INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758 CM
Indianapolis, Indiana 46204

www.in.gov/indot

Eric Holcomb, Governor
Mike Smith, Commissioner

FINAL DRAFT MINUTES

October 19, 2023, Standards Committee Meeting

(Changes to the Agenda by the Action of the Committee shown as highlighted yellow and based on comments received – green.)

November 13, 2023

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Minutes from the October 19, 2023, Standards Committee Meeting

The Standards Committee meeting was called to order by Mr. Pankow, Chair, at 09:01 a.m. on October 19, 2023, which was held virtually via *Teams* (Microsoft application). The meeting was adjourned at 11:07 a.m.

Note: Next month's meeting is Friday, November 17, 2023, due to **CEPDS** occurring on Thursday November 16. Also, the **ITT partnering conference** is scheduled for Thursday, December 21, 2023, so the SC meeting could be moved to Friday, December 22, 2023. The December meeting will be discussed at the November meeting.

The following committee members were in attendance:

Pankow, Gregory, Chairman, Director, Construction Management
Boruff, Dave, Traffic Engineering
Dave, Kumar, Pavement Engineering
Koch, Mike, District Construction, Fort Wayne District
Novak, Joseph, Construction Management
Orton, Mark, Highway Engineering
Pelz, Kurt, Construction Technical Support
Rearick, Anne, Bridge Management
Reilman, Jim, Division of Materials and Tests
White, Peter, Bridge Engineering
Wooden, John, Division of Contract Administration

Also, the following attendees were present:

Aguirre, Frank, INDOT
Austin Jeff, (guest)
Korff, Jon, INDOT
Lamkin, Sara, INDOT

Awwad, Nathan, INDOT
Barney, Bruce, INDOT
Bazlamit, Subhi M, INDOT
Beeson, Matthew, INDOT
Blanchard, Jacob, INDOT
Coffin, Delaney, INDOT
Cosenza, Nicholas, INDOT
Cruz, Elena, INDOT
Duncan, Thomas, FHWA
Fisher, Steve, INDOT
Galetka, Jason, INDOT
Harris, Tom, INDOT
Hauser, Derrick, INDOT
Jacobs, David, INDOT
Khan, Asfahan, INDOT
Long, Patrick, IRMCA
Mouser, Elizabeth, INDOT
Nahrwold, Ting, FHWA
Nelson, Mike, INDOT
Osborn, Dan, ICI
Pastuszka, Elizabeth, APAI
Perugu, Kshitija, INDOT
Pine, Bill, (guest)
Poturalski, Jim, INDOT
Shi, Runfa, INDOT
Siddiki, Nayyar Zia, INDOT
Stoops, Ernie, INDOT
Thornton, Donald, INDOT
Trammell, Scott, INDOT
Yoon, Sung Min (Sean), INDOT

The following listed items were discussed:

A. GENERAL BUSINESS

OLD BUSINESS *(No items were listed)*

NEW BUSINESS

1. *Approval of the Minutes from the August 17, 2023 meeting*

Mr. Pankow requested a motion to approve the Minutes from the August 17, 2023 meeting.

Motion: Mr. Novak
Second: Mr. Reilman
Ayes: 10
Nays: 0

ACTION: PASSED AS SUBMITTED

B. CONCEPTUAL PROPOSAL

(No items were listed)

C. STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND STANDARD DRAWINGS PROPOSAL

OLD BUSINESS *(No items were listed)*

NEW BUSINESS

Item No. 1 Mr. Reilman pg. 6

2024 Standard Specifications:

411.02	Materials
411.03	Design Mix Formula
411.05	Pre-Paving Coordination
411.09	Warranty
414.05	Use of Recycled Materials
414.10	Pre-Paving Meeting
414.14	Warranty
902.01(b)1	Asphalt Emulsion Warranted Micro-Surfacing
902.01(b)2	Asphalt Emulsion Ultrathin Bonded Wearing Course

ACTION: PASSED AS SUBMITTED

Item No. 2 Mr. Reilman pg. 15

2024 Standard Specifications:

501.02	Quality Control
501.06	Trial Batch
506.05	Trial Batch
509.05	Quality Control Plan
722.05(b)	Latex Modified Concrete, Very Early Strength
722.05(c)	Silica Fume Modified Concrete

Recurring Special Provision:

728-B-203	DRILLED SHAFT FOUNDATIONS

ACTION: PASSED AS REVISED

Item No. 3 Mr. Reilman pg. 25

2024 Standard Specifications:

203.25	Embankment Without Stiffness Control

ACTION: WITHDRAWN

Item No. 4 Mr. Reilman pg. 31

2024 Standard Specifications:

401.04	Design Mix Formula
401.05	Volumetric Mix Design
401.06	Recycled Materials
401.14	Spreading and Finishing
401.22	Basis of Payment
402.04	Design Mix Formula
402.13	Spreading and Finishing
406.02	Materials
408.02	Materials
410.03	Materials
410.04	Design Mix Formula

410.05	SMA Mix Design
410.14	Spreading and Finishing
410.22	Basis of Payment
414.02	Materials
902.01	Asphalt

ACTION: PASSED AS REVISED

Item No. 5 Mr. Reilman pg. 50

2024 Standard Specifications:

909.05	White and Yellow Waterborne Traffic Paint

ACTION: PASSED AS SUBMITTED

Item No. 6 Mr. Reilman pg. 55

2024 Standard Specifications:

203.18	Embankment Construction
SECTION 207	SUBGRADE
301.02	Materials

Recurring Special Provision:

203-R-699	GRANULAR TIRE SHREDS

ACTION: PASSED AS REVISED

Item No. 7 Mr. Reilman pg. 66

2024 Standard Specifications:

SECTION 214	GEOSYNTHETICS

ACTION: PASSED AS REVISED

Item No. 8 Mr. Reilman pg. 73

2024 Standard Specifications:

706.03	Concrete Railing

ACTION: PASSED AS SUBMITTED

Item No. 9 Mr. Reilman pg. 77

2024 Standard Specifications:

100-C-XXX	*PG BINDER GRADES* (proposed new)

ACTION: PASSED AS SUBMITTED

cc: Committee Members
FHWA
ICI

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Current 411 and 414 spec sections require a 3 year warranty. This causes inflated unit prices which makes these preservation treatments uneconomial

PROPOSED SOLUTION: update the specification to only require a 1 year warranty. Also simplify things by going to a standard emulsion.

APPLICABLE STANDARD SPECIFICATIONS: 411, 414, 902

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: Chapter 602 (no changes needed)

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: N/A

APPLICABLE SUB-COMMITTEE ENDORSEMENT: ad hoc committe consisting of M&T, Pavement Design, Asset Management and the National Center for Pavement Preservation

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: any 411 or 414 pay item

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Division: Materials and Tests

E-mail: jreilman@indot.in.gov

Date: 8/23/23

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 Qualified Products List (QPL)? no
Will this proposal improve:

- Construction costs? yes
- Construction time? no
- Customer satisfaction? no
- Congestion/travel time? no
- Ride quality? no

Will this proposal reduce operational costs or maintenance effort? yes

Will this item improve safety:

- For motorists? no
- For construction workers? no

Will this proposal improve quality for:

- Construction procedures/processes? no
- Asset preservation? yes
- Design process? no

Will this change provide the contractor more flexibility? yes

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

Can this item improve/reduce the number of potential change orders? no

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 handful of times the warranty was used, issues appeared within the first year. Other minor updates suggested by NCPP (be more prescriptive with aggregate rates since we are reducing the warranty). Disallow RAS to ensure longer performing product.

REVISION TO 2024 STANDARD SPECIFICATIONS

SECTION 411 - WARRANTED MICRO-SURFACING
411.02 Materials
411.03 Design Mix Formula
411.05 Pre-Paving Coordination
411.09 Warranty

SECTION 414 - ULTRATHIN BONDED WEARING COURSE, WARRANTED
414.05 Use of Recycled Materials
414.10 Pre-Paving Meeting
414.14 Warranty

SECTION 902 – ASPHALT MATERIALS
902.01(b)1 Asphalt Emulsion Warranted Micro-Surfacing
902.01(b)2 Asphalt Emulsion Ultrathin Bonded Wearing Course

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 411, BEGIN LINE 15, DELETE AND INSERT AS FOLLOWS:

411.02 Materials

Materials shall be in accordance with the following:

Asphalt Emulsion.....902.01(b)1
Coarse Aggregates – Class B or Higher*.....904.03
Fine Aggregates**.....904.02
Portland Cement, Type I.....901.01(b)
Water.....913.01

* The coarse aggregate angularity shall be a minimum of 95% in accordance with ASTM D5821. The coarse aggregate for rut fill shall be limestone, dolomite, crushed gravel, sandstone, ACBF, or SF. The surface application aggregate type shall be based on the ESAL category *shown* in the Surface Aggregate Table below.

** The fine aggregate for micro-surface shall be limestone, dolomite, crushed gravel, sandstone, ACBF, or SF. The fine aggregate angularity shall be a minimum of 45 in accordance with AASHTO T 304 Method A. The clay content of the blended aggregate material from the fine and coarse aggregates shall meet a minimum sand equivalency of 65 in accordance with AASHTO T 176. The surface leveling application aggregate type shall be based on the ESAL category ~~as follows:~~*shown in the Surface Aggregate Table below*.

RAS shall not be used in any micro-surfacing course.

SURFACE AGGREGATE TABLE			
Coarse or Fine Aggregate Type	Traffic ESALs		
	< 3,000,000	< 10,000,000	≥ 10,000,000
Air-Cooled Blast Furnace Slag	Yes	Yes	Yes
Steel Furnace Slag	Yes	Yes	Yes
Sandstone	Yes	Yes	Yes
Crushed Dolomite	Yes	Yes	(Note 1)
Polish Resistant Aggregates	Yes	Yes	(Note 1)
Crushed Stone	No	No	No
Gravel	No	No	No
Note 1: Polish resistant aggregate or crushed dolomite may be used when blended with ACBF or sandstone but cannot exceed 50% of the coarse aggregate by weight, or cannot exceed 40% of the coarse aggregate by weight when blended with SF.			

SECTION 411 - WARRANTED MICRO-SURFACING
411.02 Materials
411.03 Design Mix Formula
411.05 Pre-Paving Coordination
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SECTION 414 - ULTRATHIN BONDED WEARING COURSE, WARRANTED
414.05 Use of Recycled Materials
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SECTION 902 – ASPHALT MATERIALS
902.01(b)1 Asphalt Emulsion Warranted Micro-Surfacing
902.01(b)2 Asphalt Emulsion Ultrathin Bonded Wearing Course

411.03 Design Mix Formula

The Contractor shall submit a DMF for the specific materials to be used on the project to the DTE one week prior to use.

The DMF shall state the following, where the percentages shown are based on the dry weight of the aggregate:

(a) source of each individual material

(b) the aggregation gradation shall be in accordance with the following:

Sieve Size	Surface/Leveling, %	Rut Fill, %*
3/8 in. (9.5 mm)	100	100
No. 4 (4.75 mm)	85 - 100	70 - 90
No. 8 (2.36 mm)	50 - 80	45 - 70
No. 16 (1.18 mm)	40 - 65	28 - 50
No. 30 (600 µm)	25 - 45	19 - 34
No. 50 (300 µm)	13 - 25	12 - 25
No. 100 (150 µm)	7 - 18	7 - 18
No. 200 (75 µm)	5 - 15	5 - 15
* If rut fill course is used as a surface application, the aggregates shall be in accordance with the Surface Aggregate Table above.		

(c) percentage of aggregate

(d) percentage of mineral filler, minimum and maximum

(e) percentage of water, minimum and maximum

(f) percentage of mix set additives, if required

(g) percentage of polymer modified ~~CSS-1h~~ emulsified asphalt

(h) state the quantitative effects of moisture content on the unit weight of the aggregate

(i) results for the tests in the following:

SECTION 411 - WARRANTED MICRO-SURFACING
411.02 Materials
411.03 Design Mix Formula
411.05 Pre-Paving Coordination
411.09 Warranty

SECTION 414 - ULTRATHIN BONDED WEARING COURSE, WARRANTED
414.05 Use of Recycled Materials
414.10 Pre-Paving Meeting
414.14 Warranty

SECTION 902 – ASPHALT MATERIALS
902.01(b)1 Asphalt Emulsion Warranted Micro-Surfacing
902.01(b)2 Asphalt Emulsion Ultrathin Bonded Wearing Course

Characteristic	Test Method ISSA*	Requirement
Wet Cohesion 30 minutes, min. (set time) 60 minutes, min. (traffic)	TB-139**	 12 kg-cm 20 kg-cm
Wet Stripping, min.	TB-114	> 90%
Compatibility Classification	TB-144	11 pts min.
Wet Track Abrasion Loss 60 minutes soak, max. 6 day soak, max.	TB-100	 538 g/sq m 807 g/sq m
Mix Time @ 77°F (25°C)	TB-113**	controllable to 120 s
Mix Time @ 104°F (40°C)	TB-113**	controllable to 35 s
Excess Binder	TB-109	538 g/sq m
Deformation, max.	TB-147	5%

* International Slurry Surfacing Association.
** The TB-139 (set time) and TB-113 (mix time) tests shall be checked at the highest temperature expected during construction. For the TB-113 test at 104°F (40°C), all ingredients and containers shall be preheated.

(j) aggregate application rate: the aggregate application rate shall be 18-22 lb/sq yd for a course. The minimum total aggregate application rate for a multiple course micro-surfacing shall be 40 lb/sq yd.

SECTION 411, BEGIN LINE 81, DELETE AS FOLLOWS:

411.05 Pre-Paving Coordination

A pre-paving meeting will be held on-site prior to beginning work. The Contractor shall furnish as a minimum:

(a) the Contractor's detailed work schedule
(b) traffic control plan
(c) calibration of equipment
(d) DMF~~/JMF~~
(e) inspection and evaluation of the condition and adequacy of equipment, including units for transport of materials
(f) QCP in accordance with ITM 803.

SECTION 411, BEGIN LINE 139, DELETE AND INSERT AS FOLLOWS:

The Contractor shall furnish a warranty bond at the pre-construction conference or prior to beginning any work on the contract. The warranty bond shall be equal to 100% of

REVISION TO 2024 STANDARD SPECIFICATIONS

SECTION 411 - WARRANTED MICRO-SURFACING
411.02 Materials
411.03 Design Mix Formula
411.05 Pre-Paving Coordination
411.09 Warranty

SECTION 414 - ULTRATHIN BONDED WEARING COURSE, WARRANTED
414.05 Use of Recycled Materials
414.10 Pre-Paving Meeting
414.14 Warranty

SECTION 902 – ASPHALT MATERIALS
902.01(b)1 Asphalt Emulsion Warranted Micro-Surfacing
902.01(b)2 Asphalt Emulsion Ultrathin Bonded Wearing Course

the contract total for the warranted micro-surfacing pay items, ~~and~~ shall be properly executed by a surety satisfactory to the Department, and shall be payable to the State of Indiana. The warranty bond shall be in effect for ~~three~~*one* years from the date of substantial completion.

SECTION 414, BEGIN LINE 97, INSERT AS FOLLOWS:

414.05 Use of Recycled Materials

Recycled materials shall be in accordance with 401.06 for dense graded surfaces, except *RAS shall not be used and* RAP for use in the UBWC mixture shall be 100% passing the 3/8 in. (9.5 mm) sieve and 95 to 100% passing the No. 4 (4.75 mm) sieve.

SECTION 414, BEGIN LINE 159, DELETE AND INSERT AS FOLLOWS:

414.10 Pre-Paving Meeting

A pre-paving meeting between the Engineer and Contractor will be held on-site prior to beginning work. The following shall be reviewed:

(a) work schedule
(b) traffic control plan
(c) equipment calibrations and adjustments
(d) inspection and evaluation of the condition and adequacy of equipment, including units for transport of materials
(e) ~~JMF~~*DMF*
(f) Contractor's proposed emulsion and mix application rates
(g) QCP in accordance with ITM 803
(h) Contractor's authorized representative.

SECTION 414, BEGIN LINE 198, DELETE AND INSERT AS FOLLOWS:

The Contractor shall furnish to the Engineer a warranty bond at the pre-construction conference or prior to beginning any work on the contract. The warranty bond shall be equal to 100% of the contract total for the warranted UBWC pay items, ~~and~~ shall be properly executed by a surety satisfactory to the Department, and shall be payable to the State of Indiana. The warranty bond shall be in effect for ~~three~~*one* years from the date of substantial completion.

SECTION 902, BEGIN LINE 81, DELETE AND INSERT AS FOLLOWS:

1. Asphalt Emulsion Warranted Micro-Surfacing

The polymer modified asphalt emulsion shall be a ~~quick-set, CSS-1h emulsion in accordance with AASHTO M 208, except the cement mixing test is waived~~*CQS-1hP in accordance with AASHTO M 316. The distillation temperature shall be 350°F.*

The polymer material shall be milled or blended into the asphalt or blended into the

emulsifier solution prior to the emulsification process. The minimum polymer solids content will be 3.0% based on the residual of the emulsion. Mix set additives shall be added as required to provide control of the quick-set properties. ~~Additional requirements shall be in accordance with the following:~~

~~Characteristics~~	~~Test Method~~	~~Requirements~~
~~Residue by Distillation, % (Note)~~	~~AASHTO T 59~~	~~62+~~
~~Softening Point, °F (°C)~~	~~AASHTO T 53~~	~~140+ (60+)~~
~~Viscosity @ 140°F (60°C)~~	~~AASHTO T 202~~	~~8000+~~
~~Elastic Recovery @ 25°C (77°F), %~~	~~AASHTO T 301~~	~~60+~~
~~Note: The distillation temperature for this test shall be 350°F (175°C).~~		

2. Asphalt Emulsion Ultrathin Bonded Wearing Course

Characteristics		Test Method	Min.	Max.
Viscosity, Saybolt Furol @ *25°C (*77°F ~~(25°C~~), s		AASHTO T 59	20	100
Storage Stability Test, 24 h, % ~~(Note 1)~~		AASHTO T 59		1
Sieve Test, %		AASHTO T 59		0.05
Residue by Distillation, % (Note ~~2~~*1*)		AASHTO T 59	63	
Oil Distillate by volume of emulsified asphalt, %		AASHTO T 59		2
Demulsibility, %	w/35 mL, 0.02 N CaCl2 or	AASHTO T 59	60	
	w/35 mL, 0.8% DSS	AASHTO T 59		
Tests on Residue from Distillation				
Penetration (0.1 mm) at 77°F (25°C), 100g, 5 s		AASHTO T 49	90	150
Elastic Recovery @ *4°C (*39°F ~~(4°C~~), %		AASHTO T 301	58	

Note~~s~~:

1. ~~After 24 h, the emulsion shall be a homogeneous color~~*The distillation temperature for this test shall be 175°C (350°F).*

~~2. Except maximum temperature of 400 ±10°F (205 ±5°C).~~

COMMENTS AND ACTION

411.02 Materials	414.05 Use of Recycled Materials
411.03 Design Mix Formula	414.10 Pre-Paving Meeting
411.05 Pre-Paving Coordination	414.14 Warranty
411.09 Warranty	

902.01(b)1 Asphalt Emulsion Warranted Micro-Surfacing
902.01(b)2 Asphalt Emulsion Ultrathin Bonded Wearing Course

DISCUSSION:
This item was introduced and presented by Mr. Reilman who stated that the current 411 and 414 spec sections require a 3 year warranty. This causes inflated unit prices which makes these preservation treatments uneconomical.

Mr. Reilman proposed to update the specifications to only require a 1 year warranty, and to also simplify things by going to a standard emulsion.

Mr. Novak said that he and Mr. Reilman can discuss outside of the meeting concerning when that one-year warranty will begin. Mr. Reilman concurred. In answer to Mr. Boruff's question, Mr. Awwad said the warranty is rarely needed to be enforced.

There was no further discussion and this item passed as submitted.

Motion: Mr. Reilman
Second: Mr. Novak
Ayes: 10
Nays: 0
FHWA Approval: YES

Action:

X Passed as Submitted
___ Passed as Revised
___ Withdrawn

2024 Standard Specifications Sections:
411 begin pg. 365; 414 begin pg. 374;
902 pg. 989.

Recurring Special Provisions or Plan Details:
NONE

Standard Drawing affected:
NONE

Design Manual Chapter:
Chapter 602 (no changes needed)

GIFE Section:
13

X 2026 Standard Specifications
___ Revise Pay Items List
___ Notification to Designers if change is not addressed by RSP

X Create RSP (No. 411-R-767, 414-R-768)
Effective: March 1, 2024

___ Revise RSP (No.___)
Effective:

___ Standard Drawing
Effective:

___ Create RPD (No. ___)
Effective:

X GIFE Update
___ Frequency Manual Update
X SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: M&T has observed deviations from the standard methods in the field to measure fresh concrete properties, sampling, and making concrete specimens for evaluating hardened properties of concrete. The American Concrete Institute (ACI) provides training and certification to become a Grade I Concrete Field Testing Technician to address consistency with the above mentioned issues. This certification needs renewed every five years. However, M&T also observed issues with recertification.

PROPOSED SOLUTION: Incorporate proposed changes to specify certification level of ACI certified technician.

APPLICABLE STANDARD SPECIFICATIONS: 501, 506, 509, 722

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: None

APPLICABLE SECTION OF GIFE:

APPLICABLE RECURRING SPECIAL PROVISIONS: edit RSP 728-B-203, and create new RSP for the other changes

PAY ITEMS AFFECTED: none

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad hoc - Rick Harris, Abul Mazumder, Mike Nelson

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: All contracts with a 501, 506, 509, 722, or 728 pay item

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: (317) 522-9692

Date: 8/23/23

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? Yes
- 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? No

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? 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:

REVISION TO 2024 STANDARD SPECIFICATIONS and RECURRING SPECIAL PROVISION

SECTION 501 – QC/QA PORTLAND CEMENT CONCRETE PAVEMENT, PCCP
501.02 Quality Control 501.06 Trial Batch
SECTION 506 – PCCP PATCHING
506.05 Trial Batch
SECTION 509 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP, JOINT REPAIR
509.05 Quality Control Plan
SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.05(b) Latex Modified Concrete, Very Early Strength
722.05(c) Silica Fume Modified Concrete
728-B-203 DRILLED SHAFT FOUNDATIONS

(RSP proposed title) *CONCRETE ACI TECHNICIAN REQUIREMENTS*

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 501, BEGIN LINE 8, DELETE AND INSERT AS FOLLOWS:

501.02 Quality Control

The mixture for PCCP shall be produced by a qualified plant in accordance with ITM 405, transported, and placed in accordance with a QCP. The QCP shall be prepared and submitted in accordance with ITM 803, for PCCP. The QCP shall contain a plan for placing PCCP in cold weather, as defined in 501.15. The cold weather plan shall, at a minimum, provide details to address changes in materials, concrete batching and mixing processes, construction methods, curing, temperature monitoring, and protection of in-situ PCCP. Temperature monitoring shall consist of monitoring the surface temperature of the PCCP by use of a thermometer. The thermometer shall be capable of recording and maintaining a record of the day, time, and temperature every 15 minutes around the clock. The thermometer shall be located 6 in. in from the edge of the PCCP. The QCP shall be submitted to the Engineer a minimum of 15 days prior to commencing PCCP paving operations. Work shall not begin until written notice has been received that the QCP was accepted by the Engineer.

An ACI-~~c~~*C*ertified ~~c~~*C*oncrete ~~f~~*F*ield ~~t~~*T*esting ~~t~~*T*echnician, ~~g~~*G*rade I, shall be on site to direct all sampling and testing.

A common testing facility shall be provided for both production control and acceptance testing.

SECTION 501, BEGIN LINE 199, DELETE AND INSERT AS FOLLOWS:

501.06 Trial Batch

A trial batch shall be produced and tested by the Contractor's *ACI-*~~c~~*C*ertified *Concrete Field Testing* ~~t~~*T*echnician*, Grade I,* to verify that the CMDS meets the concrete mix criteria. *An ACI-Certified Concrete Field Testing Technician, Grade I, shall be on site to direct all sampling and testing.* Concrete produced at a plant shall be batched within the proportioning tolerances of 508.02(b). Concrete batched in a laboratory shall be in accordance with ASTM C192. The Engineer will test the trial batch and provide the Contractor with the results. The trial batch shall be of sufficient quantity to allow the Contractor and the Engineer to perform all required tests from the same batch. Trial batch concrete shall not be used for more than one test, except the concrete used for the unit weight may be used to conduct the air content test. The air content shall be 5.5% to 10.0%.

SECTION 501 – QC/QA PORTLAND CEMENT CONCRETE PAVEMENT, PCCP
501.02 Quality Control 501.06 Trial Batch
SECTION 506 – PCCP PATCHING
506.05 Trial Batch
SECTION 509 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP, JOINT REPAIR
509.05 Quality Control Plan
SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.05(b) Latex Modified Concrete, Very Early Strength
722.05(c) Silica Fume Modified Concrete
728-B-203 DRILLED SHAFT FOUNDATIONS

The plastic unit weight shall be within ±3.0% from the target plastic unit weight of the CMDS. The water/cementitious ratio shall be within ±0.015 of the target value of the CMDS and shall not exceed the maximum amount allowed for the appropriate mix in accordance with 501.05. The flexural strength shall be determined by averaging a minimum of two beam breaks and shall be a minimum of 570 psi.

SECTION 506, BEGIN LINE 274, DELETE AND INSERT AS FOLLOWS:

506.05 Trial Batch

A trial batch shall be produced and tested by the Contractor's *ACI-*~~e~~*C*ertified *Concrete Field Testing* ~~t~~*T*echnician*, Grade I,* to verify that the CMDS is in accordance with the concrete mix criteria. Concrete produced at a plant shall be batched within the proportioning tolerances of 502.10. An ~~American Concrete Institute~~*ACI-*~~e~~*C*ertified ~~e~~*C*oncrete ~~f~~*F*ield ~~t~~*T*esting ~~t~~*T*echnician, ~~g~~*G*rade ~~1~~*I,* shall be on site to direct all sampling and testing. The trial batch shall be produced at the plant prior to production.

SECTION 509, BEGIN LINE 157, DELETE AND INSERT AS FOLLOWS:

509.05 Quality Control Plan

A QCP shall be in accordance with sections 1.1 through 4.7 of ITM 803, except that the Q~~uality Control~~ Technician shall be an ACI-Certified *Concrete Field Testing* Technician, ~~Level~~*Grade* I ~~or higher~~. The QCP shall be submitted to the Engineer a minimum of 15 days prior to commencing PCCP joint repair. Work shall not begin until written notice has been received that the QCP was accepted by the Engineer. At a minimum, the QCP shall contain the following information concerning aspects of producing, placing, finishing, and curing the joint repair concrete for joint restoration:

SECTION 722, BEGIN LINE 98, DELETE AND INSERT AS FOLLOWS:

(b) Latex Modified Concrete, Very Early Strength

Proportioning of ingredients for LMC-VE shall be in accordance with 722.05(a) except as follows.

Cement shall be a rapid hardening hydraulic cement. Fly ash or other pozzolanic materials shall not be used. Citric acid may be used as a retardant. The maximum content of citric acid shall be 1% of the cement weight. The minimum compressive strength shall be 2,500 psi at 3 h and 3,500 psi at 24 h. The net water added shall produce a minimum slump of 7 in. and maximum slump of 10 in. at 4 to 5 minutes after discharge from the mixer. The maximum water-cement ratio shall be 0.440 including the water in the latex.

1. Trial Batch Demonstration

A trial batch shall be produced to verify that the mix design complies with the

SECTION 501 – QC/QA PORTLAND CEMENT CONCRETE PAVEMENT, PCCP
501.02 Quality Control 501.06 Trial Batch
SECTION 506 – PCCP PATCHING
506.05 Trial Batch
SECTION 509 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP, JOINT REPAIR
509.05 Quality Control Plan
SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.05(b) Latex Modified Concrete, Very Early Strength
722.05(c) Silica Fume Modified Concrete
728-B-203 DRILLED SHAFT FOUNDATIONS

physical properties specified, as well as, simulating the placement properties unique to the conditions of the contract such as profile grade, cross slope, delivery time, discharge rate, slump loss with time, air content and target compressive strength. All testing of the trial batch concrete shall be performed by an ACI-~~c~~*C*ertified ~~c~~*C*oncrete ~~f~~*F*ield ~~t~~*T*esting ~~t~~*T*echnician, ~~g~~*G*rade I.

SECTION 722, BEGIN LINE 130, DELETE AND INSERT AS FOLLOWS:

(c) Silica Fume Modified Concrete

A CMDS shall be submitted a minimum of 14 days prior to the trial batch utilizing the Department provided spreadsheet. The proportioning of ingredients for each batch of SFMC shall be in accordance with 702.05 except as modified below and shall meet the mix design, trial batch demonstration, and job-use requirements as specified.

The portland cement content shall be 658 lb/cu yd. Silica fume shall be added at 50 lb/cu yd.

The SFMC shall utilize a Type F or G admixture to be combined with an air-entraining admixture, AEA, a HRWR admixture system or a HRWRR admixture system and shall be selected from the QPL of PCC Admixtures and Admixture Systems.

The water/cement ratio shall be no less than 0.370 and shall not exceed 0.400. Portland cement and silica fume shall be included in the total amount of cementitious material.

The same brand of cement and silica fume shall be used throughout the structure. The HRWR or HRWRR admixture system shall not be changed during any individual contiguous pour.

The Contractor shall obtain a written statement from each admixture manufacturer stating the compatibility of the HRWR admixture system and satisfactory performance in SFMC.

The SFMC shall have a relative yield and air content in accordance with 702.05. The slump will be tested in accordance with AASHTO T 119 at the time of placement and shall be at least 4 1/2 in. but shall not exceed 7 1/2 in. The SFMC shall have a minimum compressive strength of 4,500 psi at 7 days and 5,500 psi at 28 days. The compressive strength shall be in accordance with 702.24.

REVISION TO 2024 STANDARD SPECIFICATIONS and RECURRING SPECIAL PROVISION

SECTION 501 – QC/QA PORTLAND CEMENT CONCRETE PAVEMENT, PCCP
501.02 Quality Control 501.06 Trial Batch
SECTION 506 – PCCP PATCHING
506.05 Trial Batch
SECTION 509 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP, JOINT REPAIR
509.05 Quality Control Plan
SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.05(b) Latex Modified Concrete, Very Early Strength
722.05(c) Silica Fume Modified Concrete
728-B-203 DRILLED SHAFT FOUNDATIONS

1. Trial Batch Demonstration

A trial batch shall be produced to verify that the mix design complies with the physical properties specified, as well as simulating the placement properties unique to the conditions of the contract such as profile grade, cross slope, delivery time, discharge rate, slump loss with time, air content, and target compressive strength. All testing of the trial batch concrete shall be performed by an ACI ~~e~~*C*ertified ~~e~~*C*oncrete ~~f~~*F*ield ~~t~~*T*esting ~~t~~*T*echnician, ~~g~~*G*rade I.

REVISION TO 2024 STANDARD SPECIFICATIONS and RECURRING SPECIAL PROVISION

SECTION 501 – QC/QA PORTLAND CEMENT CONCRETE PAVEMENT, PCCP
501.02 Quality Control 501.06 Trial Batch
SECTION 506 – PCCP PATCHING
506.05 Trial Batch
SECTION 509 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP, JOINT REPAIR
509.05 Quality Control Plan
SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.05(b) Latex Modified Concrete, Very Early Strength
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728-B-203 DRILLED SHAFT FOUNDATIONS

(Note: Proposed changes shown highlighted gray. Only affected areas are shown.)

728-B-203 DRILLED SHAFT FOUNDATIONS

(Revised 04-25-21)

The Standard Specifications are revised as follows:

SECTION 728, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 728 - ~~BLANK~~*DRILLED SHAFT FOUNDATIONS*

728.01 Description

This work shall consist of the construction of reinforced concrete drilled shaft foundations, 5.0 ft or smaller in outside diameter, in accordance with 105.03.

MATERIALS

728.02 Materials

Materials shall be in accordance with the following:

Admixtures for Use in Concrete.....912.03*
Cement Grout.....707.09*
Coarse Aggregate
For exposed concrete, Class A or Higher,
Size No. 8 or No. 9.....904*
For non-exposed concrete, Class B or Higher,
Size No. 8 or No. 9.....904*
Fine Aggregate, Size No. 23.....904.02*
Fly Ash.....901.02*
~~*Ground Granulated Blast Furnace Slag*.....901.03~~*
*Portland Cement, type I, II, IP, or IS***.....901.01(b)*
Reinforcing Bars.....910.01*
Slag Cement.....901.03*
Water.....913.01*

** Except as modified herein*
*** Air-entraining cement shall not be used. This includes type IA, IIA, IIIA, IP-A, IS-A. If type IP cement is used, the pozzolan in the blended cement shall not be class C fly ash.*

If ~~indicated~~shown on the plans, casings shall be in accordance with either ASTM A252, grade 2 or ASTM A36. Otherwise, casings shall be steel, smooth, clean, watertight,

and of adequate strength to resist construction stresses. The outside diameter of casing shall not be less than the specified diameter of the drilled shaft unless otherwise shown on the plans. Casing diameters shall be within the American Pipe Institute's tolerances for regular steel pipe. The Contractor may request to provide a casing larger in diameter than that specified.

Slurry shall be either a polymer or mineral, using sodium bentonite or attapulgite. Slurry shall have a grain size that will remain in suspension with sufficient viscosity and gel characteristics to transport excavated material and shall be capable of maintaining the stability of the drilled shaft excavation to allow proper concrete placement.

728.03 Drilled Shaft Concrete Mix Design

The mix design for the drilled shaft concrete shall be determined based on the design compressive strength, f'c, and the requirements stated in Appendix X1 of ASTM C94, as well as the following conditions:

(a) The target water/cementitious ratio for the mix design shall not exceed 0.450.

(b) The design total cementitious content shall be set such that it is no less than 650 lbs and not more than 800 lbs. Fly ash or ~~GGBFS~~slag cement as outlined below shall be used in combination with portland cement.

1. If class F fly ash is used, the fly ash content for a mix design shall be a minimum of 25% and shall not exceed 30% of the total cementitious, by weight. Class F fly ash shall not be used in conjunction with blended cement or ~~ground granulated blast furnace slag, GGBFS~~slag cement.

2. If class C fly ash is used, the fly ash content for a mix design shall be a minimum of 35% and shall not exceed 40% of the total cementitious, by weight. Class C fly ash shall not be used in conjunction with blended cement or ~~ground granulated blast furnace slag, GGBFS~~slag cement.

3. If ~~GGBFS~~slag cement is used, the ~~GGBFS~~slag cement content for a mix design shall be a minimum of 35% and shall not exceed 45% of the total cementitious, by weight. ~~GGBFS~~Slag cement shall not be used in conjunction with blended cement or fly ash.

SECTION 501 – QC/QA PORTLAND CEMENT CONCRETE PAVEMENT, PCCP
501.02 Quality Control 501.06 Trial Batch
SECTION 506 – PCCP PATCHING
506.05 Trial Batch
SECTION 509 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP, JOINT REPAIR
509.05 Quality Control Plan
SECTION 722 – CONCRETE BRIDGE DECK OVERLAYS
722.05(b) Latex Modified Concrete, Very Early Strength
722.05(c) Silica Fume Modified Concrete
728-B-203 DRILLED SHAFT FOUNDATIONS

(c) The drilled shaft concrete shall be air entrained. The target air content for the mix design shall be set at 6.5% air or 1.755 cu ft/cu yd of concrete.

(d) The target fine aggregate content shall be set such that it is no less than 35%, but not more than 50% of the total weight of the aggregate in each cubic yard. Aggregate proportions shall be based on material in the saturated surface dry condition.

The air content shall be 6.5% ± 2.0 by volume at the time of acceptance. Air content shall be determined in accordance with 505.

The temperature of the concrete at time of placement shall not exceed 80° F. The concrete temperature shall be controlled by one of the pre-cooling methods described in ACI 207.4R and as approved by the Engineer.

Drilled shaft concrete mix shall remain workable until the entire placement operation is complete and any temporary casings have been removed from the excavation. When the dry construction method is used, the concrete shall have a slump of 6 in. to 9 in. When the wet construction method or casing construction method is used, the concrete shall have a slump of 7 in. to 10 in. The concrete shall maintain a slump within the ranges specified herein until the entire placement operation is complete. One of the following admixtures shall be used to achieve and maintain the required slump:

(a) type F admixture,

(b) type G admixture,

(c) high range water reducing admixture system, or

(d) high range water reducing retarding admixture system.

Type B or D chemical admixtures that are a component of an admixture system and are identified as hydration stabilizers on the QPL of PCC Admixtures and Admixture Systems may be used at a higher dosage rate than stated on the QPL. Dosage of hydration stabilizers shall be based on the manufacturer's recommendation. Chemical admixtures type C, and type E will only be allowed with prior written permission. The concrete shall not be retempered with additional amounts of chemical admixtures type F or type G after the initial mixing has been completed. A rheology-modifying admixture meeting the

requirements of type S chemical admixture in accordance with ASTM C494 may be used if approved by the Engineer and the admixture manufacturer.

A concrete mix design, CMD, shall be prepared for the drilled shaft based on the requirements as specified herein and shall be verified by a trial batch. The CMD shall be submitted to the Engineer for verification at least seven days prior to the trial batch demonstration. The CMD submittal shall include the following:

(a) list of all ingredients
(b) source of all materials
(c) gradation of the aggregates
(d) absorption of the aggregates
(e) SSD bulk specific gravity of the aggregates
(f) specific gravity of pozzolan
(g) batch weights
(h) names of all admixtures
(i) range of admixture dosage rates as recommended by the manufacturer.

728.04 Trial Batch

An ~~American Concrete Institute certified concrete field testing technician, grade 1~~, ACI-Certified Concrete Field Testing Technician, Grade I, hereinafter referred to as the Contractor's certified technician, shall be on site to direct and perform all sampling and testing.

A trial batch shall be produced and tested by the Contractor's certified technician and the Department's qualified technician to verify that the CMD meets the concrete mix criteria. The trial batch shall be of sufficient quantity to allow the Contractor and the Engineer to perform all required tests from the same batch. Concrete shall be batched, mixed, and delivered in accordance with 702.06, 702.07, and 702.09. The Engineer will test the trial batch and provide the Contractor with the results. Trial batch concrete shall not be used for more than one test, except the concrete used for the unit weight may be used to conduct the air content test. In order for the trial batch concrete to be considered acceptable, the air content will measure at least 6.5%. After mixing, the concrete shall be agitated for a time period to simulate delivery, not to exceed 45 minutes.

[-----]

COMMENTS AND ACTION

501.02 Quality Control
501.06 Trial Batch
506.05 Trial Batch
509.05 Quality Control Plan
722.05(b) Latex Modified Concrete, Very Early Strength
722.05(c) Silica Fume Modified Concrete
728-B-203 DRILLED SHAFT FOUNDATIONS

DISCUSSION:

Mr. Reilman introduced and presented this item stating that M&T has observed deviations from the standard methods in the field to measure fresh concrete properties, sampling, and making concrete specimens for evaluating hardened properties of concrete. The American Concrete Institute, ACI, provides training and certification to become a Grade I Concrete Field Testing Technician to address consistency with the above-mentioned issues. This certification needs renewed every five years. However, M&T also observed issues with recertification.

Mr. Reilman proposed to incorporate the proposed changes to specify the certification level of a ACI certified technician. Editorial revisions are as shown.

There was no further discussion and this item passed as revised.

Motion: Mr. Reilman Second: Mr. Dave Ayes: 10 Nays: 0 FHWA Approval: YES	**Action:** ___ Passed as Submitted _X_ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 501 pg. 407; 506 pg. 451; 509 pg. 474; 722 pg. 774-775. Recurring Special Provisions or Plan Details: 728-B-203 DRILLED SHAFT FOUNDATIONS Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: 8	_X_ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP _X_ Create RSP (No. 5xx-R-xxx) Effective: March 1, 2024 _X_ Revise RSP (No. 728-B-203) Effective: March 1, 2024 ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: _X_ GIFE Update ___ Frequency Manual Update _X_ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEMS(S) ENCOUNTERED:

- It was brought to the Department's attention that a greater level of detail on embankment construction is needed for narrow widening when stiffness testing is not possible in 203.25.
- It was determined that the thickness of subgrade on the embankment using the coarse aggregate or recycled concrete aggregate could be reduced.
- It was determined that further clarification on the definition of defect is needed in 203.25.

PROPOSED SOLUTION:

- Add detailed embankment compaction methods for embankment widening without stiffness control in 203.25.
- the thickness of subgrade on the embankment using the aggregate, RAP or recycled concrete aggregate reduced from 24 inch to 12 inch.
- Add the maximum dimension of recycled concrete aggregate in 203.25.
- Add a recommendation for adequate drainage during construction in 203.25.
- Add a recommendation for narrow widening as Subsection (b).

APPLICABLE STANDARD SPECIFICATIONS: 203.25

APPLICABLE STANDARD DRAWINGS: NA

APPLICABLE DESIGN MANUAL SECTION: NA

APPLICABLE SECTION OF GIFE: NA

APPLICABLE RECURRING SPECIAL PROVISIONS: NA

PAY ITEMS AFFECTED: No

APPLICABLE SUB-COMMITTEE ENDORSEMENT: ICI, Subcontractors, Area Engineers, Material Engineers, and Geotechnical Engineers.

IMPACT ANALYSIS (attach report): NA

Submitted by: Jim Reilman for Nayyar Siddiki
Title: State Materials Engineer
Organization: INDOT
Phone Number: 317-522 9692
Date: 8/17/2023

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: NA
Construction time: Yes
Customer satisfaction? NA
Congestion/travel time? NA
Ride quality? NA

Will this proposal reduce operational costs or maintenance effort? NA

Will this item improve safety:

For motorists? NA
For construction workers? NA

Will this proposal reduce operational costs or maintenance effort? NA

Will this item improve safety:

For motorists? NA
For construction workers? NA

Will this proposal improve quality for:

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

Will this change provide the contractor more flexibility? NA

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

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

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:

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 203, BEGIN LINE 1249, DELETE AND INSERT AS FOLLOWS:

203.25 Embankment Without Stiffness Control

(a) General Requirements

When aggregate, *RAP, or recycled concrete pavement processed into coarse aggregate* is used for embankment construction and it is not possible to perform stiffness testing in accordance with ITM 508 or strength testing in accordance with ITM 509, such material shall be compacted with ~~several passes of~~ crawler-tread equipment or with approved vibratory equipment~~, or both~~. The equipment weight shall be at least ~~10~~*15* t. *If constructed without stiffness control, no individual particle in the embankment fill shall be greater than 3 in. in any dimension.* The materials shall be placed in lifts not to exceed 9 in. loose measurements, or as directed by the Engineer. Each lift shall be compacted with a minimum of five passes. The tread areas *or vibratory equipment* shall overlap enough on each trip so that the entire embankment is compacted uniformly. ~~When the embankment reaches 24 in. below the proposed subgrade elevation, proofrolling shall be performed in accordance with 203.26. Proofrolling shall also be performed at every 5 ft of fill placed. Any defect shall be corrected as directed.~~ Upon acceptance *of the embankment*, a layer of geotextile in accordance with 918.02(a) Type ~~2B~~*2A* shall be placed and ~~the remaining embankment~~ *the top 12 in. of ~~subgrade~~ the embankment* shall be constructed with No. 53 aggregate in accordance with 301. *The embankment side slope shall be encased in accordance with 203.09. Structure backfill will be paid for in accordance with 211 and coarse aggregate will be paid for in accordance with 301.*

~~At locations inaccessible to the above compacting equipment, the required compaction shall be obtained with approved mechanical tamps or vibrators, in which case the depth of lifts, loose measurement, shall not exceed 4 in.~~

(b) Narrow Widening

For widening up to and including 8 ft, which includes a 4 ft bench, the ~~following~~ materials as shown on the plans shall be used. Otherwise, the following shall be used:

1. *structure backfill, nominal size 1/2 in., 1 in., or 1 1/2 in., in accordance with 904.05; or*
2. *coarse aggregate No. 53 ~~or No. 73~~ in accordance with 904.01.*

Each lift shall be compacted with a minimum of six passes of the roller. The compacted lift thickness shall be 6 in. The roller shall be equipped with a variable amplitude system, a vibratory roller weighing at least 5 t, and a speed control device. It shall have a minimum frequency of 1,000 vibrations per minute. The last two roller passes shall be performed using the high amplitude setting. Rutting greater than 1/2 in. shall be corrected as directed. In areas inaccessible to standard size compacting equipment, a

lightweight roller or an alternative vibratory system with a minimum of nine passes shall be used, and the proofrolling requirement for widening up to 8 ft will be waived.

The Engineer will perform moisture testing on the foundation soils prior to the placement of coarse aggregate. If the moisture content of the foundation soils is greater than 13%, the Engineer will contact the Geotechnical Engineering Division for a recommendation.

During preparation of the grade, adequate drainage shall be provided at all times to prevent water from standing.

COMMENTS AND ACTION

203.25 Embankment Without Stiffness Control

DISCUSSION:

This item was introduced and presented by Mr. Reilman, assisted by Mr. Yoon and Mr. Siddiki, who explained that it was brought to the Department's attention that a greater level of detail on embankment construction is needed for narrow widening when stiffness testing is not possible in 203.25. It was determined that the thickness of subgrade on the embankment using the coarse aggregate or recycled concrete aggregate could be reduced. It was also determined that further clarification on the definition of defect is needed in 203.25.

Mr. Reilman proposed to add detailed embankment compaction methods for embankment widening without stiffness control in 203.25. The thickness of subgrade on the embankment using the aggregate, RAP or recycled concrete aggregate will be reduced from 24 in. to 12 in., add the maximum dimension of recycled concrete aggregate in 203.25, add a recommendation for adequate drainage during construction in 203.25, and add a recommendation for narrow widening as Subsection (b).

Prior to the meeting -
Mr. Koch stated that 203.18 uses the term 'recycled concrete pavement' and 207.03 does not allow for use due to potential underdrain concerns. Should we define 'recycled concrete aggregate' or use 'recycled concrete pavement'? The latter is processed to B borrow and constructed to our 'rock embankment' spec. Mr. Yoon responded that "recycled concrete aggregate" will be revised as "recycled concrete pavement processed into coarse aggregate".
Also, all "recycle concrete pavement" in 203.18 will be revised as "Recycled concrete pavement processed into coarse aggregate".

Mr. Koch mentioned that adding type IC Subgrade Treatment may change the Geotechnical Recommendation. How will costs be handled and would an approval be necessary by the signatories of the Geotech Report? Please note the Contractor's elective fill material may force a change order to be negotiated. Former spec language allowed for installation of fabric without the possibility of damage, 24 in. bury, from chemical subgrade treatment; we could construct with existing items.
Mr. Yoon responded that the proposed language in 203.25 will be revised as "the top 12 in. of the embankment shall be constructed with No. 53 aggregate in accordance with 301."

Mr. Koch asked, if benching is shown on the plans, would this supersede? Afraid some may attempt to claim such. Mr. Yoon responded that benching is included in the various pay items of the contract.

Mr. Koch mentioned that "shall" implies required, or is this intended to be a Contractor option? How will payment be addressed? Mr. Yoon responded that it is required. The following sentence will be added:
"*Structure backfill will be paid for in accordance with 211 and coarse aggregate will be paid for in accordance with 301*."

With regard to (b) Narrow Widening, Mr. Koch asked, does the coarse grade aggregate (.5, 1, & 1.5) require a fabric roof? Mr. Yoon responded that no fabric is required. Also, we will remove No. 73 from (b) 2. Mr. Siddiki responded that those issues are project specific and will be addressed during that project. Mr. Koch asked "What is narrow? Is it as defined as 8 ft?" Mr. Siddiki said the benches shall be in accordance with 203.22 and as shown on the cross-sections.

Mr. Koch asked, is below 'general requirements' (section a) or specific to (b)?
Mr. Yoon responded that they are specific to (b) Narrow Widening.

Minor editorial revisions are as shown.

Mr. Pankow suggested cleaning this up before making a decision. Mr. Reilman agreed to withdraw this item in order to clarify the issues of concern. Mr. Osborn agreed and will help with those clarifications.

COMMENTS AND ACTION

203.25 Embankment Without Stiffness Control

[continued]

Motion: Mr. Reilman Second: Mr. Dave Ayes: Nays: FHWA Approval:	**Action:** ___ Passed as Submitted ___ Passed as Revised _X_ Withdrawn
2024 Standard Specifications Sections: 203.25 pg(s) 181-182. Recurring Special Provisions or Plan Details: NONE Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: NONE	___ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP ___ Create RSP (No. ____) Effective: ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update ___ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Indiana is currently a PG 64-22 state. This PG grade is not appropriate for the climate we experience and is contributing to loss of pavement life. We are currently using a less refined grading system which may not properly account for trucks

PROPOSED SOLUTION: Change Indiana to a PG 58-28 state. At the same time switch to AASHTO M332 (MSCR) PG grading

APPLICABLE STANDARD SPECIFICATIONS: 401, 402, 406, 408, 410, 414, 902

APPLICABLE STANDARD DRAWINGS: N/A, it appears all HMA is referred to by course (401) or Type (402)

APPLICABLE DESIGN MANUAL SECTION: throughout part 6 (and possible others). Suggested editorial changes: PG 58S-28 shall replace any reference to PG 64-22. PG 58H-28 shall replace any reference to PG 70-22. PG 58E-28 shall replace any reference to PG 76-22.

APPLICABLE SECTION OF GIFE: Section 13.5

APPLICABLE RECURRING SPECIAL PROVISIONS:

401-R-417 HMA SPRAY PAVER AND EMULSION
410-R-418 SMA SPRAY PAVER AND EMULSION
410-R-759 QC/QA HMA – SMA PAVEMENT

PAY ITEMS AFFECTED: Many, see last page

APPLICABLE SUB-COMMITTEE ENDORSEMENT: PG binder task force comprised of M&T, Pavement Design, Research, APAI members (HMA producers, Binder suppliers, Asphalt Institute)

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: if any 401, 402, 406, 408, 410, 414 pay item is used. Propose RSP effective 9/1/24.

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Division: Materials and Tests

E-mail: jreilman@indot.in.gov

Date: 8/17/23

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? yes
Will approval of this item affect the Qualified Products List (QPL)? yes, PG binder suppliers (will be addressed)
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? yes

Will this item improve safety:

For motorists? yes
For construction workers? no

Will this proposal improve quality for:

Construction procedures/processes? no
Asset preservation? yes
Design process? yes

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? no

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: Change will increase pavement life and reduce thermal cracking. Propose RSP effective 9/1/24. Multiple ITMs will be affected. Draft updates already in progress

SECTION	ITEM	DESCRIPTION	UNIT	TYPE
401	401-07321	QC/QA-HMA, 2, 58S, SURFACE, 9.5 mm	TON	S
401	401-07322	QC/QA-HMA, 3, 58S, SURFACE, 9.5 mm	TON	S
401	401-07323	QC/QA-HMA, 4, 58S, SURFACE, 9.5 mm	TON	S
401	401-07327	QC/QA-HMA, 2, 58H, SURFACE, 9.5 mm	TON	S
401	401-07328	QC/QA-HMA, 3, 58H, SURFACE, 9.5 mm	TON	S
401	401-07329	QC/QA-HMA, 4, 58H, SURFACE, 9.5 mm	TON	S
401	401-07333	QC/QA-HMA, 2, 58E, SURFACE, 9.5 mm	TON	S
401	401-07334	QC/QA-HMA, 3, 58E, SURFACE, 9.5 mm	TON	S
401	401-07335	QC/QA-HMA, 4, 58E, SURFACE, 9.5 mm	TON	S
401	401-07339	QC/QA-HMA, 2, 58S, SURFACE, 12.5 mm	TON	S
401	401-07340	QC/QA-HMA, 3, 58S, SURFACE, 12.5 mm	TON	S
401	401-07342	QC/QA-HMA, 4, 58S, SURFACE, 12.5 mm	TON	S
401	401-07345	QC/QA-HMA, 2, 58H, SURFACE, 12.5 mm	TON	S
401	401-07347	QC/QA-HMA, 3, 58H, SURFACE, 12.5 mm	TON	S
401	401-07348	QC/QA-HMA, 4, 58H, SURFACE, 12.5 mm	TON	S
401	401-07351	QC/QA-HMA, 2, 58E, SURFACE, 12.5 mm	TON	S
401	401-07352	QC/QA-HMA, 3, 58E, SURFACE, 12.5 mm	TON	S
401	401-07353	QC/QA-HMA, 4, 58E, SURFACE, 12.5 mm	TON	S
401	401-07356	QC/QA-HMA, 2, 58S, INTERMEDIATE, 9.5 mm	TON	S
401	401-07357	QC/QA-HMA, 3, 58S, INTERMEDIATE, 9.5 mm	TON	S
401	401-07358	QC/QA-HMA, 4, 58S, INTERMEDIATE, 9.5 mm	TON	S
401	401-07361	QC/QA-HMA, 2, 58H, INTERMEDIATE, 9.5 mm	TON	S

401	401-07362	QC/QA-HMA, 3, 58H, INTERMEDIATE, 9.5 mm	TON	S
401	401-07363	QC/QA-HMA, 4, 58H, INTERMEDIATE, 9.5 mm	TON	S
401	401-07366	QC/QA-HMA, 2, 58E, INTERMEDIATE, 9.5 mm	TON	S
401	401-07367	QC/QA-HMA, 3, 58E, INTERMEDIATE, 9.5 mm	TON	S
401	401-07368	QC/QA-HMA, 4, 58E, INTERMEDIATE, 9.5 mm	TON	S
401	401-07371	QC/QA-HMA, 2, 58S, INTERMEDIATE, 12.5 mm	TON	S
401	401-07372	QC/QA-HMA, 3, 58S, INTERMEDIATE, 12.5 mm	TON	S
401	401-07373	QC/QA-HMA, 4, 58S, INTERMEDIATE, 12.5 mm	TON	S
401	401-07378	QC/QA-HMA, 2, 58H, INTERMEDIATE, 12.5 mm	TON	S
401	401-07379	QC/QA-HMA, 3, 58H, INTERMEDIATE, 12.5 mm	TON	S
401	401-07380	QC/QA-HMA, 4, 58H, INTERMEDIATE, 12.5 mm	TON	S
401	401-07384	QC/QA-HMA, 2, 58E, INTERMEDIATE, 12.5 mm	TON	S
401	401-07385	QC/QA-HMA, 3, 58E, INTERMEDIATE, 12.5 mm	TON	S
401	401-07387	QC/QA-HMA, 4, 58E, INTERMEDIATE, 12.5 mm	TON	S
401	401-07390	QC/QA-HMA, 2, 58S, INTERMEDIATE, 19.0 mm	TON	S
401	401-07392	QC/QA-HMA, 3, 58S, INTERMEDIATE, 19.0 mm	TON	S
401	401-07393	QC/QA-HMA, 4, 58S, INTERMEDIATE, 19.0 mm	TON	S
401	401-07397	QC/QA-HMA, 2, 58H, INTERMEDIATE, 19.0 mm	TON	S
401	401-07398	QC/QA-HMA, 3, 58H, INTERMEDIATE, 19.0 mm	TON	S
401	401-07399	QC/QA-HMA, 4, 58H, INTERMEDIATE, 19.0 mm	TON	S
401	401-07402	QC/QA-HMA, 2, 58E, INTERMEDIATE, 19.0 mm	TON	S
401	401-07403	QC/QA-HMA, 3, 58E, INTERMEDIATE, 19.0 mm	TON	S

401	401-07404	QC/QA-HMA, 4, 58E, INTERMEDIATE, 19.0 mm	TON	S
401	401-07407	QC/QA-HMA, 2, 58S, BASE, 25.0 mm	TON	S
401	401-07408	QC/QA-HMA, 3, 58S, BASE, 25.0 mm	TON	S
401	401-07409	QC/QA-HMA, 4, 58S, BASE, 25.0 mm	TON	S
401	401-07412	QC/QA-HMA, 2, 58H, BASE, 25.0 mm	TON	S
401	401-07413	QC/QA-HMA, 3, 58H, BASE, 25.0 mm	TON	S
401	401-07414	QC/QA-HMA, 4, 58H, BASE, 25.0 mm	TON	S
401	401-07423	QC/QA-HMA, 2, 58S, BASE, 19.0 mm	TON	S
401	401-07424	QC/QA-HMA, 3, 58S, BASE, 19.0 mm	TON	S
401	401-07427	QC/QA-HMA, 2, 58H, BASE, 19.0 mm	TON	S
401	401-07428	QC/QA-HMA, 3, 58H, BASE, 19.0 mm	TON	S
401	401-08364	QC/QA-HMA, 4, 58S, BASE, 19.0 mm	TON	S
401	401-08366	QC/QA-HMA, 4, 58H, BASE, 19.0 mm	TON	S
401	401-09717	QC/QA-HMA, 3, 58S, SURFACE, 4.75 mm	TON	S
401	401-09941	QC/QA-HMA, 3, 58H, SURFACE, 4.75 mm	TON	S
401	401-09949	QC/QA-HMA, 2, 58H, SURFACE, 4.75 mm	TON	S
401	401-09970	QC/QA-HMA, 2, 58S, SURFACE, 4.75 mm	TON	S
401	401-11787	QC/QA-HMA, 3, 58E, INTERMEDIATE, OG 19.0 mm	TON	S
401	401-11897	QC/QA-HMA, 2, 58S, INTERMEDIATE, 25.0 mm	TON	S
401	401-11915	QC/QA-HMA, 4, 58E, SURFACE, 4.75 mm	TON	S
401	401-11966	QC/QA-HMA, 3, 58E, SURFACE, 4.75 mm	TON	S
401	401-11971	QC/QA-HMA, 4, 58H, SURFACE, 4.75 mm	TON	S

401	401-12137	QC/QA-HMA, 4, 58E, INTERMEDIATE, OG, 19.0 mm	TON	S
401	401-12138	QC/QA-HMA, 4, 58E, INTERMEDIATE, OG, 25.0 mm	TON	S
401	401-12139	QC/QA-HMA, 4, 58E, BASE, OG, 19.0 mm	TON	S
401	401-12141	QC/QA-HMA, 4, 58E, BASE, OG, 25.0 mm	TON	S
401	401-12267	QC/QA-HMA 4, 58S, BASE OG 19.0 MM	TON	S
401	401-12495	QC/QA-HMA 4, 58E, INTERMEDIATE, OG 9.5 mm	TON	S
410	410-09530	QC/QA-HMA, 4, 58E, SURFACE, 9.5 mm - SMA	TON	S
~~410~~	~~410-09877~~	~~QC/QA-HMA, 4, 58H, SURFACE, 9.5 mm - SMA~~	~~TON~~	~~S~~
~~410~~	~~410-10128~~	~~QC/QA-HMA, 3, 58E, SURFACE, 9.5 mm - SMA~~	~~TON~~	~~S~~
410	410-11777	QC/QA-HMA, 4, 58E, SURFACE, 12.5 mm - SMA	TON	S
~~410~~	~~410-11935~~	~~QC/QA-HMA, 3, 58H, SURFACE, 9.5 mm - SMA~~	~~TON~~	~~S~~
~~410~~	~~410-12320~~	~~QC/QA-HMA, 3, 58E, SURFACE, 12.5 mm - SMA~~	~~TON~~	~~S~~
~~410~~	~~410-12333~~	~~QC/QA-HMA, 3, 58H, SURFACE, 12.5 mm - SMA~~	~~TON~~	~~S~~
410	410-12485	QC/QA-HMA 4, 58E, INTERMEDIATE 12.5 mm - SMA	TON	S
~~410~~	~~410-12672~~	~~QC/QA-HMA, 2, 58E, SURFACE, 9.5 mm - SMA~~	~~TON~~	~~S~~

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(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 401, BEGIN LINE 47, DELETE AND INSERT AS FOLLOWS:

The ESAL category identified in the pay item correlates to the following ESAL ranges.

ESAL Category	ESAL
2~~*~~	< 3,000,000
3	3,000,000 to < 10,000,000
4~~*~~	≥ 10,000,000
~~* A category 2 mixture shall replace a category 1 mixture and a category 4 mixture shall replace a category 5 mixture.~~	

The plant discharge temperature for any mixture shall not be more than 315°F whenever PG ~~64-22~~*58S-28* or PG ~~70-22~~*58H-28* binders are used or not more than 325°F whenever PG ~~76-22~~*58E-28* binder is used. QC/QA HMA may be produced using a water-injection foaming device. The DMF shall list the minimum and maximum plant discharge temperatures as applicable to the mixture.

SECTION 401, BEGIN LINE 97, DELETE AND INSERT AS FOLLOWS:

The percent draindown of open graded mixtures shall not exceed 0.30% in accordance with AASHTO T 305. Open graded mixtures may incorporate recycled materials and fibers. The recycled materials shall be in accordance with 401.06. The fiber type and minimum dosage rate shall be in accordance with AASHTO M 325. The binder for open graded mixtures may have ~~the upper temperature classification reduced by 6°C from the specified binder grade~~*a traffic loading designation of H* if fibers are incorporated into the mixture or if 3.0% ~~reclaimed asphalt shingles~~*RAS* by weight of the total mixture is used.

The percent draindown of dense graded mixtures shall not exceed 0.30% in accordance with AASHTO T 305. Dense graded mixture shall be tested for moisture susceptibility in accordance with AASHTO T 283, except that the loose mixture curing shall be replaced by mixture conditioning for 4 h in accordance with AASHTO R 30. The minimum TSR shall be 80%. The 6 in. mixture specimens shall be compacted in

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accordance with AASHTO T 312. If anti-stripping additives are added to the mixture to be in accordance with the minimum TSR requirements, the dosage rate shall be submitted with the DMF.

A PG binder grade or source change will not require a new mix design. If the ~~upper temperature classification~~*traffic loading designation* of the PG binder is lower than the original PG grade, a new TSR value is required.

SECTION 401, BEGIN LINE 162, INSERT AS FOLLOWS:

Recycled materials may be used as a substitute for a portion of the new materials required to produce HMA mixtures. The amount of total binder replaced by binder in the recycled material shall be computed as follows:

$$\text{Binder Replacement, \%} = \frac{(A \times B)+(C \times D)}{E}$$

where:

A = RAP, % Binder Content by Mass of RAP
B = RAP, % by Total Mass of Mixture
C = RAS, % Binder Content by Mass of RAS
D = RAS, % by Total Mass of Mixture
E = Total, % Binder Content by Total Mass of Mixture.

If a pay item is designated as PG 58S-28 and a surface mixture, the binder grade used shall be PG 58H-28 when the Binder Replacement is less than or equal to 15.0%.

RAS may be obtained from either pre-consumer or post-consumer asphalt shingles. The two RAS types shall not be blended together for use in HMA mixtures.

SECTION 401, BEGIN LINE 399, DELETE AND 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~~*58S-28* or PG ~~70-22~~*58H-28* binders are used or not more than 325°F whenever PG ~~76-22~~*58E-28* binder is used. No mixture shall be placed on a previously paved course that has not cooled to below 175°F. For mixtures compacted in

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accordance with 402.15, the temperature of each mixture at the time of spreading shall not be less than 245°F.

SECTION 401, BEGIN LINE 996, DELETE AND INSERT AS FOLLOWS:

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Inertial Profiler, HMA	LS
Joint Adhesive, _____ course type	LFT
Liquid Asphalt Sealant	LFT
QC/QA-HMA, _____ (ESAL[1]), *58*___ (PG[2]), _____ (Course[3]), _____ (Mix[4])	mm TON

(1) ESAL Category as defined in 401.04

(2) Number represents the high temperature binder grade. *Letter represents traffic loading designation*. Low temperature grades are - ~~22~~*28*

(3) Surface, Intermediate, or Base

(4) Mixture Designation

SECTION 402, BEGIN LINE 36, DELETE AND INSERT AS FOLLOWS:

The DMF will be based on the ESAL and mixture designation as follows:

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SECTION 402 – HMA PAVEMENT
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SECTION 406 – TACK COAT
406.02 Materials
SECTION 408 – SEALING OR FILLING CRACKS AND JOINTS
408.02 Materials
SECTION 410 – QC/QA HMA – SMA PAVEMENT
410.03 Materials
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Mixture Type	**Type B~~*~~**	**Type C**	**Type D**
Design ESAL	< 3,000,000	3,000,000 to < 10,000,000	≥ 10,000,000
Surface	4.75 mm	4.75 mm	4.75 mm
	9.5 mm	9.5 mm	9.5 mm
	12.5 mm	12.5 mm	12.5 mm
Surface – PG Binder	~~64-22~~*58S-28*	~~70-22~~*58H-28*	~~70-22~~*58E-28*
Intermediate	9.5 mm	9.5 mm	9.5 mm
	12.5 mm	12.5 mm	12.5 mm
	19.0 mm	19.0 mm	19.0 mm
	25.0 mm	25.0 mm	25.0 mm
Intermediate – PG Binder	~~64-22~~*58S-28*	~~64-22~~*58H-28*	~~70-22~~*58E-28*
Base	19.0 mm	19.0 mm	19.0 mm
	25.0 mm	25.0 mm	25.0 mm
Base – PG Binder	~~64-22~~*58S-28*	~~64-22~~*58S-28*	~~64-22~~*58S-28*
~~*A Type B mixture shall replace a Type A mixture.~~			

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

Surface 4.75 mm mixtures shall not be used when the required lay rate shown on the plans is greater than 100 lb/sq yd. Surface 12.5 mm mixtures shall not be used when the required lay rate shown on the plans is less than 195 lb/sq yd.

The plant discharge temperature for any mixture shall not be more than 315°F whenever PG ~~64-22~~*58S-28* or PG ~~70-22~~*58H-28* binders are used *or not more than 325°F whenever 58E-28 binder is used*. HMA may be produced using a water-injection foaming device. The DMF shall list the minimum and maximum plant discharge temperatures as applicable to the mixture.

SECTION 402, BEGIN LINE 172, DELETE AND INSERT AS FOLLOWS:

402.13 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 a mixture is produced from more than one DMF for a given pay item, the MAF will be applied to the applicable portion of

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the mixture for each. Mixtures in areas inaccessible to laydown equipment or mechanical devices may be placed by other methods.

The temperature of each mixture at the time of spreading shall be less than 315°F whenever ~~64-22~~*58S-28* or PG ~~70-22~~*58H-28* binders are used *or not more than 325°F whenever 58E-28 binder is used*. The temperature of each mixture at the time of spreading shall not be less than 245°F. No mixture shall be placed on a previously paved course that has not cooled to less than 175°F.

SECTION 406, BEGIN LINE 9, DELETE AND INSERT AS FOLLOWS:

406.02 Materials

The type and grade of asphalt material shall be in accordance with the following:

Asphalt Emulsion, SS-1h, AE-NT .....902.01(b)
PG Asphalt Binder, PG ~~64-22~~*58S-28*.....902.01(a)

SECTION 408, BEGIN LINE 12, DELETE AND INSERT AS FOLLOWS:

408.02 Materials

Materials shall be in accordance with the following:

Asphalt Binder, PG ~~64-22~~*58S-28**.....902.01(a)
Asphalt Emulsion for Crack Filling, AE-90S .....902.01(b)
Fine Aggregates, No. 23 or No. 24 .....904.02
Joint Sealing Materials.....906.02(a)2

* A PG ~~64-22~~*58S-28* asphalt binder shall be used to fill cracks on a surface that is milled in accordance with 306, and polypropylene fibers shall be used only in conjunction with warranted micro-surfacing.

SECTION 410, BEGIN LINE 21, DELETE AND INSERT AS FOLLOWS:

410.03 Materials

Materials shall be in accordance with the following:

Asphalt Materials
PG Binder, PG ~~76-22, PG 70-22,~~ *58E-28*.....902.01(a)
Coarse Aggregates, Class AS.....904.03
Fine Aggregates (sand, mineral filler) 904.02
Stabilizing Additives.....AASHTO M 325

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410.04 Design Mix Formula

A DMF shall be prepared in accordance with 410.05 and submitted in a format acceptable to the Engineer one week prior to use. The DMF shall state the maximum particle size in the mixture. The DMF shall state the calibration factor, test temperature and absorption factors to be used for the determination of binder content using the ignition oven in accordance with ITM 586, the binder content by extraction in accordance with ITM 571, ΔPb, determined in accordance with ITM 591, the aggregate degradation loss value in accordance with ITM 220 and a Mixture Adjustment Factor, MAF. The DMF shall state the source, type dosage rate of any stabilizing additives. The DMF ~~will~~*shall* be based on the ESAL and mixture designation. No mixture shall be used until the DMF has been assigned a mixture number by the DTE.

The ESAL category ~~identified in the pay item correlates to the following ESAL ranges:~~*shall be ESAL Category 4 corresponding to greater than or equal to 10,000,000 ESALs.*

~~ESAL Category~~	~~ESAL~~
~~2*~~	~~< 3,000,000~~
~~3~~	~~3,000,000 to < 10,000,000~~
~~4*~~	~~≥ 10,000,000~~
~~* A category 2 mixture shall replace a category 1 mixture and a category 4 mixture shall replace a category 5 mixture.~~	

The plant discharge temperature for any mixture shall not be more than ~~315°F whenever PG 70-22 binder is used or not more than~~ 325°F ~~whenever PG 76-22 binder is used~~. SMA may be produced using a water-injection foaming device. The DMF shall list the minimum and maximum plant discharge temperatures as applicable to the mixture.

SECTION 410, BEGIN LINE 99, DELETE AS FOLLOWS:

A PG binder ~~grade or~~ source change will not require a new mix design. ~~If the upper temperature classification of the PG binder is lower than the original PG grade, a new TSR value is required.~~

SECTION 410, BEGIN LINE 257, DELETE AS FOLLOWS:

410.14 Spreading and Finishing

The mixture shall be placed upon an approved surface by means of a paver or other

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SECTION 402 – HMA PAVEMENT	402.04 Design Mix Formula
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SECTION 406 – TACK COAT	406.02 Materials
SECTION 408 – SEALING OR FILLING CRACKS AND JOINTS	408.02 Materials
SECTION 410 – QC/QA HMA – SMA PAVEMENT	410.03 Materials
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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 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 placed on a previously paved course that has not cooled to less than 175°F.

SECTION 410, BEGIN LINE 525, DELETE AND INSERT AS FOLLOWS:

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Joint Adhesive, _____ course type	LFT
QC/QA - HMA, __*4*__, *58E-~~28~~*, _____, _____ (ESAL(1))(PG(2))(Course(~~3~~3))(Mix(~~4~~2))	mm, - SMA...TON
Quality Assurance Adjustment	DOL

(1) ESAL Category as defined in 410.04
(2) Number represents the high temperature binder grade. *Letter represents traffic loading designation.* Low temperature grade~~s *are*~~ *is* - ~~22~~28
(~~3~~3) Surface or Intermediate
(~~4~~2) Mixture Designation

SECTION 414, BEGIN LINE 15, DELETE AND INSERT AS FOLLOWS:

414.02 Materials

Materials shall be in accordance with the following:

Asphalt Emulsion	902.01(b)2
Asphalt Materials	
PG Binder, PG ~~64-22~~58*S-28*, PG ~~76-22~~58*E-28*	902.01(a)
PG Binder Grade	414.02(b)
Coarse Aggregates, Class A or Higher	904.03 and 414.02(c)
Fine Aggregates	904.02
Mineral Filler	904.02(f)

(a) Blank

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SECTION 406 – TACK COAT	406.02 Materials
SECTION 408 – SEALING OR FILLING CRACKS AND JOINTS	408.02 Materials
SECTION 410 – QC/QA HMA – SMA PAVEMENT	410.03 Materials
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(b) Asphalt Materials

The PG binder grade shall be selected based on the following requirements:

PG Binder	ESAL
~~64-22~~*58S-28*	< 10,000,000
~~76-22~~*58E-28*	≥ 10,000,000

~~Additional requirements for the PG 76-22 binder as follows:~~

~~Characteristic~~	~~Test Method~~	~~Min.~~	~~Max.~~
~~Separation, % prepared by ASTM D 7173~~	~~AASHTO T 53~~		~~6°C~~
~~Elastic Recovery, @ 39°F (4°C), %~~	~~AASHTO T 301~~	~~60~~	

SECTION 902, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

902.01 Asphalt

Asphalt is defined as a cementitious material obtained from petroleum processes. Asphalts shall be sampled and tested in accordance with the applicable requirements of 902.02.

(a) Performance Graded Asphalt Binders

~~Performance graded asphalt~~*PG* binders shall be from a supplier on the QPL of Performance-Graded Asphalt Binder Suppliers. A *PG* binder will be considered for inclusion on the QPL by following ITM 581.

~~Performance graded, PG asphalt binders shall be in accordance with the following:~~

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SECTION 414 - ULTRATHIN BONDED WEARING COURSE, WARRANTED	414.02 Materials
SECTION 902 – ASPHALT MATERIALS	902.01 Asphalt

~~GRADE~~	~~58-28~~	~~64-22~~	~~64-28~~	~~70-22~~	~~70-28~~	~~76-22~~
~~ORIGINAL BINDER~~						
~~Flash Point, minimum, °C~~	~~230~~					
~~Viscosity, maximum, 3 Pa·s, Test Temp, °C~~	~~135~~					
~~DSR, G*/sin δ (delta), minimum, 1.00 kPa, Test Temp. @ 10 rad/s, °C~~	~~58~~	~~64~~	~~64~~	~~70~~	~~70~~	~~76~~
~~ROLLING THIN-FILM OVEN RESIDUE~~						
~~Mass Loss, maximum, %~~	~~1.00~~					
~~DSR, G*/sin δ (delta), minimum, 2.20 kPa, Test Temp. @ 10 rad/s, °C~~	~~58~~	~~64~~	~~64~~	~~70~~	~~70~~	~~76~~
~~PRESSURE AGING VESSEL (PAV) RESIDUE~~						
~~PAV Aging Temperature, °C~~	~~100 (Note 1)~~					
~~DSR, G*sin δ (delta), maximum, 5,000 kPa, Test Temp. @ 10 rad/s, °C (Note 3)~~	~~19~~	~~25~~	~~22~~	~~28~~	~~25~~	~~31~~
~~Physical Hardening~~	~~Report (Note 2)~~					
~~Creep Stiffness, S, maximum, 300 MPa, m-value, minimum, 0.300, Test Temp. @ 60 s, °C~~	~~-18~~	~~-12~~	~~-18~~	~~-12~~	~~-18~~	~~-12~~

~~Notes: 1. Oven temperature tolerance shall be ±0.5°C.~~
~~2. Physical Hardening is performed on a set of asphalt beams according to AASHTO T 313, Section 12.1, except the conditioning time is extended to 24 h ±10 minutes at 10°C above the minimum performance temperature. The 24 h stiffness and m-value are reported for information purposes only.~~
~~3. Binders that have a G*sin δ (delta) of 5,001 to 6,000 Kpa will be considered acceptable if the phase angle is 42 degrees or greater.~~

~~A PG 58-28 or PG 64-22 binder may be modified by in-line blending with styrene butadiene rubber, SBR, polymer latex at the HMA plant in accordance with ITM 581. A PG 58-28 may be modified to a PG 64-28 and a PG 64-22 may be modified to a PG 70-22. A Type A certification in accordance with 916 shall be provided for SBR polymer latex. The results of the following shall be shown on the certification.~~

~~Property~~	~~Requirements~~
~~Total Polymer Solids, % by weight~~	~~60 – 72~~
~~Butadiene, % by weight, min.~~	~~68~~
~~Residual Styrene, % by weight, max.~~	~~0.1~~
~~Ash, % of total polymer solids by weight, max.~~	~~3.5~~
~~pH~~	~~9 – 11~~

SECTION 401 – QC/QA HMA PAVEMENT	401.04 Design Mix Formula
401.05 Volumetric Mix Design	401.06 Recycled Materials
401.14 Spreading and Finishing	401.22 Basis of Payment
SECTION 402 – HMA PAVEMENT	402.04 Design Mix Formula
402.13 Spreading and Finishing	
SECTION 406 – TACK COAT	406.02 Materials
SECTION 408 – SEALING OR FILLING CRACKS AND JOINTS	408.02 Materials
SECTION 410 – QC/QA HMA – SMA PAVEMENT	410.03 Materials
410.04 Design Mix Formula	410.05 SMA Mix Design
410.14 Spreading and Finishing	410.22 Basis of Payment
SECTION 414 - ULTRATHIN BONDED WEARING COURSE, WARRANTED	414.02 Materials
SECTION 902 – ASPHALT MATERIALS	902.01 Asphalt

~~Viscosity, Brookfield model RVF, Spindle No. 2 @ 20 rpm @ 25°C, max.~~	~~2,000~~

~~The minimum SBR polymer latex content shall be 2.5 %. The SBR polymer latex content may be reduced below the minimum content provided, if the following requirements are met:~~

~~1. An AASHTO accredited laboratory shall blend the PG binder and SBR polymer latex at the proposed SBR polymer latex content and test and grade the modified PG binder in accordance with AASHTO M 320.~~

~~2. The laboratory test results verifying the blend and compliance with 902.01(a) shall be submitted to the Engineer for approval.~~

~~3. The source of the PG Binder or SBR polymer latex shall not be changed.~~

PG binders shall be in accordance with AASHTO M 332 and in accordance with the elastic response requirements in AASHTO R 92.

~~*The Department is changing PG binders. Wherever in the contract documents any of the old PG binder grades, as noted in the table below, are referenced, it shall be interpreted to mean the corresponding new PG binder grade listed.*~~

~~*Old and New PG Binder Grade Classification*~~	
~~*Old PG Binder Grade*~~	~~*New PG Binder Grade**~~
~~*64-22*~~	~~*58S-28*~~
~~*70-22*~~	~~*58H-28*~~
~~*76-22*~~	~~*58E-28*~~
~~** in accordance with AASHTO M 332*~~	

1. Sampling

An acceptance sample and backup sample shall be taken from the asphalt delivery system at the HMA plant. A copy of a load ticket identifying the binder source shall be

SECTION 401 – QC/QA HMA PAVEMENT	401.04 Design Mix Formula
401.05 Volumetric Mix Design	401.06 Recycled Materials
401.14 Spreading and Finishing	401.22 Basis of Payment
SECTION 402 – HMA PAVEMENT	402.04 Design Mix Formula
402.13 Spreading and Finishing	
SECTION 406 – TACK COAT	406.02 Materials
SECTION 408 – SEALING OR FILLING CRACKS AND JOINTS	408.02 Materials
SECTION 410 – QC/QA HMA – SMA PAVEMENT	410.03 Materials
410.04 Design Mix Formula	410.05 SMA Mix Design
410.14 Spreading and Finishing	410.22 Basis of Payment
SECTION 414 - ULTRATHIN BONDED WEARING COURSE, WARRANTED	414.02 Materials
SECTION 902 – ASPHALT MATERIALS	902.01 Asphalt

submitted with the samples. The Engineer will take immediate possession of the samples.

2. PG Binder Testing

The Department will perform complete testing in accordance with AASHTO M ~~320~~*332*. Complete PG binder testing will consist of RTFO DSR and PAV BBR testing. *Elastic response in accordance with AASHTO R 92 will also be tested.* Rotational viscosity and flashpoint tests are not required. If the material is not in accordance with the specifications, the material will represent one week of HMA production and be adjudicated as a failed material in accordance with 105.03.

3. Appeals

If the Contractor does not agree with the acceptance test results, a request may be made in writing for additional testing. The appeal shall be submitted within 15 calendar days of receipt of the Department's written results. The basis of the appeal shall include complete AASHTO M ~~320~~*332* test results.

COMMENTS AND ACTION

401.04 Design Mix Formula	401.05 Volumetric Mix Design	401.06 Recycled Materials
401.14 Spreading and Finishing	401.22 Basis of Payment	402.04 Design Mix Formula
402.13 Spreading and Finishing	406.02 Materials	408.02 Materials
410.03 Materials	410.04 Design Mix Formula	410.05 SMA Mix Design
410.14 Spreading and Finishing	410.22 Basis of Payment	414.02 Materials
902.01 Asphalt		

DISCUSSION:

Mr. Reilman introduced and presented this item stating that Indiana is currently a PG 64-22 state. This PG grade is not appropriate for the climate we experience and is contributing to loss of pavement life. We are currently using a less refined grading system which may not properly account for trucks.

Mr. Reilman proposed to change Indiana to a PG 58-28 state. At the same time switch to AASHTO M332 (MSCR) PG grading.

Mr. Koch stated that striking note #2 in the 410 Basis of Payment, changes the item naming convention which is not depicted in the proposed items. 401 modifies but keeps note #2. Also, should 902.01(a) be split into an RSP?

Mr. Reilman responded that there will be three proposed 410 - SMA surface items. All three of these will use 58E-28 as the PG Binder. A "-28" has been added after the 58E in each of these three which should then have the pay item naming convention match the proposed spec change in the agenda, as shown above.
Regarding Mr. Koch's second comment, Mr. Reilman will pull this piece and address it as a separate item. It appears in Addendum 1. Mr. Reilman proposed to strike it from item 4 from the original agenda.

Following much discussion, the pay items shown in 410 have been revised as shown.
Mr. Cosenza mentioned that the design manual will require some changes so the particular pay items can be addressed at that time. Mr. Reilman said some design memos will be needed which will provide opportunities for dealing with those pay items.

There was no further discussion and this item passed as revised.

COMMENTS AND ACTION

401.04 Design Mix Formula	401.05 Volumetric Mix Design	401.06 Recycled Materials
401.14 Spreading and Finishing	401.22 Basis of Payment	402.04 Design Mix Formula
402.13 Spreading and Finishing	406.02 Materials	408.02 Materials
410.03 Materials	410.04 Design Mix Formula	410.05 SMA Mix Design
410.14 Spreading and Finishing	410.22 Basis of Payment	414.02 Materials
902.01 Asphalt		

[continued]

Motion: Mr. Reilman
Second: Mr. Dave
Ayes: 10
Nays: 0
FHWA Approval: YES

Action:

___ Passed as Submitted
X Passed as Revised
___ Withdrawn

2024 Standard Specifications Sections:
401 pg(s) 301-307, 313, 328; 402 pg(s) 330, 334; 406 pg. 344; 408 pg. 346-347; 410 pg(s) 351-354, 358, 364; 414 pg. 375; 902 pg(s) 984-986.

Recurring Special Provisions or Plan Details:
401-R-417 HMA SPRAY PAVER AND EMULSION
410-R-418 SMA SPRAY PAVER AND EMULSION
410-R-759 QC/QA HMA – SMA PAVEMENT

Standard Drawing affected:
NONE

Design Manual Chapter:
throughout part 6 (and possible others)

GIFE Section:
13

X 2026 Standard Specifications
X Revise Pay Items List
___ Notification to Designers if change is not addressed by RSP

X Create RSP (No. 400-R-xxx)
Effective: September 1, 2024

___ Revise RSP (No.___)
Effective:

___ Standard Drawing
Effective:

___ Create RPD (No. ___)
Effective:

X GIFE Update
X Frequency Manual Update
X SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: A variance from the initial density was inadvertently left in the paint materials specification when this was deleted from the remainder of the paint materials specifications.

PROPOSED SOLUTION: Delete the variance limitation from the initial density from the waterborne traffic paint materials specification to bring it in line with the other painting material specifications.

APPLICABLE STANDARD SPECIFICATIONS: 909.05

APPLICABLE STANDARD DRAWINGS: none

APPLICABLE DESIGN MANUAL SECTION: none

APPLICABLE SECTION OF GIFE: none

APPLICABLE RECURRING SPECIAL PROVISIONS: none

PAY ITEMS AFFECTED: none

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad Hoc: Kelly Cummins, Jim Reilman

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: No RSP needed. Just incorporate into 2026 spec book

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: (317) 522-9692

Date: 9/28/23

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? N/A
- Asset preservation? N/A
- Design process? N/A

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

Will this proposal provide clarification for the Contractor and field personnel? N/A

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:

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 909, BEGIN LINE 353, DELETE AS FOLLOWS:

The cured film of waterborne traffic paint shall not contain any toxic heavy metals above the limits of the regulatory levels of 40 CFR 261.24, Table 1 or contain any other material which will require characterization as a hazardous waste for the disposal of the dried film.

2. Specific Requirements

	Min.	Max.
Volume solids, ASTM D2697, %	58.0	--
Total solids by mass, ASTM D2369, %	73.0	--
Pigment by mass, ASTM D3723, %	45.0	57.0
Vehicle solids by mass of the vehicle, %	44.0	--
Viscosity, ASTM D562, Krebs Units	75	95
Weight/volume, ASTM D1475, 25°C, kg/L	1.498	--
~~Weight/volume @ 25°C, variation from the manufacturer's initially approved batch, ASTM D1475, kg/L.~~	~~--~~	~~0.024~~
Dry time, ASTM D711, 15 mils wet film thickness, airflow of less than 50 cu ft/min, without glass beads	--	10 min
Reflectance Factor, Y, C.I.E. illuminant, C, 2° standard observer, ASTM E1349, 15 mils wet film thickness, air dried a minimum of 16 h, % White..... Yellow.....	 84 50	 -- 57
Color, yellow only, x - y C.I.E. Coordinates for the strong limits of FHWA color chart PR1, 15 mils wet film thickness, air dried a minimum of 16 h, measured on white background, C.I.E. illuminant, C, 2° standard observer, % deviation	Match the strong limits	±6.00
Coarse material retained on a No. 30 sieve, ASTM D185, %	--	0.05
Bleeding ratio, Federal Specifications TT-P-1952B, except asphalt saturated felt paper shall be in accordance with ASTM D226, Type I	0.97	--
Contrast ratio, ASTM D2805, 10 mils wet film thickness on opacity chart 2A or 2C, air dried a minimum of 16 h	0.96	--
Volatile organic compounds, ASTM D3960 from May 1 thru September 30, g/L from October 1 thru April 30, g/L	 -- --	 105 150
Abrasion resistance, Federal Specifications TT-P-1952B, L	190	--
Freeze-thaw stability, Federal Specifications TT-P-1952B, change in consistency, Krebs Units	--	10
Heat stability, Federal Specifications TT-P-1952B, change in consistency, Krebs Units	--	10
Scrub resistance, ASTM D2486, with abrasive medium and shims, cycles	300	--
Water resistance, Federal Specification TT-P-1952B	Film shall not soften, blister, wrinkle, or lose adhesion	

Flexibility, Federal Specifications TT-P-1952B	No cracking or flaking of film
Infrared spectrum of the vehicle ASTM D3168	Shall match spectrum of manufacturer's previously submitted samples

Dilution test shall be capable of dilution with water at all levels without curdling or precipitation such that wet paint can be cleaned up with water only.

COMMENTS AND ACTION

909.05 White and Yellow Waterborne Traffic Paint

DISCUSSION:

This item was introduced and presented by Mr. Reilman who explained that a variance from the initial density was inadvertently left in the paint materials specification when this was deleted from the remainder of the paint materials specifications.

Mr. Reilman proposed to delete the variance limitation from the initial density from the waterborne traffic paint materials specification to bring it in line with the other painting material specifications.

Mr. Reilman clarified that no RSP is needed. Just incorporate into the 2026 spec book.

There was no further discussion and this item passed as submitted.

Motion: Mr. Reilman Second: Mr. Boruff Ayes: 10 Nays: 0 FHWA Approval: YES	**Action:** _X_ Passed as Submitted ___ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 909.05 pg. 1049. Recurring Special Provisions or Plan Details: NONE Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: NONE	_X_ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP ___ Create RSP (No.___) Effective: ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update _X_ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEMS(S) ENCOUNTERED:

- There are too many subgrade treatment types listed, including obsolete types. It was determined to reduce the number of subgrade treatment types.
- Portland-Limestone Cement, Type IL, was not listed.
- It was determined that further details needed for subgrade treatment compaction and construction.

PROPOSED SOLUTION:

- Subgrade Treatment Type IA, ID, IV, and IVA were removed.
- The Subgrade construction method using geosynthetics was removed.
- "Method of Measurement" and "Basis of Payment" were revised to address the change in geosynthetics payment. Geosynthetics will be paid separately in accordance with 214.
- Portland-Limestone Cement, Type 1L was added in the "Materials" section.
- Further details for subgrade treatment compaction and construction were added.

APPLICABLE STANDARD SPECIFICATIONS: 207

APPLICABLE STANDARD DRAWINGS: NA

APPLICABLE DESIGN MANUAL SECTION: NA

APPLICABLE SECTION OF GIFE: NA

APPLICABLE RECURRING SPECIAL PROVISIONS: NA

PAY ITEMS AFFECTED: No

APPLICABLE SUB-COMMITTEE ENDORSEMENT: ICA, Subcontractors, Area Engineers, Material Engineers and Geotechnical Engineers.

IMPACT ANALYSIS (attach report): NA

Submitted by: Jim Reilman for Nayyar Siddiki

Title: State Materials Engineer

Organization: INDOT

Phone Number: 317-522 9692

Date: 9/28/2023

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: NA
Construction time: Yes
Customer satisfaction? NA
Congestion/travel time? NA
Ride quality? NA

Will this proposal reduce operational costs or maintenance effort? NA

Will this item improve safety:

For motorists? NA
For construction workers? NA

Will this proposal reduce operational costs or maintenance effort? NA

Will this item improve safety:

For motorists? NA
For construction workers? NA

Will this proposal improve quality for:

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

Will this change provide the contractor more flexibility? NA

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

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

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:

REVISION TO 2024 STANDARD SPECIFICATIONS and RECURRING SPECIAL PROVISION

SECTION 203 – EXCAVATION AND EMBANKMENT
203.18 Embankment Construction
SECTION 207 SUBGRADE
SECTION 301 – AGGREGATE BASE
301.02 Materials
203-R-699 GRANULAR TIRE SHREDS

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 203, BEGIN LINE 761, DELETE AND INSERT AS FOLLOWS:

203.18 Embankment Construction

Embankment construction shall consist of constructing roadway embankments, including preparation of the areas upon which they are to be placed; the construction of dikes within or outside the right-of-way; the placing and compacting of approved material within roadway areas where unsuitable material has been removed; and the placing and compacting of embankment material in holes, pits, and other depressions within the roadway area. Only approved materials shall be used in the construction of embankment backfill. Recycled concrete pavement *processed into coarse aggregate* shall be from past documented Department projects. RAP shall be the product resulting from the cold milling or crushing of an existing HMA pavement. Rocks, broken concrete, RAP, or other solid materials shall not be placed in embankment areas where piling is to be placed or driven.

Recycled concrete pavement *processed into coarse aggregate* shall meet the gradation requirements of B borrow in accordance with 904.06. Construction requirements shall be in accordance with 203.20(a) or 211.03.

Only RAP particles measuring 2 in. or less in all directions shall be incorporated into the top 5 ft of the embankment. RAP particles incorporated anywhere in the embankment shall be 5 in. or less.

When two sizes are used for one embankment, materials shall be separated with a layer of geotextile in accordance with 918.02(c), Type 2A. Geotextile used between recycled material lifts shall be included in the cost of the embankment pay item.

Recycled concrete pavement *processed into coarse aggregate* and RAP shall not be mixed together or with other materials. When two or more approved materials are allowed for one embankment, materials shall be separated with a layer of geotextile in accordance with 918.02(c), Type 2A. Geotextile used between recycled material lifts shall be included in the cost of the embankment pay item.

Recycled concrete pavement *processed into coarse aggregate* or RAP shall only be used below the elevation of the pavement underdrains. Compacted lift thickness for RAP shall not be greater than 6 in. within the top 5 ft of the embankment. Where the depth of the embankment exceeds 5 ft, the compacted lift thickness for RAP shall not be greater than 12 in. Recycled concrete pavement *processed into coarse aggregate* and RAP shall not be used within 2 ft of the water table.

SECTION 203 – EXCAVATION AND EMBANKMENT
203.18 Embankment Construction
SECTION 207 SUBGRADE
SECTION 301 – AGGREGATE BASE
301.02 Materials
203-R-699 GRANULAR TIRE SHREDS

Recycled concrete pavement *processed into coarse aggregate* shall be constructed in accordance with 203.20. RAP shall be constructed in accordance with 203.23 or 203.24. Proofrolling in accordance with 203.26 shall be performed to cover the entire grade for every 5 ft of fill.

~~SECTION 203, BEGIN LINE 802, DELETE AND INSERT AS FOLLOWS:~~

A geotextile in accordance with 918.02(c), Type 2B shall be placed in accordance with 214 prior to the placement of subgrade treatment Type IC~~,~~ *or* Type II~~, or Type IV~~ in accordance with 207 when recycled concrete pavement *processed into coarse aggregate* or RAP is used for embankment construction. Recycled concrete pavement *processed into coarse aggregate* or RAP shall not be used for embankment construction when subgrade Type I, Type IBC, or Type IBL is specified. Geotextile shall be placed completely covering the top of the embankment. A minimum 24 in. soil encasement shall be constructed concurrently with the recycled concrete pavement *processed into coarse aggregate* or RAP lift. The soil encasement shall be suitable for vegetation growth and shall be constructed in accordance with 203.09.

SECTION 207, BEGIN LINE 9, DELETE AND INSERT AS FOLLOWS:

207.02 Materials

Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher,
Size No. ~~5, 8, 43,~~ 53~~, or 73~~ 904.03
Fly Ash, Class C.....901.02
~~Geocell Confinement System.....918.04~~
~~Geogrid, Type IB .....918.05~~
~~Geotextile Properties for Pavement or Subgrade Stabilizations.....918.02(c)~~
~~Geotextile .....918.02~~
Lime .....913.04(b)
Portland Cement, Type 1.....901.01(b)
Portland- Limestone Cement, Type 1L.....901.01(b)
Water 913.01

~~Air-cooled blast-furnace slag shall not be used for subgrade treatment Type ID, Type IV, and Type IVA.~~

Soil Property	Test Method	Requirements
Dry Weight Organic Material	AASHTO T 267	≤ 3%
Max Dry Density	AASHTO T 99	≥ 100 pcf
Liquid Limit	AASHTO T 89	≤ 50

Soluble Sulfate	ITM 510	≤ 1000 ppm
Notes: Only soils meeting ~~these~~*the above* requirements will be allowed within the specified thickness of the subgrade treatment in cut sections. Only soils meeting ~~these~~*the above* requirements will be allowed within 24 in. of the finished subgrade elevation in fill sections.		

Recycled concrete pavement processed into *coarse* aggregate-sized material*, No. 53 and ACBF,* shall not be used as coarse aggregate in ~~any~~ subgrade treatment ~~types~~*type ~~IC and II~~ when an underdrain is specified*.

CONSTRUCTION REQUIREMENTS

207.03 Construction Requirements

(a) Subgrade Construction Methods

The subgrade shall be constructed ~~uniformly~~ transversely across the width of the pavement including shoulders or curbs *in a uniform manner* unless shown otherwise on the plans, by one of the following methods:

1. chemical modification in accordance with 215,

2. aggregate No. 53 in accordance with 301, *or*

~~3. geosynthetic in accordance with 214 placed under coarse aggregate in accordance with 301, or~~

~~4~~*3*. soil compaction to 100% of maximum dry density.

~~Longitudinally, the treatment may vary depending on the method of construction.~~

(b) General Requirements

All rock greater than 3 in. shall be removed or broken off and placed at least 6 in. below the specified subgrade. Holes or depressions resulting from the removal of unsuitable material shall be filled with soils in accordance with 207.02*, structure backfill,* or B borrow and compacted in accordance with 203.23.

Coal within the specified thickness of the subgrade shall be excavated if directed~~,~~ and disposed of in accordance with 202.02.

During subgrade preparation, adequate drainage shall be provided at all times to

prevent water from standing on the subgrade. The grade and cross-section of the subgrade shall be finished within a tolerance of 1/2 in. from the subgrade elevation shown on the plans.

Even though the subgrade has been previously accepted, the condition of the subgrade shall be in accordance with 105.03 and 207.04 at the time paving material is placed.

~~Finishing within this tolerance by blading or other mechanical means without the use of side forms will be allowed. If these methods do not finish within this tolerance, side forms shall be used.~~

207.04 Subgrade Treatment Types

The subgrade treatment type shall be as specified on the contract plans. If required, the subgrade foundation shall be corrected as directed by the Engineer prior to subgrade treatment.

Type	Subgrade Description
I	24 in. of soil compacted in accordance with 203.23
~~IA~~	~~[blank]~~
IBC	14 in. chemical soil modification using cement
IBL	14 in. chemical soil modification using lime
IC	12 in. coarse aggregate No. 53 in accordance with 301
~~ID~~	~~12 in. coarse aggregate with Type 2B geotextile in accordance with 918.02(c)~~
II	6 in. coarse aggregate No. 53 in accordance with 301
III	In-place compaction in accordance with 203.23
~~IV~~	~~12 in. coarse aggregate No. 53 with Type IB geogrid in accordance with 214~~
~~IVA~~	~~12 in. coarse aggregate with geocell confinement system in accordance with 214~~
V	3 in. of subgrade excavated and replaced with 3 in. coarse aggregate No. 53

~~Type ID subgrade treatment shall be constructed with 9 in. of coarse aggregate No. 53 over 3 in. of coarse aggregate No. 5 or No. 8. Geotextile Type 2B in accordance with 918.02(c) shall be placed above and below the layer of No. 5 or No. 8 coarse aggregate~~*Prior to placement of the 3 in. coarse aggregate No. 53 as part of the subgrade treatment Type V, the grade shall be proofrolled, and then the coarse aggregate shall be compacted to 100% prior to the placement of the pavement.*

In areas where shallow utilities are encountered or chemical modification is not allowed, the Contractor may submit a request to the Engineer to substitute Type IC for Type IBC or Type IBL. *Oscillatory rollers in accordance with 409.03(d)5 shall be*

operated at locations indicated on the plans but the vertical impact force capability shall not be used.

Where the strength or density and moisture control option is used, compaction of embankment areas shall be in accordance with 203.23. In cut and transition areas, the top lifts shall be removed, and the bottom 6 in. compacted in-place in accordance with 203.23. The excavated material shall then be replaced and compacted in 6 in. lifts in accordance with 203.23. Removal of the lifts may be waived and only the upper 6 in. compacted in accordance with 203.23 when it is determined, through testing in accordance with 203.24, that the lower lifts comply with 203.23.

In sections where rock, shale, sandstone or its mixtures are encountered, these materials shall be undercut ~~24~~*12* in. below the subgrade *surface* ~~elevation~~ and replaced with coarse aggregate No. 53~~ or No. 73~~ and compacted in accordance with 301.06. ~~Geotextiles used shall be in accordance with 918.02.~~ *Type IBC and Type IBL will not be allowed when shallow rock is encountered within 12 in. from the bottom of the subgrade treatment. Type IC shall be used in areas where shallow rock is encountered.*

All irregularities and holes shall be graded with ~~either~~ coarse aggregate No. 53~~ or No. 73~~. ~~If an aggregate base is part of the HMA pavement structure, the 24 in. excavation depth shall be reduced by the thickness of the aggregate base.~~

~~The 3 in. compacted aggregate as part of the subgrade treatment Type V shall be compacted to 100% prior to the placement of the pavement.~~

When conditions are encountered below the specified subgrade treatment depth that prevent achieving the specified subgrade compaction, such conditions shall be corrected in accordance with 203.09, or as directed.

Proofrolling shall be performed in accordance with 203.26.

207.05 Method of Measurement

Subgrade treatment will be measured in both cut and fill areas by the square yard per type.

~~Geosynthetic specified for use in addition to that required for the specified subgrade treatment will be measured in accordance with 214.05.~~

The undercutting of rock, where encountered, will be measured in accordance with 203.27(b).

Testing, sampling, *proofrolling,* coarse aggregates, chemicals for modification,

water, *and* excavation~~, geogrid, geotextile, and geocell confining system~~ for specified subgrade treatment types will not be measured.

207.06 Basis of Payment

The accepted quantities of subgrade treatment will be paid for at the contract unit price per square yard per type, complete in place. In areas where shallow utilities are encountered or the Contractor elects to use Type IC for Type IBC or Type IBL, payment will be made at the price of Type IBC or Type IBL.

The undercutting of rock, where encountered, will be paid for in accordance with 203.28.

Payment will be made under:

Pay Item	Pay Unit Symbol
Subgrade Treatment, Type _____	SYS

The cost of subgrade treatments including testing, sampling, *proofrolling,* coarse aggregates, chemicals for soil modification with cement or lime, water, *and* excavation~~, geogrid, geotextile and geocell confinement system~~ for specified subgrade treatment types shall be included in the cost of the pay item.

The cost of excavation and grading of existing railroad ballast and railroad bed material shall be included in the cost of subgrade treatment, Type V.

~~Geosynthetic specified for use in addition to that required for the specified subgrade treatment will be paid for in accordance with 214.06.~~

Where conditions exist below the specified subgrade compaction depth that prevent achieving the specified compaction, payment for correcting such conditions will be made based on the directed method of treatment.

SECTION 301, BEGIN LINE 15, DELETE AS FOLLOWS:

301.02 Materials

Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher.....904.03
Geosynthetic Materials.....918

~~ACBF shall not be used for subgrade treatment Type ID, Type IV, and Type IVA.~~

SECTION 203 – EXCAVATION AND EMBANKMENT
203.18 Embankment Construction
SECTION 207 SUBGRADE
SECTION 301 – AGGREGATE BASE
301.02 Materials
203-R-699 GRANULAR TIRE SHREDS

(Note: Proposed changes shown highlighted gray, Only affected areas are shown.)

203-R-699 GRANULAR TIRE SHREDS

(Revised 05-20-23)

[-----]

The subgrade over GTS mix embankment shall be Type ~~II~~IC Subgrade in accordance with 207.

SECTION 203, AFTER LINE 1428, INSERT AS FOLLOWS:

(l) Measurement of Granular Tire Shreds Mix

Sand for the GTS mix and tire shreds will be measured by the ton in accordance with 203.27(d). Cohesive encasement material will be measured by the cubic yard in accordance with 203.27(e). Geotextile will be measured in accordance with 616.12. Subgrade treatment Type ~~II~~IC will be measured in accordance with 207.05.

SECTION 203, AFTER LINE 1533, INSERT AS FOLLOWS:

The accepted quantities of tire shreds and sand encasement material will be paid for at the contract unit price per ton. Cohesive encasement material will be paid for at the contract unit price per cubic yard. Geotextile will be paid for in accordance with 616.13. Subgrade treatment Type ~~II~~IC will be paid for in accordance with 207.06.

[-----]

COMMENTS AND ACTION

203.18 Embankment Construction
SECTION 207 SUBGRADE
301.02 Materials
203-R-699 GRANULAR TIRE SHREDS

DISCUSSION:

Mr. Reilman introduced and presented this item stating that there are too many subgrade treatment types listed, including obsolete types. It was determined to reduce the number of subgrade treatment types. Portland-Limestone Cement, Type IL, was not listed. It was determined that further details are needed for subgrade treatment compaction and construction.

Mr. Reilman proposed to remove Subgrade Treatment Type IA, ID, IV, and IVA, along with the Subgrade construction method using geosynthetics. Also, the "Method of Measurement" and "Basis of Payment" were revised to address the change in geosynthetics payment. Geosynthetics will be paid separately in accordance with 214. Portland-Limestone Cement, Type 1L was added in the "Materials" section. Further details for subgrade treatment compaction and construction were added.

Mr. Koch asked if air cooled blast furnace slag should be added to the recycled concrete pavement sentence? Mr. Yoon agreed that "air cooled blast furnace slag" will be added.

Mr. Koch asked if the reference to types (IC & II) should be struck? If not should, seldom used & originally intended for railroad trails, type V be added? Mr. Yoon agreed that Type IC and II will be struck and removed. So, "subgrade treatment type IC and II when…" will be revised as shown above.

Mr. Koch asked if 'Aggregate sized' material should be defined? Mr. Yoon agreed that Yes, it can be any coarse aggregate, such as #2, #5 or #53.

Mr. Koch asked if it would be appropriate to state #53 gradation, in the recycled concrete pavement sentence? Mr. Yoon agreed "into aggregate-sized" will be revised as shown.

Mr. Koch said that he believes the intent of the specification is to allow a cushion to prevent reflective damage. If chemical subgrade treatment is planned (IBC or IBL) the proposed language would allow for a 10 in. cushion. Aggregate subgrade treatments would have 12 in. plus subgrade thickness. Is the proposed 12 in. undercut always sufficient? Not worried about 2 in., rather 10 in. verses 24 in. (proposed 12 in. undercut plus agg treatment depth). Mr. Yoon responded that we do not need subgrade treatment on the top of 12 in. of #53.
Mr. Koch asked if 'subbase' should replace 'subgrade'? Mr. Siddiki responded that 101.66 Subgrade is defined as "the upper portion of the roadbed upon which the pavement structure and shoulder are constructed." I suggest keeping the subgrade.

Mr. Reilman searched the spec book for recycled concrete pavement. That term appears 10 times, nine in 203.18 and once in 207. Since we're adding the phrase "processed into coarse aggregate" after the term "recycled concrete pavement", Mr. Reilman proposed the above shown editorial revisions to this proposal.

Mr. Siddiki clarified that geogrid and geosynthetics is covered in 214. Further discussion ensued about subgrade treatment types and Mr. Siddiki said those things will be addressed in the geotech report, and will be as shown on the plans. Mr. Reilman clarified that those items will be in accordance with 207 and 214.

There was no further discussion and this item passed as revised.

COMMENTS AND ACTION

203.18 Embankment Construction
SECTION 207 SUBGRADE
301.02 Materials
203-R-699 GRANULAR TIRE SHREDS

[continued]

Motion: Mr. Reilman Second: Mr. Orton Ayes: 10 Nays: 0 FHWA Approval: YES	**Action:** ___ Passed as Submitted _X_ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 203.18 pg 169; 207 begin pg. 224 thru 228; 301.02 pg. 263. Recurring Special Provisions or Plan Details: 203-R-699 GRANULAR TIRE SHREDS Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: NONE	_X_ 2026 Standard Specifications _X_ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP _X_ Create RSP (No. 207-R-xxx) Effective: June 1, 2024 _X_ Revise RSP (No. 203-R-699) Effective: March 1, 2024 ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update _X_ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEMS(S) ENCOUNTERED:

- The Subgrade construction method using geosynthetics will be removed in 207 to reduce the number of subgrade treatment types. With this change, Geosynthetics will be paid separately in accordance with 214.
- The weight of roller to compact the coarse aggregate No. 53 needed to be raised.
- Coarse aggregate No. 73 has been rarely used.

PROPOSED SOLUTION:

- "Method of Measurement" and "Basis of Payment" were revised to address the change in geosynthetics payment for subgrade treatment. Geosynthetics will be paid separately in accordance with 214.
- The weight of roll was raised to 15 ton for coarse aggregate compaction.
- Coarse aggregate No. 73 was removed from the Geocell Confinement System.

APPLICABLE STANDARD SPECIFICATIONS: 214

APPLICABLE STANDARD DRAWINGS: NA

APPLICABLE DESIGN MANUAL SECTION: NA

APPLICABLE SECTION OF GIFE: NA

APPLICABLE RECURRING SPECIAL PROVISIONS: NA

PAY ITEMS AFFECTED: No

APPLICABLE SUB-COMMITTEE ENDORSEMENT: ICA, Subcontractors, Area Engineers, Material Engineers and Geotechnical Engineers.

IMPACT ANALYSIS (attach report): NA

Submitted by: Jim Reilman for Nayyar Siddiki

Title: State Materials Engineer

Organization: INDOT

Phone Number: 317-522 9692

Date: 9/28/2023

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: NA
Construction time: Yes
Customer satisfaction? NA
Congestion/travel time? NA
Ride quality? NA

Will this proposal reduce operational costs or maintenance effort? NA

Will this item improve safety:

For motorists? NA
For construction workers? NA

Will this proposal reduce operational costs or maintenance effort? NA

Will this item improve safety:

For motorists? NA
For construction workers? NA

Will this proposal improve quality for:

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

Will this change provide the contractor more flexibility? NA

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

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

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:

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 214, BEGIN LINE 20, DELETE AND INSERT AS FOLLOWS:

214.03 Foundation Preparation

The embankment foundation shall be cleared and grubbed in accordance with 201 and excavated using lightweight equipment to minimize disturbance of the embankment foundation surface soils. Construction activities using equipment which cause pumping and rutting of the embankment foundation soils shall be prevented where possible and shall otherwise be minimized. Fine grading may be waived where impractical. When very soft soil is encountered, the embankment foundation shall be cleared of all trash and rubbish materials without disturbing the vegetation cover or root mat. The embankment foundation shall be subject to approval prior to placement of geosynthetics. Proofrolling of the embankment foundation will not be required in accordance with 203.09 when geosynthetics are used in construction of embankment foundation treatment.

(a) Geotextile as a Drainage Blanket

Geotextile shall be stored in such a manner as to prevent exposure to direct sunlight and damage by other construction activities. Geotextile shall be placed taut and transversely after backfilling all wheel tracks. ~~Geotextile shall be overlapped by 3 ft and sewn in accordance with the manufacturer's guidelines.~~

Coarse aggregate No. 2 or No. 5 shall be placed as directed and encapsulated with geotextile. Coarse aggregate shall be placed by spreading dumped material over previously placed material with light equipment in such a manner as to prevent damage to the geotextile. Dumping of coarse aggregate will be allowed on the initial working platform. *Geotextile shall be overlapped by 3 ft and sewn in accordance with the manufacturer's guidelines.* The overlap shall be staggered throughout the roadway profile. Coarse aggregate shall be placed to the full required thickness and compacted before any loaded trucks are allowed on the blanket. *Coarse aggregate shall be covered with a layer of geotextile.* The drainage blanket shall have positive drainage.

No vehicles or construction equipment will be allowed on the geotextile prior to placement of the coarse aggregate. Damaged geotextile shall be repaired or replaced as directed. Damaged geotextile may be patched by placing a piece of the same geotextile over the damaged area. The overlap shall be at least 3 ft wide. The remaining lifts of the embankment shall be in accordance with 203.23.

(b) Geotextile Placement for Pavement, Subgrade, or Embankment

The subgrade or embankment shall be proofrolled in accordance with 203.26 and any defect or rut shall be repaired as directed prior to the geotextile placement. Geotextile shall be placed taut, without wrinkles and stretched in tension. Coarse aggregate shall be placed with a minimum disturbance to grade. Any damage to geotextile shall be repaired in accordance with 214.03(a). The remaining grade shall be constructed in accordance with *203 and* 207. *Geotextile shall be placed on top of the subgrade. Geotextile shall not be*

used directly below HMA. Geotextile for pavement, subgrade, or embankment shall be in accordance with 918.02(c).

When geotextile for moisture management is specified, the grade shall be prepared in such a way as to provide positive drainage. The surface shall be prepared in accordance with 201.03 and compacted in accordance with 203.23. All rocks shall be broken and compacted in accordance with 203.24. Geotextiles shall be placed taut, without wrinkles, in accordance with the manufacturer's guidelines, as shown on the plans, or as specified. Damaged geotextile shall be replaced. Geotextile for moisture management shall be in accordance with 918.02(d).

Geotextile shall be covered within three calendar days of placement.

(c) Geogrid Placement

The geogrid shall be installed in accordance with the Engineer's designs or the manufacturer's recommendations. The geogrid shall be kept taut during placement of the initial lift of backfill. Installation shall require the use of stakes, staples, sandbags, pile*s* of granular fill, or other approved means to hold the geogrid in place during fill placement operations. Geogrid shall be used for embankment foundation treatment. When placing geogrid in the embankment foundation, rutting in the granular material shall not exceed 3 in. The Engineer may increase the lift thickness to obtain stability of the granular material.

When geogrid is specified for subgrade, proofrolling shall be performed in accordance with 203.26 prior to placing the geogrid. Deflection or rutting shall not exceed 1 in. Any defect shall be repaired as directed. *Geogrid shall be placed as directed.* ~~The first 6 in. of c~~*C*oarse aggregate No. 53 shall be spread *6 in. to 12 in. thick* and compacted with a *minimum* ~~10~~*15* t roller in static mode. Spreading and compaction of the aggregate *in accordance with 301* shall be performed so that the aggregate and geogrid are interlocked. ~~The second 6 in. of coarse aggregate No. 53 shall be constructed in accordance with 301.~~

When geogrid is specified for subbase or base applications, the geogrid shall be placed as shown on the plans and in accordance with the manufacturer's guidelines.

When specified, the geogrid material supplier shall provide a qualified manufacturer's representative on site at the start of the work to assist the Contractor. The representative shall also be available during the construction when requested by the Engineer or the Contractor.

Geogrid shall be overlapped a minimum of 2 ft side to side and end to end for subgrade, subbase, and base applications. Geogrid shall be overlapped 3 ft in areas where foundation conditions cannot support foot traffic or where 2 ft is found to be inadequate during fill placement. Overlap shall be oriented in the direction of fill placement, or shingled, to prevent advancing fill from lifting any geogrid roll edges. Overlaps shall be further secured to prevent separation during fill placement. Damaged geogrid shall be patched. Patching shall include placement of a minimum of 3 ft of overlapped geogrid beyond the damaged area. If the damaged portion extends for more than 50% of the roll in

the width direction, the entire width shall be replaced.

Geogrid shall be covered with fill within three calendar days after placement. Only that amount of geogrid required for pending work shall be placed to minimize exposure of the geogrid.

(d) Geocell Confinement System

The Contractor shall construct the grade in accordance with 203. A layer of geotextile shall be placed in accordance with 214.03(b) *when recommended* and shall be anchored at the roadway edge when widening or when intersecting an existing roadway. The geocell confinement system, GCS, shall be placed and anchored as shown on the plans, or as directed. The GCS shall be oriented with the smaller cell dimension perpendicular to the roadway. The Contractor shall ensure that the GCS is anchored vertically and the geocell shall be filled with a minimum of 4 in. of coarse aggregate No. 53~~ or No. 73~~. On top of the GCS, 8 in. of No. 53 ~~or No. 73~~ shall be placed for a total aggregate thickness of 12 in. The aggregate shall be back dumped and compacted with a light roller in accordance with 301. No trucks or construction vehicles will be allowed on the GCS. A light tracked bulldozer or other equipment may be used as directed. The 6 in. lift above GCS shall be compacted with low frequency and amplitude, with a minimum of six passes. The remaining aggregate shall be placed and compacted lightly. Efforts shall be made to ensure that the geotextile and GCS are in tension.

The Contractor may propose an alternate means of providing a typical section for the GCS, and shall submit the proposal to the Engineer for review and approval. The proposal shall be certified by a professional engineer registered in the State of Indiana.

~~GCS shall be constructed in accordance with 207 and 214.~~

214.04 Fill Placement

Construction vehicles will not be allowed on the geosynthetic. The placement of the fill shall proceed forward along the roadway centerline and outward to the embankment edges and compacted in accordance with 203.23. The Engineer may waive density requirements for the first lift of embankment foundation treatment if the fill is determined to be too weak to support compaction equipment.

214.05 Method of Measurement

Geotextile for pavement, subgrade, embankment, and moisture management will be measured by the square yard, for the type specified. Geotextile for coarse aggregate and drainage blankets will be measured in accordance with ~~301 and~~ 616, respectively. ~~Geogrid will be measured by the square yard, for the type specified.~~*Geogrid for foundation, embankment, and subgrade will be measured by the square yard for the type specified.* The quantity will be computed based on the total area of geosynthetics shown on the plans. The aggregate used for the embankment foundation improvement will be measured in accordance with 301.09. ~~The geogrid reinforced subgrade, GCS, and the excavation required to place the GCS will be measured in accordance with 207.05.~~*GCS will be measured by the square yard. The aggregates used for GCS and the excavation required*

will be measured in accordance with 301.

214.06 Basis of Payment

The accepted quantity of geotextile will be paid for at the contract unit price per square yard per type of geotextile. Geotextile for subgrade and geotextile for embankment will be paid for as geotextile for pavement, for the type specified, at the contract unit price per square yard. The accepted quantities of geogrid will be paid for at the contract unit price per square yard per type of geogrid. The aggregates will be paid for in accordance with 301.10. ~~The geogrid reinforced subgrade will be paid for in accordance with 207.06.~~ *The accepted quantities of geocell will be paid for at the contract unit price per square yard.*

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Geogrid, _____ type	SYS
Geotextile for Moisture Management, _____ type	SYS
Geotextile for Pavement, _____ type	SYS
Geocell Confinement System	*SYS*

The cost of furnishing the materials, manufacturer's representative, all labor and equipment required for furnishing and placing the geotextile, ~~or~~ geogrid, *or GCS,* all work necessary to establish grades, geogrid splices, overlaps, stakes or pins, supplemental product test data, and patching or replacement of damaged geotextile or geogrid shall be included in the cost of this work.

The geocell confinement system, anchors, restraint clips, pins, and necessary incidentals required to provide a complete in place system~~, and the Type 2B geotextile if required for the GCS,~~ shall be included in the cost of ~~subgrade treatment in accordance with 207.06~~*GCS*.

COMMENTS AND ACTION

SECTION 214 – GEOSYNTHETICS

DISCUSSION:

This item was introduced and presented by Mr. Reilman who mentioned that the Subgrade construction method using geosynthetics should be removed in 207 to reduce the number of subgrade treatment types. With this change, Geosynthetics will be paid separately in accordance with 214. The weight of the roller to compact the coarse aggregate No. 53 needs to be raised. Coarse aggregate No. 73 has been rarely used.

Mr. Reilman proposed to revise the "Method of Measurement" and "Basis of Payment" to address the change in geosynthetics payment for subgrade treatment. Geosynthetics will be paid separately in accordance with 214. The weight of the roller was raised to 15 tons for coarse aggregate compaction. Coarse aggregate No. 73 was removed from the Geocell Confinement System.

Mr. Koch asked, "Does the weight of the roller matter considering stiffness would need to be achieved? If language is needed should 'minimum' be included? Min 10 tons? Mr. Yoon responded that the roller weight helps in interlocking and decrease the lateral restrain. We will revise 15 tons as "minimum 15 ton".

There was no further discussion and this item passed as revised.

Motion: Mr. Reilman Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES	**Action:** ___ Passed as Submitted _X_ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 214 pg. 244 - 248. Recurring Special Provisions or Plan Details: NONE Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: NONE	_X_ 2026 Standard Specifications _X_ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP _X_ Create RSP (No. 214-R-xxx) Effective: June 1, 2024 ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update ___ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED:
The minimum slump for slip formed railing is currently 1 inch and is a little too high for some scenarios.

PROPOSED SOLUTION:
Decrease the minimum slump for slip formed railing from 1 inch to 0.5 inch.

APPLICABLE STANDARD SPECIFICATIONS: 602.03, 706.03

APPLICABLE STANDARD DRAWINGS: none

APPLICABLE DESIGN MANUAL SECTION: none

APPLICABLE SECTION OF GIFE: none

APPLICABLE RECURRING SPECIAL PROVISIONS: none

PAY ITEMS AFFECTED: none

APPLICABLE SUB-COMMITTEE ENDORSEMENT: INDOT-IRMCA working committee (8-31-23)

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: All contracts with a 602 or 706 pay item.

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: (317) 522-9692

Date:

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? N/A

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? 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:

SECTION 706 – BRIDGE RAILINGS
706.03 Concrete Railing

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 706, BEGIN LINE 65, DELETE AND INSERT AS FOLLOWS:

The slip form paver shall consolidate, screed, and finish the freshly placed concrete in one complete pass so a minimum of hand finishing will be necessary to provide a dense and homogeneous railing in conformance with the plans and specifications. The slump shall be ~~1 3/4 in. ±3/4 in.~~*1 1/2 in. ± 1 in.* The joints may be formed or sawed as long as a satisfactory joint is attained.

COMMENTS AND ACTION

706.03 Concrete Railing

DISCUSSION:
Mr. Reilman introduced and presented this item stating that the minimum slump for slip formed railing is currently 1 in. and is a little too high for some scenarios.

Mr. Reilman proposed to decrease the minimum slump for slip formed railing from 1 in. to 0.5 in.

There was no further discussion and this item passed as submitted.

Motion: Mr. Reilman Second: Mr. White Ayes: 10 Nays: 0 FHWA Approval: YES	**Action:** X Passed as Submitted ___ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: 706.03 pg. 659-660. Recurring Special Provisions or Plan Details: NONE Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: TBD	X 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP X Create RSP (No. 706-B-234) Effective: March 1, 2024 ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ Frequency Manual Update X SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The PG Binder grade in Indiana is changing. However, there may be instances where the plans reference PG Binder grades that are no longer available or preferred by the Department.

PROPOSED SOLUTION: Adopt the following provision which will relate the old PG Binder grades to the new PG Binder grades to eliminate confusion. This solution was patterned after the RSP for Standard Specifications, 100-C-188.

APPLICABLE STANDARD SPECIFICATIONS: None

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: None

APPLICABLE SECTION OF GIFE: None

APPLICABLE RECURRING SPECIAL PROVISIONS: create new 100-C-xxx RSP

PAY ITEMS AFFECTED: None

APPLICABLE SUB-COMMITTEE ENDORSEMENT: None

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: For use in all contracts.

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: (317) 522-9692

Date: 10/5/23

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? N/A
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? N/A
Asset preservation? N/A
Design process? N/A

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:

100-C-XXX PG BINDER GRADES

(Adopted xx-xx-xx)

The Department is changing PG binder grades. Wherever in the contract documents any of the old PG binder grades, as noted in the table below, are referenced, it shall be interpreted to mean the corresponding new PG binder grade listed.

Old and New PG Binder Grade Classification	
Old PG Binder Grade	New PG Binder Grade*
64-22	58S-28
70-22	58H-28
76-22	58E-28
*in accordance with AASHTO M 332.	

COMMENTS AND ACTION

100-C-XXX PG BINDER GRADES

DISCUSSION:

This item was introduced and presented by Mr. Reilman who stated that the PG Binder grade in Indiana is changing. However, there may be instances where the plans reference PG Binder grades that are no longer available or preferred by the Department.

Mr. Reilman proposed to adopt the following provision which will relate the old PG Binder grades to the new PG Binder grades to eliminate confusion. This solution was patterned after the Recurring Special Provision for Standard Specifications, 100-C-188.

There was no further discussion and this item passed as submitted.

Motion: Mr. Reilman Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES	**Action:** X Passed as Submitted ___ Passed as Revised ___ Withdrawn
2024 Standard Specifications Sections: NONE Recurring Special Provisions or Plan Details: (proposed new) Standard Drawing affected: NONE Design Manual Chapter: NONE GIFE Section: NONE	___ 2026 Standard Specifications ___ Revise Pay Items List ___ Notification to Designers if change is not addressed by RSP X Create RSP (No. 100-C-xxx) Effective: September 1, 2024 ___ Revise RSP (No.___) Effective: ___ Standard Drawing Effective: ___ Create RPD (No. ___) Effective: ___ GIFE Update X Frequency Manual Update X SiteManager Update