MEMORANDUM

October 2, 2019

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Agenda for the October 17, 2019 Standards Committee Meeting

A Standards Committee meeting is scheduled for 09:00 a.m. on October 17, 2019 in the IGCS Building Conference Room 4&5.

The following items are listed for consideration:

A. GENERAL BUSINESS ITEMS

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

1. Approval of the Minutes from the September 19, 2019 meeting

2. Discontinue use of Recurring Special Provision (Scott Trammell)

    707-B-172 INTERIOR DIAPHRAGMS

    (Adopted 05-24-06)

    The substitution of structural steel interior diaphragms for cast-in-place reinforced concrete interior diaphragms will not be allowed on this contract.
B. CONCEPTUAL PROPOSAL ITEMS

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

(No items on this agenda)

C. STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS PROPOSED ITEMS

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

Item No. 1  (2020 SS) Mr. Orton pg 4

Standard Drawings:
E 503-BATJ-01 TERMINAL JOINT INDEX AND GENERAL NOTES
E 503-BATJ-02 TERMINAL JOINT, TYPE PCCP
E 503-BATJ-03 TERMINAL JOINT, TYPE HMA

Item No. 2  (2020 SS) Mr. Beeson pg 12

303.02 Materials
401.05 Volumetric Mix Design
401.11 Preparation of Surfaces to be Overlaid
401.14 Spreading and Finishing
401.19 Pay Factors
402.04 Design Mix Formula
402.09 Acceptance of Mixtures
402.13 Spreading and Finishing
410.14 Spreading and Finishing
718.02 Materials
904.03 Coarse Aggregates

Item No. 3  (2020 SS) Mr. Beeson pg 21

901.07 Rapid Setting Patch Materials

Item No. 4  (2020 SS) Mr. Beeson pg 25

202.03 Removal of Bridges, Culverts, and Other Drainage Structures
202.13 Method of Measurement
202.14 Basis of Payment
SECTION 619 PAINTING BRIDGE STEEL (VARIOUS)
cc: Committee Members
    FHWA
    ICI
PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The terminal joint standard drawings that were submitted and approved at the July 18, 2019 Standard Committee Meeting indicate that the setting width of the pre-compressed foam is to be determined based on actual ambient temperature at the time of construction. Concerns were raised at the Indiana Constructors, Inc. (ICI) meeting on August 8, 2019 about this variability in joint setting widths.

PROPOSED SOLUTION: In order to address the variable joint setting width concern, INDOT reviewed the thermal movements and determined conditions which would allow a constant setting width, regardless of changes in ambient temperature. The proposed joint setting width is constant for expansion lengths less than or equal to 150 ft., which will apply to most terminal joint installation. The joint setting width will remain dependant on ambient temperature for expansion lengths greater than 150 ft.

APPLICABLE STANDARD SPECIFICATIONS: 503 (PCCP Joints) - No changes due to this proposal

APPLICABLE STANDARD DRAWINGS: E 503-BATJ-02 & 03 (RPD 503-R-692d 2&3 of 3) - Proposed changes attached

APPLICABLE DESIGN MANUAL SECTION: 17.5.09(01), 402-7.02(03), and 409-2.04 – No changes due to this proposal

APPLICABLE SECTION OF GIFE: 8.7.4 - No changes due to this proposal

APPLICABLE RECURRING SPECIAL PROVISIONS: RSP 503-R-692 - No changes due to this proposal

PAY ITEMS AFFECTED: No changes due to this proposal

APPLICABLE SUB-COMMITTEE ENDORSEMENT: N/A

IMPACT ANALYSIS (attach report):

Submitted By: Pete White for Mark Orton (Terminal Joint details orignially submitted by Nick Cosenza for Kumar Dave on 5/20/19)

Title: Standards Engineer

Organization: Standards & Policy

Phone Number: 317-467-3461

Date: September 11, 2019
IMPA CT ANA LYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? RSP 724-B-309 - No changes due to this proposal

Will approval of this item affect the Approved Materials List? No

Will this proposal improve:
- Construction costs? No
- Construction time? No
- Customer satisfaction? No
- Congestion/travel time? No
- Ride quality? No

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:
- For motorists? No
- For construction workers? No

Will this proposal improve quality for:
- Construction procedures/processes? Yes
- Asset preservation? Yes
- Design process? Yes

Will this change provide the contractor more flexibility? Yes

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes

Is this proposal needed for compliance with:
- Federal or State regulations? No
- AASHTO or other design code? No

Is this item editorial? Yes

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

This relatively minor change should simplify the construction of terminal joints and reduce the risk of errors in the field.
GENERAL NOTES:

1. When the approach pavement is Continuously Reinforced Concrete Pavement (CRCP) or HMA over CRCP, the details shall be as shown elsewhere on the plans.

2. Width of concrete sleeper slab shall match width of reinforced concrete bridge approach slab.

3. Reinforcing bars shall be epoxy coated.

4. Sleeper slab and terminal joint shall be concrete, Class A.

5. The driving surface of the concrete slab shall be surface sealed.

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<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>SUBJECT</th>
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</thead>
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<td>1</td>
<td>Terminal Joint Index and General Notes</td>
</tr>
<tr>
<td>2</td>
<td>Terminal Joint, Type PCCP</td>
</tr>
<tr>
<td>3</td>
<td>Terminal Joint, Type HMA</td>
</tr>
</tbody>
</table>

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INDIANA DEPARTMENT OF TRANSPORTATION

TERMINAL JOINT INDEX AND GENERAL NOTES
SEPTEMBER 2020

STANDARD DRAWING NO. E 503-BATJ-01
REVISION TO STANDARD DRAWINGS

E 503-BATJ-02 TERMINAL JOINT, TYPE PCCP (WITH MARKUPS)

NOTES:

1. The joint opening width shall be constructed based on the actual ambient temperature at the time of construction, with the manufacturer’s joint setting table. The expansion length shall be as shown on plans. The minimum and maximum joint opening width shall be as shown below:
   - Expansion length 250 ft. or less
     W(min.)=1.3 in.
     W(max.)=2.7 in.
   - Expansion length greater than 250 ft. and less than 400 ft.
     W(min.)=1.0 in.
     W(max.)=4.0 in.

2. The precompressed foam joint shall be able to accommodate both the minimum and maximum joint opening widths as shown herein.


5. Expansion cap shall be placed with an air gap of 1/4 in. min. between end of dowel bar and end of cap. Expansion caps shall be placed on alternating end of the dowel bar.

6. Tining or grooving of the concrete shall be terminated 6 in. in advance of the joint opening.

7. JRCP thickness shall match the thickness of reinforced concrete bridge approach.

8. Underdrains shall be constructed when shown in plans.

LEGEND

JRCP Jointed Reinforced Concrete Pavement

INDIANA DEPARTMENT OF TRANSPORTATION

TERMINAL JOINT, TYPE PCCP

SEPTEMBER 2020

STANDARD DRAWING NO.  E 503-BATJ-02
REVISION TO STANDARD DRAWINGS

E 503-BATJ-02 TERMINAL JOINT, TYPE PCCP (PROPOSED CHANGES SHOWN)

NOTES:
1. The joint opening width shall be 2.5 in. for expansion lengths of 150 ft. or less, regardless of the joint setting temperature. For expansion lengths greater than 150 ft., the joint opening width shall be constructed based on the actual ambient temperature at the time of construction, with the manufacturer's joint setting table. The expansion length shall be as shown on plans.

2. The precompressed foam joint shall be able to accommodate both the minimum and maximum joint opening widths as shown herein.
   - Expansion length 250 ft. or less
     W(min.) = 1.3 in.
     W(max.) = 3.7 in.
   - Expansion length greater than 250 ft. and less than 400 ft.
     W(min.) = 1.0 in.
     W(max.) = 3.0 in.

5. Expansion cap shall be placed with an air gap of 1/4 in. min. between end of dowel bar and end of cap. Expansion caps shall be placed on alternating end of the dowel bar.
6. Tensioning of the concrete shall be terminated 6 in. in advance of the joint opening.
7. JRPC thickness shall match the thickness of reinforced concrete bridge approach.
8. Underdrains shall be constructed as shown in plans.

LEGEND

JRPC Jointed Reinforced Concrete Pavement

INDIANA DEPARTMENT OF TRANSPORTATION

TERMINAL JOINT, TYPE PCCP

SEPTEMBER 2020

STANDARD DRAWING NO. E 503-BATJ-02
REVISION TO STANDARD DRAWINGS
E 503-BATJ-03 TERMINAL JOINT, TYPE HMA (WITH MARKUPS)

NOTES:

1. The joint opening width shall be constructed based on the actual ambient temperature at the time of construction, with the manufacturer’s joint setting table. The expansion length shall be as shown on plans. The minimum and maximum joint opening width shall be as shown below:

- Expansion length 250 ft. or less
  - W(min.) = 1.3 in.
  - W(max.) = 3.7 in.
- Expansion length greater than 250 ft. and less than 400 ft.
  - W(min.) = 1.0 in.
  - W(max.) = 4.0 in.

2. The precompressed foam joint shall be able to accommodate both the minimum and maximum joint opening widths as shown herein.

3. Pavement section to be shown on plans.
   - Minimum Thickness:
     - 15 in. HMA for 12 in. RCBA
     - 13 in. HMA for 10 in. RCBA

4. Trenching or grooving of the concrete shall be terminated 6 in. in advance of the joint opening.

INDIANA DEPARTMENT OF TRANSPORTATION
TERMINAL JOINT, TYPE HMA
SEPTEMBER 2020

STANDARD DRAWING NO. E 503-BATJ-03

DESIGN STANDARDS ENGINEER DATE

CHIEF ENGINEER DATE
REVISION TO STANDARD DRAWINGS

E 503-BATJ-03 TERMINAL JOINT, TYPE HMA (PROPOSED CHANGES SHOWN)

NOTES:

1. The joint opening width shall be 2.5 in. for expansion lengths of 150 ft. or less, regardless of the joint setting temperature. For expansion lengths greater than 150 ft., the joint opening width shall be constructed based on the actual ambient temperature at the time of construction, with the manufacturer's joint setting table. The expansion length shall be as shown on plans.

2. The precompressed foam joint shall be able to accommodate both the minimum and maximum joint opening widths as shown herein.
   - Expansion length 250 ft. or less
     - W(min.) = 1.9 in.
     - W(max.) = 3.1 in.
   - Expansion length greater than 250 ft. and less than 400 ft.
     - W(min.) = 1.9 in.
     - W(max.) = 3.0 in.

3. Pavement section to be shown on plans. Minimum Thickness:
   - 15 in. HMA for 12" RCBA
   - 13 in. HMA for 10" RCBA

4. Taping or grooving of the concrete shall be terminated 6 in. in advance of the joint opening.

LONGITUDINAL SECTION

593 x 7'-8" (for 12" RCBA)
593 x 7'-4" (for 10" RCBA)

PRE-COMPRESSED FOAM JOINT DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION

TERMINAL JOINT, TYPE HMA
SEPTEMBER 2020

STANDARD DRAWING NO.  E 503-BATJ-03

DESIGN STANDARDS ENGINEER  DATE

CHIEF ENGINEER  DATE
### COMMENTS AND ACTION

**E 503-BATJ-01 thru -03 TERMINAL JOINT**

### DISCUSSION:

<table>
<thead>
<tr>
<th>Motion:</th>
<th>Action:</th>
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<tbody>
<tr>
<td></td>
<td>Passed as Submitted</td>
</tr>
<tr>
<td></td>
<td>Passed as Revised</td>
</tr>
<tr>
<td></td>
<td>Withdrawn</td>
</tr>
</tbody>
</table>

| Standard Specifications Sections referenced and/or affected: | |
| 503 (PCCP Joints) - No changes due to this proposal | 2022 Standard Specifications |

| Recurring Special Provision affected: | |
| 503-R-692 - NO CHANGES DUE TO THIS PROPOSAL | Revise Pay Items List |

| Standard Drawing affected: | |
| E 503-BATJ-02 & 03 (RPD 503-R-692d 2&3 of 3) | Revise RSP (No. __) |

| Design Manual Sections affected: | |
| 17.5.09(01), 402-7.02(03), and 409-2.04 – No changes due to this proposal | Standard Drawing Effective: |

| GIFE Sections cross-references: | |
| 8.7.4 - No changes due to this proposal | Create RPD (No. __) Effective: |

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**SiteManager Update**
PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Various minor issues have arisen:

- Need an option to reduce the cost of aggregate shoulder.
- Further improvements of 401 specifications regarding mix design and RAP usage can be made.
- The spec has no minimum HMA/SMA temperatures for non density-controlled mixes.
- Increased costs due to being too prescriptive on 402 mix.
- Discrepancy in specs regarding HMA for Underdrains.
- Confusion on coarse aggregate requirements for Cat 4 surface mixtures.

PROPOSED SOLUTION: Allow plant processed RAP to be used on shoulders. Update HMA mix design requirements. Add minimum HMA temp for mixture not controlled by cores. Allow 402 HMA type substitution. Clarify coarse aggregate requirements.

For record: We are proposing 9.5mm dense grade HMA be allowed to go finer. Finer graded mixtures tend to be more compactible and less permeable, adding to pavement life. After analyzing available data, no correlation was found between the PCS control point and friction numbers. It is proposed to match what is already allowed on 12.5mm mixtures, which is used as a surface course.

APPLICABLE STANDARD SPECIFICATIONS: 303, 401, 402, 410, 718, 904

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS:

PAY ITEMS AFFECTED: N/A

APPLICABLE SUB-COMMITTEE ENDORSEMENT: INDOT/PAI Steering Committee.

IMPACT ANALYSIS (attach report):

Submitted By: Matt Beeson for Nathan Awwad

Title: State Materials Engineer

Organization: INDOT

Phone Number: 317-522-9662
Date: 9/24/19
IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections?  N

Will approval of this item affect the Approved Materials List?  N

Will this proposal improve:

- Construction costs?  Y
- Construction time?  N
- Customer satisfaction?  Y
- Congestion/travel time?  N
- Ride quality?  Y

Will this proposal reduce operational costs or maintenance effort?  Y

Will this item improve safety:

- For motorists?  N
- For construction workers?  N

Will this proposal improve quality for:

- Construction procedures/processes?  Y
- Asset preservation?  Y
- Design process?  Y

Will this change provide the contractor more flexibility?  Y

Will this proposal provide clarification for the Contractor and field personnel?  Y

Can this item improve/reduce the number of potential change orders?  Y

Is this proposal needed for compliance with:

- Federal or State regulations?  N
- AASHTO or other design code?  N

Is this item editorial?  N

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:  This is a culmination of "minor" specification changes that have been compiled over the last 9 months.
REVISION TO STANDARD SPECIFICATIONS

SECTION 303 - AGGREGATE PAVEMENTS OR SHOULDERS
303.02 MATERIALS

SECTION 401 - QC/QA HMA PAVEMENT
401.05 VOLUMETRIC MIX DESIGN
401.11 PREPARATION OF SURFACES TO BE OVERLAID
401.14 SPREADING AND FINISHING
401.19 PAY FACTORS

SECTION 402 - HMA PAVEMENT
402.04 DESIGN MIX FORMULA
402.09 ACCEPTANCE OF MIXTURES
402.13 SPREADING AND FINISHING

SECTION 410 - QC/QA HMA - SMA PAVEMENT
410.14 SPREADING AND FINISHING

SECTION 718 - UNDERDRAINS
718.02 MATERIALS

SECTION 904 - AGGREGATES
904.03 COARSE AGGREGATES

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 303, BEGIN LINE 9, INSERT AS FOLLOWS:

303.02 Materials
Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher, Size No. 53**

Coarse Aggregate, Class D or Higher, Size No. 73**

** Reclaimed asphalt pavement, RAP, may be used in lieu of coarse aggregate on aggregate shoulders. The RAP shall be obtained from a Certified HMA Plant in accordance with 401.02. The plant-produced stockpile shall be comprised of RAP processed so that 100% will pass the 2 in. (50 mm) sieve.

** Surface courses only, when specified.

SECTION 401, BEGIN LINE 68, DELETE AND INSERT AS FOLLOWS:

The single percentage of aggregate passing each required sieve shall be within the limits of the following gradation tables:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Dense Graded, Mixture Designation – Control Point (Percent Passing)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25.0 mm</td>
</tr>
<tr>
<td>50.0 mm</td>
<td></td>
</tr>
<tr>
<td>37.5 mm</td>
<td>100.0</td>
</tr>
<tr>
<td>25.0 mm</td>
<td>90.0 - 100.0</td>
</tr>
<tr>
<td>19.0 mm</td>
<td>&lt; 90.0</td>
</tr>
<tr>
<td>12.5 mm</td>
<td>&lt; 90.0</td>
</tr>
<tr>
<td>9.5 mm</td>
<td>&lt; 90.0</td>
</tr>
<tr>
<td>4.75 mm</td>
<td>&lt; 90.0</td>
</tr>
<tr>
<td>2.36 mm</td>
<td>19.0 - 45.0</td>
</tr>
<tr>
<td>1.18 mm</td>
<td></td>
</tr>
<tr>
<td>600 µm</td>
<td></td>
</tr>
<tr>
<td>300 µm</td>
<td></td>
</tr>
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</table>
**REVISION TO STANDARD SPECIFICATIONS**

**SECTION 303 - AGGREGATE PAVEMENTS OR SHOULDERS**

**303.02 MATERIALS**

**SECTION 401 - QC/QA HMA PAVEMENT**

401.05 VOLUMETRIC MIX DESIGN

401.11 PREPARATION OF SURFACES TO BE OVERLAID

401.14 SPREADING AND FINISHING

401.19 PAY FACTORS

**SECTION 402 - HMA PAVEMENT**

402.04 DESIGN MIX FORMULA

402.09 ACCEPTANCE OF MIXTURES

402.13 SPREADING AND FINISHING

**SECTION 410 - QC/QA HMA - SMA PAVEMENT**

410.14 SPREADING AND FINISHING

**SECTION 718 - UNDERDRAINS**

718.02 MATERIALS

**SECTION 904 - AGGREGATES**

904.03 COARSE AGGREGATES

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<table>
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<tr>
<th>75 µm</th>
<th>1.0 - 7.0</th>
<th>2.0 - 8.0</th>
<th>2.0 - 10.0</th>
<th>2.0 - 10.0</th>
<th>3.0 - 8.0</th>
</tr>
</thead>
</table>

* The mix design gradation shall be less than or equal to the PCS control point 58.0 percent passing the 2.36 mm sieve for all 9.5 mm surface mixtures. The mix design gradation can be greater than the PCS control point 58.0 percent passing the 2.36 mm sieve when used on non-Department maintained facilities.

** The total blended aggregate gradation for the 4.75 mm mixture shall have a fineness modulus greater than or equal to 3.30 as determined in accordance with AASHTO T 27.

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**PCS Control Point for Mixture Designation (Percent Passing)**

<table>
<thead>
<tr>
<th>Mixture Designation</th>
<th>25.0 mm</th>
<th>19.0 mm</th>
<th>12.5 mm</th>
<th>9.5 mm</th>
<th>4.75 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Control Sieve</td>
<td>4.75 mm</td>
<td>4.75 mm</td>
<td>2.36 mm</td>
<td>2.36 mm</td>
<td>n/a</td>
</tr>
<tr>
<td>PCS Control Point</td>
<td>40</td>
<td>47</td>
<td>39</td>
<td>47</td>
<td>n/a</td>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Open Graded, Mixture Designation – Control Point (Percent Passing)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>OG9.5 mm</td>
</tr>
<tr>
<td>37.5 mm</td>
<td></td>
</tr>
<tr>
<td>25.0 mm</td>
<td></td>
</tr>
<tr>
<td>19.0 mm</td>
<td></td>
</tr>
<tr>
<td>12.5 mm</td>
<td>100.0</td>
</tr>
<tr>
<td>9.5 mm</td>
<td>75.0 – 100.0</td>
</tr>
<tr>
<td>4.75 mm</td>
<td>10.0 – 35.0</td>
</tr>
<tr>
<td>2.36 mm</td>
<td>0.0 – 15.0</td>
</tr>
<tr>
<td>1.18 mm</td>
<td>2.0 – 18.0</td>
</tr>
<tr>
<td>600 µm</td>
<td>1.0 – 13.0</td>
</tr>
<tr>
<td>300 µm</td>
<td>0.0 – 10.0</td>
</tr>
<tr>
<td>150 µm</td>
<td>0.0 – 9.0</td>
</tr>
<tr>
<td>75 µm</td>
<td>0 – 6.0</td>
</tr>
</tbody>
</table>

% of Binder

| > 3.0 | > 3.0 | > 3.0 |

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Dust/Calculated Effective Binder Ratio shall be 0.6 to 1.4. The Dust/Calculated Effective Binder Ratio for 4.75 mm mixtures shall be 1.0 to 2.0.
The optimum binder content shall produce a $\Delta P_b \leq 0.20$ as determined in accordance with ITM 591 and the following air voids at $N_{des}$:

<table>
<thead>
<tr>
<th>Air Voids at Optimum Binder Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dense Graded</strong></td>
</tr>
<tr>
<td>Mixture Designation</td>
</tr>
<tr>
<td>Air Voids</td>
</tr>
</tbody>
</table>

**SECTION 401, BEGIN LINE 360, INSERT AS FOLLOWS:**

Rubblized concrete pavements shall be primed in accordance with 405. PCCP, milled asphalt surfaces, new asphalt surfaces, and asphalt surfaces shall be tacked in accordance with 406. Contact surfaces of curbing, gutters, manholes, and other structures shall be tacked in accordance with 406.

**SECTION 401, BEGIN LINE 381, INSERT AS FOLLOWS:**

401.14 Spreading and Finishing
The mixture shall be placed upon an approved surface by means of laydown equipment in accordance with 409.03(c). Prior to paving, both the planned quantity and lay rate shall be adjusted by multiplying by the MAF. When mixture is produced from more than one DMF for a given pay item, the MAF will be applied to the applicable portion of the mixture for each. The temperature of each mixture at the time of spreading shall be less than 315°F whenever PG 64-22 or PG 70-22 binders are used or not more than 325°F whenever PG 76-22 binder is used. For mixtures compacted in accordance with 402.15, the temperature of each mixture at the time of spreading shall not be less than 245°F. No mixture shall be paved on a previously paved course that has not cooled to below 175°F.

<table>
<thead>
<tr>
<th>Air Voids</th>
<th>Dense Graded</th>
<th>Open Graded</th>
<th>Pay Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviation from Spec (±%)</td>
<td>≤ 0.5</td>
<td>≤ 3.0</td>
<td>1.05</td>
</tr>
<tr>
<td></td>
<td>&gt; 0.5 and ≤ 1.7</td>
<td>&gt; 3.0 and ≤ 4.0</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>4.1</td>
<td>4.2</td>
<td>0.98</td>
</tr>
<tr>
<td></td>
<td>4.3</td>
<td>4.4</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>4.4</td>
<td>4.5</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>4.6</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>4.7</td>
<td>4.8</td>
<td>0.78</td>
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<tr>
<td></td>
<td>4.9</td>
<td>5.0</td>
<td>0.72</td>
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<tr>
<td></td>
<td>&gt; 2.0</td>
<td>&gt; 5.0</td>
<td>0.60</td>
</tr>
<tr>
<td>Submitted to the Office of Materials Management*</td>
<td></td>
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</tr>
</tbody>
</table>

* Test results will be considered and adjudicated as a failed material in accordance with normal Department practice as listed in 105.03.

** Deviation shall be from 17.5% for OG25.0 mm and OG19.0 mm mixtures and shall be from 12.5/14.5% for OG9.5 mm mixtures.
SECTION 402, AFTER LINE 38, INSERT AS FOLLOWS:

   A Type D mixture may be used in lieu of a Type C or a Type B mixture and a Type C mixture may be used in lieu of a Type B mixture.

SECTION 402, BEGIN LINE 99, DELETE AND INSERT AS FOLLOWS:

   402.09 Acceptance of Mixtures

   Acceptance of mixtures will be in accordance with the Frequency Manual on the basis of a type D certification in accordance with 916. The test results shown on the certification shall be the quality control tests representing the material supplied and include air voids and binder content. Air voids tolerance shall be ±1.5-2.0% and binder content tolerance shall be ±0.7% from DMF.

SECTION 402, BEGIN LINE 176, INSERT AS FOLLOWS:

   The temperature of each mixture at the time of spreading shall be less than 315°F whenever PG 64-22 or PG 70-22 binders are used. The temperature of each mixture at the time of spreading shall not be less than 245°F. No mixture shall be paved on a previously paved course that has not cooled to less than 175°F.

SECTION 410, BEGIN LINE 251, INSERT AS FOLLOWS:

   410.14 Spreading and Finishing

   The mixture shall be placed upon an approved surface by means of a paver or other mechanical devices in accordance with 409.03. Mixtures in areas inaccessible to mechanical devices may be placed by other methods. The temperature of mixture at the time of spreading shall be no more than 315°F whenever PG 70-22 binder is used or no more than 325°F whenever PG 76-22 binder is used. The temperature of mixture at the time of spreading shall be no more than 315°F whenever PG 70-22 binder is used or no more than 325°F whenever PG 76-22 binder is used. The temperature of each mixture shall not be less than 245°F at the time of spreading when placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3. No mixture shall be paved on a previously paved course that has not cooled to less than 175°F.
The mixture for HMA for underdrains shall be Intermediate OG19.0 mm in accordance with 401. An ESAL Category 4 in accordance with 401.04 and a PG Binder 76-22 shall be used. A MAF in accordance with 401.05 will not apply. Acceptance of the HMA for underdrains will be in accordance with 402.09, except the air voids tolerance shall be ±3.5%.

Crushed dolomite and polish resistant aggregates may be used up to a maximum 50% by volume of the coarse aggregate material retained on the No. 4 (4.75 mm) sieve when blended with a high friction aggregate.

Crushed stone and gravel may be used up to a maximum 20% by volume of the coarse aggregate material retained on the No. 4 (4.75 mm) sieve when blended with a high friction aggregate.
COMMENTS AND ACTION

303.02 MATERIALS
401.05 VOLUMETRIC MIX DESIGN
401.11 PREPARATION OF SURFACES TO BE OVERLAID
401.14 SPREADING AND FINISHING
401.19 PAY FACTORS
402.04 DESIGN MIX FORMULA
402.09 ACCEPTANCE OF MIXTURES
402.13 SPREADING AND FINISHING
410.14 SPREADING AND FINISHING
718.02 MATERIALS
904.03 COARSE AGGREGATES

DISCUSSION:

Motion:  
Second:  
Ayes:  
Nays:  
FHWA Approval:  

Standard Specifications Sections referenced and/or affected:

- 303.02 pg 253; 401.05 pg 288; 401.11 pg 297; 401.14 pg 297; 401.19 pg 304; 402.04 pg 313; 402.09 pg 315; 402.13 pg 317; 410.14 pg 343; 718.02 pg 712; 904.03 pg 951

Recurring Special Provision affected:

- NONE

Standard Drawing affected:

- NONE

Design Manual Sections affected:

- NONE

GIFE Sections cross-references:

- NONE

Action:  
Passed as Submitted
Passed as Revised
Withdrawn
2022 Standard Specifications
Revise Pay Items List
Create RSP (No. __)
Effective:
RSP Sunset Date:
Revise RSP (No. __)
Effective:
RSP Sunset Date:
Standard Drawing
Effective:
Create RPD (No. __)
Effective:
GIFE Update
SiteManager Update
STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED:
There is an error in the table in section 901.07(c) that establishes the criteria for the approved list of Rapid Setting Patch Materials. The table shows a value of 0.03% for shrinkage (ASTM C157) which no rapid setting patch material can meet.

PROPOSED SOLUTION:
Revise the specification requirement to 0.075% which was established under research project SPR-3019 (Field Trials of Rapid Setting Repair Materials). All of the current products on INDOT’s approved list for Rapid Setting Patch materials meet the proposed value of 0.075%.

APPLICABLE STANDARD SPECIFICATIONS: 901.07

APPLICABLE STANDARD DRAWINGS: none

APPLICABLE DESIGN MANUAL SECTION: none

APPLICABLE SECTION OF GIFE: none

APPLICABLE RECURRING SPECIAL PROVISIONS:

PAY ITEMS AFFECTED: none

APPLICABLE SUB-COMMITTEE ENDORSEMENT: N/A

IMPACT ANALYSIS (attach report):

Submitted By: Matt Beeson for Mike Nelson
Title: State Materials Engineer
Organization: INDOT Office of Materials Management
Phone Number: 317-522-9662
Date: 9/26/19
IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No

Will approval of this item affect the Approved Materials List? Yes

Will this proposal improve:

- Construction costs? N/A
- Construction time? N/A
- Customer satisfaction? Yes
- Congestion/travel time? N/A
- Ride quality? Yes

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

- For motorists? N/A
- For construction workers? N/A

Will this proposal improve quality for:

- Construction procedures/processes? No
- Asset preservation? No
- Design process? N/A

Will this change provide the contractor more flexibility? No

Will this proposal provide clarification for the Contractor and field personnel? No

Can this item improve/reduce the number of potential change orders? N/A

Is this proposal needed for compliance with:

- Federal or State regulations? No
- AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda: N/A
The Standard Specifications are revised as follows:

SECTION 901, BEGIN LINE 559, DELETE AND INSERT AS FOLLOWS:

<table>
<thead>
<tr>
<th>Physical Test</th>
<th>Specification</th>
<th>Requirement</th>
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<tr>
<td><strong>Setting Time:</strong></td>
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</tr>
<tr>
<td>Normal Weather</td>
<td>ASTM C 266</td>
<td><strong>Initial at 72°F</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 – 20 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Final at 72°F</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 – 35 min</td>
</tr>
<tr>
<td>Hot Weather</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASTM C 266</td>
<td><strong>Initial at 95°F</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 – 20 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Final at 95°F</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 – 35 min</td>
</tr>
<tr>
<td><strong>Compressive Strength, minimum</strong></td>
<td>ASTM C 109</td>
<td><strong>72°F, Normal</strong></td>
</tr>
<tr>
<td>1 h</td>
<td></td>
<td>2,000 psi</td>
</tr>
<tr>
<td>2 h</td>
<td></td>
<td>3,000 psi</td>
</tr>
<tr>
<td>24 h</td>
<td></td>
<td>5,000 psi</td>
</tr>
<tr>
<td>28 days</td>
<td></td>
<td>8,000 psi</td>
</tr>
<tr>
<td><strong>Compressive Strength, minimum</strong></td>
<td>ASTM C 109</td>
<td><strong>95°F, Hot</strong></td>
</tr>
<tr>
<td>3 h</td>
<td></td>
<td>3,000 psi</td>
</tr>
<tr>
<td>24 h</td>
<td></td>
<td>5,000 psi</td>
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<tr>
<td>28 days</td>
<td></td>
<td>8,000 psi</td>
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<tr>
<td>Relative Dynamic Modulus</td>
<td>ASTM C 666</td>
<td><strong>95% min.</strong></td>
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<td>Procedure B, 300 cycles</td>
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<tr>
<td>Slant Shear Bond Strength, minimum</td>
<td>ASTM C 882</td>
<td>2,500 psi</td>
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<tr>
<td>28 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexural Strength, 24 h</td>
<td>ASTM C 78</td>
<td>500 psi</td>
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<td>mortar only</td>
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<td>600 psi</td>
</tr>
<tr>
<td>mortar – aggregate extension</td>
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<td></td>
</tr>
<tr>
<td>Shrinkage, maximum <em>(in air)</em></td>
<td>ASTM C 157</td>
<td><strong>0.030.075%</strong></td>
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<tr>
<td>28 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaling Resistance</td>
<td>ASTM C 157</td>
<td>0 rating, No scale</td>
</tr>
<tr>
<td>5 cycles</td>
<td></td>
<td>0 rating, No scale</td>
</tr>
<tr>
<td>25 cycles</td>
<td></td>
<td>1.5 rating, Lt. scale</td>
</tr>
<tr>
<td>50+ cycles</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Material used shall be neat rapid setting patch material mixed in accordance with the manufacturer’s installation instructions.
## COMMENTS AND ACTION

### 901.07 RAPID SETTING PATCH MATERIALS

#### DISCUSSION:

<table>
<thead>
<tr>
<th>Motion:</th>
<th>Action:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second:</td>
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</tr>
<tr>
<td>Ayes:</td>
<td>Passed as Submitted</td>
</tr>
<tr>
<td>Nays:</td>
<td>---</td>
</tr>
<tr>
<td>FHWA Approval:</td>
<td>---</td>
</tr>
</tbody>
</table>

**Standard Specifications Sections referenced and/or affected:**

- 501, 502, 507, 731, 735, and 901.07 pg 921

**Recurring Special Provision references in:**

- 724-B-309 PRE-COMPRESSED FOAM JOINT;
- 738-B-297 POLYMERIC CONCRETE BRIDGE DECK OVERLAY

**Standard Drawing affected:**

- NONE

**Design Manual Sections affected:**

- NONE

**GIFE Sections cross-references:**

- NONE

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**2022 Standard Specifications**

- Revise Pay Items List

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**GIFE Update**

- SiteManager Update
PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED:
The 619 specification needs updated to address paint on the top flange of steel members, painting of bearing assemblies, painting of piling, and the environmental and safety requirements.

PROPOSED SOLUTION:
Incorporate the proposed changes into the specifications.

APPLICABLE STANDARD SPECIFICATIONS: 202 and 619

APPLICABLE STANDARD DRAWINGS: none

APPLICABLE DESIGN MANUAL SECTION: none

APPLICABLE SECTION OF GIFE: 5.24

APPLICABLE RECURRING SPECIAL PROVISIONS: create new RSP

PAY ITEMS AFFECTED: create new pay items

APPLICABLE SUB-COMMITTEE ENDORSEMENT: This proposal was reviewed by the INDOT-ICI bridge committee on 3/21/19. An ad-hoc committee consisting of: Nicole Fohey-Breting, Kirk Frederick, Derrick Hauser, Laura Hilden, Marlene Mathas, Greg Pankow, Tim Perkins, and Jim Reilman worked on this proposal.

IMPACT ANALYSIS (attach report):

Submitted By: Matt Beeson for Jim Reilman
Title: State Materials Engineer
Organization: INDOT Office of Materials Management
Phone Number: 317-522-9662
Date: 9/26/19
IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No

Will approval of this item affect the Approved Materials List? No

Will this proposal improve:

- Construction costs? N/A
- Construction time? N/A
- Customer satisfaction? N/A
- Congestion/travel time? N/A
- Ride quality? N/A

Will this proposal reduce operational costs or maintenance effort? N/A

Will this item improve safety:

- For motorists? N/A
- For construction workers? N/A

Will this proposal improve quality for:

- Construction procedures/processes? Yes
- Asset preservation? Yes
- Design process? Yes

Will this change provide the contractor more flexibility? N/A

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes

Is this proposal needed for compliance with:

- Federal or State regulations? No
- AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:
The Standard Specifications are revised as follows:

SECTION 202, BEGIN LINE 92, INSERT AS FOLLOWS:

202.03 Removal of Bridges, Culverts, and Other Drainage Structures

Bridges, culverts, and other drainage structures in use by traffic shall not be removed in whole or in part until satisfactory arrangements have been made to accommodate traffic. Any excavation adjacent to the structure or to its approaches shall be shored adequately to avoid damage to them or to traffic.

When a reinforced concrete arch bridge is to be removed, either in whole or in part, the work shall include the removal of miscellaneous items within the limits of the structure, which must be removed prior to or in conjunction with the removal of the structure. These miscellaneous items shall include but shall not be limited to: concrete and asphalt pavements; concrete and asphalt sidewalks; and fill within the arches regardless of content.

For all painted or coated structural steel including beams, girders, diaphragms, cross frames, plates, and all other structural steel items that become the property of the Contractor through either a complete bridge removal in accordance with 202.03(a) or the removal of portions of a bridge in accordance with 202.03(b), the Contractor shall either:

1. take the steel to a recycling facility for proper disposal, or

2. take ownership of the steel.

If the Contractor elects to take the steel to a recycling facility, a receipt from the facility shall be provided. The receipt from the recycling facility shall show the name of the facility that accepted the material, address, city, state, zip code, contract number, bridge number, date material was received from the Contractor, weight of the material accepted by the recycling facility, and detailed description of the items given to the recycling facility.

If the Contractor elects to take ownership of the steel, the Contractor shall assume that the steel has mill scale beneath the existing coating. The steel shall be cleaned in accordance with 619.14 prior to its removal from the project.

SECTION 202, BEGIN LINE 519, INSERT AS FOLLOWS:

Removal of present structure or portions thereof will not be measured for payment.

For steel that the Contractor elects to take to a recycling facility, handling, hauling, and all other activities involved with removing and properly disposing of existing steel at a recycling facility will not be measured for payment.
REVISION TO STANDARD SPECIFICATIONS

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS
202.03 REMOVAL OF BRIDGES, CULVERTS, AND OTHER DRAINAGE STRUCTURES
202.13 METHOD OF MEASUREMENT
202.14 BASIS OF PAYMENT
SECTION 619 - PAINTING BRIDGE STEEL (VARIOUS)

For steel that will become the property of the Contractor, required cleaning of existing steel, removal of mill scale, testing, disposal of the waste stream, containment, and all other items involved with removing and properly disposing of the existing coating will not be measured for payment.

Pavement removal will be measured by the square yard of the area removed.

SECTION 202, BEGIN LINE 749, INSERT AS FOLLOWS:

The cost of all handling of the product, removal of the product from the tank, disposal, all required packaging, and transportation shall be included in the cost of underground storage tank, liquid waste disposal.

All necessary cleanup of spills caused by the Contractor will not be paid for.

For steel that the Contractor elects to take to a recycling facility, the cost of handling, hauling, and all other costs involved with removing and properly disposing of existing steel at a recycling facility shall be included in the cost of present structure remove, or present structure remove, portions pay item. The Department will withhold a payment equal to 50% of the present structure remove, or present structure remove, portions pay item until the Contractor presents a receipt from the recycling facility indicating that the recycling facility is now in possession of the steel.

For steel that will become the property of the Contractor, the cost of cleaning existing steel, removal of mill scale, testing, disposal of the waste stream, containment, and all other costs involved with removing and properly disposing of the existing coating shall be included in the cost of present structure remove, or present structure remove, portions pay item. The Department will withhold payment of 50% of the present structure remove, or present structure remove, portions pay item until the Contractor presents a receipt from the facility where the waste stream disposal occurred.
SECTION 619, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

**619.01 Description**
This work shall consist of preparing surfaces, disposing of waste residue, and applying paint or another coating to steel bridges, steel piling, bearing assemblies, or other steel items in accordance with 105.03.

**MATERIALS**

**619.02 Materials**
Materials shall be in accordance with the following:

- Epoxy Intermediate Paint .......................................................... 909.02(b)
- Finish Coat for Weathering Steel ............................................. 909.02(e)
- Multi-Component Inorganic Zinc Silicate Primer .......................... 909.02(a)1
- Organic Zinc Primer .................................................................. 909.02(a)2
- Polyurethane Finish Coat .......................................................... 909.02(c)
- Structural Steel Coating Systems .............................................. 909.03
- Waterborne Finish Paint ............................................................ 909.02(d)

Material safety data sheets shall be provided in the QCP for all materials to be delivered to the project site.

SECTION 619, BEGIN LINE 128, DELETE AND INSERT AS FOLLOWS:

**619.07 Environmental and Safety and Environmental Requirements**
Safety requirements, pollution control, and waste disposal of existing paint residue and debris shall be in accordance with the following requirements.

**(a) Safety Requirements**
The containment system shall be in accordance with 619.07(b)1a or 619.07(b)1b, as applicable, based on the year the structure was built as shown in the contract.

Workers shall be protected in accordance with IOSHA requirements. The Contractor shall follow OSHA rules and regulations and be responsible for determining the level of hazards that are present in the containment during the removal of the existing bridge coating operation. Once the Contractor establishes the level of hazard present, the Contractor shall be responsible for furnishing personal protective equipment to provide the degree of protection necessary for the established level of hazard. All Contractor and Department personnel on the project site shall wear personal protective equipment to the level of hazard as determined by the sampling and monitoring requirements performed by the Contractor. The protective equipment shall be furnished by the Contractor, including to Department personnel. Training shall be given to all personnel who are provided with personal protective equipment. Personal protective equipment shall include, but not be
limited to, clean air supplied respirators, air purifying respirators, conventional hoods as applicable, eye protection, and protective clothing. Two rooms for changing and washing shall be provided on bridges containing hazardous-based coatings.

**Pollution Control**

Pollution control shall consist of two different operations. One shall be controlling and containing the atmosphere generated during the coating removal operation. The other shall be controlling and containing the solid waste stream generated as a result of the coating removal operation.

**1. Containment for Advertised Non-Hazardous Sites**

During Existing Coating Removal Operations

Blasting materials, scrapings, wire brushings, and paint particles shall be contained in accordance with SSPC-Guide 6, Class 2A with method A, level 2 emissions, specifically for non-hazardous primed bridges. During existing coating removal operations, the Contractor shall recognize that the environment created by removal of the existing coating from the structure may create an atmosphere in which hazards to personnel on the jobsite are likely to be generated, and thus the Contractor shall be responsible for controlling and protecting the exposure of all workers and the surrounding environment from the hazards.

The characterization of the level of hazard of the existing coating that the Department considers to be present on the structure will be dictated by the year the structure was built as indicated in a. or b. below. The characterization of the level of hazard of the existing coating is not related to the results of the TCLP.

**a. Containment for Structures Built Before 1995**

For structures shown in the contract documents as being built before 1995, the Contractor shall provide a containment system in order to contain all blasting materials, scrapings, wire brushings, and paint particles in accordance with SSPC-Guide 6, Class 2A or greater with method A, level 1 emission control capability. The Contractor shall take samples and monitor the work environment in accordance with IOSHA requirements and shall provide personal protective equipment appropriate to the conditions present within the work environment.

**b. Containment for Structures Built After 1994**

For structures shown in the contract documents as being built after 1994, the Contractor shall provide a containment system in order to contain all blasting materials, scrapings, wire brushings, and paint particles in accordance with SSPC-Guide 6, Class 2A or greater with method A, level 3 emission control capability. The Contractor shall take samples and monitor the work environment in accordance with IOSHA requirements and shall provide personal protective equipment appropriate to the conditions present within the work environment.
2. Containment for Advertised Hazardous Sites

Blasting materials, scrapings, wire brushings, and paint particles shall be contained in accordance with SSPC Guide 6, Class 2A or better with method A, level 0 emissions, for hazardous primed bridges.

Regardless of the level of containment as listed above, if a spill, as defined in IDEM Regulation 327 IAC 2-6.1 does occur, all work shall stop and immediate action shall be taken to clean up the site. Spills of material, that enter or threaten to enter the water, shall be handled in accordance with IDEM Regulation 327 IAC 2-6.1. The IDEM Emergency Response Branch, the local health department, and all water intake users within 500 ft of the bridge shall be immediately contacted and advised of the spill. Written documentation of all such contacts and actions shall be kept. All applicable Federal, State, and local rules and regulations described in 619.07(b)1 and 619.07(b)2b(1) shall be observed.

2. Pollution Control of the Generated Waste Stream

3a. Waste Stream Sampling

Each bridge shall generate a separate waste stream and shall not be commingled with other materials. The sample of waste residue from the bridge shall be obtained at the conclusion of the first day of the coating removal operation for that bridge. The sample will be shipped to be tested within 24 h in a manner agreed to by the Department and as described in the QCP. The Engineer will witness the extraction of the waste residue sample. The Department will maintain custody of the waste residue sample until it is shipped. The waste residue sample shall be taken by random method as described in the QCP which reflects representation of the entire bridge. The samples shall be analyzed for all contaminants listed in ITM 803 by the TCLP. All remaining waste residue shall be placed in an approved container. Such containers shall be labeled and maintained to comply with 40 CFR 264.

No waste shall remain on the booms or on any water surface overnight. All blasting debris shall be cleaned up after each day’s work. All waste material shall be properly stored at the project site to prevent loss or pollution.

If the waste stream sample analysis is returned with one or more of the contaminants meeting or exceeding the regulatory level for the respective contaminant, the entire waste stream for that bridge shall be considered to exhibit the characteristic of toxicity and thus shall be characterized as and considered to be hazardous.

If the waste stream sample characterization is returned with none of the contaminants meeting or exceeding the regulatory level for the respective contaminant, the...
entire waste stream for that bridge shall be considered to not exhibit the characteristic of toxicity and thus shall be characterized as and considered to be non-hazardous.

The characterization of the waste stream as either hazardous or non-hazardous for disposal shall be based only on the results of the TCLP. The results of the TCLP do not dictate the level of the containment system required as per 619.07(b)1.

If hazardous materials are found to be present in the waste residue sample of an advertised, non-hazardous site, the Contractor shall immediately stop all cleaning and painting operations on that bridge shown on the plans as having non-hazardous coatings. The Contractor shall immediately notify the Engineer that hazardous materials have been found and, if not addressed in the QCP, the Contractor shall submit revisions to the QCP that detail the necessary changes due to the presence of hazardous materials. The Contractor shall not return to work until the revised QCP is approved in writing.

4.6. Waste Disposal

Regardless of the waste characterization obtained from the waste sample, disposal of existing paint and debris shall be in accordance with SSPC-Guide 7 and the following requirements.

1.(i) Laws to be Observed

Federal and State laws and regulations regulate the disposal of bridge painting debris. Bridge paint debris shall be manifested or certified and shall be disposed of at an appropriate disposal facility.

The Contractor shall have direct knowledge regarding compliance with laws pertaining to pollution control and waste management such as, but not limited to, the following.

a. subtitle C of the RCRA, 40 CFR 261, 262, 263, 265, and 268;

b. the Solid Waste Rule, 329 IAC 10;

c. the Hazardous Waste Rule, 329 IAC 3.1;

d. the Air Pollution Rule 329 IAC 6-4;

e. the Water Pollution Rule, 327 IAC 2-6.1;

f. the United States Department of Transportation regulations 49 CFR 172.300; and
REVISION TO STANDARD SPECIFICATIONS

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS
202.03 REMOVAL OF BRIDGES, CULVERTS, AND OTHER DRAINAGE STRUCTURES
202.13 METHOD OF MEASUREMENT
202.14 BASIS OF PAYMENT

SECTION 619 - PAINTING BRIDGE STEEL (VARIOUS)

202.14 BASIS OF PAYMENT

33.
g. OSHA worker safety regulations 29 CFR 1926.

2.(2) Time Limitations
The maximum time limit from the date the generated waste is placed in a container and the date the material is transported to a permitted treatment, storage, and disposal facility shall be 90 calendar days.

3.(3) Marking of Spent Material Containers
Spent material containers shall be marked with the date that waste residue is first placed in the container. Until laboratory results described in 619.07(b)2a are received concerning the category of the waste residue, the containers shall be labeled “LEAD PAINT WASTE DEBRIS” or “ZINC PAINT WASTE DEBRIS”, as appropriate. The labeling shall include the contract number, bridge number, sample number, and sample date. Labeling of containers as hazardous waste will not be required until the appropriate laboratory analysis determines the waste residue to be hazardous in accordance with the current RCRA hazardous waste definitions. Immediately upon notice that the waste residue is hazardous, the containers shall be marked in accordance with 49 CFR 172, Subpart D.

4.(4) Instruction for Disposal of Paint Waste Residue
Sampling and analysis of the paint waste residue shall be performed to determine if the wastes are hazardous. If the waste residue is not found to be hazardous in accordance with current RCRA hazardous waste definitions, the waste residue material shall be disposed of at an appropriate disposal facility. If the waste residue is found to be hazardous, IDEM will be notified and the Engineer will obtain an EPA identification number will be obtained from IDEM. This number will be provided to the Contractor within 30 days of the start of waste generation for bridges having hazardous waste paint debris. The waste residue from different bridges shall not be commingled. The Contractor shall have the following responsibilities:

a. determining the location for disposal, treatment, or recycling of the waste residue, obtaining the Engineer’s approval of the site, and arranging with the approved site for acceptance of the materials;

b. preparing a hazardous waste manifest, as required by Federal and State requirements, for signature;

c. scheduling the shipment of waste residue to the permitted disposal site;

d. ensuring that the hazardous waste manifest is carried in the transportation vehicle;
e. ensuring that all required hazardous materials placards are properly displayed on the vehicle;

f. ensuring prompt movement of the vehicle to the disposal site; and

g. returning one copy of signed manifest documents to the Engineer. A copy of the chemical and physical analysis of the waste, all deposit receipts, manifests, and required paperwork for disposal shall be given to the Engineer, and all waste residues disposed of before the contract waste disposal item will be accepted.

If the waste residue is found to be non-hazardous in accordance with current RCRA hazardous waste definitions, the waste residue material shall be disposed of at an appropriate disposal facility.

5.(5) Instructions for Disposal of Other Project Generated Waste

Other wastes that may be generated on the project include, but are not limited to, spent solvents from cleaning of equipment and empty or partially empty containers of paint, paint thinners, spent abrasives, and solvents. The Contractor shall recycle or dispose of all project generated waste materials.

If the waste is defined as a hazardous waste in accordance with the current RCRA definitions, the waste shall be recycled or disposed of in accordance with 619.07(b)4 or 619.07(b)2b(4). All project generated waste and the method of recycling or disposal shall be identified in the QCP.

619.08 Surface Preparation of Concrete and Steel

The tops of all concrete and steel pier caps, concrete abutment caps, and 2 ft down all sides of concrete pier and abutment caps shall be washed. The washing shall be accomplished by means of a pressure washer with potable water. The pressure shall be between 800 and 1,500 psi. If detergents or other additives are added to the water, the surface shall be rinsed with potable water before the detergents dry.

Cleaning of steel surfaces shall be performed by an SSPC certified contractor. This requirement will not apply to the following:

(a) shop cleaning;

(b) sections of beams or other structural members less than 180 sq ft of total area to be painted for the contract where heat-straightening or similar repairs have taken place.
Surfaces to be painted shall be cleaned in accordance with the SSPC classification, unless otherwise specified. Compressed air shall pass through an oil and water extractor before entering another apparatus.

**Pressure washing in accordance with 619.08(a) and Solvent cleaning in accordance with 619.08(b) shall be performed to remove all oils, soluble salts, visible grease, and any other surface contaminants before all other cleaning methods are started.**

**SECTION 619, BEGIN LINE 327, DELETE AND INSERT AS FOLLOWS:**

(a) **Pressure Washing**

All surfaces to be painted and the tops of pier and abutment caps shall be washed. The washing shall be accomplished by means of a low pressure power water washer with potable water. The pressure shall be between 800 and 1,500 psi. If detergents or other additives are added to the water, the surface shall be rinsed with potable water before the detergents dry. All washed surfaces shall be completely free of all oils and soluble salts. The Contractor shall obtain the hold point release for pressure washing prior to beginning other surface preparation activities.

(ba) **Solvent Cleaning**

After the hold point for pressure washing cleaning has been released, Solvent cleaning shall be performed in accordance with SSPC-SP1.

After the hold point for solvent cleaning has been released, one or more of the following cleaning methods shall be performed:

(eb) **Hand Tool Cleaning**

Hand tool cleaning shall be in accordance with SSPC-SP2.

(dc) **Brush-Off Blast Cleaning**

Brush-off blast cleaning shall be in accordance with SSPC-SP7/NACE No. 4.

(ed) **Commercial Blast Cleaning**

Commercial blast cleaning shall be in accordance with SSPC-SP 6/NACE No. 3.

(ef) **Near-White Blast Cleaning**

Near-white blast cleaning shall be in accordance with SSPC-SP 10/NACE No. 2.

(gf) **White Metal Blast Cleaning**

White metal blast cleaning shall be in accordance with SSPC-SP 5/NACE No. 1.
REVISION TO STANDARD SPECIFICATIONS

SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS
202.03 REMOVAL OF BRIDGES, CULVERTS, AND OTHER DRAINAGE STRUCTURES
202.13 METHOD OF MEASUREMENT
202.14 BASIS OF PAYMENT
SECTION 619 - PAINTING BRIDGE STEEL (VARIOUS)

(hg) Power Tool Cleaning
Power tool cleaning shall be in accordance with SSPC-SP 3.

(ih) Commercial Grade Power Tool Cleaning
Commercial grade power tool cleaning shall be in accordance with SSPC-SP 15.

(ji) Power Tool Cleaning to Bare Metal
Power tool cleaning to bare metal shall be in accordance with SSPC-SP 11.

All areas within 5 ft on both sides of a bridge deck joint as well as all areas of
significant pitting shall be cleaned twice using the same method used for the original
cleaning, excluding solvent cleaning.

SECTION 619, SECTION 545, DELETE AND INSERT AS FOLLOWS:

(a) Non-Weathering Steel
All structural steel shall be cleaned in accordance with 619.08(f).

All structural steel shall receive an inorganic zinc primer, including faying surfaces
of high strength bolted connections and areas in contact with concrete. Surfaces, other than
the contact surfaces described above, which are inaccessible after erection shall be painted
in the shop with the full paint system required on the completed bridge.

(b) Weathering Steel
All structural steel shall be left unpainted, except as shown on the plans. All
diaphragms, stiffeners, and other appurtenances located within the limits shown on the
plans shall be included in the painting area. Surfaces to be painted shall be cleaned in
accordance with 619.08(f). Surfaces shall be painted in accordance with 619.09(a), except
the finish coat shall be in accordance with 909.02(e).

619.12 Field Painting New Steel Bridge
All structural steel surfaces which are accessible after final erection shall be painted
with the remaining coatings specified for structural steel paint system in accordance with
619.09(a) in the field after final erection.

If application of inorganic zinc primer on a steel surface is not performed in the
shop before erection of the bridge, the surfaces which are exposed shall be cleaned in
accordance with 619.08(a), 619.08(b), and 619.08(f). These surfaces shall then be painted
with the structural steel paint system after final erection.

Surface areas where the inorganic zinc primer was damaged during shipping,
handling, and erection shall be cleaned in accordance with 619.08(a), 619.08(b), and either
619.08(d) or 619.08(j). Likewise, all bolt and field connections shall be cleaned in the
same manner. All the damaged areas, and bolt and field connections shall then be painted with the inorganic zinc primer applied in the shop. This requirement will not apply to temporary steel bridges.

Where steel surfaces have been painted with the full paint system and the paint coatings have been damaged, the affected steel surface areas shall be cleaned in accordance with 619.08(i). Structural steel paint system shall then be re-applied.

For weathering steel girders, caulk shall be applied to act as a drip bead as shown in the plans.

619.13 Painting Existing Steel Bridges
The surfaces to be cleaned and painted shall include the surfaces of all steel members of the superstructure, substructure, floor beams, stringers, plates, castings, bearing assemblies, ornamental handrails, lattice work, and other steel appurtenances. When shear connectors have been specified, the top of the top flange shall not be painted.

If the contract specifies clean steel bridge, the bridge steel shall be cleaned in accordance with 619.08(a), 619.08(b), and either 619.08(ed) or 619.08(j). The structural steel paint system in accordance with 619.09(a) shall be used for painting.

If the contract specifies clean steel bridge, partial, the bridge steel shall be cleaned in accordance with 619.08(a), 619.08(b), and either 619.08(ed), or 619.08(h), or 619.08(j). The partial paint system in accordance with 619.09(b) shall be then used for painting.

619.14 Handling of Steel Bridge Superstructure to be Removed
If the Contractor elects to take ownership of the steel in accordance with 202.03, a QCP in accordance with 619.03 shall be submitted. The entire surface area of the steel shall be cleaned in accordance with 619.08(d) prior to the steel leaving the construction limits and becoming the property of the Contractor. Mill scale shall be assumed to be present on the existing steel. Cleaning in accordance with 619.08(a) shall not be performed. A level of containment in accordance with 619.07(a) shall be used.

Testing and disposal of the waste stream produced by this cleaning shall be in accordance with 619.07.

619.145 Drain Castings Treatment
Roadway drain castings located in a bridge deck shall be satisfactorily cleaned in accordance with 619.08(ec) or 619.08(hg). The castings shall not be shot-blasted.

The roadway drain castings shall be painted with a black finish coat in accordance with 909.02(c).
If a roadway drain casting extension pipe is damaged or missing, it shall be replaced. The extension pipe shall be in accordance with 715.

619.16 Clean and Paint Bearing Assemblies
When shown on the plans or a pay item is included in the schedule of pay items, all bearing assemblies including top and bottom plates of each assembly shall be cleaned in accordance with 619.08(a) and 619.08(d). Pollution control shall be in accordance with 619.07.

If the pay item clean and paint bearing assemblies is listed in the schedule of pay items for a particular structure, the entire bearing assembly shall be painted with the structural steel paint system in accordance with 619.09(a).

If the pay item, paint steel bridge, or paint steel bridge, partial, is listed in the schedule of pay items for a particular structure, the entire bearing assembly shall be painted with the structural steel paint system that is being used on the rest of the bridge.

619.15 Responsibility for Damage
Unless otherwise specified by the Engineer in writing, full containment shall be provided when performing the surface preparation operation and when applying all coats of paint, except primer coats, with spray equipment. All persons and property shall be protected from damage or injury from the surface preparation operations and painting operations by providing containment as described in the QCP. Persons and property shall include, but not be limited to, pedestrians, vehicles, and other traffic upon or underneath a bridge, all portions of the bridge superstructure and substructure, and all adjacent property. The Contractor shall be responsible for damages in accordance with 107.17.

619.16.16 Blank Top of Top Flange of Steel Structural Members
When shown on the plans or a pay item is included in the schedule of pay items, the top of the top flange of steel structural members shall be cleaned in accordance with 619.08 by a contractor certified as SSPC-QP 2. The Contractor shall assume the existing coating on the top of the top flange contains hazardous materials and mill scale, and shall use pollution control and containment in accordance with 619.07(b)1. A QCP in accordance with 619.03 shall be prepared and submitted. The steel shall be cleaned to a level of cleanliness in accordance with 619.08(d) or 619.08(h), however solvent cleaning in accordance with 619.08(a) shall not be performed.

Each bridge shall generate a separate waste stream and shall not be commingled with other materials. The waste stream shall be sampled in accordance with 619.07 and all other requirements of 619.07 shall be followed. Once the result from the waste stream
619.17 Method of Measurement

Cleaning and painting will not be measured for payment of steel structural members, cleaning and painting the top of the top flange of steel structural members, cleaning and painting of bearing assemblies, and cleaning and painting of steel piling will not be measured for payment. Cleaning areas around bridge joints and other areas with significant pitting a second time will not be measured for payment. Disposal of the waste stream generated by the cleaning operation will not be measured for payment.

Cleaning roadway drain castings, caulking joints of lapping members, and caulking on weathering steel will not be measured for payment.

For steel that will become the property of the Contractor, cleaning existing steel, removal of mill scale, testing, disposal of the waste stream, containment, and all other items involved with removing and properly disposing of the existing coating will not be measured as per 202.13.

If an existing bridge coating is advertised as having existing hazardous materials, no measurement will be made of the area covered by mill scale. For bridges advertised as having existing non-hazardous materials, the area of structural steel covered by mill scale will be measured for payment after a proper cleaning of the entire containment area or an agreed large portion thereof and removing all other existing materials, including all paint and rust. The percentage of the area of structural steel covered by existing mill scale will be representative of this entire area. The pre-established remedies for this changed condition apply in accordance with 104.02(d) and 619.18.

Roadway drain casting extension pipe will be measured in accordance with 715.13.

The estimated weight, length, number of steel spans, surface area of steel, and type of primer shown on the plans or in the Proposal book is incidental information. Such information is approximate only. The Department will not guarantee its accuracy.

619.18 Basis of Payment

Existing steel bridges to be cleaned, or partially cleaned, whichever is specified, will be paid for at the contract lump sum price for clean steel bridge or clean steel bridge, partial, at the bridge number specified. Cleaning the top of the top flange of existing steel bridges will be paid for at the contract lump sum price for clean steel bridge, top flange, at the bridge number specified. Existing steel bridges to be painted, or partially painted,
whichever is specified, will be paid for at the contract lump sum price for paint steel bridge or paint steel bridge, partial, at the bridge number specified.

When specified as a separate pay item in the contract, cleaning and painting bearing assemblies will be paid for at the contract lump sum price for clean and paint bearing assemblies, at the bridge number specified.

When specified as a separate pay item in the contract, cleaning and painting steel piling will be paid for at the contract lump sum price for clean and paint steel piling, at the bridge number specified.

(a) Pre-Established Remedies for Changed Conditions

1. Discovery of Hazardous Materials but No Mill Scale on a Site Advertised as Non-Hazardous

   The payment will be an additional 25% of the clean steel bridge item as computed in 619.18 (b) 1 in accordance with 109.05 as payment for all additional costs incurred.

2. Discovery of Mill Scale but No Hazardous Materials on a Site Advertised as Non-Hazardous

   If, on a bridge advertised as having existing non-hazardous materials and the presence of hazardous materials has not been confirmed by laboratory analysis, the area of structural steel covered by mill scale comprises greater than 15% but not more than 25% of the area of structural steel in accordance with 619.17 619.19, additional compensation for the removal of the mill scale will be made as an adjustment to the clean steel bridge item in accordance with the following: The adjustment will be an additional payment of 30% of the clean steel bridge item as computed in accordance with 619.20 (b) 1 will be made.

   a. For areas of structural steel greater than 15% and up to and including 25% of the area covered by mill scale, an additional payment of 15% of the clean steel bridge item as computed in accordance with 619.18 (b) 1 will be made.

   b. For areas of structural steel greater than 25% and up to and including 50% of the area covered by mill scale, an additional payment of 30% of the clean steel bridge item as computed in accordance with 619.18 (a) 1 will be made.

   c. For areas of structural steel greater than 50% and up to and including 75% of the area covered by mill scale, an additional payment of 45% of the clean steel bridge item as computed in accordance with 619.18 (b) 1 will be made.
d. For areas of structural steel greater than 75% of the area covered by mill scale, an additional payment of 60% of the clean steel bridge item as computed in accordance with 619.18(b)1 will be made.

3. Discovery of Hazardous Materials and Mill Scale on a Site Advertised as Non-Hazardous

If the laboratory analysis of a waste residue sample on a bridge advertised as having non-hazardous materials yields results indicating the presence of hazardous materials, the entire bridge shall be considered as having mill scale and the following pre-established remedy for this changed condition in accordance with 104.02(d) shall apply. If agreed to in writing between the Contractor and the Department, the work shall proceed with the Contractor assuming all risks for removal of mill scale. An additional 55% of the clean steel bridge item as computed in 619.18(b)1 in accordance with 109.05 will be paid as additional compensation for the removal and disposal of the hazardous materials, the removal of the mill scale, the additional containment required, and all other incidental items associated with the removal of the hazardous materials and mill scale.

(b) Prices used in Pre-Established Remedies to Changed Conditions

The following prices will be computed and used as the price for the pay item identified below in all pre-established remedies to changed conditions referenced in this section.

The price for the clean steel bridge item, per bridge, used in all pre-established remedies to changed conditions referenced in this section will be limited to the lesser of the following:

1. 70% of the sum of the clean steel bridge item and paint steel bridge item for that bridge; or

2. the actual amount for the clean steel bridge item for that bridge shown in the Schedule of Pay Items.

Roadway drain casting extension pipe will be paid for in accordance with 715.14.

For steel that will become the property of the Contractor, the cost of cleaning existing steel, removal of mill scale, testing, disposal of the waste stream, containment, and all other costs involved with removing and properly disposing of the existing coating will be in accordance with 202.14.
The cost of transportation and disposal of waste materials, waste residues, waste residue containers, and all other debris generated from environmental pollution control and cleaning that is disposed of will be paid for at the contract lump sum price for disposal of cleaning waste, hazardous or non-hazardous, at the bridge number specified.

Payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit Symbol</th>
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<tbody>
<tr>
<td>Clean and Paint Bearing Assemblies, Br. No.</td>
<td>LS</td>
</tr>
<tr>
<td>Clean and Paint Steel Piling, Br. No.</td>
<td>LS</td>
</tr>
<tr>
<td>Clean Steel Bridge, Partial, QP-_____ , Br. No.</td>
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<tr>
<td>Clean Steel Bridge, QP-____, Br. No.</td>
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<tr>
<td>Clean Steel Bridge, Top Flanges, QP-2, Br. No.</td>
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<tr>
<td>Disposal of Cleaning Waste, ____ , Br. No.</td>
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</tr>
<tr>
<td>Paint Steel Bridge, Br. No.</td>
<td>LS</td>
</tr>
<tr>
<td>Paint Steel Bridge, Partial, Br. No.</td>
<td>LS</td>
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</tbody>
</table>

The cost to prepare a QCP shall be included in the cost of the pay items of this section. The cost of providing the Department with access to the bridge and seasonal or weather limitations shall be included in the cost of the pay items of this section.

If a bridge is advertised as having existing hazardous materials, no additional payment will be made for the removal of mill scale. The cost of the removal of mill scale shall be included in the cost of clean steel bridge or, clean steel bridge, partial, clean and paint bearing assemblies, clean and paint steel piling, or clean steel bridge, top flanges.

If a bridge is advertised as having existing non-hazardous materials and the percentage of the area covered by mill scale is less than or equal to 15% of the total structural steel surface area of a bridge measured in accordance with 619.17619.19 no additional payment will be made for the removal of mill scale. The cost of the removal of mill scale shall be included in the cost of clean steel bridge or clean steel bridge, partial.

The cost of furnishing all materials, equipment, and labor required for washing, solvent cleaning, scraping, steel brushing, or other acceptable methods for removing paint in the locations directed shall be included in the cost of clean steel bridge or, clean steel bridge, partial, clean and paint bearing assemblies, clean and paint steel piling, or clean steel bridge, top flange. The cost of cleaning roadway drain castings shall be included in the cost of clean steel bridge or clean steel bridge, partial.
The cost of providing containment in accordance with 619.15, 619.07, and 619.17 and personal protective equipment shall be included in the cost of the pay items of this section.

The cost of furnishing all materials, equipment, and labor required to perform the quality control tasks outlined in 619.03 shall be included in the cost of clean steel bridge or paint steel bridge, partial, clean and paint bearing assemblies, clean and paint steel piling, or clean steel bridge, top flange.

The cost of furnishing all materials including caulk, equipment, and labor to perform caulking and painting, including the stripe coats, with the structural steel paint system or the partial paint system shall be included in the cost of paint steel bridge or paint steel bridge, partial. The cost of switching stripe coat application methods shall be included in the cost of paint steel bridge or paint steel bridge, partial. The cost of furnishing all materials, equipment, and labor to perform painting of the roadway drain castings shall be included in the cost of paint steel bridge or paint steel bridge, partial.

The cost of all equipment, material, labor, testing, use of special cleaning methods, and shipping of waste residue samples shall be included in the cost of the clean steel bridge or paint steel bridge, partial, clean and paint bearing assemblies, clean and paint steel piling, or clean steel bridge, top flange, pay item.

The cost of cleaning areas around bridge joints and other areas with significant pitting a second time shall be included in the clean steel bridge, clean steel bridge, partial, clean and paint bearing assemblies, or clean steel bridge, top flange pay item.

When a pay item is included in the schedule of pay items for clean and paint bearing assemblies, all costs associated with cleaning and painting bearing assemblies, except disposal of cleaning waste, shall be included in the cost of the pay item. If clean steel bridge, clean steel bridge, partial, paint steel bridge, or paint steel bridge, partial are included as pay items in the schedule of pay items, no separate payment will be made for cleaning and painting bearing assemblies on that bridge no. The cost of cleaning and painting bearing assemblies shall be included in the cost of the respective clean steel bridge, clean steel bridge, partial, paint steel bridge, or paint steel bridge, partial pay items for that bridge no.

When a pay item is included in the schedule of pay items for clean and paint steel piling, all costs associated with cleaning and painting steel piling except disposal of cleaning waste shall be included in the cost of the pay item.
### COMMENTS AND ACTION

**SECTION 202 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

202.03 REMOVAL OF BRIDGES, CULVERTS, AND OTHER DRAINAGE STRUCTURES

202.13 METHOD OF MEASUREMENT

202.14 BASIS OF PAYMENT

**SECTION 619 - PAINTING BRIDGE STEEL (VARIOUS)**

### DISCUSSION:

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<tr>
<td>Second:</td>
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<tr>
<td>Ayes:</td>
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<td>Nays:</td>
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**FHWA Approval:**

- Standard Specifications Sections referenced and/or affected:
  - 202 pg 136; 619 begin pg 502

**Recurring Special Provision affected:**

- NONE

**Standard Drawing affected:**

- NONE

**Design Manual Sections affected:**

- NONE

**GIFE Sections cross-references:**

- 5.24

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**2022 Standard Specifications**

- Revise Pay Items List

**Effective:**

**RSP Sunset Date:**

- Create RSP (No. ___)

- Revise RSP (No. ___)

- Standard Drawing

- Create RPD (No. ___)

- GIFE Update

- SiteManager Update