MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

November 9, 2017

Members Present:	Darwin Bishop	District 3 - Construction
	Jeff Devries	District 1 - Materials
	Eric Johnsen, Secretary	Specifications Section
	Gary Novey	Office of Bridges & Structures
	Tom Reis, Chair	Specifications Section
	Brian Smith	Office of Design
Members Not Present:	Mark Brandl	District 6 - Davenport RCE
	Donna Buchwald	Office of Local Systems
	Mark Dunn	Office of Contracts
	Wes Musgrove	Office of Construction & Materials
	Charlie Purcell	Project Delivery Bureau
	Willy Sorensen	Office of Traffic & Safety
Advisory Members Present:	Paul Wiegand	SUDAS
	Andy Wilson	FHWA
Others Present:	Ken Brink	Office of Location & Environment
	Curtis Carter	Office of Construction & Materials
	Bob Dawson	Office of Construction & Materials
	Kyle Frame	Office of Construction & Materials
	Tom Jacobson	Office of Construction & Materials
	Melissa Serio	Office of Construction & Materials

The Specification Committee met on Thursday, November 9, 2017, at 9:00 a.m. in the NW Wing, 1st Floor Conference Room. Tom Reis, Specifications Engineer, opened the meeting. The items were discussed in accordance with the revised agenda dated November 6, 2017:

The minutes are as follows:

1. Article 1105.04, Conformity with and Coordination of the Contract Documents.

The Specifications Section requested to clarify when discrepancies occur and where the hierarchy is with referenced standards.

2. Article 1105.11, D, Restrictions on Moving and Use of Heavy Equipment.

The Office of Construction and Materials requested to clarify legal loads and submittal requirements when exceeding legal loads.

3. Article 1106.07, B, Contractor Furnished Borrow and Waste Areas.

The Office of Location and Environment requested to add regulated materials to the list of items for review for Contractor furnished borrow or waste areas.

4. **Article 1107.06, B, Buy America.**

The Specifications Section requested to remove Buy America from non-Federal aid Local Systems projects.

5. **Section 2101, Clearing and Grubbing.**

The Office of Construction and Materials requested to add tree felling specifications.

6. **Article 2102.03, F, 3, a, Contractor's Plan for Contractor Furnished Borrow (Roadway and Borrow Excavation).**

The Office of Construction and Materials requested to require the same type of select treatment across a set of lanes and require a stable cap for sand subgrade treatments.

7. **Articles 2301.04 & 2301.05, Portland Cement Concrete Pavement.**

The Office of Construction and Materials requested to add probing method of thickness determination for small pavement bid items.

8. **Article 2303.05, A, 3, c., Film Thickness (Basis of Payment - Flexible Pavement).**

The Office of Construction and Materials requested to correct and error in conversion from the Price Adjustment Schedule in the Construction Manual to the Pay Factor in the Standard Specifications.

9. **Article 2318.03, Construction (Cold In-place Recycled Asphalt Pavement).**

The Office of Construction and Materials requested to clarify the temperature requirement as it relates to the start of daily cold in-place recycling operation.

10. **Article 2405.03, H, Anchor Bolts for Bridge Bearings and Foundations.**

The Office of Construction and Materials requested to specify that all anchor bolt connections must be fully complete prior to loading.

11. **Section 2408, Steel Structures.**

The Office of Construction & Materials requested to clarify many structural steel issues.

12. **Article 2511.03, B, 1, General (Construction of Sidewalks and Recreational Trails).**
Article 2526.05, Basis of Payment (Construction Survey)

The Office of Design requested to clarify when tolerances are within those mentioned in the specifications, slopes are to be verified using the form work prior to placing concrete.

13. **Section 2601, Erosion Control.**
Article 4169.13, Soil Stabilization Granules.

The Office of Design requests to add specifications for soil stabilization granules.

14. **Article 4127.02, Coarse Aggregate (Aggregate for Flexible Paving Mixtures).**

The Office of Construction and Materials requested to revise and update existing specification requirements for current mix designs following recent review, testing, and analysis.

15. **Article 4153.06, B, High Strength Fasteners.**

The Office of Construction and Materials requested to update the list of high strength fasteners to include additional options and identify galvanized and weathering designations.

16. **DS-15051, PCC Pavement Non-Destructive Thickness Determination.**

The Office of Construction and Materials requested to update Developmental Specifications for PCC Pavement Non-Destructive Thickness Determination.

17. **SS-15006, Supplemental Specifications for Hot Mix Asphalt Interlayer.**

The Office of Construction and Materials requested to update Supplemental Specifications for Hot Mix Asphalt Interlayer.

18. **DS-15XXX, Penetrating Engineered Fog Seal.**

The District 1 Materials Office requested approval of Developmental Specifications for Penetrating Engineered Fog Seal.

19. **Article 1113.01, General (Electronic Document Storage).**

The Specifications Section requested to require the use of Doc Express on most local systems projects.

20. **Article 2435.03, A, General Requirements for Installation of Manholes and Intakes (Sanitary and Storm Sewer Structures).**

Section 2552, Trench Excavation and Backfill.

Section 4118, Pipe Bedding Material.

Section 4119, Pipe Bedding and Backfill Material for Interstate and Primary Roadways

The Office of Construction and Materials requested to clarify bedding and backfill requirements for non-primary roads on Interstate and Primary projects.

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis	**Office:** Specifications Section	**Item 1**
Submittal Date: 2017.10.30	**Proposed Effective Date:** April 2018	
Article No.: 1105.04 **Title:** Conformity with and Coordination of the Contract Documents	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text:

1105.04, Conformity With and Coordination of the Contract Documents.

Add the Article and **Renumber** subsequent Articles:

D. Should there be a discrepancy between a contract document and a document (e.g.: ASTM, AASHTO, MUTCD, etc.) referenced by a contract document, the referenced document shall carry the same hierarchy as the contract document from which it is referenced. Should there be a discrepancy between the contract documents and a referenced document, the contract documents govern unless obviously incorrect.

~~**D**~~ **E.**

~~**E**~~ **F.**

~~**F**~~ **G.**

~~**G**~~ **H.**

Comments: The Office of Bridges and Structures asked if BidX Q and A should be included in the hierarchy. This has been discussed, but not proposed. Many committee members felt that any BidX question that needs more than clarification of existing design or specifications, should be followed up by an addendum.

Specification Section Recommended Text:

1105.04 CONFORMITY WITH AND COORDINATION OF THE CONTRACT DOCUMENTS.

A. In case of a discrepancy between contents of the contract documents, the following items listed by descending order shall prevail:

1. Addendum

2. Proposal Form

3. Special Provision

4. Plans

5. Standard Bridge Plans, Standard Culvert Plans, and Standard Road Plans

6. Developmental Specifications

7. Supplemental Specifications

8. General Supplemental Specifications

9. Standard Specifications

10. Materials I.M.

11. Notice to Bidders

B. Electronic support files, if available, will be provided prior to letting and are for information only. Should there be a discrepancy between an electronic support file and a contract document, the contract document shall govern.

C. Should there be a discrepancy between figures and drawings on any of the contract documents, the figures shall govern unless they are obviously incorrect.

D. Should there be a discrepancy between a contract document and a document (e.g.: ASTM, AASHTO, MUTCD, etc.) referenced by a contract document, the referenced document shall carry the same hierarchy as the contract document from which it is referenced. Should there be a discrepancy between the contract documents and a referenced document, the contract documents govern unless obviously incorrect.

~~**D.**~~ **E.** The Contractor shall not take advantage of any apparent error, omission, or discrepancy in the contract documents. The Engineer will be permitted to make such correction in interpretation as may be deemed necessary for the fulfillment of the intent of the contract documents subject to compensation as provided in Articles 1109.03, 1109.04 and 1109.14. Written notice of changes in the contract documents will be given to the Contractor by the Engineer.

~~**E.**~~ **F.** All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown in the contract documents.

~~**F.**~~ **G.** If the Engineer finds the material or the finished product in which the material is used is not within reasonably close conformity with the contract documents but that reasonably acceptable work has been produced, the Engineer will then make a determination if the work shall be accepted and remain in place. In this event, the Engineer will document the basis of acceptance by contract modification which will provide for an appropriate adjustment in the contract price for such work or materials as is necessary to conform to the determination based on engineering judgment.

~~**G.**~~ **H.** If the Engineer finds the material or the finished product in which the material is used or the work performed is not in reasonably close conformity with the contract documents and has resulted in an inferior or unsatisfactory product, the work or material shall be considered unacceptable work and shall be removed and replaced or otherwise corrected by and at the expense of the Contractor.

Comments:

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

Reason for Revision:

To clarify when discrepancies occur and where the hierarchy is with referenced standards.

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

Comments:

County or City Comments:

Industry Comments:

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IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Curtis Carter / Wes Musgrove	**Office:** Construction & Materials	**Item 2**
Submittal Date: 10/23/17	**Proposed Effective Date:** April, 2018	
Article No.: 1105.11.D **Title:** Restrictions on Moving and Use of Heavy Equipment	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text:
1105.11, D.

Replace the Article:

For structures, the following equipment and material loads shall apply:

1. Only ~~legal load~~ vehicles and equipment with legal load axle configuration will be permitted on structures unless specifically allowed by the contract documents or approved by the Engineer.

2. ~~Legal load v~~Vehicles and equipment will be subject to weight restrictions according to the posted limits.

3. All loads in spans where critical or damaged members, as indicated in the contract documents or identified by the Engineer, are being repaired or replaced shall be subject to the approval of the Engineer.

4. Material loads stored on the structure shall be limited to a maximum weight of 20 tons. Distribution of load shall be governed by the following:
- **a.** If the material load is greater than 200 pounds per square foot and less than 500 pounds per square foot, the loaded area will be restricted to an area 5 feet by 10 feet (50 square feet) with a clear spacing of 15 feet between loaded areas.
- **b.** If the material load is less than or equal to 200 pounds per square foot, the loaded area is only restricted by the 20 ton maximum.

5. Construction vehicles and equipment not involved with the loading and unloading of stored material shall be restricted from operating within 10 feet of the area where the material is stored.

6. All vehicle, equipment, and material loads exceeding the limitations as stated above shall be ~~submitted to the Engineer for checking and review prior to subjecting the loads to the structure~~ subject to the Engineer's review and approval. The Contractor shall ~~include in their submittal~~ submit all details, calculations, and assumptions necessary to determine that the structure is capable of supporting the proposed loading. The Engineer may waive submittal of calculations ~~shall be~~ certified by a Professional Engineer licensed to practice engineering in the State of Iowa.

The above submittal requirements shall also apply to cranes or other construction equipment~~s~~ when:
- **a.** Other components are added resulting in overall weight greater than legally allowed or granted by special permit.
- **b.** The operational weight including construction loads is greater than legally allowed or granted by special permit.
- **c.** Load distribution is altered during operation due to the use of outriggers or other devices.

Comments: The Office of Design asked if instead of the Engineer maybe requiring submittal of

calculations signed by a PE, the Engineer may waive submittal of calculations signed by a PE. This was changed.

Specification Section Recommended Text:

1105.11, D.

Replace the Article:

For structures, the following equipment and material loads shall apply:

2. Only ~~legal load~~ vehicles and equipment with legal load axle configuration will be permitted on structures unless specifically allowed by the contract documents or approved by the Engineer.

2. ~~Legal load v~~Vehicles and equipment will be subject to weight restrictions according to the posted limits.

3. All loads in spans where critical or damaged members, as indicated in the contract documents or identified by the Engineer, are being repaired or replaced shall be subject to the approval of the Engineer.

4. Material loads stored on the structure shall be limited to a maximum weight of 20 tons. Distribution of load shall be governed by the following:
- **a.** If the material load is greater than 200 pounds per square foot and less than 500 pounds per square foot, the loaded area will be restricted to an area 5 feet by 10 feet (50 square feet) with a clear spacing of 15 feet between loaded areas.
- **b.** If the material load is less than or equal to 200 pounds per square foot, the loaded area is only restricted by the 20 ton maximum.

5. Construction vehicles and equipment not involved with the loading and unloading of stored material shall be restricted from operating within 10 feet of the area where the material is stored.

6. All vehicle, equipment, and material loads exceeding the limitations as stated above shall be ~~submitted to the Engineer for checking and review prior to subjecting the loads to the structure~~ subject to the Engineer's review and approval. The Contractor shall ~~include in their submittal~~ submit all details, calculations, and assumptions necessary to determine that the structure is capable of supporting the proposed loading. The Engineer may require calculations ~~shall be~~ certified by a Professional Engineer licensed to practice engineering in the State of Iowa.

The above submittal requirements shall also apply to cranes or other construction equipment~~s~~ when:
- **a.** Other components are added resulting in overall weight greater than legally allowed or granted by special permit.
- **b.** The operational weight including construction loads is greater than legally allowed or granted by special permit.
- **c.** Load distribution is altered during operation due to the use of outriggers or other devices.

Comments:

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

[1105.11,D – Modify Parts 1, 2 and 3 as shown. Renumber paragraph 2 of Part 5 as new Part 6, and modify as shown.]

D. For structures, the following equipment and material loads shall apply:

3. Only ~~legal load~~ vehicles and equipment with legal load axle configuration will be permitted on structures unless specifically allowed by the contract documents or approved by the Engineer.

2. ~~Legal load v~~Vehicles and equipment will be subject to weight restrictions according to the posted limits.

3. All loads in spans where critical or damaged members, as indicated in the contract documents or identified by the Engineer, are being repaired or replaced shall be subject to the approval of the Engineer.

4. Material loads stored on the structure shall be limited to a maximum weight of 20 tons. Distribution of load shall be governed by the following:
- **a.** If the material load is greater than 200 pounds per square foot and less than 500 pounds per square foot, the loaded area will be restricted to an area 5 feet by 10 feet (50 square feet) with a clear spacing of 15 feet between loaded areas.
- **b.** If the material load is less than or equal to 200 pounds per square foot, the loaded area is only restricted by the 20 ton maximum.

5. Construction vehicles and equipment not involved with the loading and unloading of stored material shall be restricted from operating within 10 feet of the area where the material is stored.

6. All vehicle, equipment, and material loads exceeding the limitations as stated above shall be ~~submitted to the Engineer for checking and review prior to subjecting the loads to the structure~~ subject to the Engineer's review and approval. The Contractor shall ~~include in their submittal~~ submit all details, calculations, and assumptions necessary to determine that the structure is capable of supporting the proposed loading. The Engineer may require calculations ~~shall be~~ certified by a Professional Engineer licensed to practice engineering in the State of Iowa.

The above submittal requirements shall also apply to cranes or other construction equipments when:
- **a.** Other components are added resulting in overall weight greater than legally allowed or granted by special permit.
- **b.** The operational weight including construction loads is greater than legally allowed or granted by special permit.
- **c.** Load distribution is altered during operation due to the use of outriggers or other devices.

Reason for Revision:

Revision is proposed to:

- Clarify existing specification intent regarding when contractor submittals are required for operation of heavy equipment on structures.
- Loosen existing restrictions on when PE engineered submittal is required, and open up opportunity to waive submittal requirements for certain types of construction equipment by plan note.

PARTS D.1 & D.2:

The term "legal load" in the current specification has been inconsistently interpreted. Some have interpreted "legal loads" to be any vehicle that satisfies gross vehicle weight requirements, but actual intent is that the vehicle must satisfy gross vehicle weight, axle weight and axle configuration requirements. It is proposed to change the term "legal load" to "legal axle load configuration" to clarify.

Current specification intent is to require a contractor submittal in all cases when non-legal equipment is requested to be operated on a structure. New language is proposed to introduce the possibility of using notes elsewhere in the contract documents to exempt certain construction loads from requiring contractor submittal. Current initiatives are underway to waive submittal requirements, via note in the design plans, for some common construction scenarios.

PART D.3:

Current language requires submittal when "critical" members are being repaired or replaced, as defined by contract documents. New language is proposed to allow the Engineer to make a determination in the field regarding what members are considered critical or damaged, based on actual conditions at the time of proposed construction loading.

PARD D.5, Paragraph 2 (RENUMBERED AS PART D.6):

New language is proposed to clarify what documentation is required in the contractor submittals, and loosen the restrictions on when PE signature is required. Load requests for routine construction operations may no longer require PE signature, subject to the Engineer's discretion. This is consistent with current practice to waive PE signature on submittals for routine, low risk construction operations that involve non-legal load equipment.		
New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X
Comments:		
County or City Comments:		
Industry Comments:		

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IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tammy Nicholson	**Office:** Location and Environment	**Item 3**
Submittal Date: October 25, 2017	**Proposed Effective Date:** April 2018 GS	
Article No.: 1106.07, B **Title:** Contractor Furnished Borrow and Waste Areas	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: This doesn't change the requirements, just clarifies an existing requirement, since Contractors are sourcing their own borrows. No additional submittals are required of the Contractor, but they are responsible for knowing what is in their borrow. The Office of Location and Environment will make sure that the AGC is aware of the requirements.

Specification Section Recommended Text:

1106.07, B.

Add as the fifth bullet:

- Regulated Materials.

Comments:

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

1106.07 CONTRACTOR FURNISHED BORROW AND WASTE AREAS.

A. The Contractor shall obtain necessary environmental clearances and permits.

B. The Contractor shall ensure areas (including haul roads and staging areas) selected for waste or disposal of excess material (excavated material or broken concrete), or furnishing borrow have been reviewed for impacts to, but not limited to the following:

- Culturally sensitive sites or graves.
- Wetlands or "Waters of the U.S.", including streams or stream banks below the "ordinary high water mark", without an approved U.S. Army Corps of Engineers Section 404 Permit.
- Threatened or endangered species.
- Floodplains.
- Regulated Materials.
- Sovereign lands.
- Storm water discharge.

C. No payment for overhaul will be allowed for material hauled to or from these sites. Excess material shall not be placed within the right-of-way unless specifically stated on the plans.

Reason for Revision: The purpose of adding regulated materials to the list of reviews under item B. is to highlight the importance of ensuring the borrow material used by contractors is clean. Highlighting regulated materials within the list also communicates to our regulatory agencies that we are continuing clarify and enhance our review expectations to contractors.

Ensuring borrow sites are clear of regulated materials is required when placing fill in *Waters of the United States* under the Clean Water Act, as regulated by the EPA and USACE. The DOT's primary project reviewer the Rock Island USACE recently emphasized the need for assurance that borrow material is clean because the USACE documents such assurance within their 404 permit approval decision making process. In addition, the Rock Island USACE and Iowa DNR have both included special conditions in recently issued 404 permits specificity that contractors comply with DOT specifications to ensure "no unsuitable fill material" is placed into the authorized impact sites or otherwise impacted by the disposal of excess material.		
New Bid Item Required (X one)	**Yes**	**No** X
Bid Item Modification Required (X one)	**Yes**	**No** X
Bid Item Obsoletion Required (X one)	**Yes**	**No** X
Comments:		
County or City Comments:		
Industry Comments:		

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis / Eric Johnsen	**Office:** Specifications Section	**Item 4**
Submittal Date: 10/25/17	**Proposed Effective Date:** 4/17/2018	
Article No.: 1107.06, B **Title:** Buy America	**Other:**	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: This item is not ready to be incorporated as the Local Systems swap had not been fully approved yet and won't take effect until October 2018.

The language may need to be clarified to cover other state agencies and clarification when consultants inspect projects for the Department.

Concerns were expressed with how to deal with the approved products lists in MAPLE for SWAP projects.

Specification Section Recommended Text:

1107.06, B, Buy America.

Replace the Article:

~~Per Materials I.M. 107~~ On Federal aid contracts and contracts administered by the Department, all products of iron, steel, or a coating of steel which are incorporated into the work shall be of domestic origin and shall be melted and manufactured in the United States, according to Material I.M. 107. The Engineer may allow minimal amounts of these materials from foreign sources, provided the cost does not exceed 0.1% of the contract sum or $2,500, whichever is greater. This amount shall include transportation, assembly, and testing as delivered cost of foreign products to the project.

Comments:

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

Reason for Revision: To remove Buy America provisions from Local Systems projects which will no longer have federal aid.

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

Comments:

County or City Comments:

Industry Comments:

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 5**
Submittal Date: 10/20/17	**Proposed Effective Date:** April 2018 GS	
Section No.: 2101 **Title:** Clearing and Grubbing	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2101.01, A.

Replace the Article:

Clearing: Cut and remove trees 3 inches or more in diameter. Cutting shall be performed between October 1st and March 31st. Tree felling will only require trees to be cut 3 to 4 feet above ground line.

2101.03. Construction.

Add the Article:

G. Tree felling shall be performed in areas as shown in the contract documents. Grubbing and removal of felled trees or other material will be completed by others. Felled trees shall be moved to avoid interference with drainage ways and kept within the right-of-way, unless indicated otherwise in the contract documents.

2101.04, A, 2.

Replace the Article:

For each tree or stump counted as identified in Articles 2101.04, A, 1, a; b; and c, units will be determined as identified in Table 2101.04-1. Units for tree felling will be equivalent to clearing units.

2101.05. Basis of Payment.

Replace the first sentence:

Payment for Clearing and Grubbing, removal of trees, stumps, logs and down timber, hedge rows, brush, field fence, ~~and~~ growing corn, and tree felling will be made at the contract unit price per unit or per acre as indicated below.

Comments:

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

2101.01, A.

Replace the Article:

Clearing: Cut and remove trees 3 inches or more in diameter. Cutting shall be performed between October 1st and March 31st. Tree felling will only require trees to be cut 3 to 4 feet above ground line.

2101.03. CONSTRUCTION

Add the Article:

G. Tree felling shall be performed in areas as shown in the contract documents. Grubbing and removal of felled trees or other material will be completed by others. Felled trees shall be moved to avoid interference with drainage ways and kept within state right-of-way, unless indicated otherwise in the contract documents.

2101.04, A, 2.

Replace the Article:

For each tree or stump counted as identified in Articles 2101.04, A, 1, a; b; and c, units will be determined as identified in Table 2101.04-1. Units for tree felling will be equivalent to clearing units.

2101.05. BASIS OF PAYMENT.

Replace the first sentence:

Payment for Clearing and Grubbing, removal of trees, stumps, logs and down timber, hedge rows, brush, field fence, ~~and~~ growing corn and tree felling will be made at the contract unit price per unit or per acre as indicated below.

Reason for Revision: Add tree felling information.		
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: None		
County or City Comments:		
Industry Comments:		

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SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Melissa Serio	**Office:** Construction & Materials	**Item 6**
Submittal Date: 10/20/17	**Proposed Effective Date:** April 2018 GS	
Article No.: 2102.03, F, 3, a. **Title:** Contractor's Plan for Contractor Furnished Borrow (Roadway and Borrow Excavation)	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text:

2102.03, F, 3, a, 2.

Replace the Article:

Contractor may elect to substitute with special backfill material or modified subbase material as shown in the contract documents at no additional cost to the Contracting Authority. If special backfill material or modified subbase material is used in lieu of select soil material, provide for suitable surface and subsurface drainage of this material and provide suitable soils in lower portion of original subgrade treatment layer at no additional cost to the Contracting Authority. However, the same type of select treatment material shall be used across a set of lanes being constructed.

2102.03, F, 3, a, 4.

Add the Article:

To stabilize granular soil select treatments, incorporate 3 inches of special backfill into the top of the select treatment. Payment for this work is incidental to Contractor Furnished Select Treatment.

Comments: District 3 asked if when adding lanes to existing, the Contractor needs to match the select treatment. That was not the intent. Only lanes being currently constructed must match. The language was changed to convey this.

Specification Section Recommended Text:

2102.03, F, 3, a, 2.

Replace the Article:

Contractor may elect to substitute with special backfill material or modified subbase material as shown in the contract documents at no additional cost to the Contracting Authority. If special backfill material or modified subbase material is used in lieu of select soil material, provide for suitable surface and subsurface drainage of this material and provide suitable soils in lower portion of original subgrade treatment layer at no additional cost to the Contracting Authority. However, the same type of select treatment material shall be used across a set of lanes.

2102.03, F, 3, a, 4.

Add the Article:

To stabilize granular soil select treatments, incorporate 3 inches of special backfill into the top of the select treatment. Payment for this work is incidental to Contractor Furnished Select Treatment.

Comments:

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

2102.03, F, 3, a, 2)

Replace the Article

Contractor may elect to substitute with special backfill material or modified subbase material as shown in the contract documents at no additional cost to the Contracting Authority. If special backfill material or modified subbase material is used in lieu of select soil material, provide for suitable surface and subsurface drainage of this material and provide suitable soils in lower portion of original subgrade treatment layer at no additional cost to the Contracting Authority. However, the same type of select treatment material shall be used across a set of lanes.

2102.03, F, 3, a, 4)

Add the Article:

To stabilize granular soil select treatments, incorporate 3 inches of special backfill into the top of the select treatment. Payment for this work is incidental to Contractor Furnished Select Treatment.

Reason for Revision:

1) Add requirement that same type of select treatment material be used across a set of lanes.
2) Sand subgrade treatments need to be capped with a material that allows for construction traffic.

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: None

County or City Comments:

Industry Comments:

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IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Todd Hanson	**Office:** Construction & Materials	**Item 7**
Submittal Date: April 2018	**Proposed Effective Date:** April 2018	
Article No.: 2301.04 & 2301.05 **Title:** Portland Cement Concrete Pavement	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text:

2301.04, A, 2.

Replace Articles c and d:

c. ~~Coring of pavement and other work for thickness determination may be waived by mutual agreement for~~ Determine thickness for sections of the same design thickness ~~less than 5000~~ 3500 square yards or less, by probing plastic concrete in accordance with Materials I.M. 396.

d. Only sections which are cored will be included in the thickness index determination. Areas not cored or probed will be paid for at the contract unit price.

2301.05, A, Portland Cement Concrete:

Replace Articles 2 and 3:

2. For sections greater than 3500 square yards, ~~P~~payment for the quantities of pavement in square yards will be at a percentage of the contract unit price according to Table 2301.05-1.

Table 2301.05-1: Payment Schedule for Quantities of Pavement

Thickness Index Range	Percent Payment	Thickness Index Range	Percent Payment
0.00 or more	103	-0.56 to -0.60	91
-0.01 to -0.05	102	-0.61 to -0.65	90
-0.06 to -0.10	101	-0.66 to -0.70	89
-0.11 to -0.15	100	-0.71 to -0.75	88
-0.16 to -0.20	99	-0.76 to -0.80	87
-0.21 to -0.25	98	-0.81 to -0.85	86
-0.26 to -0.30	97	-0.86 to -0.90	85
-0.31 to -0.35	96	-0.91 to -0.95	84
-0.36 to -0.40	95	-0.96 to -1.00	83
-0.41 to -0.45	94	-1.01 to -1.05	82
-0.46 to -0.50	93	-1.06 to -1.10	81
-0.51 to -0.55	92	-1.11 or less	80

For sections 3500 square yards or less, payment for the quantities of pavement in square yards will be at a percentage of the contract unit price according to Table 2301.05-2

Table 2301.05-2: Payment Schedule for Quantities of Pavement 3500 square yards or less

Thickness Deficiency (TD)	8 inch or less Percent Payment	9 inch Percent Payment	10 in or greater Percent Payment
0.15 or less	100	100	100
0.16 to 0.25	95	96	96
0.26 to 0.50	91	92	93
0.51 to 0.75	85	87	88
0.76 to 1.00	80	82	84
Greater than 1.00 inch	2301.05, A, 4	2301.05, A, 4	2301.05, A, 4

Individual probing test results greater than or equal to the design thickness minus 3/8 inch are considered complying. When an individual probing test result is greater than design thickness minus 1 inch but less than design thickness minus 3/8 inch, take corrective action. When an individual probing test result is less than design thickness minus 1 inch, the Engineer will determine core locations to determine the area of deficient pavement thickness.

3. Use the following formula to determine the thickness index for ~~the~~ a section of pavement ~~thickness~~ greater than 3500 square yards:

Where: $TI = (\overline{X} - S) - T$

TI = thickness index for the section.
$\overline{X}$ = mean core length for the section.
T = design thickness.
S = core length standard deviation (of the sample) for the section.

Use the following formula to determine the thickness deficiency for a section of pavement 3500 square yards or less:

Where: $TD = (T - \overline{X})$

TD = thickness deficiency for the section.
T = design thickness.
$\overline{X}$ = mean probe depth for the section.

Comments: The Office of Construction and Materials clarified that the paragraph following Table 2301.05-2 was intended for individual probing tests. This has been clarified.

Materials I.M. 396 is being developed for April 2018.

The Office of Design indicated that they will change design guidance to note the new 3500 square yard threshold for cores.

Article 2301.05, A, 3 was revised to read more clearly.

Specification Section Recommended Text:

2301.04, A, 2.

Replace Articles c and d:

c. ~~Coring of pavement and other work for thickness determination may be waived by mutual agreement for~~ Determine thickness for sections of the same design thickness ~~less than 5000~~ 3500 square yards or less, by probing plastic concrete in accordance with Materials I.M. 396.

d. Only sections which are cored will be included in the thickness index determination. Areas not cored or probed will be paid for at the contract unit price.

2301.05, A, Portland Cement Concrete:

Replace Articles 2 and 3:

2. For sections greater than 3500 square yards, ~~P~~payment for the quantities of pavement in square yards will be at a percentage of the contract unit price according to Table 2301.05-1.

Table 2301.05-1: Payment Schedule for Quantities of Pavement

Thickness Index Range	Percent Payment	Thickness Index Range	Percent Payment
0.00 or more	103	-0.56 to -0.60	91
-0.01 to -0.05	102	-0.61 to -0.65	90
-0.06 to -0.10	101	-0.66 to -0.70	89
-0.11 to -0.15	100	-0.71 to -0.75	88
-0.16 to -0.20	99	-0.76 to -0.80	87
-0.21 to -0.25	98	-0.81 to -0.85	86
-0.26 to -0.30	97	-0.86 to -0.90	85
-0.31 to -0.35	96	-0.91 to -0.95	84
-0.36 to -0.40	95	-0.96 to -1.00	83
-0.41 to -0.45	94	-1.01 to -1.05	82
-0.46 to -0.50	93	-1.06 to -1.10	81
-0.51 to -0.55	92	-1.11 or less	80

For sections 3500 square yards or less, payment for the quantities of pavement in square yards will be at a percentage of the contract unit price according to Table 2301.05-2

Table 2301.05-2: Payment Schedule for Quantities of Pavement 3500 square yards or less

Thickness Deficiency (TD)	8 inch or less Percent Payment	9 inch Percent Payment	10 in or greater Percent Payment
0.15 or less	100	100	100
0.16 to 0.25	95	96	96
0.26 to 0.50	91	92	93
0.51 to 0.75	85	87	88
0.76 to 1.00	80	82	84
Greater than 1.00 inch	2301.05, A, 4	2301.05, A, 4	2301.05, A, 4

Probing test results greater than or equal to the design thickness minus 3/8 inch is considered complying. When probing test result is greater than design thickness minus 1 inch but less than design thickness minus 3/8 inch, take corrective action. When probing test result is less than design thickness minus 1 inch, the Engineer will determine core locations to determine the area of deficient pavement thickness.

3. Use the following formula to determine the thickness index for the section of pavement thickness greater than 3500 square yards:

Where: $TI = (\bar{X} - S) - T$

TI = thickness index for the section.
$\bar{X}$ = mean core length for the section.
T = design thickness.
S = core length standard deviation (of the sample) for the section.

Use the following formula to determine the thickness deficiency for the section of pavement thickness 3500 square yards or less:

Where: $TD = (T - \bar{X})$

TD = thickness deficiency for the section.
T = design thickness.
$\bar{X}$ = mean core length for the section.

Comments:

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

2301.04 METHOD OF MEASUREMENT.
Measurement will be as follows:

A. Portland Cement Concrete Pavement.

1. Square yards, of the type specified, shown in the contract documents. The area of manholes, intakes, or other fixtures in the pavement will not be deducted from the measured pavement area.

2. The coring requirements for thickness do not apply to detour pavements, paved drives, and temporary pavements. The thickness of pavement constructed will be determined from core depths as follows:

a. The division of sections, lots, and core locations will be according to Materials I.M. 346.

b. At locations determined by the Engineer, cut samples from the pavement, as directed above, by drilling with a core drill that will provide samples with a 4 inch outside diameter. Restore the surface by tamping low-slump concrete into the hole, finishing, and texturing. The Engineer will witness the core drilling, and identify and measure the cores immediately. The Engineer will measure the cores and determine the thickness index according to Materials I.M. 346. After measurement on the grade, deliver the cores to the Engineer's office or field laboratory. When cores are not measured on the grade, the Engineer will take immediate possession of the cores.

c. ~~Coring of pavement and other work for thickness determination may be waived by mutual agreement for~~ Determine thickness for sections of the same design thickness ~~less than 5000~~ 3500 square yards or less by probing plastic concrete in accordance with Materials IM 396.

d. Only sections which are cored will be included in the thickness index determination. Areas not cored or probed will be paid for at the contract unit price.

2301.05 BASIS OF PAYMENT.
Payment will be as follows:

A. Portland Cement Concrete Pavement.

1. Contract unit price for Standard or Slip-Form Portland Cement Concrete Pavement of the type specified per square yard.

2. For sections greater than 3500 square yards, Payment for the quantities of pavement in square yards will be at a percentage of the contract unit price according to Table 2301.05-1.

Table 2301.05-1: Payment Schedule for Quantities of Pavement

Thickness Index Range	Percent Payment	Thickness Index Range	Percent Payment
0.00 or more	103	-0.56 to -0.60	91
-0.01 to -0.05	102	-0.61 to -0.65	90
-0.06 to -0.10	101	-0.66 to -0.70	89
-0.11 to -0.15	100	-0.71 to -0.75	88
-0.16 to -0.20	99	-0.76 to -0.80	87
-0.21 to -0.25	98	-0.81 to -0.85	86
-0.26 to -0.30	97	-0.86 to -0.90	85
-0.31 to -0.35	96	-0.91 to -0.95	84
-0.36 to -0.40	95	-0.96 to -1.00	83
-0.41 to -0.45	94	-1.01 to -1.05	82

-0.46 to -0.50	93	-1.06 to -1.10	81
-0.51 to -0.55	92	-1.11 or less	80

For sections 3500 square yards or less, Payment for the quantities of pavement in square yards will be at a percentage of the contract unit price according to Table 2301.05-2

Table 2301.05-2: Payment Schedule for Quantities of Pavement 3500 square yards or less

Thickness Deficiency (TD)	8 inch or less Percent Payment	9 inch Percent Payment	10 in or greater Percent Payment
0.15 or less	100	100	100
0.16 to 0.25	95	96	96
0.26 to 0.50	91	92	93
0.51 to 0.75	85	87	88
0.76 to 1.00	80	82	84
Greater than 1.00 inch	2301.05.A.4	2301.05.A.4	2301.05.A.4

Probing test results greater than or equal to the design thickness minus 3/8 inch is considered complying. When probing test result is greater than design thickness minus 1 inch but less than design thickness minus 3/8 inch, take corrective action. When probing test result is less than design thickness minus 1 inch, the Engineer will determine core locations to determine the area of deficient pavement thickness.

3. Use the following formula to determine the thickness index for the section of pavement thickness greater than 3500 square yards:

Where: $TI = (\overline{X} - S) - T$

TI = thickness index for the section.
$\bar{X}$ = mean core length for the section.
T = design thickness.
S = core length standard deviation (of the sample) for the section.

Use the following formula to determine the thickness deficiency for the section of pavement thickness 3500 square yards or less:

Where: $TD = (T - \bar{X})$

TD = thickness deficiency for the section.
T = design thickness.
$\bar{X}$ = mean core length for the section.

Reason for Revision: Add probing method of thickness determination for small pavement bid items.

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 / Jeff Schmitt	**Office:** Construction & Materials	**Item 8**
Submittal Date:	**Proposed Effective Date:** April 2018 GS	
Article No.: 2303.05, A, 3, c **Title:** Film Thickness (Basis of Payment - Flexible Pavement)	**Other:**	

Specification Committee Action: Revised with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text:
2303.05, A, 3, c, Film Thickness.

Replace the Article:

When film thickness (FT) is outside the limits in Materials I.M. 510 Appendix A, apply the following pay factor:

	Pay Factor	
Placement	**~~(~~Low Film (FT < LL)**	**~~(~~High Film (FT > UL)**
Base/Shoulders	1 - (~~0.85~~ 0.15~~*~~(LL - FT))	1 - (~~0.85~~ 0.15~~*~~(FT-UL))
Intermediate	1 - (~~0.80~~ 0.20~~*~~(LL - FT))	1 - (~~0.80~~ 0.20~~*~~(FT-UL))
Surface	1 - (~~0.75~~ 0.25~~*~~(LL - FT))	1 - (~~0.75~~ 0.25~~*~~(FT-UL))

Where:
LL = Lower Limit (Materials I.M. 510, Appendix A)
UL = Upper Limit (Materials I.M. 510, Appendix A)

1. When basis of payment is by area, ~~multiply~~ add 1.0 to the pay factor (computed above) and divide by ~~0.5~~ 2.0.
2. For FT < 7.0 or FT > 16.0, the Engineer may consider the lot defective. This applies to all lots (days) of production.
3. No film thickness price adjustment for the test strip (first day of production, if no test strip performed) for each job mix formula.
4. No film thickness price adjustment on temporary pavement.

Comments: The asterisks meant as multiplication symbols were removed as they are unnecessary.

Specification Section Recommended Text:
2303.05, A, 3, c, Film Thickness.

Replace the Article:

When film thickness (FT) is outside the limits in Materials I.M. 510 Appendix A, apply the following pay factor:

	Pay Factor	
Placement	**~~(~~Low Film (FT < LL)**	**~~(~~High Film (FT > UL)**
Base/Shoulders	1 - (~~0.85~~ 0.15*(LL - FT))	1 - (~~0.85~~ 0.15*(FT-UL))
Intermediate	1 - (~~0.80~~ 0.20*(LL - FT))	1 - (~~0.80~~ 0.20*(FT-UL))

Surface	1 - (~~0.75~~ 0.25*(LL - FT))	1 - (~~0.75~~ 0.25*(FT-UL))

Where:
LL = Lower Limit (Materials I.M. 510, Appendix A)
UL = Upper Limit (Materials I.M. 510, Appendix A)

1. When basis of payment is by area, ~~multiply~~ add 1.0 to the pay factor (computed above) and divide by ~~0.5~~ 2.0.
2. For FT < 7.0 or FT > 16.0, the Engineer may consider the lot defective. This applies to all lots (days) of production.
3. No film thickness price adjustment for the test strip (first day of production, if no test strip performed) for each job mix formula.
4. No film thickness price adjustment on temporary pavement.

Comments:

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

c. Film Thickness.
When film thickness (FT) is outside the limits in Materials I.M. 510 Appendix A, apply the following pay factor

	Pay Factor	
Placement	**(~~Low~~ Film (FT < LL)**	**(~~High~~ Film (FT > UL)**
Base/Shoulders	1 - (~~0.85~~ 0.15*(LL - FT))	1 - (~~0.85~~ 0.15*(FT-UL))
Intermediate	1 - (~~0.80~~ 0.20*(LL - FT))	1 - (~~0.80~~ 0.20*(FT-UL))
Surface	1 - (~~0.75~~ 0.25*(LL - FT))	1 - (~~0.75~~ 0.25*(FT-UL))

Where
LL = Lower Limit (Materials I.M. 510, Appendix A)
UL = Upper Limit (Materials I.M. 510, Appendix A)

1. When basis of payment is by area, ~~multiply~~ add 1.0 to the pay factor (computed above) and divide by ~~0.5~~ 2.0.

Reason for Revision: To correct previous error made in conversion from "Price Adjustment Schedule" (Construction Manual) to "Pay Factor" (Specification).

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

Comments:

County or City Comments:

Industry Comments:

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IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Jeff Schmitt	**Office:** Construction & Materials	**Item 9**
Submittal Date: 10-19-2017	**Proposed Effective Date:** April 2018 GS	
Article No.: 2318.03 **Title:** Construction (Cold In-place Recycled Asphalt Pavement)	**Other:**	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: There is currently a committee being formed to discuss all cold in-place recycling specifications.

Specification Section Recommended Text:

2318.03, Construction.

Replace the first bullet:

- The ~~ambient~~ daytime forecasted high temperature is below 60°F,

Comments:

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

2318.03 CONSTRUCTION.

Except in specific cases when permitted by the Engineer, CIR will only be allowed between May 1 and October 1. Do not perform recycling operations when:

- The ~~ambient~~ daytime forecasted high temperature is below 60°F,
- For night work, the following day's forecasted high is below 60°F,
- The weather is foggy or rainy, or
- Weather conditions are such that proper mixing, placing, and compacting of the recycled material cannot be accomplished.

Reason for Revision: Clarify the temperature requirement as it relates to the start of daily cold in-place recycling (CIR) operations. The existing language implies that CIR operations may not start until the air temperature reaches 60°F. This requirement is overly restrictive, and results in lost CIR production during early and late-season work. The air temperature is more relevant to CIR curing potential throughout the day than with the actual recycling operation.

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 10**
Submittal Date: 10/20/17	**Proposed Effective Date:** April, 2018	
Article No.: 2405.03, H **Title:** Anchor Bolts for Bridge Bearings and Foundations	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:
2405.03, H, 1, General.

Add the Article:

d. Unless otherwise specified in the contract documents, anchor bolt connections shall be completed prior to subjecting the structural system to vehicle live load.

Comments:

Member's Requested Change: (Do not use **'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.**)
[Add "part d" to 2405.03,H,1]

H. Anchor Bolts for Bridge Bearings and Foundations.

1. **General.**
   - **a.** Use bolts, nuts and washers, galvanized according to ASTM F 2329 with zinc bath temperature not to exceed 850ºF or ASTM B 695, Class 55, Type I.
   - **b.** Use full-length galvanized anchor bolts that:
     Meet the requirements of ASTM F 1554, Grade 36.
     Are Unified Coarse Thread Series, and
     Have Class 2A tolerance.
   - **c.** Color code in blue the end of each anchor bolt intended to project from the concrete in order to identify the grade. Use galvanized washers that meet the requirements of ASTM F 436, Type 1. Use heavy hex, galvanized nuts that meet the requirements of ASTM A 563, DH, Class 2B. Threads are to comply with Unified Coarse Thread Series, and have Class 2B tolerance. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563.
   - **d.** Unless otherwise specified in the contract documents, all anchor bolt connections must be fully completed prior to subjecting the structural system to vehicle live load.

2. **Bridge Bearings.**
   Unless otherwise specified in the contract documents, set anchor bolts to be embedded in concrete in drilled holes. Set them prior to the time the concrete is placed, when specified in the contract documents.
   - **a. Anchor Bolts Set in Drilled Holes.**
     - **1)** In clean, dry holes accurately set anchor bolts for bridge bearings perpendicular to the plane of the bridge seat. Vary the locations of anchor bolts in relation to slotted holes in expansion shoes to compensate for the temperature of the structure. Adjust the nuts on anchor bolts at the expansion bearings of spans to permit movement of the span with changes in temperature. Set anchor bolts with a hydraulic cement or polymer grout.

2) When hydraulic cement grout is used, use one that meets the requirements of Materials I.M. 491.13. Make the diameter of the hole 1/2 inch larger than the bolt diameter. Slightly overfill the annular space with grout.

3) When polymer grout is used, use one meeting the requirements of Materials I.M. 491.11. Make the diameter of the hole 1/8 inch larger than the bolt diameter. Fill the annular space with the grout according to the manufacturer's recommendations and limitations, as approved by the Engineer.

b. Preset Anchor Bolts.

1) When specified by the contract documents, set the anchor bolts for bridge bearings during the placing of concrete.

2) Per Article 2405.03, H, 3.

c. Nut Tightening.

Tighten nuts to snug tight condition. Snug tight is defined as the full effort of one person on a wrench with a length equal to 14 times the bolt diameter, but not less than 18 inches. Apply full effort as close to the end of the wrench as possible. Perform tightening by leaning back and using entire body weight to pull firmly on the end of the wrench until the nut stops rotating. Perform a minimum of two separate passes of tightening. Sequence tightening in each pass so the nut on the opposite side, to the extent possible, is subsequently tightened until all nuts in that pass have been tightened.

3. Foundations.

a. Hold the bolts firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. Obtain a template from the manufacturer/fabricator for proper placement of the anchor bolts. Do not weld anchor bolts.

b. Leave the template in place until the concrete has hardened.

c. Accurately set anchor bolts, plumb to within 1/4 inch per 12 inches, at points specified in the contract documents.

Reason for Revision: It is intended that structural anchor bolt connections be 100% complete prior to subjecting a structure to vehicle traffic. However, this intent is not explicitly stated in the current version of our specifications.

This revision is proposed to clarify that all structural anchor bolt connections must be complete, prior to subjecting a structure to traffic, except when specified otherwise in the contract documents. Opening a structure to traffic prior to completion of structural anchor bolt connections can pose risks to public safety.

This revision was prompted by discovery that some recent steel bridge projects have been opened to traffic prior to permanently completing the structural connections at the bridge bearings. This proposed revision attempts to prevent this and similar type of occurrences.

The term “structural connection” is used to clarify that this requirement is not applicable to non-structural connections. The proposed language applies to the “structural system”, which may consist of a single stage or independent unit of a structure, not necessarily the entire structure. The proposed language restricts “vehicle live load”, which is intended to include construction vehicle traffic and public vehicle traffic, but not necessarily non-vehicle construction live loads (personnel, small equipment, stored materials).

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 11**
Submittal Date: 10/06/2017	**Proposed Effective Date:** April 2018	
Section No.: 2408 **Title:** Steel Structures	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2408.02, Materials Requirements, Identification, and Fabrication.

Replace the first two sentences:

Unless modified elsewhere in the contract documents, all fabrication to which this section applies shall be done in the United States and in steel fabrication shops ~~and plants~~ that are approved prior to the letting according to Materials I.M. 557. All main member fabrication~~, except bearing devices,~~ shall be fabricated by plants certified as Simple, Intermediate, or Advanced Bridges according to the AISC Certification Program for Steel Bridge Fabricators.

2408.02, B, 1.

Replace the eighth bullet:

- Bearing stiffeners ~~and bearing devices~~, and

2408.02, Q, 1, a, 4.

Replace the first sentence:

Achieve a sharp, angular blast profile of a minimum ~~1 mil~~ 1.5 mils and maximum 3 mils on all surfaces, including thermal cut edges.

2408.03, B, 2.

Replace the first paragraph:

2. ~~Comply with ANSI/AWS D1.1 Structural Welding Code procedures and requirements for the following items, except comply with AASHTO/AWS D1.5 as modified below for filler metal and welder qualification requirements.~~ Comply with ANSI/AWS D1.5 Structural Welding Code procedures and requirements for items in Article a below. Comply with ANSI/AWS D1.1 Structural Welding Code procedures and requirements for items in Articles b through e below.

2408.03, B, Welding.

Add the following to D1.5 Bridge Welding Code revisions:

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

REPLACE last sentence of 6.7.1 with the following:

When required, testing of CJP groove welds in butt joints in compression or shear shall be done by RT.

2408.03, Q, Assembling Steel.

Add the Article:

6. Unless otherwise specified in the contract documents, bolted and welded structural connections shall be completed prior to subjecting the structural system to vehicle live load.

2408.03, S, 5, a, 6.

Replace Table 2408.03-2

Table 2408.03-2: Minimum Bolt Tension

Bolt Dia. inches	Min. Bolt Tension, lbf.[(a)]	Bolt Dia. inches	Min. Bolt Tension, lbf.[(a)]

1/2	12,050	1 1/8	56,450
5/8	19,200	1 1/4	71,700
3/4	28,400	1 3/8	85,450
7/8	39,250	1 1/2	104,000
1	51,500		

(a) Equal to the proof load (length measurement method) given in ASTM ~~A 325~~ F 3125.

Comments:

Revise the first paragraph of article 2408.02 as follows:

2408.02 MATERIALS REQUIREMENTS, IDENTIFICATION, AND FABRICATION.
Unless modified elsewhere in the contract documents, all fabrication to which this section applies shall be done in the United States and in steel fabrication shops ~~and plants~~ that are approved prior to the letting according to Materials I.M. 557. All main member fabrication~~, except bearing devices,~~ shall be fabricated by plants certified as Simple, Intermediate, or Advanced Bridges according to the AISC Certification Program for Steel Bridge Fabricators. AISC categories are defined as follows:

Revise the 8th bullet in the first paragraph of article 2408.02, B as follows:

B. Identification of Steel during Fabrication.

1. Main members of steel structures are defined to include the following. The contract documents may also designate other members as main members.
- Rolled sections or flange and web plates in main beams and girders,
- Floor beams,
- Stringers,
- Abutment diaphragms,
- Cross frames carrying direct live loads,
- Lateral bracing and cross frames in horizontally curved bridges,
- Cover plates, splice plates, and gusset plates,
- Bearing stiffeners ~~and bearing devices, and~~
- Stiffeners connecting live load carrying members to main beam or girder webs.

Revise the 4th paragraph of 2408.02, Q, 1, a:

4) Achieve a sharp, angular blast profile of a minimum ~~1 mil~~ 1.5 mil and maximum 3 mils on all surfaces, including thermal cut edges. When shot is used for blasting, use a blast media containing at least 10% steel grit.

Revise Table 2408.03-2

Table 2408.03-2: Minimum Bolt Tension

Bolt Dia. inches	Min. Bolt Tension, lbf.(a)	Bolt Dia. inches	Min. Bolt Tension, lbf.(a)
1/2	12,050	1 1/8	56,450
5/8	19,200	1 1/4	71,700
3/4	28,400	1 3/8	85,450
7/8	39,250	1 1/2	104,000
1	51,500		

(a) Equal to the proof load (length measurement method) given in ~~ASTM A 325~~ ASTM F 3125.

Replace the first paragraph in 2408.03, B, 2 as follows:

2. ~~Comply with ANSI/AWS D1.1 Structural Welding Code procedures and requirements for the following items, except comply with AASHTO/AWS D1.5 as modified below for filler metal and welder qualification requirements.~~

2. Comply with ANSI/AWS D1.5 Structural Welding Code procedures and requirements for items in paragraph "a" below. Comply with ANSI/AWS D1.1 Structural Welding Code procedures and requirements for items in paragraphs "b through e" below.

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

Replace last sentence of 6.7.1 with the following:

~~When required, testing of CJP groove welds in butt joints in compression or shear may be done by RT or UT.~~

When required, testing of CJP groove welds in butt joints in compression or shear shall be done by RT.

[Add "part 6" to 2408.03,Q]

Q. Assembling Steel.

1. Accurately assemble parts as shown in the contract documents. Follow a match-marking system.

2. Handle material so that parts will not be bent, broken, or otherwise damaged. Do not hammer in a manner which will damage or distort the members.

3. Clean bearing surfaces and surfaces to be in permanent contact before the members are assembled.

4. Ensure important connections in trusses, girders, floor systems, and so forth have at least 25% of the holes on each side of the connection filled with drift pins, and another 25% of the holes on each side

of the connection filled with temporary fitting up bolts drawn up snugly before the temporary support is removed. If the ultimate connection is to be made with high strength bolts, these bolts may be used as fitting up bolts. At milled connections of compression chords of truss spans, except the hip connection, the number of drift pins may be reduced to no less than 10% of the number of holes.

5. Do not weld on any steel during or after assembly unless welding is specified in the contract documents and with prior approval of the Engineer.

6. Unless otherwise specified in the contract documents, all bolted and welded structural connections must be fully completed prior to subjecting the structural system to vehicle live load.

Reason for Revision: Remove "and plants" because it is not necessary and it's being confused with steel mills. Remove bearing devices from the list of main member items per American Welding Society (AWS) D1.5.

We have experienced some issues with paint performance on the edges of cut steel members due to hardening. An increased surface profile will help resolve these issues.

Update ASTM reference number.

Require bridge components to be welded to AWS D1.5 and allow welder qualification to AWS D1.1 for tubular items.

With few exceptions, it is intended that all structural connections be 100% complete prior to subjecting a structure to vehicle traffic. However, this intent is not explicitly stated in the current version of our specifications.

This revision is proposed to clarify that all structural connections must be complete, prior to subjecting a steel structure to traffic, except when specified otherwise in the contract documents. Opening a structure to traffic prior to completion of structural connections can pose risks to public safety, and may also impact the quality of the structural connections completed under live load.

This revision was prompted by discovery that some recent steel bridge projects have been opened to traffic prior to permanently completing the structural connections at the bridge bearings. This proposed revision attempts to prevent this and similar types of occurrences (incomplete bolts, incomplete welds, etc.)

The term "structural connection" is used to clarify that this requirement is not applicable to non-structural connections. The proposed language applies to the "structural system", which may consist of a single stage or independent unit of a structure, not necessarily the entire structure. The proposed language restricts "vehicle live load", which is intended to include construction vehicle traffic and public vehicle traffic, but not necessarily non-vehicle construction live loads (personnel, small equipment, stored materials).

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: Brian Smith	**Office:** Design	**Item 12**
Submittal Date: 2017.06.22	**Proposed Effective Date:** April 2018	
Article No.: 2511.03, B, 1 **Title:** General **Article No.:** 2526.05 **Title:** Basis of Payment	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The committee approved of the revised language.

Specification Section Recommended Text:

2511.03, B, 1, General.

Replace the Article:

a. Widths shown in contract documents are minimums, excluding curbs or flares.

b. The contract documents will contain sheets for construction of curb ramps, turning spaces, and transitions. Measure or stake as required to construct features.

1) Verification of form work slopes at quadrants identified in the contract documents, by using a level or other means, is required prior to placing concrete ~~I~~if either of the following is met~~,~~ ~~Engineer will provide staking for that quadrant and verify slopes during finishing~~:

- Running Slope. Tolerance between design slope and maximum allowable slope is less than 1.0%.
- Cross Slope and Turning Space Slopes. Tolerance of ±0.5% from design slope would exceed minimum or maximum allowable slope.

2) If Construction Survey is not a bid item, Engineer will verify slopes of form work. If Construction Survey is a bid item, Contractor's surveyor shall verify form work slopes. If field adjustments outside the acceptable range indicated in the contract documents are necessary, notify the Engineer prior to construction.

~~**c.** If adequate construction tolerances are allowed, Engineer will not provide staking for construction of sidewalk or recreation trail. If field adjustments outside the acceptable range indicated in the contract documents are necessary, notify the Engineer prior to construction.~~

~~**d**~~ **c.** Verify slope compliance according to Materials I.M. 363.

~~**e**~~ **d.** At locations other than curb ramps, turning spaces, and transitions, ensure cross slope is between 0.5% and 2.0%. Ensure grade is within approximately 2.0% steeper than profile grade of adjacent roadway, or does not exceed 5.0%, whichever is steeper.

~~**f**~~ **e.** Install detectable warnings according to manufacturer's recommendations. Install detectable warnings for full width of curb ramp, excluding curbs and flares.

2511.03, B, 1, d.

Replace the Article:

After concrete has been poured, ~~V~~verify slope compliance according to Materials I.M. 363.

2526.05, Basis of Payment.

Add the Article:

D. Verifying form work slopes according to Article 2511.03, B, 1, b, shall be incidental to Construction Survey and will not be paid for separately.

Comments: District 6 questioned whether the revised sentence in Article 2511.03, B, 1, c, was necessary or caused more confusion with what was stated in the previous article. The second sentence in Article 2511.03, B, 1, c may be more appropriate somewhere in the previous article. This revision will be reviewed and brought back to the Specification Committee.

The committee thought that construction survey should be included on all Iowa DOT projects that involve construction of close tolerance sidewalks.

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

2511.03, B, 1, b.

Replace the article:

The contract documents will contain sheets for construction of curb ramps, turning spaces, and transitions. Measure or stake as required to construct features.

1) Verification of form work slopes at the quadrants identified in the contract documents, by using a level or other means, is required prior to placing concrete ~~if~~ if either of the following is met~~, Engineer will provide staking for that quadrant and verify slopes during finishing~~:

- Running Slope. Tolerance between design slope and maximum allowable slope is less than 1.0%.
- Cross Slope and Turning Space Slopes. Tolerance of ±0.5% from design slope would exceed minimum or maximum allowable slope.

2) If Construction Survey is not a bid item, the Engineer will verify slopes of the form work. If Construction Survey is a bid item, the Contractor's surveyor shall verify form work slopes.

2511.03, B, 1, c.

Replace the first sentence:

If adequate construction tolerances are allowed, ~~Engineer~~ slope verification of the form work prior to pouring concrete will not be required ~~provide staking for construction of sidewalk or recreation trail~~.

2511.03, B, 1, d.

Replace the article:

After concrete has been poured, ~~V~~verify slope compliance according to Materials I.M. 363.

2526.05, D.

Add as new article:

Verifying form work slopes according to Article 2511.03, B, 1, b, is incidental to Construction Survey and will not be paid for separately.

Reason for Revision: To clarify that when tolerances are within those mentioned in this specification, slopes are to be verified using the form work prior to placing concrete. The intent of slope verification is to reduce occurrences of contractors removing and replacing out of tolerance sidewalk. Can this intent be placed in the specifications somehow?

Clarify verifying form work slopes for ADA projects is incidental to Construction Survey.

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: Brian Smith	**Office:** Design	**Item 13**
Submittal Date: 10-27-2017	**Proposed Effective Date:** 4-17-2018	
Section No.: 2601 **Title:** Erosion Control **Article No.:** 4169.13 **Title:** Soil Stabilization Granules	**Other:**	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: The Office of Design proposed making the soil stabilization granules specification an SP that can be selectively used on selected projects. This item is particularly useful on projects with little disturbed area, such as sidewalk projects and on projects with terrain that is hard to reach.

The Office of Design will see if the specifications can be widened to allow more than the two products that are currently known to meet the specifications.

Specification Section Recommended Text:

2601.01, Description.

Replace the tenth bullet and **Add** the bullet:

- Transition mat, ~~and~~
- Soil stabilization granules, and

2601.03, Construction.

Add the Article and Renumber Articles J and K:

J. Soil Stabilization Granules.

1. Apply at a rate of 3000 pounds per acre.

2. Prior to applying soil stabilization granules, complete seedbed preparation, seeding, and fertilizing associated with stabilizing crop seeding and fertilizing.

3. Contractor may apply soil stabilization granules aerially, hydraulically, with a high-volume drop spreader, with a large-opening broadcast spreader, or by hand.

~~J~~ K. Mowing.

~~K~~ L. Completion of Work.

2601.04, A.

Replace the eighth and ninth bullets and **Add** the bullet:

- Mulching, ~~and~~
- Composting~~.~~, and
- Soil Stabilization Granules.

2601.04, H.

Replace the Article:

Mowing described in Article 2601.03, ~~J~~ K: acres to the nearest 0.1 acre of surface area.

2601.05, A, 2.

Replace the ninth and tenth bullets and **Add** the bullet:

- Overseeding and Fertilizing, ~~and~~
- Composting~~.~~, and
- Soil Stabilization Granules.

2601.05, A, 14.

Replace the article:

Mowing described in Article 2601.03, ~~J~~ K: contract unit price per acre to the nearest 0.1 acres.

4169, Erosion Control Materials.

Add the Article:

4169.13 Soil Stabilization Granules

A. Provide soil stabilization granules complying with Table 4169.13-1.

Table 4169.13-1: Soil Stabilization Granules

Property	Test Method	Tested Value
Physical		
Material Color	Observed	Green
Performance		
Cover Factor[1]	Large Scale Testing[3]	≤ 0.18
% Effectiveness[2]	Large Scale Testing[3]	≥ 82%
Environmental		
Ecotoxicity	EPA 2021.0	48-hr LC50 > 100%
Biodegradability	ASTM D 5338	Yes

Note 1: Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.
Note 2: % Effectiveness = One minus Cover Factor multiplied by 100%.
Note 3: Large scale testing.

B. All components of the soil stabilization granules shall be pre-packaged by the Manufacturer to ensure both material performance and compliance with the values below. Field mixing of components will not be permitted.

1. Recycled cellulose – 70%.

2. Clean wood shavings – 22.4%.

3. Linear anionic soil flocculant and hydro-colloidal polymers – 7.5%.

4. Seaweed extract biostimulant – 0.1%.

Comments:

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

2601.01, Description.

Replace the tenth bullet and add a new eleventh bullet:

Transition mat, ~~and~~
Soil stabilization granules, and

2601.03, J, Soil Stabilization Granules.

Add as a new article:

Soil Stabilization Granules.

1. Apply at a rate of 3000 pounds per acres.

2. Prior to applying soil stabilization granules, complete seedbed preparation, seeding, and fertilizing associated with stabilizing crop seeding and fertilizing.

3. The Contractor has the option to apply soil stabilization granules aerially, hydraulically, with a high-volume drop spreader, with a large-opening broadcast spreader, or by hand.

Renumber Articles J and K as K and L

2601.04, A.

Replace the eighth and nineth bullet and as a new bullet:

Overseeding and Fertilizing, ~~and~~
Composting, and
Soil Stabilization Granules.

2601.04, H.

Replace the article:

Mowing described in Article 2601.03, ~~J~~K: acres to the nearest 0.1 acre of surface area.

2601.04, A.

Replace the ninth and tenth bullet and as a new bullet:

Mulching, ~~and~~
Composting, and
Soil Stabilization Granules.

2601.05, A, 14.

Replace the article:

Mowing described in Article 2601.03, ~~J~~K: contract unit price per acre to the nearest 0.1 acres.

4169.13, Soil Stabilization Granules.

Add as a new article:

A. Provide soil stabilization granules complying with Table 4169.13-1.

Table 4169.13-1: Soil Stabilization Granules

Property	Test Method	Tested Value (English)
Physical		
Material Color	Observed	Green
Performance		
Cover Factor[1]	Large Scale Testing[3]	≤ 0.18

% Effectiveness[2]	Large Scale Testing[3]	≥ 82%
Environmental		
Ecotoxicity	EPA 2021.0	48-hr LC50 > 100%
Biodegradability	ASTM D 5338	Yes

1. Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.

2. % Effectiveness = One minus Cover Factor multiplied by 100%.

3. Large scale testing

B. All components of the soil stabilization granules shall be pre-packaged by the Manufacturer to ensure both material performance and compliance with the values below. Field mixing of components will not be permitted.

1. Recycled cellulose – 70%.

2. Clean wood shavings – 22.4%.

3. Linear anionic soil flocculant and hydro-colloidal polymers – 7.5%.

4. Seaweed extract biostimulant – 0.1%.

Reason for Revision: To add soil stabilization granules as a new erosion control measure.

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

Comments: Soil Stabilization Granules

County or City Comments:

Industry Comments:

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Bob Dawson	**Office:** Construction & Materials	**Item 14**
Submittal Date: Oct 23, 2017	**Proposed Effective Date:** April 2018 GS	
Article No.: 4127.02 **Title:** Coarse Aggregate (Aggregate for Flexible Paving Mixtures)	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: Some inadvertent bullets were removed from the table.

Specification Section Recommended Text:

4127.02, Coarse Aggregate.

Replace Table 4127.02-1:

Table 4127.02-1: Coarse Aggregate Quality (Flexible Paving Mixtues)

Coarse Aggregate Quality	Type A Maximum %	Type B Maximum %		Test Method
		Primary	Other	
Abrasion	45	45	45	AASHTO T 96
Absorption[(a)]	6.0	6.0	6.0	Iowa DOT Materials Laboratory Test Method No. 201
Alumina[(b)]	~~0.7~~ 1.0	1.5	2.5	Iowa DOT Materials Laboratory Test Method No. 222
A Freeze	~~10~~ 15	25	45	Iowa DOT Materials Laboratory Test Method No. 211, Method A
C Freeze	N/A	10	10	Iowa DOT Materials Laboratory Test Method No. 211, Method C
Clay Lumps/Friable Particles	~~0.5~~ 2.0	N/A	N/A	Materials I.M. 368
Organic Material	0.01	0.01	0.01	Iowa DOT Materials Laboratory Test Method No. 215

(a) When a coarse aggregate for use in asphalt fails absorption using Iowa DOT Materials Laboratory Test Method No. 201; absorption determined by Materials I.M. 380 (Vacuum-saturated specific gravity & absorption) will be used.

(b) If the Alumina value fails, determine the A Freeze value for specification compliance. Iowa DOT Materials Laboratory Test Method No. 222 does not apply to gravel.

Comments:

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

Replace items in Table 4127.02

Section 4127. Aggregate for Flexible Paving Mixtures

Table 4127.02-1: Coarse Aggregate Quality (Flexible Paving Mixtues)

Coarse Aggregate Quality	Type A Maximum %	Type B Maximum %		Test Method
		Primary	Other	
Abrasion	45	45	45	AASHTO T 96
Absorption[a]	6.0	6.0	6.0	Iowa DOT Materials Laboratory Test Method No. 201
Alumina[b]	~~0.7~~ 1.0	1.5	2.5	Iowa DOT Materials Laboratory Test Method No. 222
A Freeze	~~10~~ 15	25	45	Iowa DOT Materials Laboratory Test Method No. 211, Method A
C Freeze	N/A	10	10	Iowa DOT Materials Laboratory Test Method No. 211, Method C
Clay Lumps/Friable Particles	~~0.5~~ 2.0	N/A	N/A	Materials I.M. 368

Reason for Revision: To revise and update existing specification requirements for current mix designs following recent review, testing, and analysis. This update will also facilitate uniform and competitive bidding in all areas of the state, and remove the need for these limits to be specified by plan note on projects in western Iowa.

There should be no negative impact on HMA pavement performance, or on existing aggregate production processes in other areas of the state. Coarse aggregate is now used in much lower proportions than in older mix designs for which the current/existing maximum limits were established.

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 15**
Submittal Date: 10/06/2017	**Proposed Effective Date:** April 2018	
Article No.: 4153.06, B **Title:** High Strength Fasteners	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4153.06, B, High Strength Fasteners.

Replace the Article:

1. Ensure the following:

a. High strength ~~bolts, nuts, and washers meet the requirements of the appropriate ASTM Specifications as follows~~ fasteners are defined and listed by ASTM numbers as:

- Bolts ~~A 325~~ F 3125: type 1 black, type 1 galvanized or type 3 weathering.
  A 449: type 1 black, type 1 galvanized or type 3 weathering.
  A 490 are not allowed.
- Nuts A 563: Grade DH black, grade DH galvanized or grade DH3 weathering.
  A 194: Grade 2H black or grade 2H galvanized.
- Washers F 436: Type 1 black, type 1 galvanized or type 3 weathering.

b. For galvanized high strength fasteners, the fasteners meet the requirements of ASTM B 695, Class 55 Type I or ASTM F 2329 with a zinc bath temperature not exceeding 850°F.

c. For weathering steel, bolts are ASTM ~~A 325~~ F 3125 Type III, nuts are ASTM A 563 Grade DH3, and washers are ASTM F 436 Type III.

d. For quenched and tempered steel bolts and studs with diameters greater than 1 1/2 inch, but with similar mechanical properties as ASTM ~~A 325~~ F 3125, refer to ASTM A 449.

2. Furnish all high strength bolts, nuts, and washers according to this specification, which includes:

- The appropriate ASTM Specifications,
- In certain instances, modifications of the requirements of ASTM Specifications, and
- In certain instances, additional requirements in excess of the ASTM Specification.

3. ASTM A 490 bolts are specifically excluded from this specification.

4. The applicable ASTM test method specifications are as follows:

a. General.

1) ASTM F 606, Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers and Rivets.

2) ASTM A 370, Standard Methods and Definitions of Mechanical Testing of Steel Products.

3) ~~Article 7.2 of ASTM A 325~~ Article 7.3 of ASTM F 3125 is changed to read as follows:

"Threads shall be the Unified Coarse Thread Series as specified in ANSI/ASME B1.1 and shall have Class 2A tolerances."

b. Specifications for Nuts.

1) ASTM A 563, Carbon and Alloy Steel Nuts.

2) Proof load tests (ASTM F 606 Paragraph 4.2) are required. Galvanizing, if required, completed prior to proof load testing. Minimum frequency of tests according to ASTM A 563 Paragraph 9.3.

c. Specifications for Bolts.

1) ASTM ~~A 325~~ F 3125, High Strength Bolts for Structural Steel Joints.

2) Proof load tests (ASTM F 606, Method 1), are required. Galvanizing if required, completed prior to proof load testing. The minimum frequency of tests according to ASTM ~~A 325 Paragraph 9.5.1~~ F 3125 Paragraph 9.6.1.

Comments:

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

Revise 4153.06, B with the following:

B. High Strength Fasteners.

~~**1.** Ensure the following:~~

~~**a.** High strength bolts, nuts, and washers meet the requirements of the appropriate ASTM Specifications as follows:~~

- ~~bolts A 325~~
- ~~nuts A 563 Grade DH~~
- ~~washers F 436~~

1. High strength fasteners are defined and listed by ASTM numbers as:

a. Bolts- F 3125: type 1 black, type 1 galvanized or type 3 weathering
A 449: type 1 black, type 1 galvanized or type 3 weathering
A 490 are not allowed

Nuts- A 563: grade DH black, grade DH galvanized or grade DH3 weathering
A 194: grade 2H black or grade 2H galvanized

Washers- F 436: type 1 black, type 1 galvanized or type 3 weathering

b. For galvanized high strength fasteners, the fasteners meet the requirements of ASTM B 695, Class 55 Type I or ASTM F 2329 with a zinc bath temperature not exceeding 850°F.

c. For weathering steel, bolts are ~~ASTM A 325~~ ASTM F 3125 Type III, nuts are ASTM A 563 Grade DH3, and washers are ASTM F 436 Type III.

d. For quenched and tempered steel bolts and studs with diameters greater than 1 1/2 inch, but with similar mechanical properties as ~~ASTM A 325~~ ASTM F 3125, refer to ASTM A 449.

2. Furnish all high strength bolts, nuts and washers according to this specification, which includes:

- The appropriate ASTM Specifications,

- In certain instances, modifications of the requirements of ASTM Specifications, and
- In certain instances, additional requirements in excess of the ASTM Specification.

3. ASTM A 490 bolts are specifically excluded from this specification.

4. The applicable ASTM test method specifications are as follows:

a. General.

1) ASTM F 606, Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers and Rivets.

2) ASTM A 370, Standard Methods and Definitions of Mechanical Testing of Steel Products.

3) ~~Article 7.2 of ASTM A 325~~ Article 7.3 of ASTM F 3125 is changed to read as follows:

"Threads shall be the Unified Coarse Thread Series as specified in ANSI/ASME B1.1 and shall have Class 2A tolerances."

b. Specifications for Nuts.

1) ASTM A 563, Carbon and Alloy Steel Nuts.

2) Proof load tests (ASTM F 606 Paragraph 4.2) are required. Galvanizing, if required, completed prior to proof load testing. Minimum frequency of tests according to ASTM A 563 Paragraph 9.3.

c. Specifications for Bolts.

1) ~~ASTM A 325~~ ASTM F 3125, High Strength Bolts for Structural Steel Joints.

2) Proof load tests (ASTM F 606, Method 1), are required. Galvanizing if required, completed prior to proof load testing. The minimum frequency of tests according to ~~ASTM A 325 Paragraph 9.5.1~~ ASTM F 3125 Paragraph 9.6.1.

Reason for Revision: Update the list of high strength fasteners to include additional options and identify galvanized and weathering designations. Also updating ASTM A 325 to ASTM F 3125 to match current ASTM numbers.

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 / Kevin Jones	**Office:** Construction & Materials	**Item 16**
Submittal Date: October 3, 2017	**Proposed Effective Date:** April 2018	
Article No.: **Title:**	**Other:** DS-15051, PCC Pavement Non-Destructive Thickness Determination	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: District 1 indicated that the District Materials Offices could be responsible for providing core locations to keep the randomness and not place extra targets.

The threshold for thickness determination will be revised to match the new probing changes by next April.

Specification Section Recommended Text: See attached Draft Developmental Specifications for PCC Pavement Non-Destructive Thickness Determination

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.)**
DS-15051 Attached

Reason for Revision: Updated the target location selection to make the process simpler.

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:

DRAFT DS-15XXX
(Replaces DS-15051)

DEVELOPMENTAL SPECIFICATIONS FOR PCC PAVEMENT NON-DESTRUCTIVE THICKNESS DETERMINATION

Effective Date
January 17, 2018

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

Replace Articles 2301.04 and 2301.05 of the Standard Specifications with the following. Differences from the Standard Specifications are highlighted.

2301.04 METHOD OF MEASUREMENT.
Measurement will be as follows:

A. Portland Cement Concrete Pavement.

1. Square yards, of the type specified, shown in the contract documents. The area of manholes, intakes, or other fixtures in the pavement will not be deducted from the measured pavement area.

2. The measurement requirements for thickness do not apply to detour pavements, paved drives, and temporary pavements. The thickness of pavement constructed will be determined from thickness measurements as follows:
- **a.** The division of sections, lots, and measurement locations will be according to Appendix A.
- **b.** At locations determined by the Engineer.
- **c.** Measurement work for thickness determination may be waived by mutual agreement for sections of the same design thickness less than 5000 square yards.
- **d.** Only sections which are measured for thickness will be included in the thickness index determination. Areas not measured for thickness will be paid for at the contract unit price.

B. Integral Curb.
Incidental to the other items of work. Not measured for payment.

C. Concrete Median.
Square yards shown in the contract documents. This will be calculated to the nearest 0.1 foot of the length along the surface and the overall width of median when no integral curb is involved, or the width from back to back of curb when integral curb is involved.

D. Bridge Approach Sections.
Square yards shown in the contract documents.

E. Excavation.

1. When the contract provides a unit price per station for earth shoulder finishing and a price per cubic yard for excavation, the excavation required for preparation of natural subgrade will be measured as provided in Article 2102.04. The volume measured for payment will include only the materials actually

removed above the elevation of the pavement subgrade and between vertical planes 1 foot outside the edge of the finished pavement.

2. Other work connected with preparation of natural subgrade will not be measured for payment.

3. When the contract provides a unit price for earth shoulder construction (whether or not a unit price per cubic yard of excavation is provided in the contract), excavation required for preparation of natural subgrade will not be measured for payment. Unless otherwise provided in the contract documents, work connected with preparation of natural subgrade will not be measured for payment.

F. Driveway Surfacing Material.
Tons or cubic yards, as provided in the contract and in Section 2315, placed at intersecting roads, drives, and turnouts. Excavation required for placement of this material will not be measured for payment.

H. Saw Cut and Joint Sealing.

1. Saw cut for constructing joints in new pavement will not be measured for payment.

2. Saw cut for cutting old existing pavement, which is to be abutted with new pavement, will not be measured for payment.

3. Joint sealing will not be measured for payment.

I. Safety Fence for Pavement.
Not measured for payment.

J. Rumble Strip Panel (PCC Surface)
By count for Rumble Strip Panels properly installed at locations designated in the contract documents.

2301.05 BASIS OF PAYMENT.
Payment will be as follows:

A. Portland Cement Concrete Pavement.

1. Contract unit price for Standard or Slip-Form Portland Cement Concrete Pavement of the type specified per square yard.

2. Payment for the quantities of pavement in square yards will be at a percentage of the contract unit price according to Table 2301.05-1.

Table 2301.05-1: Payment Schedule for Quantities of Pavement

Thickness Index Range	Percent Payment	Thickness Index Range	Percent Payment
0.00 or more	103	-0.56 to -0.60	91
-0.01 to -0.05	102	-0.61 to -0.65	90
-0.06 to -0.10	101	-0.66 to -0.70	89
-0.11 to -0.15	100	-0.71 to -0.75	88
-0.16 to -0.20	99	-0.76 to -0.80	87
-0.21 to -0.25	98	-0.81 to -0.85	86
-0.26 to -0.30	97	-0.86 to -0.90	85
-0.31 to -0.35	96	-0.91 to -0.95	84
-0.36 to -0.40	95	-0.96 to -1.00	83
-0.41 to -0.45	94	-1.01 to -1.05	82
-0.46 to -0.50	93	-1.06 to -1.10	81
-0.51 to -0.55	92	-1.11 or less	80

3. Use the following formula to determine the thickness index for the section of pavement thickness:

$$TI = \overline{(X} - S) - T$$

Where:

TI = thickness index for the section.
$\overline{X}$ = mean thickness for the section.
T = see Table 2301.05-2.
S = measurement thickness standard deviation (of the sample) for the section.

Table 2301.05-2: Thickness Value for determining Thickness Index

Type of Base, Subbase, Subgrade just below the concrete	Value of T in Inches
Natural Subgrade or Soil Aggregate Subbase	Design Thickness
HMA Base, PCC Base, or Asphalt or Cement Treated Base	Design Thickness
Modified Subbase or Special Subbase	Design Thickness minus 0.25 inches
Granular Subbase	Design Thickness minus 0.35 inches

4. Replace pavement represented by cores deficient from design thickness by 1 inch or greater. The deficient areas and the replacement of the deficient cores will be determined according to Appendix A. The cost for coring that confirms deficient pavement or determines deficient areas shall be incidental to the price paid for Portland Cement Concrete Pavement. The cost for coring that indicates that pavement is sufficient shall be paid as extra work, according to Article 1109.03, B of the Standard Specifications. The cost for coring replacement pavement to verify compliance shall be incidental to the price paid for Portland Cement Concrete Pavement.

5. At the Contractor's option, measurement readings that are larger than the thickness value (from Table 2301.05-2) by three standard deviations or greater may be removed from analysis for thickness index determination. Do not remove more than 10% of the total measurements in a section. Do not replace measurements removed from the analysis.

6. Gaps in the pavement less than 500 feet, required by staging, will be considered irregular areas for analysis of pavement thickness determinations.

7. The percent payment for projects which have all measurement readings greater than T in Table 2301.05-2 will be at least 100%.

B. Integral Curb.
Not paid for separately.

C. Concrete Median.
Contract unit price per square yard.

D. Bridge Approach Sections.

1. Contract unit price for bridge approach pavement per square yard (square meter).

2. Payment is full compensation for:

- Excavation for modified subbase and subdrain.
- Furnishing and installing subdrain.
- Furnishing and installing subdrain outlet.
- Furnishing and installing polymer grid.
- Furnishing and placing porous backfill material.
- Furnishing and placing modified subbase backfill material.
- Saw cutting.
- Furnishing and installing reinforcing steel, tie bars, and dowel assemblies.
- Placing, finishing, texturing, grooving, and curing.
- All joint construction.
- All other materials and labor to construct the Bridge Approach Section as shown in the contract documents.

E. Excavation.

1. When the contract provides a unit price per station for earth shoulder finishing and the contract also provides a price per cubic yard for excavation, payment will be the contract unit price per cubic yard for excavation in connection with subgrade preparation and building shoulders.

2. When the contract provides a unit price for earth shoulder construction, the excavation required for preparation of subgrade and construction of shoulders will not be paid for as a separate item. It is incidental to pavement construction and earth shoulder construction and is to be included in those contract prices.

3. When no price per cubic yard for excavation is provided in the contract and no unit price is provided for earth shoulder finishing or earth shoulder construction, excavation necessary for subgrade preparation is incidental to pavement construction and is to be included in that contract unit price.

F. Driveway Surfacing Material.
Contract unit price as provided in Section 2315 for the quantity of driveway surfacing placed.

H. Saw Cut and Joint Sealing
Incidental to the price for pavement.

I. Safety Fence for Pavement.
Incidental to the price for pavement.

J. Rumble Strip Panel (PCC Surface)
Each. Payment is full compensation for construction of the panels as detailed in the contract documents.

K. **General.**

1. When any of the types of additional protection described in Article 2301.03, K, 3, is necessary, additional payment will be made as extra work at the rate of $1.00 per square yard of surface protected. Payment will be limited to protection necessary within the contract period. Protection necessary after November 15 will be paid for only when the Engineer authorizes the work.

2. Furnish concrete for test specimens and transport the specimens and molds between the grade and plant as directed by the Engineer, at no additional cost to the Contracting Authority.

3. The above prices are full compensation for furnishing all tools, equipment, labor, and materials necessary for construction of the pavement in accordance with the contract documents.

4. The cost of furnishing, installing, and monitoring vibrators, as well as the vibrator monitoring device itself, is incidental to the contract unit price for PCC pavement.

APPENDIX A
EVALUATING PORTLAND CEMENT
CONCRETE PAVEMENT THICKNESS

SCOPE

Thickness measurements will be taken on Portland Cement Concrete (PCC) pavement, to determine the pavement thickness and the thickness index for each section. Refer to ~~Specification DS-15011~~ Developmental Specifications for PCC Pavement Non-Destructive Thickness Determination.

APPARATUS

1. An MIT Scan T2 gauge will be used to perform thickness measures.
2. Steel Targets will be 11.81 inches in diameter, 24 gauge, meeting ASTM A 653, commercial steel with a G90 coating (about 275 g/m^2 total both sides).

DEFINITIONS

Section: All Portland Cement Concrete in a project of the same bid item. Irregular areas, as defined herein, of the same bid item shall form a separate section.

Lot: A portion of a section normally 200 feet in length and 2 traffic lanes wide.

Regular area pavement sections:

- All mainline pavement for normal travel lanes. Includes middle (both direction) turn lanes
- Paved shoulder – if same thickness as pavement and part of pavement bid item include with pavement. If separate bid item, treat as separate section.
- Paved median - if same thickness as pavement and part of pavement bid item, and longer than 300 feet, include with pavement.
- Auxiliary lanes of full width longer 300 feet.
- Widening greater than 6 feet.

Irregular areas:

- Widening less than 6 feet.
- Side street connections.
- Ramps, including gore areas, and collector distributor roads.
- Deceleration and acceleration lanes.
- Turn lanes, including taper sections.
- Tapers.
- Radiuses.
- Median crossovers

PROCEDURES

The District Materials Engineer will determine the location of each lot, the random location of each metal target, and the random thickness measuring scheme for each section using an Iowa DOT developed MSExcel spreadsheet.

A. Target Location for Regular Areas

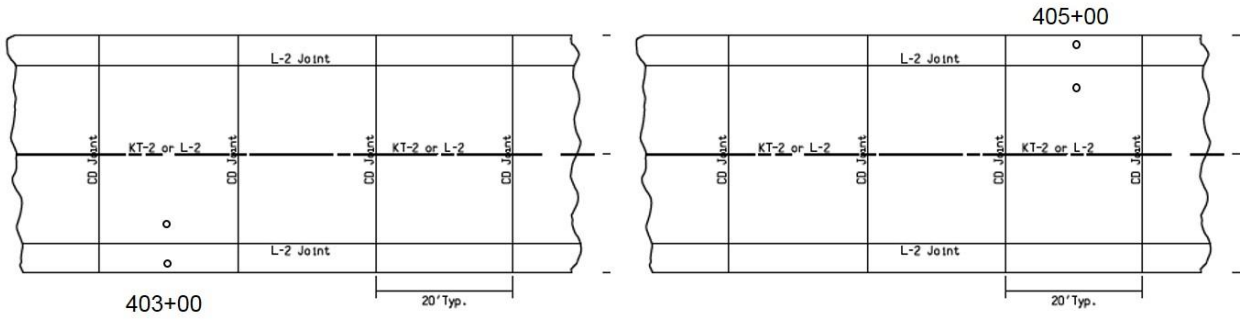
1. Divide the section longitudinally into 200 foot long lots. One target will be located in each lot ~~based on the spreadsheet selection~~. Beginning with the first station at +00, place a target in 3 feet from the edge of pavement, ~~(The targets should be placed~~ half way between dowel baskets~~)~~. Alternating right and left edge of pavement every 200 feet, place a target in 3 feet from the edge half way between dowel baskets. See Figure 1. If the +00 station falls on a basket, move the target location ahead halfway between dowel baskets. A minimum of ten targets will be tested. If a target location falls on a bridge or in an approach section, it will be eliminated.

~~2. The transverse location of the targets will be randomly determined by the spreadsheet program. The random locations will be either 6 or 10 left or right of centerline. When tie steel is present at the edge of the pavement or lane, the locations will be 5 or 9 feet..~~

~~3~~ 2. The program will randomly determine which targets to measure. If a measurement location falls on a bridge or bridge approach pavement, it will be eliminated and the next closest target not in the original random selection will be used for measurement.

~~4~~ 3. Shoulders. Divide the section into 200 foot long lots. Beginning with the first station at +00, locate a target every 200 feet, alternating between the inside and outside shoulder (or every 400 feet on one side). ~~Place targets approximately mid-point transversely on shoulders wider than 6 feet.~~ On 6 foot shoulders or wider, the targets should be 4 feet from the edge of the pavement. On 4 foot shoulders, targets should be 3 feet from the edge of pavement.

Figure1. Target Location



B. Target Location for Irregular Areas

1. All irregular areas of the same design thickness will be grouped together for determining the number of lots. The Engineer may waive sections of the same design thickness that total less than 5000 square yards.

2. Place targets randomly in all irregular areas larger than 100 square ~~feet~~ yards. One target will be randomly located in each selected irregular area~~, unless one or more of the areas are significantly larger than the others, then more than one target may be located in the large area~~. For irregular areas greater than 1000 square yards, randomly place a minimum of two targets. Targets must be placed at least 2 feet away from tie steel and 4 feet from dowel bars. A minimum of ten targets will be tested to represent each section of irregular areas. For projects with less than ten irregular areas larger than 100 square yards, select a minimum of three areas to place targets. All targets will be measured. If more than 20 targets are located in irregular areas, randomly select 50% to be tested.

C. Testing

Follow the manufacturer's instructions for operating the thickness gauge. It is important to avoid testing close to any steel including vehicles, equipment, steel toed shoes as well as tie bars, dowel bars and baskets, and manhole covers. When wearing steel toed shoes, always keep both toes at least 2 feet from the gauge during the test. Three repeat readings will be taken. The readings should all be within 1 to 2 mm of each other. If the difference between any of the readings is more than 3 mm, take 2 additional readings. If the two additional readings are within 3 mm of any of the first 3 readings, the measurement is valid for that location. If not, note that the location is not valid and select the next target location not originally selected for testing.

D. Section Evaluation

1. Use the following formula to determine the mean thickness for the section:

$$\overline{X} = \frac{\sum X}{n}$$

Where: $\overline{X}$ = mean length for the section

$\sum X$ = sum of core lengths for the section

n = number of cores taken within the section

Round the mean thickness to two decimal places.

2. Use the following formula to determine the sample standard deviation of the thickness of the section:

$$S = \sqrt{\frac{\sum (X - \overline{X})^2}{n-1}}$$

Where:

S = thickness standard deviation for the section.
$\overline{X}$ = mean thickness for the section
X = individual thickness values for the section.
n = number of tests representing the section.

$\sum$ = sign indicating the sum of all values of $(X - \overline{X})^2$

Round the sample standard deviation to two decimal places.

NOTE: Calculations of the standard deviation are best made with an electronic calculator with standard deviation capability that uses the formula containing the quantity (n-1).

3. Use the following formula to determine the thickness index for the section of pavement thickness.

$$TI = (\overline{X} - S) - T$$

Where:

TI = thickness index for the section
$\overline{X}$ = mean thickness length for the section
T = from Table 2301.05-2
S = measurement thickness standard deviation (of the sample) for the section

Round the thickness index to two decimal places.

NOTE: If the mean thickness minus the standard deviation is less than T of the section, the thickness index will be a negative number.

4. Basis of Payment. Payment for the quantities of pavement in square yards in each section will be as shown in Article 2301.05 of the Standard Specifications and based on the thickness index as determined in accordance with these instructions.

E. Deficient Areas

1. If any measurement is deficient from T by 1 inch or more, the measurement should be rechecked to confirm the reading and the equipment. If the repeat measurement is also 1 inch or more below T, mark the location directly over the target. The Contractor shall drill a 4.0 inch diameter core at that location. If the core length confirms the pavement is deficient by 1 inch or more, continue to drill cores as described below.

2. Deficient areas, represented by cores deficient in length by 1 inch or more from design thickness, are to be replaced. These areas will be determined by drilling a core 60 feet in each direction longitudinally at the same transverse location from the deficient core. Drilling will be continued at 60 feet intervals until a core is obtained which is not deficient by 1 inch or more from design thickness. Interpolate between this core and the adjacent core to determine the limits of the deficient area. This is the area to be removed and replaced at contractor's expense. These additional cores are to be used to define the deficient area and will not be used in the thickness index calculation. When an obstruction, such as a bridge, intersection, previous work,

etc., prevents drilling a core at the required 60 feet interval in either direction longitudinally, continue the balance of the distance on the other side of the obstruction.

3. Any readings taken in the area for removal will be eliminated from the analysis for the entire section. After replacement, the contractor will take cores as directed by the engineer to verify the thickness.

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Wes Musgrove / Jeff Schmitt	**Office:** Construction & Materials	**Item 17**
Submittal Date: 10-19-2017	**Proposed Effective Date:** ASAP	
Article No.: **Title:**	**Other:** SS-15006, Supplemental Specifications for Hot Mix Asphalt Interlayer	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 1/17/18

Specification Committee Approved Text: See attached Supplemental Specifications for Hot Mix Asphalt Interlayer.

2303.03, C, 4, c, 2.

Replace Table 2303.03-1:

Table 2303.03-1: Base and Intermediate Course Lifts of Asphalt Mixtures

Nominal Thickness - inches	Road Surface Temperature, ºF
~~1 1/2~~ Less than 2	40
2 – 3	35
Over 3	35

Comments: The draft Supplemental Specifications for Hot Mix Asphalt Interlayer had an error, as "static" should not have been struck through, but was being added by this revision.

The District 3 Office asked about the minimum road surface temperature for the placement of the interlayer, which is typically 1 inch. The table in the Standard Specifications does not cover 1 inch intermediate lifts, so this will be revised accordingly.

Specification Section Recommended Text: See attached Draft Supplemental Specifications for Hot Mix Asphalt Interlayer.

Comments:

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

15006.03 CONSTRUCTION.

A. Apply tack coat prior to placement of HMA interlayer according to Section 2303 of the Standard Specifications.

B. Compact with static steel wheeled roller.

~~**C.** Do not pave unless ambient temperatures are at least 60ºF and rising.~~

~~**D.**~~ **C.** Do not open to traffic until the entire mat has cooled below 150°F.

~~**E.**~~ **D. Quality Assurance/Quality Control.**

Reason for Revision: Use of a static steel wheeled roller is the accepted method for compacting the highly-polymerized HMA Interlayer mix. Vibratory roller use is not necessary for proper compaction, and will likely result in distortion of interlayer mat.

The existing ambient temperature criterion for placing the HMA Interlayer is overly restrictive. The interlayer may be placed according to minimum temperature requirements in Section 2303 of 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: District Materials Engineers had no objections to proposed changes.		
County or City Comments:		
Industry Comments: HMA Industry in agreement with proposed changes.		

SS-15009
(Replaces SS-15006)

SUPPLEMENTAL SPECIFICATIONS
FOR
HOT MIX ASPHALT INTERLAYER

Effective Date
January 17, 2018

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

15009.01 DESCRIPTION.
These specifications describe requirements for a highly polymer modified asphalt interlayer. Apply Section 2303 of the Standard Specifications unless otherwise directed in these specifications.

15009.02 MATERIALS.

A. Asphalt Binder.
Use a PG 58-34E.

B. Mix Design.

1. See Materials I.M. 510 Appendix A.

2. Mix approval is based on Performance Testing Requirements per Materials I.M. 510 Appendix A.

3. Do not use RAP.

15009.03 CONSTRUCTION.

A. Apply tack coat prior to placement of HMA interlayer according to Section 2303 of the Standard Specifications.

B. Compact with static steel wheeled roller.

~~**C.** Do not pave unless ambient temperatures are at least 60ºF and rising.~~

~~**D**~~ **C.** Do not open to traffic until the entire mat has cooled below 150°F.

~~**E**~~ **D. Quality Assurance/Quality Control.**

1. Field Voids Acceptance.
Acceptance for field voids shall be Class II compaction defined in Section 2303 of the

Standard Specifications.

2. **Lab Voids Acceptance.**
   Sample and test one hot box per day of production unless otherwise approved by the Engineer. Apply Article 2303.05, A, 3, a, 2, of the Standard Specifications for AAD acceptance. Air void target is based on approved JMF.

3. Take at least one cold feed for gradation control.

15009.04 METHOD OF MEASUREMENT.
Hot Mix Asphalt Interlayer, of the size specified, will be measured according to Article 2303.04 of the Standard Specifications.

15009.05 BASIS OF PAYMENT.
Hot Mix Asphalt Interlayer, of the size specified, will be paid for according to Article 2303.05 of the Standard Specifications.

Form 510130 (08-15)

IOWA DOT

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jeff De Vries	**Office:** District 1 Materials	**Item 18**
Submittal Date: 2017.05.04	**Proposed Effective Date:**	
Article No.: **Title:**	**Other:** Developmental Specifications for Engineered Fog Seal	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See attached Developmental Specifications for Penetrating Engineered Fog Seal.

Comments: Chris Brakke will be the controller of the DS.

District 1 Office indicated that the 97% retroreflectivity is readily achievable by the current product, but we may want to go down to 95% to foster additional products. This was changed.

The Office of Design indicated that this product may be desired for use on centerline rumble strips. Currently these are not sealed, as it would obscure the centerline pavement markings. The Office of Design will look into writing a statewide PIF (Public Interest Finding) memo for use on centerlines only.

Specification Section Recommended Text: See attached Draft Developmental Specifications for Engineered Fog Seal.

Comments: This item has been previously discussed twice, once as a DS and once as a Standard Specification revision. It was determined that making it a true option to the standard asphalt emulsion for fog seal was going to be too difficult, as the quantities are different and the engineered fog seal does not require new pavement markings. Engineered emulsion should be bid as an alternate to standard asphalt emulsion and new pavement markings.

Use of engineered fog seal only would require a Public Interest Finding (PIF) memo since there is currently only one product that has been approved. This could be desired if a fog seal is done on a roadway that had new pavement markings placed recently.

A controller will need to be identified that can make sure designers write a PIF memo when the DS is used without the standard asphalt emulsion option.

The 97% retroreflectivity will need to be verified, as this is based on one companies claim and may not be a consistently reproducible result.

One application rate was used for all engineered fog seal applications, as the rates are much lower than standard asphalt emulsion.

Sand cover and brooming were removed, as the application rate for engineered fog seal is much lower than standard asphalt emulsion.

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

Reason for Revision: New technologies providing acceptable results.

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

Comments:
County or City Comments:
Industry Comments:

DS-15060
(New)

DEVELOPMENTAL SPECIFICATIONS
FOR
PENETRATING ENGINEERED FOG SEAL

Effective Date
February 20, 2017

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.

15060.01 DESCRIPTION.

Clean the pavement surface and apply engineered emulsion to the entire pavement surface, shoulder surface, or milled shoulder rumble strip using a bituminous distributor.

15060.02 MATERIALS.

A. Material Properties.

Table 15060.02-1: Engineered Emulsion Properties

	Min.	Max.
Distillation: Oil Distillate, by Volume of Emulsion, %	12.0	18.0
Tests on Residue from Distillation Test: Penetration @ 77°F @ 0.1 mm Ductility @ 39°F 5 cm/min., cm	 100 30	 150 -
Elastic Recovery (Materials Method Test No. Iowa 631)	85	-
Specific Gravity	0.8700	0.8800
pH	3.1	5.0
Boiling Point (°F)	310	330
Sieve Test	0	0.3
Saybolt Viscosity (Materials I.M. 343), seconds	5	20

B. Use approved products from Materials I.M. 439 Appendix A. See Materials I.M. 439 for approval process.

C. Do not reduce the retroflectivity of traffic paint and/or pavement markings by more than 5% when measured per Materials I.M. 386.

15060.03 CONSTRUCTION.

A. Equipment.
Use equipment meeting the requirements of Articles 2001.12 and 2001.14 of the Standard Specifications.

B. Cleaning.
Immediately prior to placement, clean the entire surface to be treated. Use scrapers, compressed air, or other approved methods.

D. General.
Calibrate the distributor to the specified target rate prior to start of work.

E. Application.

1. Uniformly apply engineered fog sealer at the rate of 0.02 gallons per square yard of treatment area.

2. The optimum application rate may be adjusted by the Engineer based on texture, porosity, and age of the treatment surface.

3. Use safety and convenience to the public without soiling their vehicles as a controlling factor.

4. For pavement applications, apply at a width of one-half of the roadway plus an overlap of approximately 4 inches at the middle of the road. Cover each width in one application while the opposite one-half of the roadway is left open to public traffic.

5. For shoulder applications, apply so the entire shoulder surface or milled rumble strip is covered in one application.

6. Do not apply to bridge decks or railroad rails and flangeways.

7. Demonstrate to Engineer at start of work the ability to retain 95% of the initial retroreflectivity of pavement markings at no cost to the Contracting Authority. Use the procedure in Materials I.M. 386 to determine retroreflectivity.

F. Limitations.

1. Unless the Engineer approves, do not place on damp or wet surfaces, during rainy or damp weather, or when rain is anticipated within one hour after application is completed.

2. Apply during weather conditions which allow satisfactory application. Do not apply when either surface temperature or air temperature is below 50°F.

3. A sand dam or other approved means may be necessary to prevent the material from running on to the area adjacent to the work area in areas of superelevated curves.

4. Do not allow traffic on the treated surface until the engineered fog sealer has fully cured.

G. Scheduling.

1. A preconstruction conference will be required for this work. This will normally be a single conference for all work of this type in each residency.

2. At the preconstruction conference, provide the Engineer a probable schedule for work of this type in the District jurisdiction, including the sequence for each project.

15060.04 METHOD OF MEASUREMENT.

A. Measurement for Engineered Emulsion for Fog Seal (Pavement) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.

B. Measurement for Engineered Emulsion for Fog Seal (Shoulders) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.

C. Measurement for Engineered Emulsion for Fog Seal (Shoulder Rumble Strips) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.

D. Measurement for Engineered Emulsion for Fog Seal (Centerline Rumble Strips) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.

15060.05 BASIS OF PAYMENT.

A. Engineered Emulsion for Fog Seal (Pavement).

1. Payment for Engineered Emulsion for Fog Seal (Pavement), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.

2. Payment is full compensation for:
- Cleaning the pavement surface,
- Furnishing and applying the emulsion, and
- Protecting the pavement adjacent to the work area in areas of superelevated curves.

B. Engineered Emulsion for Fog Seal (Shoulders).

1. Payment for Engineered Emulsion for Fog Seal (Shoulders), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.

2. Payment is full compensation for:
- Cleaning the shoulder surface,
- Furnishing and applying the emulsion, and
- Protecting the pavement adjacent to the work area in areas of superelevated curves.

C. Engineered Emulsion for Fog Seal (Shoulder Rumble Strips).

1. Payment for Engineered Emulsion for Fog Seal (Shoulder Rumble Strips), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.

2. Payment is full compensation for:
- Cleaning the shoulder surface,
- Furnishing and applying the emulsion, and
- Protecting the pavement adjacent to the work area in areas of superelevated curves.

D. Engineered Emulsion for Fog Seal (Centerline Rumble Strips).

1. Payment for Engineered Emulsion for Fog Seal (Centerline Rumble Strips), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.

2. Payment is full compensation for:
- Cleaning the pavement surface,
- Furnishing and applying the emulsion, and
- Protecting the pavement adjacent to the work area in areas of superelevated curves.

E. Any pavement markings that do not retain 95% of their initial retroreflectivity will be replaced at no cost to the Contracting Authority.

Form 510130 (08-15)

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis / Eric Johnsen	**Office:** Specifications Section	**Item 19**
Submittal Date: 11/3/2017	**Proposed Effective Date:** 4/17/2018	
Article No.: 1113.01 **Title:** General (Electronic Document Storage)	**Other:**	

Specification Committee Action: Deferred to a future meeting.

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

Specification Committee Approved Text:

Comments: The existing method of noting on the proposal form will be used for Local Systems projects until full implementation for the majority of city and county projects in October 2018.

Specification Section Recommended Text:

1113.01, General.

Replace the first paragraph:

Electronic Document Management shall be used for electronic document storage on all contracts ~~where the Department is the Contracting Authority~~. This requirement may be ~~used on other contacts~~ waived when specified in the contract documents.

Comments:

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

Reason for Revision: To require Doc Express on most local systems projects.

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/Melissa Serio	**Office:** Construction & Materials	**Item 20**
Submittal Date: 10/20/17	**Proposed Effective Date:** April 2018 GS	
Article No.: 2435.03 A **Title:** General Requirements for Installation of Manholes and Intakes (Sanitary and Storm Sewer Structures) **Section No.:** 2552 **Title:** Trench Excavation and Backfill **Section No.:** 4118 **Title:** Pipe Bedding Material **Section No.:** 4119 **Title:** Pipe Bedding and Backfill Material for Interstate and Primary Roadways	**Other:**	

Specification Committee Action: Approved as recommended.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/17	**Effective Date:** 4/17/18

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: There will be corresponding revisions to the Standard Road Plans also.

Specification Section Recommended Text:
2435.03, A, 3, b.

Replace the Article:

Precast Structures: If precast structure is provided, install 8 inch thick pad of ~~Class I~~ bedding material a minimum of 12 inches outside the footprint of the structure. For Non-Primary Road projects, use material meeting the requirements of Section 4118. For Interstate and Primary Road projects, use material meeting the requirements of Section 4119.

2435.03, A, 12, Backfill and Compaction.

Replace the title:

Backfill and Compaction (Non-Primary Road projects).

2435.03, A, 13, Bedding and Backfill Under Interstate and Primary Roads.

Replace the title and Article:

~~Bedding and~~ Backfill ~~Under~~ (Interstate and Primary Road~~s~~ projects).

Place and compact the material according to Article 2552.03, E, 2.

2552.02, B, Pipe Bedding and Backfill Material (Interstate and Primary Roadways).

Replace the title:

~~Pipe~~ Bedding and Backfill Material (Interstate and Primary Road~~ways~~ Projects).

2552.02, C, Bedding (Class I) Material (Non-Primary Roadways).

Replace the title:
Bedding (Class I) Material (Non-Primary Road~~ways~~ Projects).

2552.02, D, Backfill Material (Non-Primary Roadways).

Replace the title:
Backfill Material (Non-Primary Road~~ways~~ Projects).

2552.03, E, 2, Bedding and Backfill (Interstate and Primary Roads).

Replace the title:
Bedding and Backfill (Interstate and Primary Road~~s~~ Projects).

2552.03, E, 2, b, Backfill.

Replace the Article:
Place backfill material after recording locations of connections and appurtenances or at the Engineer's direction. ~~Terminate backfill material at subgrade elevation.~~

1) Under Interstate and Primary Roadway.
a) Use material meeting requirements of Section 4119 for haunch support, primary backfill, and secondary backfill~~, and final trench backfill~~.
b) For trench installations through the subgrade, terminate final trench backfill material at subgrade elevation. Use final backfill material meeting requirements of Section 4119.
c) For fill or partial trench installations, terminate final trench backfill material at the top of the trench. Use final backfill material meeting the requirements of Section 4119. For fill above the trench, use Class 10 material meeting the requirements of Article 2102.02, A.

2) Outside of Interstate and Primary Roadway.
Use material meeting requirements of Section 4119 for haunch support, primary backfill, and secondary backfill. Use Class 10 material meeting requirements of Article 2102.02, A, for final trench backfill.

2552.03, E, 3, Pipe Bedding (Non-Primary Roadways).

Replace the title:
Pipe Bedding (Non-Primary Road~~ways~~ Projects).

2552.03, E, 4, Haunch Support (Non-Primary Roadways).

Replace the title:
Haunch Support (Non-Primary Road~~ways~~ Projects).

2552.03, E, 5, Primary and Secondary Backfill (Non-Primary Roadways).

Replace the title:
Primary and Secondary Backfill (Non-Primary Road~~ways~~ Projects).

2552.03, E, 6, Final Trench Backfill (Non-Primary Roadways).

Replace the title:
Final Trench Backfill (Non-Primary Road~~ways~~ Projects).

4118, Pipe Bedding Material.

Replace the title:
~~Pipe~~ Bedding Material for Non-Primary Road Projects.

4119, Pipe Bedding and Backfill Material for Interstate and Primary Roadways

Replace the title:
~~Pipe~~ Bedding and Backfill Material for Interstate and Primary Road~~ways~~ Projects.

Comments:

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

2552.02. Materials.

Replace Article titles:

B. ~~Pipe~~ Bedding and Backfill Material (Interstate and Primary Road~~ways~~ projects).
C. Bedding (Class I) Material (Non-Primary Road~~ways~~ projects).
D. Backfill Material (Non-Primary Road~~ways~~ projects).

2552.03, E. Pipe Bedding and Backfill Material.

Replace Article titles:

2. Bedding and Backfill (Interstate and Primary Road~~s~~ projects).
3. Pipe Bedding (Non-Primary Road~~ways~~ projects).
4. Haunch Support (Non-Primary Road~~ways~~ projects).
5. Primary and Secondary Backfill (Non-Primary Road~~ways~~ projects).
6. Final Trench Backfill (Non-Primary Road~~ways~~ projects).

2552.03, E, 2. Pipe Bedding and Backfill Material.

Replace the Articles:

b. Backfill.
Place backfill material after recording locations of connections and appurtenances or at the Engineer's direction. ~~Terminate backfill material at subgrade elevation.~~

1) Under Interstate and Primary Roadway.
a) Use material meeting requirements of Section 4119 for haunch support, primary backfill, and secondary backfill~~, and final trench backfill~~.
b) For trench installations through the subgrade, terminate final trench backfill material at subgrade elevation. Use final backfill material meeting requirements of Section 4119.
c) For fill or partial trench installations, terminate final trench backfill material at the top of the trench. Use final backfill material meeting the requirements of Section 4119. For fill above the trench, use Class 10 material meeting the requirements of Article 2102.02, A.

2) Outside of Interstate and Primary Roadway.
Use material meeting requirements of Section 4119 for haunch support, primary backfill, and secondary backfill. Use Class 10 material meeting requirements of Article 2102.02, A, for final trench backfill.

2435.03, A, 3. Subbase.

Replace the Article:

b. Precast Structures: If precast structure is provided, install 8 inch thick pad of ~~Class I~~ bedding material a minimum of 12 inches outside the footprint of the structure. For Non-Primary Road projects, use material meeting the requirements of Section 4118. For Interstate and Primary Road projects, use material meeting the requirements of Section 4119.

2435.03, A.

Replace the Articles:

12. Backfill and Compaction (Non-Primary Road projects).
13. ~~Bedding and~~ Backfill ~~Under~~ (Interstate and Primary Road~~s~~ projects).
Place and compact the material according to Article 2552.03, E, 2.

4118 and 4119

Replace the Section titles:

Section 4118. ~~Pipe~~ Bedding Material for Non-Primary Road Projects.

Section 4119. ~~Pipe~~ Bedding and Backfill Material for Interstate and Primary Road~~ways~~ Projects.		
Reason for Revision: Provide clarification for bedding and backfill requirements for non-primary roads on Interstate and Primary projects. Revise final trench backfill for fill or partial trench situations. Clarification to titles of 4118 and 4119 Sections.		
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: None		
County or City Comments:		
Industry Comments:		