MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

May 12, 2022

Members Present:	Darwin Bishop	District 3 - Construction
	Mark Dunn	Contracts & Specifications Bureau
	Daniel Harness	Design Bureau
	Eric Johnsen, Chair	Contracts & Specifications Bureau
	Wes Musgrove	Construction & Materials Bureau
	Mike Nop	Bridges & Structures Bureau
	Christy VanBuskirk	Local Systems Bureau
	Willy Sorensen	Traffic & Safety Bureau
	Bob Welper	District 2 - Materials
Members Not Present:	Charlie Purcell	Project Delivery Division
	Scott Nixon	District 1 - Construction
Advisory Members Present:	Tracey Bradley	Civil Rights Bureau
	Ashley Buss	Construction & Materials Bureau
	Curtis Carter	Construction & Materials Bureau
	Andy Case	Dallas County
	Ben Daleske	Fayette County
	Kyle Frame	Construction & Materials Bureau
	DeWayne Heintz	Jefferson County
	Desiree McClain	Construction & Materials Bureau
	Lisa McDaniel	FHWA
	Jesse Peterson	Construction & Materials Bureau
	Nikki Rainey	Civil Rights Bureau
	Melissa Serio	Construction & Materials Bureau
	Steve Sievert	Bridges & Structures Bureau
	Scott Sommers	Construction & Materials Bureau

The Specification Committee met on Thursday, May 12, 2022, at 9:00 a.m. Eric Johnsen, Specifications Engineer, opened the meeting. The items were discussed in accordance with the revised agenda dated May 4, 2022:

The minutes are as follows:

1. **Article 1105.16, Automated Machine Guidance.**
Article 2526.03, A, 10, c, Areas Constructed with AMG (Construction Survey).

The Construction and Materials Bureau requested to update AMG specifications to give Contractor's more consistent data and align the specifications with current practice.

2. Article 2403.03, C, 2, Placing Concrete (Structural Concrete).

The Construction and Materials Bureau requested to move relevant specifications from the DS for High Performance Concrete for Structures to the Standard Specifications where they will apply to more construction.

3. Article 2408.02, Q, 1, c, 2, Weathering Structural Steel Applications.

The Construction and Materials Bureau requested to remove 24 hour period between water mist applications to weathering steel.

4. Article 2408.03, B, 4, Welding (Structural Steel).

The Construction and Materials Bureau requested to remove an exception to AWS D1.5 from the Standard Specifications.

5. Article 2408.03, S, 5, c, Inspection (Bolting).

The Construction and Materials Bureau requested to clarify inspection wrench specifications.

6. Article 2408.04, D, Surface Preparation and Painting of Structural Steel.
Article 2408.05, C, 2, Structural Steel and Incidental Parts.
Article 2408.05, D, Surface Preparation and Painting of Structural Steel.

The Construction and Materials Bureau requested to add galvanizing to the list of incidental items for structural steel.

7. Article 2412.03, E, Construction (Concrete Bridge Decks).

The Bridges and Structures Bureau requested to increase the moist curing period for non-CCS bridge decks.

8. Article 2419, Aggregates (Precast Concrete Units).
Section 4117, Class V Aggregate for Portland Cement Concrete.
New Section 4117, Granular Leveling Material.
Article Appendix, Aggregates Gradation Table.

The Construction and Materials Bureau and Bridges and Structures Bureau requested to add a new specification for a new material application under precast structures.

9. Section 2429, Pre-Engineered Steel Truss Recreational Trail Bridge.

The Bridges and Structures Bureau requested to update the pre-engineered steel truss recreational trail bridge specifications.

10. Article 2433.03, J, Crosshole Sonic Log (CSL) Testing.

The Construction and Materials Bureau requested to update the specifications to conform more to industry standards.

11. Article 2529.03, G, 3, Full Depth Finish Patches.

The Construction and Materials Bureau requested to allow insulating blankets in place of cellulosic fiber sheathing.

12. **Article 4169.07, B, Hydraulic Mulches.**

Article 4169.07, E, Turf Reinforcement Mat (TRM).

The Construction and Materials Bureau requested to update mulch and TRM specifications to current practice.

13. **DS-15073, High Performance Concrete for Structures.**

The Construction and Materials Bureau requested approval of revisions to the Developmental Specifications for High Performance Concrete for Structures.

14. **Article 1102.17, Disadvantaged Business Enterprises.**

Article 1102.18, Specific Affirmative Action Responsibilities on Non-Federal Aid Projects (Targeted Small Business Project Participation).

Article 1102.19, Equal Employment Opportunity and Affirmative Action Requirements.

Article 1109.05, D, 4, Complaints (Partial Payments).

The Civil Rights Bureau requested to update required posters per federal regulations and update bureau references.

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove	**Office:** Construction and Materials	**Item 1**
Submittal Date: April 22 2022	**Proposed Effective Date:** October 2022	
Article No.: 1105.16 **Title:** Automated Machine Guidance **Article No.:** 2526.03, A, 10, c **Title:** Areas Constructed with AMG (Construction Survey)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

1105.16, C, 2.

Replace Articles b and c:

b. Machine Control Surface Model Files (including topsoil placement where required on the plans): Documentation file describing all of surface models, ~~typically~~ in LandXML format. Areas where a surface model is not provided, Contractor may, at no additional cost to Contracting Authority, develop required surface models to facilitate AMG.

c. Alignment Data Files: Documentation file describing alignment information both horizontal and vertical, ~~typically~~ in LandXML format.

1105.16, C, 5.

Replace the Article:

For paving projects, provide ~~an electronic file such as a D45 file, or equivalent, identifying x, y, and z coordinates~~ profiles and alignments and/or 3D polylines at all breakpoints in LandXML format for shoulder and pavement edges as well as the pavement centerline based on project alignments and elevations.

1105.16, D, Additional Contracting Authority Responsibilities.

Add the Article:

4. The Engineer will resolve discrepancies in coordinate data between the plans and field.

1105.16, E, Additional Contractor Responsibilities.

Replace the Article:

1. Provide a rover, readily available for Engineer to use jointly with the Contractor, during duration of contract.

2. Provide Engineer ~~up to 8 hours of formal~~ training as needed on Contractor's AMG systems.

2526.03, A, 10, c, Areas Constructed With AMG.

Replace the Article:

1) When total stations are used for the AMG paving system, set additional control points at maximum 500 foot intervals, 250 foot staggered, on each side of pavement. Control points will be set using a suitable pin or stake, at least 14 inches long, with a flush identifiable location, such as a cap, divot, or tack. Ensure local point to point tolerance of 0.005 foot for elevation and 0.02 foot for position. Furnish x,y,z coordinates ~~and station offset information for each point~~ rounded to nearest 0.005 foot. Mark each control point with lath indicating point number and station. Where feasible, recess pin below grade to protect from equipment or weather.

2) ~~Set paving hubs with cut or fill to finish pavement elevation~~ Mark with lath at A, B, C, and D points along superelevated curve transitions and at station equation locations. Additional paving hubs will not be required for mainline pavement.

Comments:

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

1105.16 AUTOMATED MACHINE GUIDANCE.

A. Contractor may use equipment with AMG that results in meeting the same accuracy requirements as conventional construction as detailed in the Standard Specifications.

B. Use this section in conjunction with Section 2526 unless construction survey is being provided by the Engineer.

C. Electronic files.

1. Available electronic files will be provided by the Contracting Authority with the Proposal Form. This information is available at the Office of Contracts' website.

2. Convert electronic data provided by the Contracting Authority into the format required by AMG system. Files made available will be in a generic format. For naming conventions and file formats refer to Office of Design's online design manual. Note that additional files, such as storm sewer design files, may be included in the original design software format. Files provided may include:

a. CAD Files: Primary CADD (Computer Aided Design and Drafting) design file that may include:

- CADD cross section files.
- CADD Right of Way file.
- CADD Topography files.
- 3D Design break line files in an industry standard format.

b. Machine Control Surface Model Files (including topsoil placement where required on the plans): Documentation file describing all of surface models, ~~typically~~ in LandXML format. Areas where a surface model is not provided, Contractor may, at no additional cost to Contracting Authority, develop required surface models to facilitate AMG.

c. Alignment Data Files: Documentation file describing alignment information both horizontal and vertical, ~~typically~~ in LandXML format.

3. For PCC overlays, compute an estimated quantity of overlay concrete based on existing pavement profile and the electronic model. This quantity will serve as the estimated concrete quantity for the project and must be approved by the Engineer prior to start of construction.

4. For full-depth paving projects, provide a digital terrain model (DTM) of subgrade surface.

5. For paving projects, provide profiles and alignments and/or 3D polylines at all breakpoints in LandXML format ~~an electronic file such as a D45 file, or equivalent, identifying x, y, and z coordinates~~ for shoulder and pavement edges as well as the pavement centerline based on project alignments and elevations.

6. No guarantee is made that the data systems used by the Engineer will be directly compatible with

the systems the Contractor uses.

7. Electronic information shall not be considered a representation of actual conditions to be encountered during construction. Providing the Contractor this information does not relieve the Contractor from the responsibility of making an investigation of conditions to be encountered, including but not limited to site visits, and basing the bid on information obtained from these investigations and professional interpretations and judgment. Contractor assumes the risk of error if the information is used for any purposes for which the information was not intended. Assumptions the Contractor makes from this electronic information or manipulation of the electronic information is at their risk.

8. Engineer may perform spot checks of the machine control results, surveying calculations, records, field procedures, and actual staking. If the Engineer determines the work is not being performed in a manner assures accurate results, the Engineer may order such work to be redone, to the requirements of the contract documents, at no additional cost to the Contracting Authority.

D. Additional Contracting Authority Responsibilities.

1. For new construction, Engineer will set initial horizontal and vertical control points in the field for the project as indicated in the contract documents. For reconstruction or PCC overlays, Engineer will furnish information on existing horizontal and vertical control points.

2. Engineer will provide project specific localized coordinate system if required. The control information utilized in establishing the localized coordinate system, specifically rotation, scaling, and translation may be requested from the Engineer.

3. For paving, Engineer will review and approve proposed surface model within two weeks following receipt of the model.

4. The Engineer will resolve discrepancies in coordinate data between the plans and field.

E. Additional Contractor Responsibilities.

1. Provide a rover, readily available for Engineer to use jointly with the Contractor, during duration of contract.

2. Provide Engineer ~~up to 8 hours of formal~~ training as needed on Contractor's AMG systems.

2526.03, A, 10.

c. Areas Constructed With AMG.

1) When total stations are used for the AMG paving system, set additional control points at maximum 500 foot intervals, 250 foot staggered, on each side of pavement. Control points will be set using a suitable pin or stake, at least 14 inches long, with a flush identifiable location, such as a cap, divot, or tack. Ensure local point to point tolerance of 0.005 foot for elevation and 0.02 foot for position. Furnish x,y,z coordinates rounded to nearest 0.005 foot ~~and station offset information for each point~~. Mark each control point with lath indicating point number and station. Where feasible, recess pin below grade to protect from equipment or weather.

2) ~~Set paving hubs with cut or fill to finish pavement elevation~~ Mark with lath at A, B, C, and D points along superelevated curve transitions and at station equation locations. Additional paving hubs will not be required for mainline pavement.

Reason for Revision: Contractors typically get files needed on Iowa DOT designed projects. They may get different file types from consultant designed plans and this change will provide some consistency. The D45 file does not provide any useable data to the contractor. The inspector and contractor typically work together to check grades and verify pavement placement and ride together, so a rover is not needed exclusively. Formal training has not been done for years.

Provide useable tolerances for the control points.

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: This spec change is needed to provide more consistent data to the contractor when AMG is utilized.		

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Curtis Carter	**Office:** Construction & Materials	**Item 2**
Submittal Date: April 2022	**Proposed Effective Date:** October 2022	
Article No.: 2403.03, C, 2 **Title:** Structural Concrete (Construction / Placing Concrete)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2403.03, C, 2.

Replace the Article:

Place concrete in a manner which will avoid segregation or separation of the ingredients. In placing concrete, observe all the following precautions:

a. In handling concrete from the mixer to the place of deposit, take care to avoid segregation.

b. When concrete is placed by pumping, maintain controlled, pressurized flow and prevent freefall of concrete through the pump line. Use a section reducer at the end of the pump line to reduce exit velocity, as needed to prevent freefall of concrete through the pump line.

~~**b**~~ **c.** When concrete is deposited through a chute, slope the chute to allow concrete to flow slowly without segregation. Place the delivery point of the chute as close as possible to the point of deposit. Keep chutes and spouts clean. Thoroughly flush them with water before and after each run. Discharge the water outside the forms. Do not pump concrete through aluminum conduit or tubing.

~~**c**~~ **d.** A tremie is not required when filling steel pipe piles or encasing steel H-piles. Use a tremie whenever the distance through which other concrete must be dropped vertically exceeds 6 feet. Do not exceed a drop of 3 foot for bridge floors and culvert slabs. A tremie is not required for concrete placement of elements which have a maximum dimension no greater than 12 inches provided that Article 2403.03, C, 3, d is adhered to and concrete is placed in lifts.

~~**d**~~ **e.** Do not deposit concrete in large quantities at a single point, causing it to flow along inside the forms.

~~**e**~~ **f.** In depositing concrete, take care to fill the form entirely without bulging the form or disturbing its alignment.

g. Protect epoxy coated reinforcement, painted or galvanized components, and other products with protective coatings from damage caused by placement, manipulation, and vibration of concrete.

~~**f**~~ **h.** Manipulate and vibrate concrete in a manner to bring a thick layer of mortar into contact with forms and reinforcement and to prevent formation of pockets of coarse aggregate.

~~**g**~~ **i.** Do not place concrete in flowing water within the area of a footing. Control such flowing water in pipes or trenches outside the forms. In extreme cases, a seal course may be ordered to overcome this difficulty.

~~**h**~~ **j.** Protect concrete placed when the air temperature is at or below 40°F as provided in Article

2403.03, F.

Comments:

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

C. Placing Concrete.

1. Place concrete mixed at the site of the work immediately after mixing. Place ready mixed concrete as soon as practical after delivery, but in all cases within the specified time limit for the equipment used for delivery.

2. Place concrete in a manner which will avoid segregation or separation of the ingredients. In placing concrete, observe all the following precautions:

a. In handling concrete from the mixer to the place of deposit, take care to avoid segregation.

b. When concrete is placed by pumping, maintain controlled, pressurized flow and prevent freefall of concrete through the pump line. Use a section reducer at the end of the pump line to reduce exit velocity, as needed to prevent freefall of concrete through the pump line.

c~~b~~. When concrete is deposited through a chute, slope the chute to allow concrete to flow slowly without segregation. Place the delivery point of the chute as close as possible to the point of deposit. Keep chutes and spouts clean. Thoroughly flush them with water before and after each run. Discharge the water outside the forms. Do not pump concrete through aluminum conduit or tubing.

d~~c~~. A tremie is not required when filling steel pipe piles or encasing steel H-piles. Use a tremie whenever the distance through which other concrete must be dropped vertically exceeds 6 feet. Do not exceed a drop of 3 foot for bridge floors and culvert slabs. A tremie is not required for concrete placement of elements which have a maximum dimension no greater than 12 inches provided that Article 2403.03, C, 3, d is adhered to and concrete is placed in lifts.

e~~d~~. Do not deposit concrete in large quantities at a single point, causing it to flow along inside the forms.

f~~e~~. In depositing concrete, take care to fill the form entirely without bulging the form or disturbing its alignment.

g. Protect epoxy coated reinforcement, painted or galvanized components, and other products with protective coatings from damage caused by placement, manipulation and vibration of concrete.

h~~f~~. Manipulate and vibrate concrete in a manner to bring a thick layer of mortar into contact with forms and reinforcement and to prevent formation of pockets of coarse aggregate.

i~~g~~. Do not place concrete in flowing water within the area of a footing. Control such flowing water in pipes or trenches outside the forms. In extreme cases, a seal course may be ordered to overcome this difficulty.

j~~h~~. Protect concrete placed when the air temperature is at or below 40°F as provided in Article 2403.03, F.

Reason for Revision: These requirements have existed in the DS for High Performance Concrete for several years. These should be moved out of the DS for High Performance Concrete and into the Standard Specification for Structural Concrete because they are relevant to all structural concrete, not just high performance concrete. The original language from the DS was modified slightly for inclusion in the Standard 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:		

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove/ Kyle Frame	**Office:** Construction and Materials	**Item 3**
Submittal Date: 4/12/2022	**Proposed Effective Date:** October 2022	
Article No.: 2408.02, Q, 1, c, 2 **Title:** Weathering Structural Steel Applications	**Other:**	

Specification Committee Action:

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text:
2408.02, Q, 1, c, 2.

Replace the Article:

After blasting, apply at least three uniform applications of water mist ~~(at 24 hour intervals between applications)~~ to all unpainted areas of outside surfaces of the fascia girders to ensure uniform weathering. Apply each application on dry surfaces. Perform the water mist application within 48 hours after the painted surfaces have been properly cured. Ensure all water mist applications are witnessed by a representative of the Contracting Authority.

Comments: A proposed revision was not shaded and was missed by the Specifications Section.

Specification Section Recommended Text:
2408.02, Q, 1, c, 2.

Replace the first sentence:

After blasting, apply at least three uniform applications of water mist ~~(at 24 hour intervals between applications)~~ to all unpainted areas of outside surfaces of the fascia girders to ensure uniform weathering.

Comments:

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

c. Weathering Structural Steel Applications.

1) For weathering structural steel applications, provide a Commercial Blast according to specification SSPC-SP6 to surfaces not requiring painting.

2) After blasting, apply at least three uniform applications of water mist ~~(at 24 hour intervals between applications)~~ to all unpainted areas of outside surfaces of the fascia girders to ensure uniform weathering. Apply each application on dry surfaces. Perform the water mist application within 48 hours after the painted surfaces have been properly cured. Ensure all water mist applications are witnessed by a representative of the Contracting Authority.

Reason for Revision: The intent is to apply a water mist to a dry surface regardless of the elapsed time from the previous water mist application.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove/ Kyle Frame	**Office:** Construction and Materials	**Item 4**
Submittal Date: 4/12/2022	**Proposed Effective Date:** October 2022	
Article No.: 2408.03, B, 4 **Title:** Welding	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:
2408.03, B, 4.

Replace the Table of Contents for Modifications to ANSI/AASHTO/AWS D1.5 Bridge Welding Code:

Table of Contents
for
Modifications to ANSI/AASHTO/AWS D1.5 Bridge Welding Code

SECTION 1, GENERAL PROVISIONS
1.3 Welding Processes
Paragraph 1.3.1.1
Paragraph 1.3.1.2
Paragraph 1.3.2

SECTION 3, WORKMANSHIP
3.2 Preparation of Base Metal
Paragraph 3.2.2
Paragraph 3.2.7

3.5 DIMENSIONAL TOLERANCES
Paragraph 3.5.1.3
Paragraph 3.5.1.4
Paragraph 3.5.1.14

3.7 REPAIRS
Paragraph 3.7.4
Paragraph 3.7.7
Paragraph 3.7.8

SECTION 5, QUALIFICATION
Part A, General Requirements
5.2 Qualification Responsibility

Part B, Welder, Welding Operator, and Tack Welder Qualification
5.21 General Requirements
Paragraph 5.21.4
Paragraph 5.21.6
Paragraph 5.21.6.1

5.23 Qualification Tests Required
Paragraph 5.23.1
Paragraph 5.23.3

SECTION 6, INSPECTION
Part A, General Requirements
6.7 Nondestructive Testing
Subparagraph 6.7.1
Subparagraph 6.7.1.2(1)
Subparagraph 6.7.1.2(2)

Part B, Radiograph Testing of Groove Welds in Butt Joints
6.10 Radiograph Procedure
Paragraph 6.10.5.4

~~6.12 Examination, Report and Disposition of Radiographs~~
~~Paragraph 6.12.3~~

Delete Section 6.12, Examination, Report, and Disposition of Radiographs:
~~**6.12 Examination, Report, and Disposition of Radiographs**~~

~~**REPLACE** Paragraph 6.12.3 with the following:~~

~~Two sets of radiographs shall be taken for welds subject to radiographic testing, including any that show unacceptable quality prior to repair. One radiograph of each test shall, upon completion of Q.C. and Q. A. interpretation, be forwarded to the Office of Materials, Ames, Iowa. The second set of radiographs shall be retained by the Contractor as part of on-site inspection records. Upon completion of the project, this second set will become the property of the Contractor.~~

Comments:

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

2408.03 B, 4

Remove exception for AWS D1.5 article 6.12 in the Table of Contents for Modifications to ANSI/AASHTO/AWS D1.5 Bridge Welding Code and the written description of exception to 6.12.

Table of Contents
for
Modifications to ANSI/AASHTO/AWS D1.5 Bridge Welding Code

SECTION 1, GENERAL PROVISIONS
1.3 Welding Processes
Paragraph 1.3.1.1
Paragraph 1.3.1.2
Paragraph 1.3.2

SECTION 3, WORKMANSHIP
3.2 Preparation of Base Metal
Paragraph 3.2.2
Paragraph 3.2.7

3.5 DIMENSIONAL TOLERANCES
Paragraph 3.5.1.3
Paragraph 3.5.1.4
Paragraph 3.5.1.14

3.7 REPAIRS
Paragraph 3.7.4
Paragraph 3.7.7
Paragraph 3.7.8

SECTION 5, QUALIFICATION
Part A, General Requirements
5.2 Qualification Responsibility

Part B, Welder, Welding Operator, and Tack Welder Qualification
5.21 General Requirements
Paragraph 5.21.4
Paragraph 5.21.6
Paragraph 5.21.6.1

5.23 Qualification Tests Required
Paragraph 5.23.1
Paragraph 5.23.3

SECTION 6, INSPECTION
Part A, General Requirements
6.7 Nondestructive Testing
Subparagraph 6.7.1
Subparagraph 6.7.1.2(1)
Subparagraph 6.7.1.2(2)

Part B, Radiograph Testing of Groove Welds in Butt Joints
6.10 Radiograph Procedure
Paragraph 6.10.5.4

~~6.12 Examination, Report and Disposition of Radiographs~~
~~Paragraph 6.12.3~~

~~**6.12 Examination, Report, and Disposition of Radiographs**~~

~~**REPLACE** Paragraph 6.12.3 with the following:~~

~~Two sets of radiographs shall be taken for welds subject to radiographic testing, including any that show unacceptable quality prior to repair. One radiograph of each test shall, upon completion of Q.C. and Q. A. interpretation, be forwarded to the Office of Materials, Ames, Iowa. The second set of radiographs shall be retained by the Contractor as part of on-site inspection records. Upon completion of the project, this second set will become the property of the Contractor.~~

Reason for Revision: The exception required two sets of radiographs which is no longer needed. We are now using AWS D1.5 as written with no exception to this item.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove/ Kyle Frame	**Office:** Construction and Materials	**Item 5**
Submittal Date: 4/13/2022	**Proposed Effective Date:** October 2022	
Article No.: 2408.03, S, 5, c **Title:** Inspection (Bolting)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2408.03, S, 5, c, 2.

Add to the end of the Article:

Have an approved testing agency verify calibration of the inspection wrench at least every 12 months and if found to be out of tolerance, have it calibrated.

2408.03, S, 5, c, 3.

Replace the first phrase:

~~To calibrate the inspecting wrench:~~ To determine the job inspection torque values:

Comments:

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

Modify 2408.03, S, 5, c, 2 & 3:

Inspection.

1) Check bolted connections, after tightening, in the presence of the Engineer for proper installation, applicable rotation, and general joint condition. The inspection of fasteners, with a torque wrench, at connections of steel diaphragms to concrete beams will not be required.

2) Furnish and use an inspecting wrench which is calibrated and capable of measuring torque. Have an approved testing agency verify calibration of the inspection wrench at least every 12 months and if found to be out of tolerance, have it calibrated.

3) ~~To calibrate the inspecting wrench:~~ To determine the job inspection torque values:

Reason for Revision: For item 2: Specify calibration time limit for the inspection wrench similar the tension measuring device. For item 3: Reword the instructions to avoid confusion between wrench calibration by an approved testing agency and determining the job inspection torque values.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove/ Kyle Frame	**Office:** Construction and Materials	**Item 6**
Submittal Date: 4/13/2022	**Proposed Effective Date:** October 2022	
Article No.: 2408.04 & 2408.05 **Title:** Method of Measurement & Basis of Payment (Steel Structures)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2408.04, D, Surface Preparation and Painting Structural Steel.

Retitle and **replace** the Article:

Surface Preparation, Galvanizing, and Painting Structural Steel.

Surface preparation, galvanizing, and painting structural steel will not be measured.

2408.05, C, 2.

Delete the fifth bullet:

- ~~Incidentals to complete the structure including the surface preparation and painting of the completed structure.~~

2408.05, D, Surface Preparation and Painting Structural Steel.

Retitle the Article:

Surface Preparation, Galvanizing, and Painting Structural Steel.

Comments:

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

Replace 2408.04 D:

D. Surface Preparation, Galvaning and Painting Structural Steel.

Surface preparation, galvanizing and painting structural steel will not be measured.

Change 2408.05 C & D:

C. Structural Steel and Incidental Parts.

1. Contract unit price per pound or lump sum for metal railing and structural steel.

2. Payment is full compensation for:

- Furnishing all materials.

- Preparation, including fabrication, nondestructive testing and inspection required by the contract documents, transportation, and erection.
- Furnishing all labor.
- Equipment.
- ~~Incidentals to complete the structure including the surface preparation and painting of the completed structure.~~
- Repair and cleaning of the paint at the shop and after erection.

D. Surface Preparation, Galvanizng and Painting Structural Steel.
Incidental to the structure.

Reason for Revision: Add galvanizing to the list of incidentals.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Mike Nop	**Bureau:** Bridges and Structures	**Item 7**
Submittal Date: 04/20/2022	**Proposed Effective Date:** October 2022	
Article No.: 2412.03, E **Title:** Construction	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Construction and Materials Bureau will continue discussions on charging of working days during cure time to come to a resolution. The CMB will also discuss allowing plastic sheeting as a substitute for at least a portion of the continuous wet cure period. The Department plans to have approval of resulting specification revisions in time to incorporate as a proposal note for the October letting when this approved revision will go into effect.

Specification Section Recommended Text:

2412.03, E, 3.

Replace the first sentence:

Apply water to the burlap covering for a period of ~~4~~ calendar days for continuous concrete slab bridge decks and 7 calendar days for all other concrete bridge decks.

2412.03, E, 4.

Replace the Article:

Maintain continuous contact, except as noted above, between all parts of the concrete deck and the burlap during the ~~4 calendar day~~ moist curing period.

Comments: A revision similar to this one was tabled at the March 10th Specification Committee Meeting. The language has been revised based on industry feedback to keep CCS bridges at 4 days of wet cure.

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

DIVISION 24. STRUCTURES

Section 2412. Concrete Bridge Decks

2412.03 Construction.

...

E. Curing Concrete Decks.

…

3. Apply water to the burlap covering for a period of 4 calendar days for continuous concrete slab bridge decks and 7 calendar days for all other concrete bridge decks. Use 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. The Engineer may approve interruptions for periods longer than 4 hours on the basis of the method for keeping the concrete moist.

4. Maintain continuous contact, except as noted above, between all parts of the concrete deck and the burlap during the ~~4 calendar day~~ moist curing period.

…

Reason for Revision: The Bridges and Structures Bureau wants to increase the moist curing period from 4 days to 7 days for Class C concrete decks in order to decrease the amount of bridge deck cracking. Note that high performance concrete bridge decks already require 7 days of cure. Continuous concrete slab bridges with Class C concrete decks will retain a 4 day moist curing period.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Bob Dawson / Melissa Serio/ Steve Seivert	**Office:** Construction & Materials and Bridges & Structures	**Item 8**
Submittal Date: March 2022	**Proposed Effective Date:** October 2022	
Article No.: 2419 **Title:** Aggregates (Precast Concrete Units) **Section No.:** 4117 **Title:** Class V Aggregate for Portland Cement Concrete **New Section No.:** 4117 **Title:** Granular Leveling Material **Article No.:** Appendix **Title:** Aggregates Gradation Table	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2419.02, A, 1.

Replace the Article:

Apply Sections 4110, 4111, 4115, and ~~4117~~ 4116, except gradation requirements of Articles 4110.02 and 4115.03 and cement requirements of Article ~~4117~~ 4116.05.

4117, Class V Aggregate for Portland Cement Concrete.

Renumber the Section:

Section ~~4117~~ 4116. Class V Aggregate for Portland Cement Concrete

~~4117~~ 4116.01 DESCRIPTION.
A mixture of fine and coarse particles of feldspathic rocks from an approved source as described in Materials I.M. 409.

~~4117~~ 4116.02 GRADATION.
Meet the gradation requirements for gradation No. 7 of the Aggregate Gradation Table, Article 4109.02.

~~4117~~ 4116.03 QUALITY.

A. For the portion retained on the No. 4 sieve, meet the requirements of Table ~~4117~~ 4116.03-1 for coarse aggregate for concrete.

Table ~~4117~~ 4116.03-1: Aggregate Quality

Aggregate Quality	Maximum Percent Allowed	Test Method
Abrasion	40	AASHTO T 96
A Freeze	6	Office of Materials Test Method No. Iowa 211, Method A
Clay Lumps	0.5	Materials I.M. 368

B. For the portion of Class V aggregate passing the No. 4 sieve, meet the requirements of Table ~~4117~~ 4116.03-2 for fine aggregate for concrete:

Table ~~4117~~ 4116.03-2: Fine Aggregate Quality

Fine Aggregate Quality	Test Limits	Test Method
Shale and Coal	2.0 % (maximum)	Materials I.M. 344
Mortar Strength	6000 psi (minimum)	Office of Materials Test Method No. Iowa 212

~~4117~~ 4116.04 COMBINATIONS.
Use Class V aggregate for PC concrete only in combination with limestone as specified in Materials I.M. 529. Acquire limestone from sources meeting the specified coarse aggregate durability for PC concrete.

A. Fine Limestone.
Meet the gradation requirements for gradation No. 8 of the Aggregate Gradation Table, Article 4109.02.

B. Coarse Limestone.
Meet the requirements of Section 4115.

~~4117~~ 4116.05 CEMENT REQUIREMENTS.
For Interstate and Primary projects, use the cement types and substitutions of Table ~~4117~~ 4116.05-1 when Class V aggregate is used.

Table ~~4117~~ 4116.05-1: Cement Types and Substitutions

Cement Type	Min. Required Substitution	Max. Allowable Substitution
Type I, Type II	20% Class F Fly Ash	25% Class F Fly Ash
Type I, Type II	25% GGBFS	35% GGBFS
Type IS, IP	---	20% Class C Fly Ash

4117, Granular Leveling Material.

Add the Section:

Section 4117. Granular Leveling Material

4117.01 DESCRIPTION.
- Crushed stone, crushed gravel, or natural sand.
- Produce crushed gravel as a separate operation by crushing the gravel particles retained on a screen at least 1/4 inch larger than the top aggregate size specified. Natural sand does not require crushing.

Form 510130 (08-15)

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Mike Nop	**Bureau:** Bridges and Structures	**Item 9**
Submittal Date: 04/20/2022	**Proposed Effective Date:** October 2022	
Section No.: 2429 **Title:** Pre-Engineered Steel Truss Recreational Trail Bridge	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text:

2429.02, A, Design.

Replace Articles 2 through 4 and **add** the Article:

2. Design Loads and Related Requirements.

a. ~~Allowable Design Stresses according to the "Standard Specifications for Highway Bridges" adopted by AASHTO.~~ Design shall comply with "LRFD Bridge Design Specifications" and "LRFD Guide Specifications for the Design of Pedestrian Bridges" as adopted by AASHTO.

b. ~~Vertical~~ Loads and Load Combinations:

- ~~Live~~ Pedestrian load: ~~85~~ 90 pounds per square foot applied to the complete width of the deck area shown in the contract documents.
- ~~Concentrated~~ Vehicle load: ~~located at mid-span and equal to 10,000 pounds plus 30% for impact loading.~~ apply an H5 design vehicle when clear deck width is 7 feet to 10 feet, apply an H10 design vehicle when clear deck width exceeds 10 feet. Vehicle load need not be placed in combinations with pedestrian load.
- ~~Vehicle loads: 20,000 cycles or less.~~
- Buoyancy and stream pressure due to submergence when indicated in the drawings.
- Wind loads.
- Fatigue shall be considered. Fracture critical requirements may be waived if indicated in the drawings.
- Other AASHTO loads, including seismic, as appropriate.
- Load combinations as designated by AASHTO.

~~**c.** Horizontal Loads:~~

- ~~Minimum horizontal wind load: 30 pounds per square foot applied to the entire truss as if fully enclosed.~~
- ~~Seismic and loads combinations: applied according to the AASHTO Specifications for Highway Bridges noted in this specification.~~

~~**d**~~ **c.** Bridge camber to offset full dead load deflections. For flat, single span ~~B~~bridges, camber at center of bridge span ~~of~~ should ordinarily be 1% of the total bridge span. ~~Camber to offset full dead load deflections.~~

~~**e**~~ **d.** Bridge designed ~~to accommodate a temperature differential of 100ºF~~ for expansion and contraction with a temperature range of -25°F to 125°F.

~~**f**~~ **e.** Teflon or other approved slip pads placed between the bearing and setting plates provided by the bridge manufacturer. At least 1 inch clearance provided between the bridges and the abutments.

~~g~~ **f.** Welded Tubular Connection Design: according to the Structural Welding Code from ANSI/AWS D1.1, Chapter 10 Tubular Structures.

~~h~~ **g.** Shop Drawings (Manufacturer's standard schematic drawings and diagrams):

1) Unique drawings prepared to illustrate the specific portion of the project.

2) All relative design information such as member sizes, bridge reactions, and general notes clearly specified.

3) Accurately prepared to be complete in every respect. Include cross referenced details and sheet numbers. Signed and sealed by a Professional Engineer licensed in the State of Iowa.

4) Submit shop drawings according to Article 1105.03.

~~i~~ **h.** Maximum deflection due to ~~live~~ pedestrian load ~~plus impact~~ not to exceed that specified in ~~the contract documents~~ AASHTO.

i. Vibration not to exceed that specified in AASHTO.

j. If intermediate piers are required for the bridge over a railroad, a minimum 25 foot horizontal and vertical clearance, or a distance as specified elsewhere in the contract documents, from the track is required.

3. Geometry.

a. Low profile (pony truss) half through truss design.

b. Provide one diagonal per panel. Chords, diagonals, verticals, and bracing shall be tube steel.

~~**c.** A minimum of 72 inches from top of bottom chord to top of railing.~~

4. Railings and Accessories.

a. All railings:

- Located on the inside surface of the trusses.
- Smooth inside surface with no protrusions or depressions.

b. Top railings: a minimum of ~~54~~ 48 inches above the floor for bicycle applications~~, according to~~ (AASHTO requires a minimum of 42 inches).

c. Safety railings: a maximum railing opening size shall not allow passage of a 4 inch~~es~~ sphere. All ends of angles and ~~tubes~~ HSS welded and ground smooth.

d. Custom railings may be permitted as shown in the plans.

5. Curbs and Toe Plates.

a. A curb, barrier or toe plate shall be provided that prevents the passage of a 4 inch sphere, where any portion of the sphere is within 4 inches of the walking surface.

b. Trail bridges over roadways shall prevent water runoff over the side of the bridge. Minimum curb height shall be by analysis, but no less than 3 inches.

c. Toe plates, when required, shall be located 2 inches above the floor decks and shall ordinarily have a minimum 4 inch vertical projection.

2429.02, B, 1, Structural Thickness.

Replace the second bullet:

All other structural members: minimum material thickness of at least 5/16 inch except the web thickness of rolled beams or channel shall not be less than 1/4 inch. Railing members are not subject to minimum thickness requirements.

2429.02, B, 5, Railing and Accessories.

Replace the second bullet:

Rub rail: shall have 5.5 inch vertical projection and be fabricated from ~~2 inch by 8 inch~~ treated wood, naturally durable wood, or steel.

2429.02, B, 6, Toe Plates.

Replace the Article:

Toe plates, ~~are~~ when required, shall be fabricated from plate or channel. ~~Use 6 inch by 5/16 inch plate located 2 inches above the floor decks.~~

2429.05, B.

Replace the second bullet:

~~All foundations, footings, abutments, piers, pier caps,~~ ~~b~~Bearing plates, pads, bolts, anchor bolts, grouting, decking, railing, and any other materials, labor, and equipment necessary to complete the bridge in place. Foundations, footings, abutments, piers, and pier caps will be paid for separately.

Comments: The Bridges and Structures Bureau had some minor revisions to the language submitted at the meeting.

Specification Section Recommended Text:

2429.02, A, Design.

Replace Articles 2 through 4 and **add** the Article:

2. **Design Loads and Related Requirements.**
   - **a.** ~~Allowable Design Stresses according to the "Standard Specifications for Highway Bridges" adopted by AASHTO.~~ Design shall comply with "LRFD Bridge Design Specifications" and "LRFD Guide Specifications for the Design of Pedestrian Bridges" as adopted by AASHTO.
   - **b.** ~~Vertical~~ Loads and Load Combinations:
     - ~~Live~~ Pedestrian load: ~~85~~ 90 pounds per square foot applied to the complete width of the deck area shown in the contract documents.
     - ~~Concentrated~~ Vehicle load: ~~located at mid-span and equal to 10,000 pounds plus 30% for impact loading.~~ apply an H5 design vehicle when clear deck width is 7 feet to 10 feet, apply an H10 design vehicle when clear deck width exceeds 10 feet. Vehicle load need not be placed in combinations with pedestrian load.
     - ~~Vehicle loads: 20,000 cycles or less.~~
     - Buoyancy and stream pressure due to submergence.
     - Wind loads.
     - Fatigue and fracture.
     - Other AASHTO loads, including seismic, as appropriate.
     - Load combinations as designated by AASHTO.
   - ~~**c.** Horizontal Loads:~~
     - ~~Minimum horizontal wind load: 30 pounds per square foot applied to the entire truss as if fully enclosed.~~
     - ~~Seismic and loads combinations: applied according to the AASHTO Specifications for Highway Bridges noted in this specification.~~
   - ~~**d**~~ **c.** Bridge camber to offset full dead load deflections. For flat, single span ~~B~~bridges, camber at center of bridge span ~~of~~ should ordinarily be 1% of the total bridge span. ~~Camber to offset full dead load deflections.~~
   - ~~**e**~~ **d.** Bridge designed ~~to accommodate a temperature differential of 100ºF~~ for expansion and contraction with a temperature range of -25°F to 125°F.
   - ~~**f**~~ **e.** Teflon or other approved slip pads placed between the bearing and setting plates provided by the bridge manufacturer. At least 1 inch clearance provided between the bridges and the abutments.

~~g~~ **f.** Welded Tubular Connection Design: according to the Structural Welding Code from ANSI/AWS D1.1, Chapter 10 Tubular Structures.

~~h~~ **g.** Shop Drawings (Manufacturer's standard schematic drawings and diagrams):

1) Unique drawings prepared to illustrate the specific portion of the project.

2) All relative design information such as member sizes, bridge reactions, and general notes clearly specified.

3) Accurately prepared to be complete in every respect. Include cross referenced details and sheet numbers. Signed and sealed by a Professional Engineer licensed in the State of Iowa.

4) Submit shop drawings according to Article 1105.03.

~~i~~ **h.** Maximum deflection due to ~~live~~ pedestrian load ~~plus impact~~ not to exceed that specified in ~~the contract documents~~ AASHTO.

i. Vibration not to exceed that specified in AASHTO.

j. If intermediate piers are required for the bridge over a railroad, a minimum 25 foot horizontal and vertical clearance, or a distance as specified elsewhere in the contract documents, from the track is required.

3. Geometry.

a. Low profile (pony truss) half through truss design.

b. Provide one diagonal per panel. Chords, diagonals, verticals, and bracing shall be tube steel.

~~**c.** A minimum of 72 inches from top of bottom chord to top of railing.~~

4. Railings and Accessories.

a. All railings:

- Located on the inside surface of the trusses.
- Smooth inside surface with no protrusions or depressions.

b. Top railings: a minimum of ~~54~~ 48 inches above the floor for bicycle applications~~, according to~~ (AASHTO requires a minimum of 42 inches).

c. Safety railings: a maximum railing opening size shall not allow passage of a 4 inch~~es~~ sphere. All ends of angles and tubes welded and ground smooth.

d. Custom railings may be permitted as shown in the plans.

5. Curbs and Toe Plates.

a. A curb, barrier or toe plate shall be provided that prevents the passage of a 4 inch sphere, where any portion of the sphere is within 4 inches of the walking surface.

b. Trail bridges over roadways shall prevent water runoff over the side of the bridge. Minimum curb height shall be by analysis, but no less than 3 inches.

c. Toe plates, when required, shall be located 2 inches above the floor decks and shall ordinarily have a minimum 4 inch vertical projection.

2429.02, B, 1, Structural Thickness.

Replace the second bullet:

All other structural members: minimum material thickness of at least 5/16 inch except the web thickness of rolled beams or channel shall not be less than 1/4 inch. Railing members are not subject to minimum thickness requirements.

2429.02, B, 5, Railing and Accessories.

Replace the second bullet:

Rub rail: shall have 6 inch vertical projection and be fabricated from ~~2 inch by 8 inch~~ treated wood, naturally durable wood, or steel.

2429.02, B, 6, Toe Plates.

Replace the Article:

Toe plates, ~~are~~ when required, shall be fabricated from plate or channel. ~~Use 6 inch by 5/16 inch plate located 2 inches above the floor decks.~~

2429.05, B.

Replace the second bullet:

~~All foundations, footings, abutments, piers, pier caps,~~ ~~b~~Bearing plates, pads, bolts, anchor bolts, grouting, decking, railing, and any other materials, labor, and equipment necessary to complete the bridge in place. Foundations, footings, abutments, piers, and pier caps will be paid for separately.

Comments:

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

DIVISION 24. STRUCTURES

Section 2429. Pre-Engineered Steel Truss Recreational Trail Bridge

2429.02 DESIGN AND MATERIALS.

A. Design.

…

2. Design Loads and Related Requirements.

a. ~~Allowable Design Stresses according to the "Standard Specifications for Highway Bridges" adopted by AASHTO.~~ Design shall comply with "LRFD Bridge Design Specifications" and "LRFD Guide Specifications for the Design of Pedestrian Bridges" as adopted by AASHTO.

b. ~~Vertical~~ Loads and Load Combinations:

- ~~Live~~ Pedestrian load: ~~85~~ 90 pounds per square foot applied to the complete width of the deck area shown in the contract documents.
- ~~Concentrated~~ Vehicle load: ~~located at mid-span and equal to 10,000 pounds plus 30% for impact loading.~~ apply an H5 design vehicle when clear deck width is 7 feet to 10 feet, apply an H10 design vehicle when clear deck width exceeds 10 feet. Vehicle load need not be placed in combinations with pedestrian load.
- ~~Vehicle loads: 20,000 cycles or less.~~
- Buoyancy and stream pressure due to submergence.
- Wind loads.
- Fatigue and fracture.
- Other AASHTO loads, including seismic, as appropriate.
- Load combinations as designated by AASHTO.

~~c. Horizontal Loads:~~

- ~~Minimum horizontal wind load: 30 pounds per square foot applied to the entire truss as if fully enclosed.~~
- ~~Seismic and loads combinations: applied according to the AASHTO Specifications for Highway Bridges noted in this specification.~~

~~d~~c. ~~Bridge camber at center of bridge span of 1% of the total bridge span.~~ Bridge ~~C~~camber to offset full dead load deflections. For flat, single span ~~B~~bridges, camber at center of bridge span should ordinarily be ~~of~~ 1% of the total bridge span.

~~e~~d. Bridge designed ~~to accommodate a temperature differential of 100ºF~~ for expansion and contraction with a temperature range of -25 degrees to 125 degrees Fahrenheit.

~~fe~~. Teflon or other approved slip pads placed between the bearing and setting plates provided by the bridge manufacturer. At least 1 inch clearance provided between the bridges and the abutments.

~~gf~~. Welded Tubular Connection Design: according to the Structural Welding Code from ANSI/AWS D1.1, Chapter 10 Tubular Structures.

~~hg~~. Shop Drawings (Manufacturer's standard schematic drawings and diagrams):

1) Unique drawings prepared to illustrate the specific portion of the project.
2) All relative design information such as member sizes, bridge reactions, and general notes clearly specified.
3) Accurately prepared to be complete in every respect. Include cross referenced details and sheet numbers. Signed and sealed by a Professional Engineer licensed in the State of Iowa.
4) Submit shop drawings according to Article 1105.03.

~~ih~~. Maximum deflection due to ~~live~~ pedestrian load ~~plus impact~~ not to exceed that specified in ~~the contract documents~~ AASHTO.

i. Vibration not to exceed that specified in AASHTO.

~~ji~~. If intermediate piers are required for the bridge over a railroad, a minimum 25 foot horizontal and vertical clearance, or a distance as specified elsewhere in the contract documents, from the track is required.

3. Geometry.

a. Low profile (pony truss) half through truss design.

b. Provide one diagonal per panel. Chords, diagonals, verticals, and bracing shall be tube steel.

~~c. A minimum of 72 inches from top of bottom chord to top of railing.~~

4. Railings and Accessories.

a. All railings:

- Located on the inside surface of the trusses.
- Smooth inside surface with no protrusions or depressions.

b. Top railings: a minimum of ~~54~~ 48 inches above the floor for bicycle applications (~~, according to~~ AASHTO requires a minimum of 42 inches).

c. Safety railings: a maximum railing opening size shall not allow passage of a 4-inch sphere ~~of 4 inches~~. All ends of angles and tubes welded and ground smooth.

d. Custom railings may be permitted as shown in the plans.

6. Curbs and Toe Plates.

a. A curb, barrier or toe plate shall be provided that prevents the passage of a 4-inch sphere, where any portion of the sphere is within 4 inches of the walking surface.

b. Trail bridges over roadways shall prevent water runoff over the side of the bridge. Minimum curb height shall be by analysis, but no less than 3 inches.

c. Toe plates, when required, shall be located 2 inches above the floor decks and shall ordinarily have a minimum 4-inch vertical projection.

B. Materials.

1. Structural Thickness.

- Structural tubing: minimum material thickness of 1/4 inch.
- All other structural members: minimum material thickness of at least 5/16 inch except the web thickness of rolled beams or channel shall not be less than 1/4 inch. Railing members are not subject to minimum thickness requirements.

…

5. Railing and Accessories.

- Railings (except rub rail): fabricated from steel.
- Rub rail: ~~fabricated from 2 inch by 8 inch treated wood.~~ shall have 6-inch vertical projection and be fabricated from treated wood, naturally durable wood or steel.

6. Toe Plates.

~~Toe plates are required. Use 6 inch by 5/16 inch plate located 2 inches above the floor decks.~~ Toe plates, when required, shall be fabricated from plate or channel.

…

2429.04 METHOD OF MEASUREMENT.

Measurement will be by count for each Pre-engineered Steel Truss Recreational Trail Bridge installed (exclude foundations).

2429.05 BASIS OF PAYMENT.

A. Payment for each Pre-engineered Steel Truss Recreational Trail Bridge furnished and erected will be the contract unit price.

B. Payment is full compensation for:

- Designing, manufacturing, delivering, erecting, and assembling the unit complete as shown in the contract documents, and
- ~~All foundations, footings, abutments, piers, pier caps,~~ ~~b~~Bearing plates, pads, bolts, anchor bolts, grouting, decking, railing, and any other materials, labor, and equipment necessary to complete the bridge in place.

Reason for Revision: This specification has outdated provisions and practices which need to be updated.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove/ Desiree McClain	**Office:** Construction & Materials	**Item 10**
Submittal Date: April 11th, 2022	**Proposed Effective Date:** October 2022	
Article No.: 2433.03, J **Title:** Crosshole Sonic Log (CSL) Testing	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2433.03, J, 3.

Replace the first sentence:

Furnish and install one access pipe per 1 foot of shaft diameter, ~~but no less than four per shaft, except for three tubes if the reinforcing cage is 2.5 feet in diameter or less~~ while following minimum and maximum numbers of access pipes stated in ASTM D 6760 and exceptions stated in Article 2433.03, J, 2, b.

2433.03, J, 9.

Replace the Article:

Do not commence subsequent shaft excavations until receiving the Engineer's approval and acceptance of the first shaft based on ~~the results, analysis, and interpretation of the CSL testing~~ field inspection and construction results.

Comments: Revision to Article 2433.03, J, 2, b is not necessary, as ASTM D 6760 includes a maximum of eight access ducts. Language in first sentence of Article 2433.03, J, 3 was revised to not repeat minimum and maximum access duct numbers from the previous Article.

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

2. The procedure in ASTM D 6760 will be followed with the exceptions listed below:
   - **a.** Plastic access ducts and drilled boreholes will not be allowed unless the Engineer approves.
   - **b.** A minimum of four access ducts with a maximum of 8 access ducts are required, except for three tubes if the reinforcing cage is 2.5 feet in diameter or less
   - **c.** Perform CSL testing after the shaft concrete has cured at least 48 hours but no later than ~~7~~14 calendar days.
   - **d.** Grout the access ducts after the Engineer's approval of the testing results. Place grout with a pump, starting at the bottom of each access duct.
   - **e.** Include the waterfall diagram (which is a nesting of ultrasonic pulses in an ultrasonic profile) in the report.

3. Furnish and install one access pipe per 1 foot of shaft diameter, but no less than four ~~per shaft~~ and no more than 8 per shaft, except for three tubes if the reinforcing cage is 2.5 feet in diameter or less. Furnish access pipes complying with the following:

- 1.5 to 2 inch diameter, Schedule 40 pipe conforming to ASTM A 53, Grade A or B, Type E, F, or S.
- Round, regular inside diameter free of defects and obstructions, including all pipe joints, in order to permit the unobstructed passage of 1 3/8 inch maximum diameter source and receiver probes used for the CSL tests.
- Watertight and free from corrosion with clean internal and external faces to ensure a good bond between the concrete and the access pipes.
- Fitted with a watertight cap on the bottom and a removable, watertight cap on the top to prevent debris from entering the pipes.
- Watertight joints to achieve the specified length.
- Use external couplings for CSL testing tubes.

9. Do not commence subsequent shaft excavations until receiving the Engineer's approval and acceptance of the first shaft based on ~~the results, analysis, and interpretation of the CSL testing.~~ field inspection and construction results.

Reason for Revision: For a large diameter shaft the difference in coverage area is minimal between using 8 and 10 CSL tubes.

Conforming more to industry standards, gives the contractor more flexibility.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / John Hart	**Office:** Construction & Materials	**Item 11**
Submittal Date: April 2022	**Proposed Effective Date:** October 2022	
Article No.: 2529.03, G, 3 **Title:** Full Depth Finish Patches	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: Jefferson County asked why other insulation boards are not allowed other than cellulosic fiber sheathing. The Department will review the possibility to allow other types of insulation boards.

The current specification for cellulosic fiber sheathing first appeared in the Standard Specifications with the 1985 edition of the book, when it referenced ASTM C 208. There is an ASTM section for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board (C 1289), which could give the basis for another type of insulation board.

Specification Section Recommended Text:

2529.03, G, 3.

Replace the Article:

After the concrete has been finished and surface water has disappeared, cure the concrete. Place curing materials no later than 20 minutes after completing finishing operations. Cure concrete by completely covering it with an insulating blanket-type cover consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic film, rated by the manufacturer with a minimum R-value of 0.5. Cover the blanket-type cover completely with insulation board having the following properties: cellulosic fiber sheathing with a minimum nominal 3/4 inch thickness. The board may be wrapped with plastic film to protect it from rain. Two insulating blankets with a minimum R-value of 0.5 may be substituted for the blanket and insulation board. Place the board or blankets over the patch and adjacent surface and hold it tightly in place with weights to retain all possible heat in the concrete.

Comments:

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

G. Placing Full Depth Portland Cement Concrete Finish Patches.

3. After the concrete has been finished and surface water has disappeared, cure the concrete. Place curing materials no later than 20 minutes after completing finishing operations. Cure concrete by completely covering it with an insulating blanket-type cover consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic film, rated by the manufacturer with a minimum R-value of 0.5. Cover the blanket-type cover completely with insulation board having the following properties: cellulosic fiber sheathing with a minimum nominal 3/4 inch thickness. The board may be wrapped with plastic film to protect it from rain. Two insulating blankets with a minimum R-value of 0.5 may be substituted for the blanket and insulation board. Place the board or blankets over

the patch and adjacent surface and hold it tightly in place with weights to retain all possible heat in the concrete.		
Reason for Revision: Cellulosic fiber insulating board is no longer available. Insulating blankets are used in most other surrounding states.		
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 (08-15)

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove/Melissa Serio	**Office:** Construction & Materials	**Item 12**
Submittal Date: April 25, 2022	**Proposed Effective Date:** October 2022	
Article No.: 4169.07, B **Title:** Hydraulic Mulches **Article No.:** 4169.07, E **Title:** Turf Reinforcement Mat (TRM).	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4169.07, B. Hydraulic Mulches

Replace Articles 1, 2, and 3:

1. **Wood Cellulose Fiber.**
   - **a.** Natural or cooked cellulose fiber processed from whole wood chips, or a combination of (50%-50%) cellulose fiber produced from whole wood chips and recycled fiber from sawdust, recycled paper, chipboard, or corrugated cardboard.
   - **b.** Contains a colloidal polysaccharide tackifier adhered to the fiber to prevent separation during shipment and avoid chemical coagglomeration during mixing.
   - **c.** Forms a homogeneous slurry of fibers, tackifier, and water that can be applied with standard hydraulic mulching equipment and be dyed ~~green~~ to facilitate visual metering during application.

2. **Bonded Fiber Matrix.**
   - **a.** Manufactured to be applied with standard hydraulic mulching equipment and dyed ~~green~~ to facilitate visual metering during application.
   - **b.** All components pre-packaged by manufacturer to ensure material performance and compliance. Field mixing of additives or any components will not be allowed.
   - **c.** Meet the following requirements:
     - **1)** Contain non-toxic tackifiers that upon drying become insoluble and non-dispersible to eliminate direct raindrop impact on soil according to ASTM D 7101 and EPA 2021.0-1.
     - **2)** Contain no germination or growth inhibiting factors and do not form a water-resistant crust that can inhibit plant growth.
     - **3)** Hydraulic mulch that is completely photo-degradable or biodegradable.
     - ~~**4) Contain a minimum 90% organic material according to ASTM D 2974.**~~
     - ~~**5**~~ **4)** Have a rainfall event (R-factor) of 140 < R according to ASTM D 6459.
     - ~~**6**~~ **5)** Have a cover factor of C ≤ 0.03 according to ASTM D 6459.
     - ~~**7**~~ **6)** Vegetation Establishment of 400% minimum according to ASTM D 7322.
     - ~~**8**~~ **7)** Water Holding Capacity 600% minimum according to ASTM D 7367.

3. **Mechanically-Bonded Fiber Matrix.**
   - **a.** Manufactured to be applied with standard hydraulic mulching equipment and dyed ~~green~~ to facilitate visual metering during application.

b. All components pre-packaged by manufacturer to ensure material performance and compliance. Field mixing of additives or any components will not be allowed.

c. Meet the following requirements:

1) Contain non-toxic tackifiers that upon drying become insoluble and non-dispersible to eliminate direct raindrop impact on soil according to ASTM D 7101 and EPA 2021.0-1.

2) Contain no germination or growth inhibiting factors and do not form a water-resistant crust that can inhibit plant growth.

3) Hydraulic mulch that is completely photo-degradable or biodegradable.

~~**4) Contain a minimum 90% organic material according to ASTM D 2974.**~~

~~**5**~~ **4)** Have a rainfall event (R-factor) of ~~175~~ 162 < R according to ASTM D 6459.

~~**6**~~ **5)** Have a cover factor of C ≤ 0.01 according to ASTM D 6459.

~~**7**~~ **6)** Vegetation Establishment of 500% minimum according to ASTM D 7322.

~~**8**~~ **7)** Water Holding Capacity of 700% minimum according to ASTM D 7367.

4169.07, E. Turf Reinforcement Mat (TRM).

Replace Table 4169.10-1:

Table 4169.10-1: Minimum Material Property and Performance Requirements

Property	Property	Test Method	Type 1	Type 2[d]	Type 3[d]	Type 4[d]
Material	Thickness	ASTM D 6525	0.25 in	0.25 in	0.25 in	0.25 in
Material	Tensile Strength[a, b]	ASTM D 6818	125 lb/ft	240 lb/ft	750 lb/ft	3000 lb/ft
Material	UV Resistance	ASTM D 4355	80% @ 500 hrs	80% @ 1000 hrs	80% @ 1000 hrs	90% @ 3000 hrs
Performance	Maximum Shear Stress (Channel Applications)[c]	ASTM D 6460	7-9 lb/ft^2	10-11 lb/ft^2	12-14 lb/ft^2	15-16 lb/ft^2
~~Performance~~	~~Maximum Slope Gradient (Slope Applications)~~	~~N/A~~	~~1:1 (H:V) or flatter~~	~~1:1 (H:V) or flatter~~	~~1:1 (H:V) or greater~~	~~1:1 (H:V) or greater~~

a. Minimum Average Roll Values, machine direction only.
b. Tensile Strength of structural components retained after exposure.
c. Maximum shear stress that fully-vegetated TRM can sustain without physical damage or excess erosion (1/2 inch soil loss) during a 30 minute flow event in large scale testing. Acceptable large scale testing protocol includes ASTM D 6460 or independent testing conducted by the Texas Transportation Institute, Colorado State University, Utah State University, or other approved testing facility. Bench scale testing is not acceptable.
d. Type 2, 3, and 4 TRM may include additional degradable components as long as material and performance requirements are met by the 100% synthetic components.

Comments:

4169.07, B. Hydraulic Mulches

Replace the Articles:

1. Wood Cellulose Fiber.

a. Natural or cooked cellulose fiber processed from whole wood chips, or a combination of (50%-50%) cellulose fiber produced from whole wood chips and recycled fiber from sawdust, recycled paper, chipboard, or corrugated cardboard.

b. Contains a colloidal polysaccharide tackifier adhered to the fiber to prevent separation during shipment and avoid chemical coagglomeration during mixing.

c. Forms a homogeneous slurry of fibers, tackifier, and water that can be applied with standard hydraulic mulching equipment and be dyed ~~green~~ to facilitate visual metering during application.

2. Bonded Fiber Matrix.

a. Manufactured to be applied with standard hydraulic mulching equipment and dyed ~~green~~ to facilitate visual metering during application.

b. All components pre-packaged by manufacturer to ensure material performance and compliance. Field mixing of additives or any components will not be allowed.

c. Meet the following requirements:

1) Contain non-toxic tackifiers that upon drying become insoluble and non-dispersible to eliminate direct raindrop impact on soil according to ASTM D 7101 and EPA 2021.0-1.

2) Contain no germination or growth inhibiting factors and do not form a water-resistant crust that can inhibit plant growth.

3) Hydraulic mulch that is completely photo-degradable or biodegradable.

~~**4) Contain a minimum 90% organic material according to ASTM D 2974.**~~

~~4~~5) Have a rainfall event (R-factor) of 140 < R according to ASTM D 6459.

~~5~~6) Have a cover factor of C ≤ 0.03 according to ASTM D 6459.

~~6~~7) Vegetation Establishment of 400% minimum according to ASTM D 7322.

~~7~~8) Water Holding Capacity 600% minimum according to ASTM D 7367.

3. Mechanically-Bonded Fiber Matrix.

a. Manufactured to be applied with standard hydraulic mulching equipment and dyed ~~green~~ to facilitate visual metering during application.

b. All components pre-packaged by manufacturer to ensure material performance and compliance. Field mixing of additives or any components will not be allowed.

c. Meet the following requirements:

1) Contain non-toxic tackifiers that upon drying become insoluble and non-dispersible to eliminate direct raindrop impact on soil according to ASTM D 7101 and EPA 2021.0-1.

2) Contain no germination or growth inhibiting factors and do not form a water-resistant crust that can inhibit plant growth.

3) Hydraulic mulch that is completely photo-degradable or biodegradable.

~~**4) Contain a minimum 90% organic material according to ASTM D 2974.**~~

~~4~~5) Have a rainfall event (R-factor) of ~~175~~ 162 < R according to ASTM D 6459.

~~5~~6) Have a cover factor of C ≤ 0.01 according to ASTM D 6459.

~~6~~7) Vegetation Establishment of 500% minimum according to ASTM D 7322.

~~7~~8) Water Holding Capacity of 700% minimum according to ASTM D 7367.

4169.07, E. Turf Reinforcement Mat (TRM).

Replace Table 4169.10-1:

Table 4169.10-1: Minimum Material Property and Performance Requirements

Property	Property	Test Method	Type 1	Type 2[d]	Type 3[d]	Type 4[d]
Material	Thickness	ASTM D 6525	0.25 in	0.25 in	0.25 in	0.25 in
Material	Tensile Strength[a, b]	ASTM D 6818	125 lb/ft	240 lb/ft	750 lb/ft	3000 lb/ft
Material	UV Resistance	ASTM D 4355	80% @ 500 hrs	80% @ 1000 hrs	80% @ 1000 hrs	90% @ 3000 hrs
Performance	Maximum Shear Stress (Channel Applications)[c]	ASTM D 6460	7-9 lb/ft^2	10-11 lb/ft^2	12-14 lb/ft^2	15-16 lb/ft^2
~~Performance~~	~~Maximum Slope Gradient (Slope Applications)~~	~~N/A~~	~~1:1 (H:V) or flatter~~	~~1:1 (H:V) or flatter~~	~~1:1 (H:V) or greater~~	~~1:1 (H:V) or greater~~

a. Minimum Average Roll Values, machine direction only.
b. Tensile Strength of structural components retained after exposure.
c. Maximum shear stress that fully-vegetated TRM can sustain without physical damage or excess erosion (1/2 inch soil loss) during a 30 minute flow event in large scale testing. Acceptable large scale testing protocol includes ASTM D 6460 or independent testing conducted by the Texas Transportation Institute, Colorado State University, Utah State University, or other approved testing facility. Bench scale testing is not acceptable.

d. Type 2, 3, and 4 TRM may include additional degradable components as long as material and performance requirements are met by the 100% synthetic components.

Reason for Revision:

Hydraulic mulch revisions:

1) Remove requirement for percent organic material testing since this test is not typically performed by manufacturers and requirements include vegetation establishment performance test and that material be photo-degradable or biodegradable.
2) Adjust R-factor for MBFM due to changes by NTPEP with the simulated storm intensity (rainfall factor) in their testing.
3) Remove specific reference to green dye because blue dyes are also used.

TRM revisions:

1) Remove slope application gradients from table because this is design guidance and does not refer to a specific test requirement.
2) Allow TRM Type 2, 3 and 4 to include degradable components, but only if material and performance requirements are met by required synthetic components.

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 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Curtis Carter	**Office:** Construction & Materials	**Item 13**
Submittal Date: April 2022	**Proposed Effective Date:** October 18, 2022	
Article No.: **Title:**	**Other:** DS-15073, High Performance Concrete for Structures	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See attached Draft Developmental Specifications for High Performance Concrete for Structures.

Comments: It was decided to make this DS revision effective with the October 18, 2022 letting to coincide with the changes to Section 2403 that are related. Substitution of IL or IT cement will be allowed in the interim by mutual benefit change order.

Specification Section Recommended Text: See attached Draft Developmental Specifications for High Performance Concrete for Structures.

Comments:

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

Reason for Revision:

1). Most cement manufacturers are converting to Type IL and IT cements and Type I and II cements will no longer be available. This change is needed to update the developmental specifications to the newer cement types. 2). Removing concrete placement requirements specific to pumping and protection of coatings because these are currently proposed for inclusion in Standard Specification 2403 (these requirements should apply to all structural concrete, not just high performance concrete). 3). Clarifying and accommodating more curing options for exposed surfaces of high performance concrete substructure.

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:

DS-15099
(Replaces DS-15073)

DEVELOPMENTAL SPECIFICATIONS
FOR
HIGH PERFORMANCE CONCRETE FOR STRUCTURES

Effective Date
October 18, 2022

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

15099.01 DESCRIPTION.

A. Develop and provide high performance concrete (HPC) for bridge substructures and decks when called for in the contract documents. HPC is defined as a concrete mix providing the following:
- Desired workability.
- Maximum 28 day permeability of 2000 coulombs for the substructure (or greater than 20 K ohm-cm surface resistivity by Wenner probe) and 1500 coulombs for the deck (or greater than 30 K ohm-cm surface resistivity by Wenner probe), as a target.

B. Apply Sections 2403, 2412, and Division 41 of the Standard Specifications with the following modifications.

15099.02 MATERIALS.

Contractor may use other mixes than those described below provided they meet the requirements of this specification and are approved by the District Materials Engineer.

A. Substructure~~:~~.

1. Apply the following conditions for substructure HPC mixes:
- Coarse aggregate meeting Class 3i durability.
- Basic water to cementitious material (w/c) ratio of 0.42, with a maximum w/c ratio of 0.45.

2. HPC mix for substructure may be a HPC-S or CV-HPC-S. Apply the following conditions:
- **a.** Use one of the following cement combinations:
  - Type IS, IP or IT.
  - Type I, ~~or~~ II or IL with a minimum of 30% weight substitution with GGBFS.
  - ~~Type IP.~~
- **b.** Fly ash substitution not to exceed 20% by weight of the cement.
- **c.** Maximum total substitution of 50%
- **d.** A high range water reducer may be used with a maximum allowable slump of 8 inches and target air content of 7.5% ± 2.0%.

B. Deck.

1. Apply the following conditions for deck HPC mixes:
- **a.** Use coarse aggregate meeting Class 3i durability.
- **b.** Basic w/c ratio of 0.40, with a maximum w/c ratio of 0.42.

2. The HPC mix for the deck may be a HPC-D or a CV-HPC-D. Apply the following conditions:
- **a.** Use one of the following cement combinations:
  - Type IS, IP or IT.
  - Type I, ~~or~~ II or IL with a minimum of 30% weight substitution with GGBFS.
  - ~~Type IP.~~
- **b.** Fly ash substitution not to exceed 20% by weight of the cement.
- **c.** Maximum total substitution of 50%.
- **d.** Combined aggregate gradation optimized in Zone II according to Materials I.M. 532.

C. Contractor Designed HPC.
Other mixes meeting the above requirements may be approved by the District Materials Engineer.

15099.03 CONSTRUCTION.

A. Production Concrete.

1. Notify the Engineer at least 48 hours prior to placement of production concrete. Use only approved HPC mixes for production concrete. If a mix other than mix described in Article DS-15099.02, A or B is to be used, ensure it has same materials, proportions, and properties (including slump, air content, and w/c ratio) as approved by the District Materials Engineer.

2. District Materials Engineer will obtain random verification strength samples on a minimum of one deck placement. Strength samples will be tested at District Materials Laboratory according to AASHTO T 22. A set of four cylinders will be cast, cured, and handled according to Materials I.M. 315. Three cylinders will be tested for strength at 28 days. One cylinder will be tested for permeability on a random basis by Central Materials Laboratory or Wenner probe resistivity testing by the District Materials Engineer. Permeability testing will not be evaluated on footings or drilled shafts.

B. Placing Concrete.

~~**1.** If concrete is to be placed by pumping, use a pump line with a section reduction to reduce exit velocity of pumped concrete and minimize damage to epoxy coated reinforcement. Submit measures for reducing exit velocity of concrete to Engineer for approval prior to placement by pumping.~~

~~**2.** Protect epoxy coated reinforcement from damage caused by placing and handling equipment.~~

~~**3.**~~ For the deck, placing of concrete floors shall not begin if the theoretical rate of evaporation exceeds 0.1 pounds per square foot per hour. Monitor theoretical evaporation rate at a maximum interval of every three hours during placement at a location as near the deck as possible. If the rate exceeds 0.15 pounds per square foot per hour cease placement at next location acceptable to Engineer.

C. Curing.

1. Substructure.
- **a.** Leave forms in place for 96 hours of curing.
- **b.** Apply curing protection to exposed surfaces of concrete in accordance with Article 2403.03, E, 4, b. Leave ~~wet burlap covering~~ curing protection in place for 96 hours.

2. **Deck.**
   - **a.** Leave forms in place for 168 hours of curing.
   - **b.** Apply water to the burlap covering for 168 hours of continuous wet sprinkling system curing.
   - **c.** Do not place curing compound on floor.
   - **d.** Use burlap that is prewetted by fully saturating, stockpiling to drain, and covering with plastic to maintain wetness prior to placement. Place two layers of prewetted burlap on floor immediately after artificial turf drag or broom finish with a maximum time limit of 10 minutes after final finishing. Apply water to burlap covering for entire curing period by means of a continuous wet sprinkling system that is effective in keeping burlap wet during moist curing period.
   - **e.** Use evaporation retardant only in situations where equipment and/or labor delays, or environmental conditions, prevent adequate protection of concrete until prewetted burlap is in place. Have an evaporation retardant, including Confilm, Conspec Acquafilm, Evapre, or Sure Film, readily available during placement for application as directed by the Engineer. Do not work evaporation retardant into concrete surface or use as a finishing aid.

D. Cold Weather Protection.

1. Monitor surface temperature of concrete continuously during curing period using electronic recording type thermometers capable of recording a minimum of one reading per hour. Furnish results to Engineer in electronic format as required.

2. If supplemental housing and heating is used, locate temperature monitors in the concrete at the furthest and closest point from heat source. Verify maximum temperature at monitor point closest to heat source does not exceed 150ºF.

3. After required curing period, gradually reduce temperature of air surrounding concrete to outside air temperature according to Article 2403.03, I, of the Standard Specifications.
   - **a. Substructure.**
     Ensure concrete and its surface temperature are maintained at a temperature of no less than 50ºF for the first 120 hours after placing. Curing time will not be counted if concrete temperature falls below 50ºF.
   - **b. Deck.**
     - **1)** Covering with plastic will not be allowed as a substitute for continuous wet sprinkling system curing.
     - **2)** Ensure concrete and its surface temperature are maintained at a temperature of no less than 50ºF for 168 hours of continuous wet sprinkling system curing. Curing time will not be counted if the concrete temperature falls below 50ºF.

15099.04 METHOD OF MEASUREMENT.
Measurement for High Performance Concrete will be the cubic yards shown in the contract documents.

15099.05 BASIS OF PAYMENT.
Payment for High Performance Concrete will be at the contract unit price per cubic yard. Payment includes cost for testing production concrete.

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Troy Jerman / Nikita Rainey	**Office:** Civil Rights Bureau	**Item 14**
Submittal Date: 05/02/2022	**Proposed Effective Date:** October 2022	
Article No.: 1102.17 **Title:** Disadvantaged Business Enterprises **Article No.:** 1102.18 **Title:** Specific Affirmative Action Responsibilities on Non-Federal Aid Projects (Targeted Small Business Project Participation) **Article No.:** 1102.19 **Title:** Equal Employment Opportunity and Affirmative Action Requirements **Article No.:** 1109.05, D, 4 **Title:** Complaints (Partial Payments)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 5/12/2022	**Effective Date:** 10/18/2022

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Specifications Section at some point will review the Standard Specifications for other instances where references should be changed from “Office of” to “Bureau”.

Specification Section Recommended Text:

1102.17, C, 4.

Replace the Article:

Advise the ~~Office of Employee Services,~~ Civil Rights ~~Team (OES-Civil Rights),~~ Bureau of any known DBE not included in the current Directory of Certified DBEs.

1102.17, D, 2, g, 2.

Replace the first sentence:

~~OES-~~Civil Rights Bureau will maintain a truck roster for each DBE that performs trucking.

1102.17, E, 2, c.

Replace the first sentence:

In cases where the required information is included on the form, but where discrepancies occur, the ~~Office of~~ Contracts and Specifications Bureau will make the following calculations to determine the Contractor's DBE commitment.

1102.17, F, 1.

Replace the fifth sentence:

Any request for substitution of a DBE subcontractor shall be made to the Engineer and approved by ~~OES~~ Civil Rights Bureau.

1102.17, F, 2.

Replace the third sentence:

Before offering the assistance, the Contractor shall notify the Engineer and obtain the written approval of ~~OES~~ Civil Rights Bureau.

1102.17, I, 1.

Replace the third sentence of the second paragraph:

The appeal hearing will be held with a three-person committee consisting of representatives from the ~~Offices of~~ Contracts and Specifications, Construction and Materials, and ~~Employee Services~~ Civil Right Bureaus.

1102.17, I, 2.

Replace the third sentence of the second paragraph:

The appeal hearing will be held with a three-person committee consisting of representatives from the ~~Offices of~~ Contracts and Specifications, Construction and Materials, and ~~Employee Services~~ Civil Right Bureaus.

1102.18, A, 2.

Replace the Article:

TSB Directory information is available from:
~~Office of Employee Services,~~ Civil Rights ~~Team~~ Bureau
Iowa Department of Transportation
800 Lincoln Way
Ames, IA 50010
Telephone 515.239.1422

1102.19, D, 7, a, 2.

Replace the Article:

The Contractor shall provide for the maintenance of records and furnish a report once per construction year documenting their performance under this training specification. The report shall be submitted to the ~~Office of Employee Services~~ Civil Rights Bureau with the Annual Company Wide Report of Total Employment on All Federal and Non-Federal Projects Let By the Iowa Department of Transportation. This report shall include but is not limited to, names of trainees, job classifications, gender, ethnic background, future status with the company and hours of training received. The ~~Office of Employee Services~~ Civil Rights Bureau may verify this information with the trainee.

1102.19, E, 5, a.

Replace the Article:

The Contractor shall place the following notices and posters on a bulletin board at the project site in areas readily accessible to employees and potential employees.

1) Notice provided by the Iowa DOT listing the names, addresses, and phone numbers of the Contractor and all approved subcontractors.

2) ~~Publication OFCCP 1420~~ EEOC-P/E-1, stating "Equal Employment Opportunity is THE LAW".

3) Mandatory Supplement to EEOC P/E-1, “EEO is the Law” Mandatory Poster Supplement.

~~**3**~~ **4)** Form FHWA-1022, regarding any false statement, false representation, false report, or false claim made in connection with any Federal or Federal-aid highway or related project.

~~**4**~~ **5)** Form WH-1321, Employee Rights Under the Davis-Bacon Act, required only if Davis/Bacon predetermined wage rates apply to the project.

~~**5**~~ **6)** All wage rate decisions required by the contract. The wage rate decision shall be arranged on a bulletin board so that all wage rate and classification information is visible.

~~**6**~~ **7)** Form 70-8025 Job Safety and Health.

~~**7**~~ **8)** WH-1420 Your Rights Under the FMLA Act of 1993.

~~**8**~~ **9)** WH-1462 Notice: Employee Polygraph Protection Act.

10) Pay Transparency Nondiscrimination Provision.

11) USERRA Poster, “Your Rights Under USERRA”.

~~**9**~~ **12)** WH-1321 SPA (Spanish version of Form WH-1321) stating “DERECHOS DEL EMPLEADO BAJO LA LEY DAVIS-BACON” recommended only if Davis/Bacon predetermined wage rates apply to the project.*

~~**10**~~ **13)** Form EEOC-P/S-1 (Spanish version of form EEOC-P/E-1), stating "La Igualdad de Oportunidades De Empleo Es LA LEY".*

* These forms are not required, but it is strongly recommended that these two Spanish notices be posted whenever the company employs and/or anticipates receiving applications from those who speak Spanish.

1102.19, F, 5, Investigation of Each Complaint, with Corrective Action if Necessary.

Replace the second paragraph:

If the complaint cannot be resolved at the contractor level, or when a contractor has a complaint against another contractor, the complainant or the Contractor can contact the Department’s ~~Office of Employee Services~~ Civil Rights ~~(OES Civil Rights) Team~~ Bureau.

Replace the third sentence of the third paragraph:

An individual, group of individuals, or contractor believing they have been subjected to discrimination may file a written complaint with the Department’s ~~OES~~ Civil Rights ~~Team~~ Bureau.

1109.05, D, 4.

Replace the first sentence:

If the initial attempt to resolve the issue does not result in satisfactory payment for completed work, the Contractor or subcontractor shall submit a written complaint to ~~OES~~ Civil Rights Bureau on Form 650197.

Comments:

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

1102.17 Disadvantaged Business Enterprises

C. Contractor's Affirmative Action Responsibilities.

The Contractor shall designate a responsible person or company official to serve as its DBE Liaison Officer. The DBE Liaison Officer shall:

4. Advise the ~~Office of Employee ServicesTeam (OES~~ Civil Rights Bureau, of any known DBE not included in the current Directory of Certified DBEs.

D. Counting DBE Participation Toward Meeting Goals.

2. The bidder may count the following DBE expenditures towards the DBE commitment:

g. Transportation or Hauling of Materials - If a DBE trucking company picks up a product from a manufacturer or regular dealer and delivers the product to the Contractor, the commercially useful function performed is not that of a supplier, but that of a transporter of goods. Unless the DBE company is itself the manufacturer or a regular dealer in the product, credit only will be allowed for the cost of the transportation service. For transportation of materials by truck to be used toward meeting the DBE commitment, the following shall apply:

1) The DBE shall be responsible for management and supervision of the entire trucking operation that is to count toward the commitment. The DBE shall maintain strict records to verify the amount of hauling done by each trucker for the duration of the contract. These records shall be available to the Engineer, upon request.

2) The ~~OES~~ Civil Rights Bureau will maintain a truck roster for each DBE that performs trucking. Each truck on the truck roster shall be either owned by the DBE or controlled by the DBE under a lease. Trucks that are leased shall be from a firm that is in the commercial leasing business; the owner of the commercial leasing business cannot be a heavy-highway contractor. The DBE firm shall make available to the Department the lease agreement if requested.

E. Contract Award Procedures.

2. Proposals with Established Project DBE Goals.

c. In cases where the required information is included on the form, but where discrepancies occur, the ~~Office of~~ Contracts and Specifications Bureau will make the following calculations to determine the Contractor's DBE commitment. The DBE dollar commitment will be the sum of the amounts listed in the "Amount to DBE" column, adjusted for suppliers as provided in the specifications. The percent of DBE participation will be the DBE dollar commitment as determined above, divided by the total contract amount as defined by Article 1102.09. Each bidder's DBE participation commitment will be calculated to the nearest 0.1%. If two or more projects are combined on one proposal, the DBE commitment will be calculated using the sum of the DBE dollar commitments and the sum of the project totals.

F. Construction Period Requirements.

1. The Contractor shall use those DBEs for the amounts listed on Form 102115 as submitted with their bid. The Contractor shall give the DBE 7 calendar days to respond to any notice from the Contractor. The Contractor shall inform the Engineer of the reasons why a DBE will be unable to complete the work for which they were committed. The Contractor shall document their efforts to have another DBE perform the item or to have a DBE perform other items to replace the original DBE commitment amounts. Any request for substitution of a DBE subcontractor shall be made to the Engineer and approved by the ~~OES~~ Civil Rights Bureau.

2. The Contractor is allowed to offer construction assistance to DBE subcontractors, but only in areas where DBEs can benefit from their expertise or in situations arising from unforeseen emergencies or natural disasters. The assistance shall be short-term and involve only equipment, or workers that function as trainers. Before offering the assistance, the Contractor shall notify the Engineer and obtain the written approval of the ~~OES~~ Civil Rights Bureau.

I. Sanctions for Failing to Comply with the Intent of the DBE Regulations.

1. DBE Firms.

The Department will provide written notice to the DBE firm, informing them of any proposed sanction. The DBE firm will have 14 calendar days, from the receipt of the certified notification, to make a written request for a hearing. The appeal hearing will be held with a three-person committee consisting of representatives from the ~~Offices of~~ Contracts and Specifications, Construction and Materials, and ~~Employee Services~~ Civil Rights Bureaus. If the Department does not receive a written request for a hearing, or if the DBE firm does not provide sufficient evidence at the hearing to refute the violations, the Department may suspend the DBE firm from the ability to be counted towards the commitment on projects with DBE goals. The duration of the suspension will be determined based on the severity of the violation and the number of prior suspensions of the DBE firm.

2. Prime Contractors.
The Department will provide written notice to the Contractor, informing them of any proposed sanction for failure to comply in good faith with the intent of the DBE regulations. The Contractor will have 14 calendar days, from the receipt of the certified notification, to make a written request for a hearing. The appeal hearing will be held with a three-person committee consisting of representatives from the ~~Offices of~~ Contracts and Specifications, Construction and Materials, and ~~Employee Services~~ Civil Rights Bureaus. If the Department does not receive a written request for a hearing, or if the contractor does not provide sufficient evidence at the hearing to refute the violations, the Department may suspend the Contractor from bidding on projects that have DBE goals. The duration of the suspension will be determined based on the severity of the violation and the number of prior suspensions of the Contractor for DBE sanctions. The sanctions may be extended beyond contracts with DBE goals if the Contractor's treatment of DBE firms has extended beyond contracts assigned DBE goals.

Make the following office change to Article 1102.18 Section A2

2. TSB Directory information is available from:
~~Office of Employee Services~~, Civil Rights ~~Team~~ Bureau
Iowa Department of Transportation
800 Lincoln Way

Make the following office change to Article 1102.19 Section D7(a)(2)

2) The Contractor shall provide for the maintenance of records and furnish a report once per construction year documenting their performance under this training specification. The report shall be submitted to the Office of Employee Services with the Annual Company Wide Report of Total Employment on All Federal and Non-Federal Projects Let By the Iowa Department of Transportation. This report shall include but is not limited to, names of trainees, job classifications, gender, ethnic background, future status with the company and hours of training received. The ~~Office of Employee Services~~ Civil Rights Bureau may verify this information with the trainee.

Make the following changes and additions to Article 1102.19 Section E5(a)

5. Placement of EEO/AA Notices and Posters.

a. The Contractor shall place the following notices and posters on a bulletin board at the project site in areas readily accessible to employees and potential employees.

1) Notice provided by the Iowa DOT listing the names, addresses, and phone numbers of the Contractor and all approved subcontractors.

2) EEOC-P/E-1 ~~Publication OFCCP 1420~~, stating "Equal Employment Opportunity is THE LAW".

3) Mandatory Supplement to EEOC P/E-1 "EEO is the Law" Mandatory Poster Supplement

~~3~~)4) Form FHWA-1022, regarding any false statement, false representation, false report, or false claim made in connection with any Federal or Federal-aid highway or related project.

4)5) Form WH-1321, Employee Rights Under the Davis-Bacon Act, required only if Davis/Bacon predetermined wage rates apply to the project.

~~5~~)6) All wage rate decisions required by the contract. The wage rate decision shall be arranged on a bulletin board so that all wage rate and classification information is visible.

~~6~~)7) Form 70-8025 Job Safety and Health.

~~7~~)8) WH-1420 Your Rights Under the FMLA Act of 1993.

~~8~~)9) WH-1462 Notice: Employee Polygraph Protection Act.

~~9~~)10) WH-1321 SPA (Spanish version of Form WH-1321) stating "DERECHOS DEL EMPLEADO BAJO LA LEY DAVIS-BACON" recommended only if Davis/Bacon predetermined wage rates apply to the project.*

~~10~~)11) Form EEOC-P/S-1 (Spanish version of form EEOC-P/E-1), stating "La Igualdad de Oportunidades De Empleo Es LA LEY".*

* These forms are not required, but it is strongly recommended that these two Spanish notices be posted whenever the company employs and/or anticipates receiving applications from those who speak Spanish.

12) Pay Transparency Nondiscrimination Provision 13) USERRA Poster "Your Rights Under USERRA		
Reason for Revision: To reflect the organizational name changes from Offices to Bureaus. To update out of date EEO/AA Posters and to add the newly required posters per federal regulations.		
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:		