**MINUTES**
**OF**
**IOWA DOT SPECIFICATION COMMITTEE MEETING**

**October 8, 2015**

| | | |
|---|---|---|
| **Members Present:** | Darwin Bishop | District 3 - Construction |
| | Donna Buchwald | Office of Local Systems |
| | Eric Johnsen, Secretary | Specifications Section |
| | Greg Mulder | Office of Construction & Materials |
| | Wes Musgrove | Office of Contracts |
| | Gary Novey | Office of Bridges & Structures |
| | Dan Redmond | District 4 - Materials |
| | Brian Smith | Office of Design |
| **Members Not Present:** | Mark Brandl | District 6 - Davenport RCE |
| | Mitch Dillavou | Project Delivery Bureau |
| | Tom Reis, Chair | Specifications Section |
| | Willy Sorensen | Office of Traffic & Safety |
| **Advisory Members Present:** | Lisa McDaniel | FHWA |

Eric Johnsen, Assistant Specifications Engineer, opened the meeting. The following items were discussed in accordance with the agenda dated September 28, 2015:

**1.** **Article 1102.05, Issuance of Proposals.**
**Article 1102.09, Preparation of Proposals.**
**Article 1103.01, Consideration of Bids.**

The Office of Contracts requested to implement Iowa Code section 73A.21 and 875 Iowa Administrative Code Chapter 156, requiring Contractors to indicate their resident status prior to bidding.

**2.** **Section 1105, Control of Work.**

The Office of Design requested to move plan notes regarding subsoil tillage and topsoil on haul roads to the Standard Specifications.

**3.** **Article 1108.02, A, 1, Prosecution of Work.**

The Office of Contracts requested to update the existing, outdated spec language to reflect the current practice and usage of Completion Date contracts for highway construction and maintenance projects.

**4.** **Article 2522.03, E, 12, Shaft, Base Plate, and Integral Shaft.**

The Office of Design requested to specify weathering steel for tower lighting not be galvanized.

**5.** **Article 2527.02, D, 2, d, 4, High Build Waterborne Paint Pavement Marking.**

The Office of Construction and Materials requested to eliminate retroreflectivity testing by the Engineer.

**6. Section 2552, Trench Excavation and Backfill.**

The Office of Design requested to use Class A as both bedding and backfill for Interstate and Primary roadways.

**7. DS-15006, Sliplining Existing Pipe Culverts.**

The Office of Bridges and Structures requested revision to the Developmental Specifications for Sliplining Existing Pipe Culverts.

**8. DS-12001, Colored Sealer Coating for Structural Concrete.**

The Office of Bridges and Structures requested approval of Developmental Specifications for Concrete Surface Preparation and Testing Prior to Coating Application and Developmental Specifications for Structural Concrete Coating to replace the previous Developmental Specifications for Colored Sealer Coating for Structural Concrete.

**9. DS-15XXX, Evaluation of Longitudinal Joint Quality for Flexible Paving Mixtures.**

The Office of Construction and Materials requested approval of Developmental Specifications for Evaluation of Longitudinal Joint Quality for Flexible Paving Mixtures.

**SPECIFICATION REVISION SUBMITTAL FORM**

| | | |
|---|---|---|
| **Submitted by:** Wes Musgrove | **Office:** Contracts | **Item 1** |
| **Submittal Date:** 2015.09.21 | **Proposed Effective Date:** April 2016 GS | |
| **Article No.:** 1102.05<br>**Title:** Issuance of Proposals<br>**Article No.:** 1102.09<br>**Title:** Preparation of Proposals<br>**Article No.:** 1103.01<br>**Title:** Consideration of Bids | **Other:** | |

**Specification Committee Action:** Approved with changes.

| **Deferred:** | **Not Approved:** | **Approved Date:** 10/8/2015 | **Effective Date:** 4/19/2016 |
|---|---|---|---|

**Specification Committee Approved Text:**

**1102.01, Competency and Qualification of Bidders.**

**Replace** the second sentence of Article A:

To prequalify, a prospective bidder shall complete the required sections, including Bidder Status Form, of the "Contractor's Financial - Experience - Equipment Statement" (Form 650004) and submit it to the Department.

**Add** to the end of Article H:

Bidders shall complete Bidder Status Form portion of Form 650004.

**1102.05, Issuance of Proposals.**

**Replace** the first sentence:

Requests for proposal forms to bid construction and maintenance contracts ~~must~~ and a Bidder Status Form shall be filed by noon of the working day prior to the letting.

**1102.09, E.**

**Replace** the Articles:

**5.** For Federal-aid contracts, certifies acknowledgment of the limitations of lobby activities shown in the bidding documents, ~~and~~

**6.** For Federal-aid contracts, certifies the bidder does not maintain segregated facilities~~.~~, and

**Add** the Article:

**7.** Certifies Bidder Status Form on file with the Office of Contracts is accurate.

**1103.01, Consideration Of Bids.**

**Add** the Article:

**K.** For failure to have Bidder Status Form on file with Office of Contracts.

**Comments:** The Office of Local Systems asked if the Bidder Status Form could be included in Article 1102.01, Competency and Qualification of Bidders. The Bidder Status Form is included as part of the Contractor's Financial – Experience – Equipment Statement which is required 5 calendar days before the letting. Language was added indicating that the Bidder Status Form is part of this submittal.

Per Article 1102.01, H, some Contractors are not required to be prequalified and thus are not required to fill out the Contractor's Financial – Experience – Equipment Statement. Language was added

indicating that the Contractor must fill out the Bidder Status Form portion of the Contractor's Financial – Experience – Equipment Statement.

The Office of Local Systems noted that changes were needed to Articles 5 and 6 of Article 1102.09, E, since this is a continuous list of requirements we are adding to.

**Specification Section Recommended Text:**

**1102.05, Issuance of Proposals.**

**Replace** the first sentence:

Requests for proposal forms to bid construction and maintenance contracts and a Bidder Status Form ~~must~~ shall be filed by noon of the working day prior to the letting.

**1102.09, E.**

**Add** the Article:

**7.** Certifies the Bidder Status Form on file with the Office of Contracts is accurate.

**1103.01, Consideration Of Bids.**

**Add** the Article:

**K.** For failure to have Bidder Status Form on file with the Office of Contracts.

**Comments:** Do we need to make this effective as soon as possible through use of a proposal note?

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

**1102.05 ISSUANCE OF PROPOSALS.**

Requests for proposal forms to bid construction and maintenance contracts and a Bidder Status Form must be filed by noon of the working day prior to the letting. These requests shall be submitted via the Bid Express website (www.bidx.com). Unless otherwise specified, proposal forms will be provided to qualified bidders who have filed properly documented uncompleted work under contract information with their request. Any contractor knowingly submitting false information related to their request may be suspended from bidding as provided in Article 1102.03.

**1102.09 PREPARATION OF PROPOSALS.**

**E.** By signing and submitting the proposal, the bidder:

**1.** Acknowledges the bidding requirements included in the bidding documents,

**2.** Agrees to perform all work that is necessary to complete the proposed work in the time specified. Work not covered by proposal will be paid for according to Article 1109.03,

**3.** Certifies compliance with the provision of the Code of Iowa listed in the bidding documents,

**4.** Gives an unsworn declaration on behalf of each person, firm, association, partnership, or corporation submitting a proposal, certifying that such person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures,

**5.** For Federal-aid contracts, certifies acknowledgment of the limitations of lobby activities shown in the bidding documents, and

**6.** For Federal-aid contracts, certifies the bidder does not maintain segregated facilities.

7. Certifies that the Bidder Status Form on file with the Office of Contracts is accurate.

**1103.01 CONSIDERATION OF BIDS.**

The Contracting Authority reserves the right to waive technicalities and to reject any or all proposals. Bidders may be denied a contract award for any one of the following reasons:

| | | | | | |
|---|---|---|---|---|---|
| INSERT NEW PARAGRAPH K:<br><br>K. For failure to have a Bidder Status Form on file with the Office of Contracts. | | | | | |
| **Reason for Revision:** To implement Iowa Code section 73A.21 and 875 Iowa Administrative Code Chapter 156. | | | | | |
| **County or City Input Needed (X one)** | | | **Yes** x | **No** | |
| **Comments:** Office of Local Systems has been notified of these changes. | | | | | |
| **Industry Input Needed (X one)** | | | **Yes** x | **No** | |
| **Industry Notified:** | **Yes** x | **No** | **Industry Concurrence:** | **Yes** x | **No** |
| **Comments:** AGC leadership supports proposed changes. | | | | | |

Form 510130 (08-15)

IOWA DOT

**SPECIFICATION REVISION SUBMITTAL FORM**

| | | |
|---|---|---|
| **Submitted by:** Brian Smith | **Office:** Design | **Item 2** |
| **Submittal Date:** 9/21/2015 | **Proposed Effective Date:** 4/16/2015 | |
| **Section No.:** 1105<br>**Title:** Control of Work | **Other:** | |

**Specification Committee Action:** Approved as recommended.

| | | | |
|---|---|---|---|
| **Deferred:** | **Not Approved:** | **Approved Date:** 10/8/2015 | **Effective Date:** 4/19/2016 |

**Specification Committee Approved Text:** See Specification Section Recommended Text.

**Comments:** None.

**Specification Section Recommended Text:**

**1105, Control of Work.**

**Add** the Articles:

**1105.17, Subsoil Tillage.**

Prior to placement of topsoil and/or stabilizing crop seeding, perform subsoil tillage to an average depth of 16 to 20 inches on stockpile areas, haul roads, and areas used for storage of equipment. Till at 3 foot maximum centers and at right angles to finished slope.

Equip tillage equipment with arrowhead type shoe providing lateral displacement and limit movement of subsoil to the surface. Obtain Engineer's approval for equipment.

It is intended that following subsoil tillage, the area remain in a loosened condition. Additional compaction or operation of heavy equipment, other than that required for topsoil placement and shaping, will not be allowed on areas tilled.

This work shall be considered incidental to other work on the project and will not be paid for separately.

**1105.18, Topsoil on Haul Road.**

Before placing a construction haul road, strip topsoil from within proposed haul road footprint to a depth of 8 inches and stockpile. After haul road has been removed, prepare disturbed area according to Article 1105.17, and place topsoil over disturbed area to a minimum depth of 4 inches.

This work shall be considered incidental to Mobilization and will not be paid for separately.

**Comments:**

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

**1105.17, Subsoil Tillage.**

**Add** as a new section:

Prior to placement of topsoil and/or stabilizing crop seeding, subsoil tillage to an average depth of 16 to 20 inches shall be performed on all stockpile areas, haul roads, and areas used for storage of equipment. This tillage shall be completed at 3 foot maximum centers and at right angles to the finished slope.

Tillage equipment shall be equipped with an arrowhead type shoe that will provide lateral displacement and limit the movement of the subsoil to the surface. The Contractor shall obtain the Engineer's approval for the equipment.

It is intended that following subsoil tillage, the area remain in a loosened condition. Additional compaction or the operation of heavy equipment, other than that required for topsoil placement and shaping, will not be allowed on areas which have received subsoil tillage.

This work shall be considered incidental to other work on the project and will not be paid for separately.

**1105.18, Topsoil on Haul Road.**

**Add** as a new section:

Before placing a construction haul road, topsoil from within the proposed haul road footprint shall be stripped to a depth of 8 inches and stockpiled. After the haul road has been removed, the disturbed area shall be prepared according to Article 1105.17, and then topsoil shall be placed over the disturbed area to a minimum depth of 4 inches.

This work shall be considered incidental to Mobilization and will not be paid for separately.

**Reason for Revision:**

These notes are currently included in the plans as Standard Notes 213-3 and 213-4. The Office of Design is requesting these be added to the Standard Specifications.

213-3
04-15-14

**SUBSOIL TILLAGE**

All stockpile areas, haul roads, and areas used for equipment on this project require subsoil tillage to an average depth of 16 to 20 inches prior to placement of topsoil and/or stabilizing crop seeding. Complete this tillage at 3 foot maximum centers and at right angles to the finished slope.

Use tillage equipment equipped with an arrowhead type shoe that will provide lateral displacement and limit the movement of the subsoil to the surface. Obtain the Engineer's approval for the equipment. This work is incidental to other work on the project.

Following the subsoil tillage, the area is to remain in a "loosened" condition. Additional compaction or the operation of heavy equipment, other than required for topsoil placement and shaping, will not be allowed on areas which have received subsoil tillage.

213-4
04-21-15

**TOPSOIL ON HAUL ROAD**

Before placing a construction haul road, strip and stockpile 8 inches of topsoil from within the proposed haul road footprint. After the haul road has been removed, prepare the disturbed area according to Standard Note 213-3 and then place topsoil over the disturbed area to a minimum depth of 4 inches. This work is incidental to Mobilization and will not be paid for separately.

| | | |
|---|---|---|
| **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:** |

**SPECIFICATION REVISION SUBMITTAL FORM**

| | | |
|---|---|---|
| **Submitted by:** Wes Musgrove | **Office:** Contracts | **Item 3** |
| **Submittal Date:** September 21, 2015 | **Proposed Effective Date:** April 2016 GS | |
| **Article No.:** 1108.02, A, 1<br>**Title:** Prosecution of Work | **Other:** | |

**Specification Committee Action:** Approved as recommended.

| | | | |
|---|---|---|---|
| **Deferred:** | **Not Approved:** | **Approved Date:** 10/8/2015 | **Effective Date:** 4/19/2016 |

**Specification Committee Approved Text:** See Specification Section Recommended Text.

**Comments:** None.

**Specification Section Recommended Text:**

**1108.02, A, 1.**

**Replace** the second sentence:

The proposal form may also indicate the contract period by a Completion Date ~~for non-highway type contracts (e.g. buildings, furnishing materials, etc.)~~.

**Comments:**

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

**1108.02 PROSECUTION OF WORK.**

**A. General.**

**1.** The proposal form may designate the contract period by either a Specified Start Date, Approximate Start Date, or Late Start Date. The proposal form may also indicate the contract period by a Completion Date ~~for non-highway type contracts (e.g. buildings, furnishing materials, etc.)~~. The number of working days will be designated for the three types of start dates. Working days will not apply for a Completion Date contract period.

**Reason for Revision:** To update the existing, outdated spec language to reflect the current practice and usage of Completion Date contracts for highway construction and maintenance 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:** Brian Smith | **Office:** Design | **Item 4** |
| **Submittal Date:** 9/21/2015 | **Proposed Effective Date:** 4/16/2015 | |
| **Article No.:** 2522.03, E, 12<br>**Title:** Shaft, Base Plate, and Integral Shaft | **Other:** | |

**Specification Committee Action:** Not approved.

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

**Specification Committee Approved Text:**

**Comments:** The Office of Bridges and Structures requested that this revision not be approved, as we shouldn't need to indicate not to galvanize weathering steel. Standard Road Plan LI-110 is being revised to remove any mention of galvanizing.

**Specification Section Recommended Text:**

**2522.03, E, 12, Shaft, Base Plate, and Integral Shaft.**

**Add** as last sentence:

Galvanizing of shaft, base plate, and integral shaft components will not be allowed.

**Comments:**

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

**2522.03, E, 12, Construction.**

**Add** as last sentence:

Galvanizing of shaft, base plate, and integral shaft components will not be allowed.

**Reason for Revision:** The Office of Bridges and Structures requested the Office of Design add this to Standard Road Plan LI-110. The Office of Design feels it is better to place this in the Standard Specifications.

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

**Comments:**

**County or City Comments:**

**Industry Comments:**

**SPECIFICATION REVISION SUBMITTAL FORM**

| | | |
|---|---|---|
| **Submitted by:** Greg Mulder | **Office:** Construction & Materials | **Item 5** |
| **Submittal Date:** 07-02-2015 | **Proposed Effective Date:** April 2016 | |
| **Article No.:** 2527.02, D, 2, d, 4<br>**Title:** High Build Waterborne Paint Pavement Marking | **Other:** | |

**Specification Committee Action:** Deferred to the November Specification Committee meeting.

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

**Specification Committee Approved Text:**

**Comments:** FHWA asked how the Department will assure that high-build waterborne paint pavement markings are meeting retroreflectivity requirements. Contractor is required to show that they are meeting the specifications, but the Department still needs some type of assurance testing. The Office of Construction and Materials will review and resubmit for the next Specification Committee meeting.

**Specification Section Recommended Text:**

**2527.02, D, 2, d, 4.**

**Delete** the last sentence:

~~The Engineer will use the procedure in Materials I.M. 386 to determine retroreflectivity.~~

**Comments:**

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

d. High-Build Waterborne Paint Pavement Markings.

1) Provide high build waterborne paint listed in Materials I.M. 483.03, Appendix C.

2) Supply Engineer with a copy of paint manufacturer's recommendations for applying marking material. Include in recommendations minimum pavement temperature required for painting. Install paint according to manufacturer's recommendations. Provide binder thickness of 0.022 inches ± 0.0025 inches. Bead application rate, bead gradation, and bead coating is at the discretion of the Contractor. Provide a bead package that will ensure initial retroreflectivity requirements consistently at or above the minimum.

3) Demonstrate to Engineer at start of work the ability to meet initial retroreflectivity requirements.

4) Final acceptance will be based on compliance with these specifications. Ensure markings meet the following retroreflectivity requirements.

| Minimum Coefficient of Retroreflected Luminance mcd / sq. ft. / ft.-cdl. | |
|---|---|
| White longitudinal lines | 300 |
| Yellow longitudinal lines | 225 |

~~The Engineer will use the procedure in Materials I.M. 386 to determine retroreflectivity.~~

**Reason for Revision:** Engineer does not have man power and access to equipment to do the measurements at the present time.

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

**Comments:**

**County or City Comments:**

**Industry Comments:**

Form 510130 (08-15)

**SPECIFICATION REVISION SUBMITTAL FORM**

| | | |
|---|---|---|
| **Submitted by:** Brian Smith | **Office:** Design | **Item 6** |
| **Submittal Date:** 9/21/2015 | **Proposed Effective Date:** 4/16/2015 | |
| **Section No.:** 2552<br>**Title:** Trench Excavation and Backfill<br>**Section No.:** 4119<br>**Title:** Pipe Backfill Material Under Interstate and Primary Roadways | **Other:** | |

**Specification Committee Action:** Approved as recommended.

| | | | |
|---|---|---|---|
| **Deferred:** | **Not Approved:** | **Approved Date:** 10/8/2015 | **Effective Date:** 4/19/2016 |

**Specification Committee Approved Text:** See Specification Section Recommended Text.

**Comments:** The Office of Design indicated that they worked with the Office of Construction and Materials and SUDAS to try and reach a consensus on bedding and backfill material. Since none could be reached, the specifications will have separate sections for Primary and Interstate roadways and other roadways.
The District 3 Construction Office asked why SUDAS does not want to use Class A road stone for bedding. The Office of Design indicated that SUDAS prefers a coarser product in the bottom of the trench, which can often be wet and muddy. The Department prefers a finer material which is easier to get to the proper grade for drainage. The Office of Local Systems noted that SUDAS conducted a lot of research into bedding and backfill materials.

**Specification Section Recommended Text:**

**2552.02, B, Bedding (Class I) Material.**

**Renumber** and **Retitle** the Article:

**~~B~~ C. Bedding (Class I) Material (Non-Primary Roadways).**

**2552.02, C, Backfill Material (Under Interstate and Primary Roadways).**

**Renumber, Retitle,** and **Replace** the Article:

**~~C~~ B. Pipe Bedding and Backfill Material (~~Under~~ Interstate and Primary Roadways).**

Meet requirements of Article 2102.02, A, and Section 4119.

**2552.02, D, Backfill Material (Other Areas).**

**Retitle** the Article:

**Backfill Material (~~Other Areas~~ Non-Primary Roadways)**

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

**Add** to Article 1:

**f.** Refer to Standard Road Plan SW-101 for bedding and backfill zones.

**Replace** Articles 2 and 3:

**~~2~~ 3. Pipe Bedding (Non-Primary Roadways).**

a. **Granular Material.**

**1)** Class I granular material is required for all gravity mains. Use when specified for pressure pipes.
**2)** Place bedding material in the bottom of the trench in lifts no greater than 6 inches thick. Consolidate and moderately compact bedding material.
**3)** Shape bedding material to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.
**4)** Install pipe and system components.
**5)** Place, consolidate, and moderately compact additional bedding material adjacent to the pipe to a depth equal to 1/6 the outside diameter of the pipe.

**b. Suitable Backfill Material.**
**1)** Only use with pressure pipe.
**2)** Use suitable backfill material to shape trench bottom to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.

**c. Special Pipe Embedment and Encasement Materials.**
**1)** If required in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other bedding materials.
**2)** Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.

**~~3~~ 2. Bedding and Backfill ~~Under~~ (Interstate and Primary Roads).**

**~~a.~~** Place in lifts no greater than 6 inches thick. Thoroughly tamp or vibrate each layer to ensure compaction.

~~**b.** Thoroughly tamp or vibrate each layer to insure compaction.~~

**a. Pipe Bedding.**
**1)** Shape bedding material to evenly support pipe at proper line and grade, with full contact under bottom of pipe. Excavate for pipe bells.
**2)** Install pipe and system components.
**3)** Place, consolidate, and moderately compact additional bedding material adjacent to pipe to a depth equal to 1/6 the outside diameter of pipe**.**

**b. Backfill.**

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

~~**d.** Terminate backfill material at subgrade elevation.~~

**1) Under Roadway.**
Use material meeting requirements of Section 4119 for haunch support, primary backfill, secondary backfill, and final trench backfill.

**2) Outside of 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.

**Retitle** Articles 4, 5, and 6:

**4. Haunch Support (~~Other Areas~~ Non-Primary Roadways).**

**5. Primary and Secondary Backfill (~~Other Areas~~ Non-Primary Roadways).**

**6. Final Trench Backfill (~~Other Areas~~ Non-Primary Roadways).**

**4119, Pipe Backfill Material Under Interstate and Primary Roadways.**

**Retitle** the Section:
**Pipe Bedding and Backfill Material ~~Under~~ for Interstate and Primary Roadways.**

**Comments:**

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

**2552.02, B, Bedding (Class I) Material.**

**Renumber** and **Retitle** the Article:

**~~B~~C. Bedding (Class I) Material (Non-Primary Roadways).**

Meet the requirements of Section 4118.

**2552.02, C, Backfill Material (Under Interstate and Primary Roadways).**

**Renumber, Retitle,** and **Replace** the Article:

**~~C~~B. Pipe Bedding and Backfill Material (~~Under~~ Interstate and Primary Roadways).**

Meet the requirements of Article 2102.02, A, and Section 4119.

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

**Replace** the Article:

**E. Pipe Bedding and Backfill Material.**

**1. General.**

**a.** Bedding and backfill material used for pipe installation will depend on:

**1)** Type of installation (water main, sanitary sewer gravity main, sanitary sewer force main, or storm sewer).

**2)** Pipe material.

**3)** Depth of bury.

**4)** Pipe diameter.

**b.** After pipe installation, place remaining bedding material and immediately place backfill material in trench.

**c.** Adjust the moisture content of excessively wet, but otherwise suitable, backfill material by spreading, turning, aerating, and otherwise working material as necessary to achieve required moisture range.

**d.** Adjust the moisture content of excessively dry, but otherwise suitable, backfill material by adding water, then turning, mixing, and otherwise blending the water uniformly throughout the material until the required moisture range is achieved.

**e.** Hydraulic compaction (flooding with water) is not allowed unless authorized by the Engineer.

**f.** Refer to Standard Road Plan SW-101 for bedding and backfill zones.

~~**2. Pipe Bedding.**~~

~~a. **Granular Material.**~~

~~**1)** Class I granular material is required for all gravity mains. Use when specified for pressure pipes.~~

~~**2)** Place bedding material in the bottom of the trench in lifts no greater than 6 inches (150 mm) thick. Consolidate and moderately compact bedding material.~~

~~**3)** Shape bedding material to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.~~

~~**4)** Install pipe and system components.~~

~~**5)** Place, consolidate, and moderately compact additional bedding material adjacent to the pipe to a depth equal to 1/6 the outside diameter of the pipe.~~

~~**b. Suitable Backfill Material.**~~

~~**1)** Only use with pressure pipe.~~

~~**2)** Use suitable backfill material to shape trench bottom to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.~~

~~**c. Special Pipe Embedment and Encasement Materials.**~~

~~**1)** If required in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other bedding materials.~~

~~**2)** Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.~~

**~~3~~2. Bedding and Backfill ~~Under~~ (Interstate and Primary Roads).**

~~**a.**~~ Place in lifts no greater than 6 inches (150 mm) thick. Thoroughly tamp or vibrate each layer to insure compaction.

~~**b.** Thoroughly tamp or vibrate each layer to insure compaction.~~

**a. Pipe Bedding.**

**1)** Shape bedding material to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.

**2)** Install pipe and system components.

**3)** Place, consolidate, and moderately compact additional bedding material adjacent to the pipe to a depth equal to 1/6 the outside diameter of the pipe**.**

**b. Backfill.**

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

~~**d.** Terminate backfill material at subgrade elevation.~~

**1) Under Roadway.**

Use material meeting the requirements of Section 4119 for haunch support, primary backfill, secondary backfill, and final trench backfill.

**2) Outside of Roadway.**

Use material meeting the requirements of Section 4119 for haunch support, primary backfill, and secondary backfill. Use Class 10 material meeting the requirements of Article 2102.02, A, for final trench backfill.

**3. Pipe Bedding (Non-Primary Roadways).**

a. **Granular Material.**

**1)** Class I granular material is required for all gravity mains. Use when specified for pressure pipes.

**2)** Place bedding material in the bottom of the trench in lifts no greater than 6 inches (150 mm) thick. Consolidate and moderately compact bedding material.

**3)** Shape bedding material to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.

**4)** Install pipe and system components.

**5)** Place, consolidate, and moderately compact additional bedding material adjacent to the pipe to a depth equal to 1/6 the outside diameter of the pipe.

**b. Suitable Backfill Material.**

**1)** Only use with pressure pipe.

**2)** Use suitable backfill material to shape trench bottom to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe. Excavate for pipe bells.

**c. Special Pipe Embedment and Encasement Materials.**

**1)** If required in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other bedding materials.

**2)** Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.

**4. Haunch Support (~~Other Areas~~Non-Primary Roadways).**

Place from the top of the pipe bedding to the springline of the pipe.

a. **Granular Material.**

**1)** Place Class I material in lifts no greater than 6 inches (150 mm) thick.

**2)** Consolidate and moderately compact by slicing with a shovel or using other approved techniques.

**b. Suitable Backfill Material.**

**1)** Place in lifts no greater than 6 inches (150 mm) thick.

**2)** For Class II backfill material, consolidate and moderately compact by slicing with a shovel or using other approved techniques.

**3)** For Class III and Class IVA backfill materials, compact to at least 90% of Standard Proctor Density. Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.

**c. Special Pipe Embedment and Encasement Materials.**

**1)** If required in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other haunch materials.

**2)** Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.

**5. Primary and Secondary Backfill (~~Other Areas~~Non-Primary Roadways).**

**a. General.**

**1)** For primary backfill, place from the springline of the pipe to the top of the pipe.
**2)** For secondary backfill, place from the top of the pipe to 1 foot (300 mm) above the top of the pipe.

b. **Granular Material.**
**1)** Place in lifts no greater than 6 inches (150 mm) thick.
**2)** Compact to at least 65% relative density.

**c. Suitable Backfill Material.**
**1)** Place in lifts no greater than 6 inches (150 mm) thick.
**2)** For Class II backfill material, compact to at least 65% relative density.
**3)** For Class III and Class IVA backfill materials, compact to at least 95% of Standard Proctor Density. Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.

**d. Special Pipe Embedment and Encasement Materials.**
**1)** If specified in the contract documents, use concrete, flowable mortar, or CLSM in lieu of other primary or secondary backfill materials.
**2)** Secure pipe against displacement or flotation prior to placing concrete, flowable mortar, or CLSM.

**6. Final Trench Backfill (~~Other Areas~~Non-Primary Roadways).**
**a.** Place suitable backfill material from 1 foot (300 mm) above the top of the pipe to the top of the trench.
**1)** Use no more than 8 inch (200 mm) thick lifts for backfill areas more than 3 feet (1 m) below the bottom of pavement.
**2)** Use no more than 6 inch (150 mm) thick lifts for backfill areas less than or equal to 3 feet (1 m) below the bottom of pavement.
**b.** Place backfill material after recording locations of connections and appurtenances or at the Engineer's direction.
**c.** Class I and Class II backfill material:
**1)** Compact to at least 65% relative density within right-of-way.
**2)** Compact to at least 50% relative density outside right-of-way.
**d.** Class III and Class IVA backfill material:
**1)** Compact to at least 95% of Standard Proctor Density within right-of-way.
**2)** Compact to at least 90% of Standard Proctor Density outside right-of-way.
**3)** Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.
**e.** In areas to remain unpaved, terminate backfill material 8 inches (200 mm) below finish grade. Use topsoil for the final 8 inches (200 mm) above trench backfill material.
**f.** Terminate backfill material at subgrade elevation in areas to be paved.

**4119, Pipe Backfill Material Under Interstate and Primary Roadways.**

**Change** the title of the Article:

Pipe Bedding and Backfill Material ~~Under~~for Interstate and Primary Roadways.

**Reason for Revision:** The Offices of Design and Construction and Materials met and have decided to use Class A as both bedding and backfill for Interstate and Primary roadways. This will apply to areas both underneath and outside of the roadway. Final Trench backfill can be class 10 when not under the roadway.

| | | |
|---|---|---|
| **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:** | | |

**SPECIFICATION REVISION SUBMITTAL FORM**

| | | |
|---|---|---|
| **Submitted by:** Gary Novey / Dave Claman | **Office:** Bridges & Structures | **Item 7** |
| **Submittal Date:** 8/7/15 | **Proposed Effective Date:** December 2015 | |
| **Article No.:**<br>**Title:** | **Other:** DS-15006, Sliplining Existing Pipe Culverts | |

**Specification Committee Action:** The Office of Bridges and Structures requested to defer this item due to potential additional revisions.

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

**Specification Committee Approved Text:**

**Comments:**

**Specification Section Recommended Text:** See attached Draft Developmental Specifications for Sliplining Existing Pipe Culverts.

**Comments:**

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

**Reason for Revision:** ASTM Standards for Spirally Wound PVC Pipe have changed. Revisions update to the new Standards for this product.

| | | |
|---|---|---|
| **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:**

**DS-15XXX**
**(Replaces DS-15006)**

**DEVELOPMENTAL SPECIFICATIONS**
**FOR**
**SLIPLINING EXISITNG PIPE CULVERTS**

**Effective Date**
**December 15, 2015**

**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.**

**15XXX.01 DESCRIPTION.**
Furnish and install liner pipe at locations specified in the contract documents.

**15XXX.02 MATERIALS.**

**A.** Furnish liner pipe meeting the material requirements for type of pipe specified.

1. **Solid Wall HDPE Pipe with Integral Joint.**
   - **a.** ASTM F 714, Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter. O.D. tolerances are +/- 0.60%.
   - **b.** ASTM D 3350 Polyethylene Plastics Pipe and Fittings Materials. PE cell classification 334433C or higher or Type III, Class C, Category 5, grade PE 34 will both assure pipe grade, UV protection Class C-2% minimum carbon black.

2. **Profile Wall HDPE Pipe with Integral Joint.**
   - **a.** ASTM F 894, PE Plastic Pipe. Based on Outside Diameter. O.D. tolerances should be +/- 0.60%.
   - **b.** ASTM D 3350, Polyethylene Plastics Pipe and Fittings Materials. PE cell classification 334433C or higher or Type III, Class C, Category 5, grade PE 34 will both assure pipe grade, UV protection Class C-2% minimum carbon black.
   - **c.** Minimum pipe stiffness according to ASTM D 2412 is 46 psi.

3. **Profile Wall Spirally Wound PVC Pipe with Integral Joint.**
   Comply with ASTM F ~~949, minimum pipe stiffness, 46 psi~~ 1697 and F 1741 for Material Quality Testing and Installation Calculations for Structural Integrity with a minimum Safety Factor of 2.

4. **Profile Wall PVC Pipe with Integral Joint.**
   - **a.** ASTM F 949, PVC Corrugated Sewer Pipe with A Smooth Interior and Fittings.
   - **b.** ASTM D 1784, Rigid PVC Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds. PVC minimum cell classification 12454 B.

5. **Corrugated Steel Pipe.**
   - **a.** ASTM A 760, Corrugated Steel Pipe, Metallic-Coated, For Sewers and Drains.

**b.** Corrugated Steel Pipe meeting the requirements of Article 4141.02 of the Standard Specifications.
**c.** Corrugated Steel Pipe gauges meeting the requirements of Standard Road Plan RF-32 or RF-33.

**6. Flowable Mortar.**
Apply Section 2506 of the Standard Specifications.

**B. Pipe Connections.**
Use liner pipe capable of being joined into a continuous length. Ensure joints are adequate for pushing or pulling the liner pipe through the host culvert.

**C. Pipe Dimension Table.**

**Table DS-15XXX.02-1: Pipe Dimension.**

| Nominal Pipe Size, inches | Profile Wall HDPE O.D., inches | Profile Wall HDPE I.D., inches | Solid Wall HDPE O.D., inches | Solid Wall HDPE I.D., inches | Spirally Wound PCV Pipe O.D., inches | Spirally Wound PVC Pipe I.D., inches | Profile Wall PVC O.D., inches | Profile Wall PVC I.D., inches | CSP Nominal Size., inches |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 20.24 | 18.00 | 22.00 | 20.65 | 20.45 | 20.00 | 22.60 | 20.70 | 21 |
| 30 | 27.06 | 24.00 | 28.00 | 26.29 | 27.45 | 27.00 | 25.60 | 23.50 | 27 |
| 36 | 33.82 | 30.00 | 32.00 | 30.03 | 32.79 | 32.00 | 32.20 | 29.50 | 30 |
| 42 | 40.65 | 36.00 | 40.00 | 36.95 | 38.79 | 38.00 | 38.70 | 35.50 | 36 |
| 48 | 45.20 | 40.00 | 42.00 | 39.42 | 42.79 | 42.00 | --- | --- | 42 |
| 54 | 47.47 | 42.00 | 48.00 | 44.33 | 48.79 | 48.00 | --- | --- | 48 |
| 60 | --- | --- | 54.00 | 50.68 | 54.79 | 54.00 | --- | --- | 54 |
| 66 | --- | --- | --- | --- | --- | --- | --- | --- | 60 |
| 72 | --- | --- | --- | --- | --- | --- | --- | --- | 66 |
| 78 | --- | --- | --- | --- | --- | --- | --- | --- | 72 |
| 84 | --- | --- | --- | --- | --- | --- | --- | --- | 78 |
| 90 | --- | --- | --- | --- | --- | --- | --- | --- | 84 |
| 96 | --- | --- | --- | --- | --- | --- | --- | --- | 90 |

## 15XXX.03 CONSTRUCTION.

**A.** Prior to sliplining, clean existing pipe of obstructions, solids, and so forth that will prevent the insertion of the liner.

**B.** Hold liner pipe down to create the minimum change in flowline, especially on the inlet end. An example of this would entail attaching a block to the top of the liner pipe, or adding weight to the invert to resist floatation during backfilling with flowable mortar.

**C.** Fill voids between liner pipe and host culvert with flowable mortar. Staged grouting is recommended. Ensure that voids between liner pipe and host pipe have been filled with flowable mortar by providing 2 feet of head when filling.

**15XXX.04 METHOD OF MEASUREMENT.**

**A. Sliplining Existing Culverts.**
Feet, measured to the nearest foot, shown in the contract documents for each culvert.

**B. Flowable Mortar**
Article 2506.04 of the Standard Specifications applies.

**15XXX.05 BASIS OF PAYMENT.**

**A. Sliplining Existing Culverts.**

**1.** Per lineal foot.

**2.** Payment includes all costs to inspect and clean the host culvert and all labor, equipment, and materials for sliplining and blocking the liner pipe into the host culvert.

**B. Flowable Mortar.**
Article 2506.05 of the Standard Specifications applies.

Form 510130 (08-15)

IOWA DOT

## SPECIFICATION REVISION SUBMITTAL FORM

| | | |
|---|---|---|
| **Submitted by:** Gary Novey | **Office:** Bridges and Structures | **Item 8** |
| **Submittal Date:** August 24, 2015 | **Proposed Effective Date:** | |
| **Article No.:**<br>**Title:** | **Other:** DS-12001, Colored Sealer Coating for Structural Concrete | |

**Specification Committee Action:** Approved as recommended.

| | | | |
|---|---|---|---|
| **Deferred:** | **Not Approved:** | **Approved Date:** 10/8/2015 | **Effective Date:** 12/15/2015 |

**Specification Committee Approved Text:** See attached Developmental Specifications for Concrete Surface Preparation and Testing Prior to Coating Application and Developmental Specifications for Structural Concrete Coating.

**Comments:**

**Specification Section Recommended Text:** See attached Draft Developmental Specifications for Concrete Surface Preparation and Testing Prior to Coating Application and Draft Developmental Specifications for Structural Concrete Coating.

**Comments:**

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

**Reason for Revision:** Replace DS-12001 to update prep and application of concrete coatings

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

**Comments:**

**County or City Comments:**

**Industry Comments:**

**DS-15001**
**(New)**

**DEVELOPMENTAL SPECIFICATIONS**
**FOR**
**CONCRETE SURFACE PREPARATION AND TESTING PRIOR TO COATING APPLICATION**

**Effective Date**
**December 15, 2015**

**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.**

**15001.01 DESCRIPTION.**
Prepare concrete surfaces of bridge and test for readiness prior to application of concrete coatings (paints, stains, silicate coatings, sealers, cementitious plasters, etc.) as designated in plans.

**15001.02 CONSTRUCTION.**

**A. Special considerations during concrete construction.**

**1.** On slip formed concrete barrier rails, use only curing compounds approved for over-coating by manufacturer of the concrete coating specified in the plans, or use only products that can be entirely removed by surface preparation techniques required by these specifications. Do not use curing compounds containing paraffin. Thoroughly remove curing compounds not approved by concrete coating manufacturer prior to coating application.

**2.** Ensure concrete form release compounds used are in accordance with the coating manufacturer's recommendations, or use only products that can be entirely removed by the surface preparation techniques required by these specifications.

**B. Pre-application surface preparation.**

**1.** For new concrete surfaces to receive coating, perform a Class 2 Strip Down Surface Finish according to Article 2403.03, P, 2, b, of the Standard Specifications.

**2.** After form removal, allow new concrete and surface repairs to cure for a minimum of 14 calendar days, or longer to remain in accordance with concrete coating manufacturer's recommendations.

3. Use combined sand and water blasting to prepare concrete surfaces in accordance with ASTM D 4259-88, "Standard Practice for Abrading Concrete", Section 8, "Abrasive Blast Cleaning Procedure". Surface roughness achieved shall be in accordance with the International Concrete Repair Institute (ICRI) Technical Guideline No. 310.2-1997 for Concrete Surface Profile Two (CSP 2) to Three (CSP 3) without exposure of coarse aggregate. Ensure that the finish is consistent across entire surface. Prepared surfaces shall have the texture of fine sand with no smooth, burnished or shiny areas of fine cement paste.

4. Wash concrete surfaces with clean water following combined sand and water blasting. Using lint-free towels, blot dry bug holes, voids, or depressions that contain moisture. Allow prepared concrete to dry for a minimum of 24 hours prior to coating application.

5. Protect the public, passing vehicles, the bridge, nearby waterways and vegetation, and all surfaces from harm during surface preparation. Do not blast galvanized or painted metal surfaces.

6. Ensure surfaces are clean, dry, and free of grease, oil, paint, curing compounds not approved for over-coating by concrete coating manufacturer, concrete sealers, or other material that prevents a stable bond between concrete coating and concrete surface.

7. Following surface preparation, ensure concrete to be coated passes the pH, water penetration, and moisture content tests described in these specifications.

**C. Pre-application surface tests.**

Prior to commencement of coating, check concrete surfaces for pH level. Check for presence of sealers, oils, curing compounds not approved for over-coating by concrete coating manufacturer, or other possible contaminants interfere with bond of coating to the concrete. Use the following methods and techniques:

1. **pH test.**
   The prepared concrete shall have a pH level between 6 and 10. Perform pH testing according to ASTM D 4262 prior to coating surface. An acid-etch complying with coating product manufacturer's recommendations may be added to the water wash to reduce pH. If acid-etch is used, rinse surfaces with potable water prior to re-testing the pH level.

2. **Water penetration test.**
   Test dry concrete surfaces for presence of sealers, oils, curing compounds not approved by concrete coating manufacturer, and other contaminants. Perform testing by visual inspection and by wetting with fine mist water spray. Properly prepared, porous surfaces show no water beading after 1 minute. If beading of water is apparent after 1 minute, clean surface of sealing agents. This may require further combined sand and water blasting, or light sandblasting (brush blast). Test, in different locations, portions of all surfaces designated to receive concrete coating as directed by the Engineer.

3. **Moisture content test.**
   Follow requirements of ASTM E 1907 to test for moisture content and readiness of concrete surface to receive coating. Acceptable test methods include electrical resistance or electrical impedance testing.

4. **Report of test results.**
   Submit results of tests performed to the Engineer for review. Do not begin concrete coating application until Engineer issues approval to proceed.

**D. Clean-up.**

Remove abrasive blast residue and other related debris and leave work area broom clean.

**15001.03 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.**

Concrete surface preparation and readiness testing prior to application of concrete coating will not be measured for payment. All labor, equipment, and materials required shall be considered incidental to the bid item that includes the costs associated with the concrete coating.

**DS-15035**
**(New)**

**DEVELOPMENTAL SPECIFICATIONS**
**FOR**
**STRUCTURAL CONCRETE COATING**

**Effective Date**
**December 15, 2015**

**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.**

**15035.01 DESCRIPTION.**
Following concrete surface preparation, apply concrete coating(s) of the type(s) specified surfaces designated in the plans. Contractor shall submit coating material information for approval, protect surrounding areas, and apply coating(s) in accordance with these specifications.

**15035.02 MATERIALS.**

**A.** Use coating materials of the type specified in plans. Submit products and suppliers to Engineer for approval prior to material acquisition and application. Coating shall be warranted by manufacturer as appropriate material for the specified application described in the plans.

**B.** Provide coating materials in sealed, original containers properly marked and labeled to allow verification with applicable material safety data sheets, application precautions, and instructions. Labeling shall include manufacturer's name, type of material, brand name, gloss designation, date of manufacture, shelf life, contract or order number under which the material has been ordered, lot and batch numbers, quantity, handling, thinning, and application instructions.

**C.** Submittals: At least 3 weeks prior to commencing production coating of specified surfaces, provide Product Data Sheets, and MSDS for coating products including primers, thinners, and cleaning agents.

Provide written application instructions from manufacturer, which includes recommended application equipment, application methods and rates, surface preparation requirements, and other applicable manufacturer's recommendations.

Submit paint color samples on 8.5 inch by 11 inch draw-down cards for each color specified in the plans. Deliver samples to Iowa DOT, Office of Bridges and Structures, Attn: Aesthetics Coordinator, 800 Lincoln Way, Ames, IA 50010 for review and approval prior to ordering materials.

**D.** An applicator with at least 3 years' experience applying similar coatings to concrete surfaces shall apply the product.

**15035.03 CONSTRUCTION.**

**A. Pre-application surface preparation.**
Follow surface preparation requirements listed in the plans and specifications.

If no surface preparation requirements are specified in the plans, follow coating product manufacturer's recommendations for surface preparation. If coating product literature is incomplete regarding minimum concrete cure time, surface preparation, equipment requirements, surface readiness testing, or for other questions regarding surface preparation, obtain assistance from a qualified coating product manufacturer's representative prior to beginning surface preparation.

Protect the public, passing vehicles, the bridge, nearby waterways and vegetation, and all surfaces from harm during surface preparation. Do not solvent-clean, blast-clean or acid-etch galvanized or painted metal surfaces. Following surface preparation, remove residue and other debris related to cleaning process and leave work area broom clean.

**B. Project conditions.**
Coordinate schedule for concrete coating application with earthwork, back filling operations, and other adjacent construction. Delay adjacent plantings until concrete coating application is completed. Coordinate work to allow coating application to proceed without interference from other trades, without risk of contamination of coating by airborne particles or other debris, and without risk of coated surface abrasion from equipment or personnel.

**C. Protection of surfaces and surrounding property.**
Use protective coverings, shields, or masking as necessary to protect surfaces not designated to receive coatings. When tarps are used, firmly secure to avoid being dislodged by wind. If tarps become dislodged, stop work immediately and secure. When sustained winds are 40 mph or above, drop and secure tarps. Maintain protective coverings during entire period work is being performed, and remove coverings upon completion of work.

Use diligence to ensure vehicles, structures, buildings, vegetation, equipment, hardware, fixtures, and other surfaces not designated to receive concrete coating are protected from overspray, drips, spillage, and other damage. Remove overspray or drips on adjacent surfaces in accordance with manufacturer's recommendations. Contractor shall be responsible for cleanup of spills. Cleanups shall be performed at no additional cost.

When applying coating adjacent to occupied buildings, coordinate shutdown of air handling equipment with building owners throughout application process. Cover air intakes and air conditioning vents, which could carry odors or fumes into buildings. Vents shall remain covered and air handling equipment shall remain inactive until surfaces are visibly dry or odor has dissipated. Maintain adequate ventilation when working in confined areas.

**D. Product application.**
Following completion of surface preparation, obtain Engineer's approval to proceed prior to beginning concrete coating application.

If coating product literature is incomplete regarding any part of product application process, equipment requirements, surface priming, allowable conditions, or for any other questions regarding product application, obtain assistance from a qualified coating product manufacturer's representative prior to beginning coating application.

Surfaces to be coated shall be clean, dry, and free of oil, dirt, grease, form release agent, efflorescence, or other substance which inhibits penetration and adhesion of coating. Surface readiness for coating shall be in accordance with manufacturer's recommendations, including allowable moisture content, surface profile, PH level, etc.

If coating manufacturer recommends certification of coating applicators, personnel directly involved in coating application shall be certified according to manufacturer's recommendations.

Apply using brush, roller, or sprayer according to coating manufacturer's recommendations. Total number of coats applied shall be according to manufacturer's recommendations, but with a minimum of two coats of topcoat color applied. Follow manufacturer's recommendations for drying time between coats.

Apply coating only during dry conditions. Follow manufacturer's recommendations for acceptable atmospheric conditions such as allowable air and concrete temperatures, humidity, dew point, wind, sun exposure, potential future precipitation events, etc., both at the time of application and for entire curing period established by manufacturer.

Do not dilute material except as allowed by manufacturer for the specified application. Follow manufacturer's recommendations for priming, thinning, mixing, and pot life.

1. **Spray Application.**
   Spray application equipment and methods shall be according to coating manufacturer's recommendations. Follow manufacturer's recommendations for total minimum dry film thickness.

2. **Brush and Roller Application.**
   Brushes and roller materials and methods used shall be according to coating manufacturer's recommendations. Follow manufacturer's recommendations for total minimum dry film thickness.

**E. Inspection.**
Engineer will inspect work to verify that it is in accordance with the requirements of this specification. Contractor shall facilitate this inspection as required, including providing Engineer with advance notice of scheduled work, allowing ample time for inspections and access to work. Inspections may include, but are not limited to, surface cleanliness, coating application, curing, touchup, and final appearance. Contractor shall not proceed with subsequent phases of work until Engineer has approved preceding phase.

No drips or runs shall be evident in the coated surface. Coating coverage shall be complete and consistent across the entire coated surface. Correct surface defects to the satisfaction of the Engineer.

The inspection by the Engineer does not relieve Contractor of responsibility to comply with requirements of this specification. Contractor shall furnish, until final acceptance of concrete coating, equipment and instrumentation needed for self-inspection of the work to remain in compliance with manufacturer's recommendations and these specifications.

**15035.04 METHOD OF MEASUREMENT.**
Square yards shown in the contract.

**15035.05 BASIS OF PAYMENT.**

**A.** Payment will be the contract unit price per square yard for the Structural Concrete Coating.

**B.** Payment is full compensation for furnishing labor, equipment, and materials used to prepare and test surfaces, protect surrounding property, and apply coats of the concrete coating.

Form 510130 (08-15)

IOWA DOT

**SPECIFICATION REVISION SUBMITTAL FORM**

| | | |
|---|---|---|
| **Submitted by:** Greg Mulder | **Office:** Construction and Materials | **Item 9** |
| **Submittal Date:** 9/14/2015 | **Proposed Effective Date:** December 2015 | |
| **Article No.:**<br>**Title:** | **Other:** DS-15XXX, Evaluation of Longitudinal Joint Quality for Flexible Paving Mixtures | |

**Specification Committee Action:** Approved with changes.

| | | | |
|---|---|---|---|
| **Deferred:** | **Not Approved:** | **Approved Date:** 10/8/2015 | **Effective Date:** 12/15/2015 |

**Specification Committee Approved Text:** See attached Developmental Specifications for Evaluation of Longitudinal Joint Quality for Flexible Paving Mixtures with Incentive/Disincentive.

**Comments:** "With Incentive/Disincentive" was added to the DS title to differentiate this DS from the SS that will be used on all other flexible paving projects.

The Committee decided that combining this DS with the existing SS was not feasible as the designer does not know when the incentive/disincentive would be used to include in the plan. The estimator in the Office of Contracts will have to know that if the DS is included in the Project Scheduling System, they should not automatically add the SS to the proposal.

The maximum incentive and disincentive amounts were calculated based on previous results to balance out the amount paid for incentive and disincentive.

**Specification Section Recommended Text:** See attached Draft Developmental Specifications for Evaluation of Longitudinal Joint Quality for Flexible Paving Mixtures.

**Comments:** Should we have something in the title that is different from the SS, such as "with Incentive/Disincentive"?

Is there any way we could add this language to the SS and indicate on the plans when incentive / disincentive is paid?

Why is the maximum disincentive amount greater than the maximum incentive amount?

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

Create a new DS that duplicates SS-15004 with the following revisions:

**DSXX004.04 METHOD OF MEASUREMENT**

The Engineer will measure the length of each longitudinal joint density lot in feet.

**DSXX004.05 BASIS OF PAYMENT.**

Use the Table DS-15XXX-01 to determine the lot payment adjustment.

Table DS-15XXX-01

| Avg Joint Density (%) | Payment Adjustment ($/ft) |
|---|---|
| < 95.0[1] | 0.16*Avg Joint Density -15.2 |
| 95.0 – 97.0 | $0.00 |
| > 97.0[2] | 0.1333*Avg Joint Density – 12.93 |

1. Disincentive is not to exceed $0.80/ft
2. Incentive is not to exceed $0.40/ft

**Reason for Revision:** Phasing in the incentive/disincentive structure for the existing SS-15004.

| | | |
|---|---|---|
| **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:** The limits and payment structure are based on data collected since 2012. It is anticipated that the minimum 95% density criteria may increase at some point in the future, but 95% is a suitable introductory target. | | |
| **County or City Comments:** | | |
| **Industry Comments:** Agree with phasing in the price adjustments with DS. Anticipate reviewing after 2016 before expanded implementation. | | |

**DS-15036**
**(New)**

**DEVELOPMENTAL SPECIFICATIONS**
**FOR**
**EVALUATION OF LONGITUDINAL JOINT QUALITY FOR**
**FLEXIBLE PAVING MIXTURES WITH INCENTIVE/DISINCENTIVE**

**Effective Date**
**December 15, 2015**

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

**15036.01 DESCRIPTION.**
This work is evaluating in-place quality of centerline longitudinal joints on surface wearing courses for flexible paving and replaces Article 2303.03, D, 4, c, of the Standard Specifications.

**15036.02 EVALUATION.**

**A. General Requirements**.
For Class I compaction areas on the surface, longitudinal joint density lots independent from the mat will be established for mainline paving as specified in Article DS-15036.02, B, for acceptance. Class I compaction is defined in Article 2303.03, C, 5, of the Standard Specifications. Mainline shall be considered through lanes within the traveled way including middle turn lanes. Sampling and testing will be for information only.

**B. Sampling.**

**1.** When surface paving abuts a previously placed surface course, forming a completed longitudinal joint eligible for evaluation, Engineer will obtain and test samples according to Materials I.M. 320 and 321. Using random core locations determined for daily field voids lot (mat), Engineer will randomly select three of these locations to be sampled for joint density. When length of longitudinal joint is less than 3 mat sublots, Engineer will select two sublot locations. When length of longitudinal joint(s) is less than 2 mat sublots, joint cores will be waived.

**2.** When sampling for mat field voids is modified to include multiple days due to low production, sampling from the joint may also be modified by the Engineer.

**3.** Joints constructed with tandem pavers will be included, unless otherwise indicated in the contract documents.

**4.** For vertical joints, center joint cores on the visible seam between to the two adjacent lanes as shown in Appendix A of these specifications.

**5.** For notched wedge joints, center joint cores 4 inches away from the visible seam in the direction of the wedge as shown in Appendix A of these specifications.

**6.** Under direction and witnessing of the Engineer, drill one 6 inch diameter core at each sample location as soon as possible, but no later than the day following the completion of the longitudinal joint.

**7.** Do not compress, bend, or distort samples during cutting, handling, transporting, and storing. If samples are damaged, immediately obtain replacement samples, as directed by the Engineer, longitudinally from within 12 inches of the original sample location.

**8.** Apply Article 2303.03, D, 5, c, of the Standard Specifications for post drilling operations.

**9.** Report sample locations and test results on the daily plant report corresponding with the JMF used in production of the sublot(s).

**C. Lot Size.**
Lot size shall be the length of field voids lot where longitudinal joint(s) exist.

**D. Excluded Areas.**

**1.** Engineer will not obtain samples from the following excluded areas to determine lot acceptance:
- Joints where one side of the joint is formed by existing pavement not constructed under this contract
- Joints where one side of the joint is not on the mainline surface.
- Areas within 1 foot longitudinally of an obstruction during construction of surface course (manholes, inlet grates, utilities, bridge structures, runout, etc.). Should a random sample location fall within 1 foot of such an area, Engineer will select an alternate nearby location away from obstruction.
- Small areas, such as intersections, gore areas or transitions, or anywhere Engineer determines paving and phasing methods do not allow for consistent longitudinal joint construction.

**2.** Prior to paving, submit requests in writing to the Engineer for consideration of areas to be excluded on this basis. Engineer will make the final determination.

**E. Joint Density.**
Determine average joint density as a percent of average mat density per Appendix A. Mat cores and joint cores shall be collected on the same day of production for density determination. Mat cores identified as outliers for field voids acceptance will not be used in average mat density calculation.

**15036.04 METHOD OF MEASUREMENT.**
The Engineer will measure the length of each longitudinal joint density lot in feet.

**15036.05 BASIS OF PAYMENT.**
Use the Table DS-15036-01 to determine the lot payment adjustment.

**Table DS-15036-01: Payment for Longitudinal Joint Density**

| Avg Joint Density (%) | Payment Adjustment ($/ft) |
|---|---|
| < 95.0[1] | 0.16*Avg Joint Density -15.2 |
| 95.0 – 97.0 | $0.00 |
| > 97.0[2] | 0.1333*Avg Joint Density – 12.93 |

1. Disincentive is not to exceed $0.80/ft.
2. Incentive is not to exceed $0.40/ft.

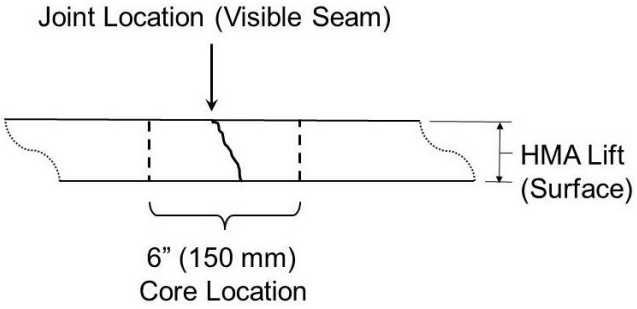
## APPENDIX A

### A. Joint Density

$$\boldsymbol{Avg\ Joint\ Density} = \mathbf{100} \times \frac{\boldsymbol{Avg\ Joint\ G_{mb}}}{\boldsymbol{Avg\ Mat\ G_{mb}}}$$

### B. Coring Diagram

**(a) Vertical Edge/Conventional (Butt) Joint**




**(b) Notched Wedge Joint**