alkyd-based resins will be allowed for the binder system.
- **b.** Yellow pigments must comply with the latest OSHA standards for toxic heavy metals.
- **c.** Premix glass bead size and gradation may vary within the pre-packaged thermoplastic product. Composition minimum must remain at 30% by weight (higher composition above 40% may be accepted).
- **d.** For Primary Highway System thermoplastic products, the percent binder must be a minimum of 21%, the percent glass beads must be a minimum of 48%, and the white product must have a pigment percentage of 10% minimum.

2. On the Primary Highway System, utilize one of the following products for this application:
- **a.** PPG/Ennis-Flint HPS-8 Integrated Multipolymer Extrude.

b. SWARCO SWARCOTHERM SUPERSTRIPE Thermoplastic Pavement Marking Compound.
c. GEVEKO ViaTherm IMP.

3. On all other routes, utilize one of the following products for this application:
a. PPG/Ennis-Flint HPS-8 Integrated Multipolymer Extrude.
b. SWARCO SWARCOTHERM SUPERSTRIPE Thermoplastic Pavement Marking Compound or SWARCOTHERM ALKYD BINDER Thermoplastic Pavement Marking Compound.
c. Crown USA Inc. Tufline White Alkyd Thermoplastic and EccoTherm Yellow Alkyd Thermoplastic.
d. GEVEKO ViaTherm EXT or GEVEKO ViaTherm IMP.

4. Consideration of other products:
a. Meet all other areas of this specification, and:
1) Supply the following:
a) Technical Data Sheet,
b) Safety Data Sheets, and
c) Complete set of installation recommendations and instructions.
2) Submit test data from the AASHTO Product Evaluation and Audit Solutions Program. Forward an official copy of the test data from AASHTO for evaluation.
b. Product submittals for other products submitted will be reviewed and notification of acceptance will be sent to the engineer of record for the project upon completion of the evaluation of the product.
c. If the contractor intends for another product to be utilized, submission of data will need to occur within 1 week of contract award.
d. Failure to provide complete info as indicated will disqualify other products from being considered at the discretion of the engineer of record.

C. Glass Beads for Drop-on Application.

1. The glass beads shall not exhibit a characteristic of toxicity, relative to heavy metals. Glass beads shall not contain more than 200 ppm total of lead, antimony, or arsenic. Manufacturer shall provide a certificate of analysis stating total lead, antimony, and arsenic content for each batch of glass beads supplied. Use transparent, clear, colorless glass spheres that are:
a. Free from milkiness, dark particles, and excessive air inclusions.
b. Essentially clear from surface scarring or scratching.
c. Free of hard lumps and clusters.
d. Readily dispensed under any conditions suitable for paint striping.
e. Virgin glass for 0.850 mm (No. 20 sieve) and larger glass spheres.

2. Glass beads shall meet AASHTO M247 requirements and be a 50/50 blend of Type 1 and Type 3 Beads.

D. Binder-Sealer.

1. When a binder-sealer is indicated to be used in material specification information for the product utilized, provide one that is recommended by the manufacturer of the thermoplastic material, and apply it according to the manufacturer's instructions.

2. The binder-sealer must be compatible with the pavement material and form a tight bond between the pavement and the thermoplastic material.

E. Color.
Provide thermoplastic that complies with the requirements of ASTM D 6628. The yellow lines must also display a nighttime presence of yellow when viewed under automobile headlights.

F. Basis of Acceptance for Materials.

1. Thermoplastic Material and Premix Beads.
Utilize one of the products shown in the Thermoplastic Pavement Marking Material section (or approved other). Supply Materials I.M. 107 Documentation for manufactured products confirming compliance with Build America Buy America and / or Buy America infrastructure law.

2. Binder-Sealer.
If binder-sealer is required for the product utilized, it will be accepted on the basis of brand name as recommended by the thermoplastic material manufacturer, and visual observation of performance in the field. Supply Materials I.M. 107 Documentation for this material.

3. Glass Beads for Drop-on Application.
Utilize Beads compliant to AASHTO M 247. Utilize a Company from Materials I.M. 484. Supply Materials I.M. 107 documentation confirming compliance with Build America Buy America and / or Buy America infrastructure law.

230XX.03 CONSTRUCTION.

A. General.

1. Place the material in white and/or yellow as specified.

2. Apply a binder-sealer based on manufacturers' recommendations and installation requirements. Products utilized that require binder-sealers must utilize binders-sealers as indicated within manufacturers' installation documents. A copy of the manufacturer's installation documents shall be kept on site and available to the Engineer at all times.

3. Thickness of the line shall 125 mils.

4. Surface must be clean, dry and free from oil, grease, antifreeze, loose sand, aggregate and any chipped or peeling existing striping. Therefore, remove all existing pavement markings and curing compounds mechanically prior to application and placement of the Thermoplastic product. Once mechanical removal is complete, use both compressed air sprays and a power broom ahead of the application equipment to achieve a clean surface as required. Ensure the clean surface is at least 1 inch wider than the anticipated marking width. Provide a surface per manufacturer's recommendation prior to application of the product.

5. The pavement temperature must be above the dew point and below 85% relative humidity. Ambient temperature at time of application should be 50°F and rising.

6. Check moisture of pavement prior to applying markings. If rain has occurred within the previous 24 hours or the pavement appears moist at the location of placement, wait until pavement is dry to attempt placement of the markings.
- **a.** Regardless of pavement appearance or last instance of rain, use one or more of the following methods to check for pavement moisture prior to marking placement. Method chosen shall be at the discretion of the contractor.
  - **1)** Apply a 1 square foot piece of clear plastic down to the substrate and observe for approximately 30 minutes to see if moisture forms. If it does, delay placement until pavement is dry.

2) Apply approximately 6 linear feet of material to the substrate to be striped and look for excess steaming or bubbling coming through the material. Minor pinholes should be okay, but if steaming or bubbling occurs, do not continue marking operations until the pavement is dried. If no steaming or bubbling occurs, check for adhesion in the line placed before applying the full stripe or job.

3) Alternative methods as specified in manufacturer recommendations, with approval of the Engineer.

b. Upon start of marking placement and regardless of moisture test results, utilize a putty knife or chisel and strike the side (parallel to the pavement surface) of the freshly cured line at the joint between the marking and the pavement surface. If the marking pops off cleanly stop operations and wait for pavement to dry or check the cleanliness of the pavement surface.

c. Once putty knife or chisel test indicates good adhesion, resume marking operations.

d. Consult with thermoplastic manufacturers on good adhesion if it is questionable.

7. Apply Drop-on beads meeting the materials requirements of this specification while performing the thermoplastic placement.

a. Utilize AASHTO M 247 Type 3 and Type 1 Beads at a 50/50 Blend.

b. Apply a nominal 10 pounds per 100 square feet.

c. Application method shall be as per manufacturer recommendation for the product.

8. Do not exceed manufacturer recommendations on reheating or number of re-heats of the thermoplastic material utilized.

B. Quality Control Testing.

1. The following quality control testing and documentation shall be performed and documentation submitted to the Engineer at the intervals specified. Failure to perform QC testing and or submit documentation will be justification to reduce or withhold payment for this item.

2. Thickness testing. Provide documentation confirming and proving application thickness provided meets minimum specified thickness. Yield checks, date and timestamped photos of mil gauge thickness checks, or other methods approved as approved by the Engineer can be used to meet this requirement.

3. Adhesion testing. The contractor shall document adhesion compliance via electronically date and time stamped pictures of the marking immediately after putty knife or chisel strike and provide to the engineer, on a daily basis of hot applied thermoplastic placement operation, in order to receive payment for the applied markings.

4. Drop-on Glass Bead testing. Provide documentation confirming application rate (lbs.) of drop-on beads meets specified rate (beads used vs total stations of markings placed).

5. Retro-reflectivity. Ensure the markings meet the following retro-reflectivity requirements. Use the procedure in Materials I.M. 386 to determine retro-reflectivity. Provide a minimum of ten measurements per intersection or individual painted island to the Engineer. The Engineer may help define locations for measurement of retro-reflectivity. All measurements for each intersection or individual painted island will be averaged together to determine compliance to minimum retro-reflectivity values. The Engineer may witness contractor readings and/or perform independent checks at their discretion to verify contractor results.

Table 230XX.03-1: Retro-reflectivity of Thermoplastic Pavement Markings

Marking Type	Minimum Coefficient of Retroreflected Luminance ($mcd/m^2/lx$)
White line	325
Yellow line	225

C. Defective Pavement Markings.

1. Pavement markings will be evaluated by the Engineer for acceptance following installation, and the Engineer will notify the Contractor of any pavement markings that fails to meet acceptance. Replace, at no additional cost to the Contracting Authority, all pavement markings which the Engineer determines to be defective and not in conformance with this specification. Remove the defective markings completely and clean to the underlying pavement surface according to the requirements of Article 2527.03, C. of the General Specifications. Remove the defective area plus all adjacent marking material extending 1 foot in any direction. After surface preparation work is complete, finish the repair by reapplying new marking material over the cleaned pavement surface according to the requirements of this specification.

2. Nonconformance with the contract documents may include, but is not limited to:

- **a.** Pavement markings that:
  - **1)** Have drag marks, gashes, gouges, foreign covering, discolored areas or areas that have failed to solidify.
  - **2)** Have improper adhesion, length, color, thickness, or bead embedment.
  - **3)** Have areas that present a ragged appearance, areas that do not present sharply defined edges, or areas with abrupt unintended changes in alignment.
- **b.** Markings that are not substantially placed within each intended pavement marking groove, when grooving is required and the grooves are placed in conformance with the contract documents.
- **c.** Lines that deviate laterally from the intended alignment by more than 2 inches in 200 feet may be rejected.
- **d.** Lines that do not meet the required widths or thickness.
- **e.** Lines that do not pass adhesion testing requirements as listed in this specification.
- **f.** Lines that do not meet minimum retro-reflectivity requirements as listed in this specification.

230XX.04 METHOD OF MEASUREMENT.

Thermoplastic Pavement Marking Material will be measured by the length in stations. The Engineer will measure the number of stations, based on a single 6 inch width, of placed line. The length of each type of marking will be determined using beginning and ending points and adjusting for breaks as shown in the contract documents. The measurement for dashed and dotted lines will be adjusted to exclude skips. Measurement of lines wider or narrower than 6 inches will be adjusted by the quantity factor to a 6 inch line.

230XX.05 BASIS OF PAYMENT.

The contract unit price per station for Thermoplastic Pavement Marking Material includes all costs incurred in materials, equipment, labor, and time as required by the Contractors performing the work. Payment is full compensation for: cleaning and surface preparation, application of permanent pavement markings, furnishing all materials, equipment and labor, performing quality control testing and documentation, submittal of documentation to the Engineer, and disposal of any waste material generated from the marking operations.

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Eric Johnsen	**Bureau/Office:** Specifications	**Item 8**
Submittal Date: 10/23/2026	**Proposed Effective Date:** 1/20/2027	
Article No.: **Title:**	**Other:** DS-23057, Work on Railroad Right-Of-Way (BNSF Railway)	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: AGC has requested that railroad flaggers not be included in the Mobilization bid item due to the delayed payment of any mobilization costs over 10% of project total. A lump sum bid item will be developed for railroad flaggers to separate out this cost. A payment timeline will need to be decided on for the new bid item.

Copy of proposed DS was removed from the minutes.

Specification Section Recommended Text: See attached draft Developmental Specifications for Work on Railroad Right-Of-Way (BNSF Railway).

Comments:

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

Reason for Revision: Provide less ambiguity in bidding for the Contractors.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

County or City Comments:

Industry Comments: All revisions submitted to BNSF Railway.

Form 510130 (07-24)

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Eric Johnsen	**Bureau/Office:** Specifications	**Item 9**
Submittal Date: 10/23/2026	**Proposed Effective Date:** 1/20/2027	
Article No.: **Title:**	**Other:** DS-23086, Construction or Maintenance Work on Railroad Right-Of-Way (Chicago, Central, and Pacific Railroad Company, Cedar River Railroad Company, and Iowa Northern Railway Company)	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: AGC has requested that railroad flaggers not be included in the Mobilization bid item due to the delayed payment of any mobilization costs over 10% of project total. A lump sum bid item will be developed for railroad flaggers to separate out this cost. A payment timeline will need to be decided on for the new bid item.

Copy of proposed DS was removed from the minutes.

Specification Section Recommended Text: See attached draft Developmental Specifications for Construction or Maintenance Work on Railroad Right-Of-Way (Chicago, Central, and Pacific Railroad Company, Cedar River Railroad Company, and Iowa Northern Railway Company).

Comments:

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

Reason for Revision: Provide less ambiguity in bidding for the Contractors and update ROE and flagger forms.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

County or City Comments:

Industry Comments: All revisions approved by CN railroad.

Form 510130 (07-24)

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Eric Johnsen	**Bureau/Office:** Specifications	**Item 1**0
Submittal Date: 9/28/2026	**Proposed Effective Date:** 1/20/2027	
Article No.: **Title:**	**Other:** DS-23087, Construction or Maintenance Work on Railroad Right-Of-Way (Dakota, Minnesota, & Eastern Railroad Corporation dba CPKC)	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: AGC has requested that railroad flaggers not be included in the Mobilization bid item due to the delayed payment of any mobilization costs over 10% of project total. A lump sum bid item will be developed for railroad flaggers to separate out this cost. A payment timeline will need to be decided on for the new bid item.

Copy of proposed DS was removed from the minutes.

Specification Section Recommended Text: See attached draft Developmental Specifications for Construction or Maintenance Work on Railroad Right-Of-Way (Dakota, Minnesota, & Eastern Railroad Corporation dba CPKC).

Comments:

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

Reason for Revision: Provide less ambiguity in bidding for the Contractors.

New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X

Comments:

County or City Comments:

Industry Comments: All revisions approved by CPKC railroad.