



INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N758 CM
Indianapolis, Indiana 46204

www.in.gov/indot

Mike Braun, Governor
Kent Abernathy, Commissioner

FINAL DRAFT MINUTES

February 21, 2025, Standards Committee Meeting

*(Changes to the Agenda by the Action of the Committee
shown as highlighted yellow.)*

March 17 2025

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Minutes from the February 21, 2025, Standards Committee Meeting

The Standards Committee meeting was called to order by Mr. Pankow, Chair, at 09:00 a.m. on Friday, February 21, and was held virtually via *Teams* (Microsoft application). The meeting was adjourned at 09:47 a.m. The next meeting is Thursday, March 20, 2025.

The following committee members were in attendance:

Pankow, Gregory, Chairman, Director, Construction Management
Boruff, Dave, Traffic 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, Materials and Tests
Thomas, Matt*, Pavement Engineering
White, Peter, Bridge Engineering
Wooden, John, Contract Administration
*Proxy for Dave, Kumar

Also, the following attendees were present:

Alexander, Dawn, INDOT
Aquirre, Frank, INDOT
Awwad, Nathan, INDOT
Barnes, Tracy, INDOT
Blanchard, Jacob, INDOT
Cosenza, Nicholas, INDOT
Couch, Gregory, INDOT

Harding, Matthew, INDOT
Harris, Tom, INDOT
Hathaway, Reed, INDOT
Mouser, Elizabeth, INDOT
Nelson Mike, INDOT
Osborn, Dan, ICI
Pastuszka, Elizabeth, INDOT

Cruz, Elena, INDOT
Delp, Patrick, INDOT
Devlin, Chris, INDOT
Duncan, Steve, INDOT
Duncan, Thomas, FHWA
Feutz, Douglas, INDOT
Fisher, Steve, INDOT
Fowler, Kirsten, Asphalt Indiana
Fox, Gary, INDOT
Galetka, Jason, INDOT
Garg, Lalit, INDOT
Hailat, Mahmoud, INDOT

Patel, Prakash, INDOT
Podorvanova, Lana, INDOT
Powell, Traci, INDOT
Ritter, John, INDOT
Russell, Melissa, INDOT
Shi, Runfa, INDOT
Smith, Charles, INDOT
Sorenson, Drew, INDOT
Thornton, Donald, INDOT
Trammell, Scott, INDOT
Wren, Rachel, INDOT
Zahrn, Tim, Asphalt Materials

The following items were discussed:

A. GENERAL BUSINESS

OLD BUSINESS (No items were listed)

NEW BUSINESS Approval of the Minutes from the [January 16, 2025](#) meeting

Mr. Pankow requested a motion to approve the Minutes from the January 16, 2025 meeting.

Motion: Mr. Pelz
Second: Mr. Koch
Ayes: 9
Nays: 0
Absent: 1

ACTION:

PASSED AS SUBMITTED

B. CONCEPTUAL PROPOSAL

[Divisions 100, 200, and 300 \(editorial changes\) 2026 SS](#) [K. Pelz](#) [pg. 5](#)

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

OLD BUSINESS

[Item No. 6 \(12/18/2024\)](#) [Mr. Reilman](#) [pg. 6](#)

Recurring Special Provisions:

400-R-680

QC/QA SAMPLING AND TESTING ON 401 AND
410 PAY ITEMS
VOID REDUCING ASPHALT MEMBRANE
FOR HMA

401-R-750

410-R-751

VOID REDUCING ASPHALT MEMBRANE FOR SMA

ACTION:**PASSED AS REVISED**NEW BUSINESSItem No. 1Mr. Boruffpg. 20

2024 Standard Specifications:

802.12

Basis of Payment

910.19

Overhead Sign Structures

Standard Drawings:

*E 802-DBCS-01**Dynamic Message Sign Butterfly Cantilever
Structure Index**E 802-DBCS-02**Structure Plan, Elevation, Member Sizes,
and Camber**E 802-DBCS-03**Quadri-Chord and Flange Details**E 802-DBCS-04**Upper Chords Connection Details**E 802-DBCS-05**Lower Chords Connection Details**E 802-DBCS-06**Base Plate, Anchor Bolt, and Metal Skirt Details**E 802-DBCS-07**Handhole and I.D. Tag Details**E 802-DBCS-08**Access Details**E 802-DBCS-09**Walkway Details**E 802-DBCS-10**Handrail Details**E 802-DBCS-11**Ladder Details**E 802-DBCS-12**Security Gate Details**E 802-DBCS-13**Wiring Layout Details**E 802-DBCS-14**Foundation at 33" Concrete Barrier**E 802-DBCS-15**Foundation at 45" Concrete Barrier**E 802-DBCS-16**Foundation 4'-0" O Drilled Shaft***ACTION:****PASSED AS REVISED**Item No. 2Mr. Reilmanpg. 41

2024 Standard Specifications:

707.04(c)1

Self-Consolidating Concrete, SCC

ACTION:**PASSED AS SUBMITTED**Item No. 3Mr. Novakpg. 45

Recurring Special Provision:

106-C-280

E-TICKETING INCENTIVE

ACTION:**PASSED AS SUBMITTED**

[Item No. 4](#) [Mr. Novak](#) [pg. 49](#)

Recurring Special Provision:
704-X-XXX

BRIDGE ENCOUNTER SMOOTHNESS

ACTION:

PASSED AS REVISED

[Item No. 5](#) [Mr. Novak](#) [pg. 58](#)

2024 Standard Specifications:
109.05

Payment for Extra Work

ACTION:

PASSED AS REVISED

cc: Committee Members
FHWA
ICI

CONCEPTUAL ITEM

EDITORIAL REVISIONS to divisions 100, 200, and 300 (preparation for publishing 2026 STANDARD SPECIFICATIONS)

CONCEPTUAL PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: INDOT Standard Specifications have been regularly updated by adding new or revising existing statements, work procedures, materials, methods, etc.

Prior to publishing a 2026 Standard Specifications book (effective September 1, 2025), the review of the current edition, 2024 Standard Specifications, is underway.

Listed divisions with shown proposed edits can be reviewed at:

<https://www.in.gov/dot/div/contracts/standards/sc/>

“Conceptual Item” for the February 21, 2025 SC meeting posted under the “Agenda”.

DIVISION 100 – GENERAL PROVISIONS

DIVISION 200 – EARTHWORK

DIVISION 300 – AGGREGATE PAVEMENT AND BASES

PROPOSED SOLUTION (conceptual): Continue to review all Divisions (100 thru 900) of the 2024 Standard Specifications and make editorial corrections, as found necessary, rewrite statements that are not clearly formulated, or their written intentions are hard to follow.

APPLICABLE STANDARD SPECIFICATIONS: 2024 Standard Specifications and approved RSPs

APPLICABLE STANDARD DRAWINGS: n/a

APPLICABLE DESIGN MANUAL SECTION: n/a

APPLICABLE SECTION OF GIFE: n/a

APPLICABLE RECURRING SPECIAL PROVISIONS: various RSPs (if affected)

PAY ITEMS AFFECTED: n/a

APPLICABLE SUB-COMMITTEE ENDORSEMENT: ad-hoc Specification’s review group: Kurt Pelz, Scott Trammell, Lana Podorvanova.

IMPACT ANALYSIS (attach report): n/a

Submitted By: Kurt Pelz

Title: Construction Management Technical Support

Organization: INDOT

Phone Number: 317-691-4800

Date: 2/4/2025

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Liquid asphalt sealant may potentially be reducing the longevity of pavement markings. The INDOT Strategic Steering Committee has decided to eliminate liquid asphalt sealant and to use VRAM in its place.

PROPOSED SOLUTION: Modify the language in the RSPs to eliminate all references to liquid asphalt sealant and require VRAM on all surface courses

APPLICABLE STANDARD SPECIFICATIONS: 401 and 410

APPLICABLE STANDARD DRAWINGS: NA

APPLICABLE DESIGN MANUAL SECTION: NA

APPLICABLE SECTION OF GIFE: NA

APPLICABLE RECURRING SPECIAL PROVISIONS: 400-R-680, 401-R-750 and 410-R-751

PAY ITEMS AFFECTED: 401-11785, 401-10258

APPLICABLE SUB-COMMITTEE ENDORSEMENT: VRAM small working group, subcommittee of Materials and Construction Committee with APAI

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE:
Any 401 or 410 pay item

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT Materials and Tests

Phone Number: 317-522-9692

Date: 1/24/25

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO SPECIAL PROVISIONS

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? Y

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

Will this proposal improve:

Construction costs? N

Construction time? N

Customer satisfaction? N

Congestion/travel time? N

Ride quality? N

Will this proposal reduce operational costs or maintenance effort? N

Will this item improve safety:

For motorists? Y

For construction workers? N

Will this proposal improve quality for:

Construction procedures/processes? Y

Asset preservation? Y

Design process? N

Will this change provide the contractor more flexibility? Y

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

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

Is this proposal needed for compliance with:

Federal or State regulations? N

AASHTO or other design code? N

Is this item editorial? N

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

REVISION TO SPECIAL PROVISIONS

401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA

410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA

400-R-680 QC/QA SAMPLING AND TESTING ON 401 AND 410 PAY ITEMS

(Note: Proposed changes shown highlighted gray.)

401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA

(Revised 10-17-24)

The Standard Specifications are revised as follows:

SECTION 101, AFTER LINE 152, INSERT AS FOLLOWS:

VRAM void reducing asphalt membrane

SECTION 401, BEGIN LINE 446, DELETE AND INSERT AS FOLLOWS:

401.15 Joints

Longitudinal joints in the surface shall be at the lane lines of the pavement. Longitudinal joints below the surface shall be offset from previously constructed joints by approximately 6 in. and be located within 12 in. of the lane line.

Transverse joints shall be constructed by exposing a near vertical full depth face of the previous course. For areas inaccessible to rollers, other mechanical devices shall be used to achieve the required density.

If constructed under traffic, temporary transverse joints shall be feathered to provide a smooth transition to the driving surface.

(a) Hot Poured Joint Adhesive for Applications

Hot poured joint adhesive in accordance with 906 shall be applied to longitudinal joints constructed between two adjacent HMA courses in the top course of ~~all category 2, 3 and 4 dense graded intermediate mixture courses, and all category 2 and 3 dense graded 4.75 mm, 9.5 mm, and 12.5 mm surface mixture courses, and all 4.75 mm surface mixture courses and surface mixture courses not receiving treatment in accordance with 401.15(b).~~

This includes joints within the traveled way as well as between any of the following:

- ~~(a)~~ 1. traveled way and an auxiliary lane,
- ~~(b)~~ 2. traveled way and a paved shoulder, and
- ~~(c)~~ 3. auxiliary lane and a paved shoulder.

The material shall be heated in a jacketed, double boiler melting kettle. The kettle shall have an attached pressure feed wand system with applicator shoe.

The joint adhesive shall be applied to the face of the previously constructed edge at the joint using a wand applicator. Prior to application of the joint adhesive, the joint face shall be dry and free of loose material and foreign objects. The adhesive shall be applied on the joint face 1/8 in. thick at the temperature recommended by the manufacturer. Excess joint adhesive shall not be allowed to pool on the top of the previously constructed pavement course or the pavement to be overlaid. The application of the adhesive shall be

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made within the same day, but at least 30 minutes prior to construction of the longitudinal joint.

All 9.5 mm and 12.5 mm surface mixture longitudinal joints that have the joint adhesive applied shall be sealed using SS-1h, RPE, or AE-NT asphalt emulsion in accordance with 902.01(b). The sealing operation shall not begin until all density cores in accordance with 401.16 and 401.20 have been obtained and the installation of pavement corrugations, when specified in accordance with 606, has been completed.

The liquid asphalt sealant shall be a minimum width of 24 in., centered on the joint line, and shall be extended, when necessary, to provide coverage beyond the edge of the pavement corrugation. The sealant shall be applied onto a dry surface, free of any foreign or loose material, using a distributor in accordance with 409.03(a). The sealant temperature at the time of application shall be at least 135°F and shall not exceed 180°F. The ambient air and pavement temperatures at the time of application shall be greater than 32°F.

The application rate of the sealant shall be as follows:

Asphalt Emulsion	Application Rate* (gal./sq yd)
SS-1h or AE-NT	0.03 ±0.01**
RPE	0.15 ±0.01***
* The asphalt material shall not be diluted.	
** Areas receiving greater than 0.04 gal./sq yd shall be lightly broomed to reduce the effects of excess sealant on the pavement surface.	
*** The application rate shall be reduced when sealing milled corrugations in accordance with 606. The application rate shall be 0.11 ±0.01 gal./sq yd.	

Temporary pavement markings in accordance with 801.12 shall be offset a sufficient distance from the longitudinal joint so as not to obstruct the installation of the pavement corrugations or the application of the liquid asphalt sealant.

The SS-1h or AE-NT sealant shall be cured a minimum of five days prior to applying the permanent pavement traffic markings in accordance with 808. The RPE sealant shall be cured a minimum of 48 h prior to applying the permanent pavement traffic markings in accordance with 808. Where pavement markings are to be grooved in accordance with 808.07(b)1, the minimum cure for the sealant shall not apply.

Transverse joints shall be constructed by exposing a near vertical full depth face of the previous course. For areas inaccessible to rollers, other mechanical devices shall be used to achieve the required density.

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~~If constructed under traffic, temporary transverse joints shall be feathered to provide a smooth transition to the driving surface.~~

~~SECTION 401, AFTER LINE 500, INSERT AS FOLLOWS:~~

(b) VRAM for Applications

VRAM, in accordance with 902, shall be applied under the area where a longitudinal joint will be formed in the top course of all category 2, 3, and 4 dense graded 9.5 mm and 12.5 mm surface mixture courses. This shall include the area where a longitudinal joint will be formed within the traveled way, between the traveled way and an auxiliary lane, between the traveled way and a paved shoulder, and between an auxiliary lane and a paved shoulder, as well as between any of the following:

1. traveled way and an auxiliary lane,
2. traveled way and a paved shoulder, and
3. auxiliary lane and a paved shoulder.

This shall not include the area where a longitudinal joint will be formed with a commercial drive, private drive, or mailbox approach.

When placing lanes which are 8 ft or more in width, the Contractor may elect to request to construct the pavement joint with hot longitudinal joints in lieu of VRAM. Application of VRAM will not be required provided the adjacent lane is paved prior to the first lane cooling below 180°F and densification of the joint does not occur prior to the placement of the adjacent lane. Constructing a hot longitudinal joint shall not alter the maintenance of traffic or phases as shown in the contract.

Application of the VRAM material shall be with a distributor in accordance with 409.03(a) that is equipped with a heating and recirculating system along with a functioning auger agitating system or vertical shaft mixer in the tank to prevent localized heating. Material from a melting kettle may be dispensed through a pressure feed wand with an applicator shoe or through a pressure feed wand into a hand-operated thermal push cart used for transport and application. All transport and storage assets for the VRAM material shall be equipped with a heating and recirculating system along with a functioning auger agitating system or vertical shaft mixer in the tank to prevent localized heating.

Prior to the application of the VRAM, the existing surface to be treated shall be free of foreign materials deemed detrimental by the Engineer and shall also be dry and cleaned of all dust, debris and any substances that will prevent adherence. The VRAM may be placed before or after the tack coat. If after, the tack coat shall be fully cured prior to placement of VRAM.

The width and minimum application rate shall be in accordance with the following table:

REVISION TO SPECIAL PROVISIONS

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<i>VRAM Application Rate</i>			
<i>HMA Planned Lay Rate, lb/sq yd</i>	<i>VRAM Width, in.</i>	<i>VRAM Application Rate, lb/ft*</i>	<i>Coarse-graded mixture** VRAM Application Rate, lb/ft*</i>
<i>165</i>	<i>18</i>	<i>0.95</i>	<i>1.26</i>
<i>≥220</i>	<i>18</i>	<i>0.95</i>	<i>1.51</i>
<i>Tolerance</i>		<i>±10%</i>	<i>±10%</i>
<p>* The application rate has a surface demand for liquid included within it. The nominal thickness of the VRAM may taper from the center of the application to a lesser thickness on the edge of the application. The width and weight per foot shall be maintained. If the material is placed under a joint formed between two mixtures requiring different rates, the lower application rate shall be used.</p> <p>** A coarse-graded mixture will be defined as a 9.5 mm mixture having less than 47% passing the No. 8 (2.36 mm) sieve or a 12.5 mm mixture having less than 39% passing the No. 8 (2.36 mm) sieve.</p>			

The application shall be within 2 in. of being centered under the joint of the HMA course being constructed. When only half of the joint is exposed, the application shall be applied at half of the prescribed width, shall be adjacent to the center of the joint, and the vertical face of the cold joint left in place shall also be coated.

The Contractor shall furnish a bill of lading to the Engineer for each tanker supplying material to the project. The flow, application rate, and tracking of material will be verified within the first 1,000 ft of the day's scheduled application length and every 12,000 ft the remainder of the day. For projects less than 3,000 ft, the rate will be verified once. A suitable paper or pan shall be placed at a random location in the path of placement. The paper or pan shall be picked up and weighed after application to determine the weight per ft yield. The Contractor shall replace the VRAM in the areas where the samples were taken.

The VRAM shall be applied in a single pass. A distributor or melting kettle shall apply the material to within 1 1/2 in. of the width specified. Placement shall stop and remedial action shall be taken if the material flows more than 2 in. from initial placement. Release paper shall be placed over the previous application to prevent doubling the thickness when starting another run.

The VRAM shall be suitable for construction traffic to drive on without pickup or tracking within 30 minutes of placement. Placement shall stop and damaged areas shall be repaired if pickup or tracking occurs. The paver end plate and grade control device shall be raised above the finished height of the material prior to start of paving.

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Cores for density determination shall be in accordance with 401.16 and 401.20 and shall not be taken within 12 in. of either the confined edge or the non-confined edge of the course placed where VRAM has been applied.

~~Milled pavement corrugations, when specified in accordance with 606, shall be sealed using liquid asphalt sealant in accordance with 401.15(a) and 902.01(b).~~

SECTION 401, BEGIN LINE 973, DELETE AND INSERT AS FOLLOWS:

Joint adhesive will be measured by the linear foot in accordance with 109.01(a).
~~Liquid asphalt sealant and VRAM for HMA~~ will be measured by the linear foot.

SECTION 401, BEGIN LINE 993, DELETE AND INSERT AS FOLLOWS:

Joint adhesive will be paid for at the contract unit price per linear foot, complete in place. ~~Liquid asphalt sealant will be paid for at the contract unit price per linear foot.~~ VRAM for HMA will be paid for at the contract unit price per linear foot for full width applications. VRAM for HMA will be paid for at half the linear foot for half width applications. Hot longitudinal joints will be paid for as VRAM for HMA at the contract unit price per linear foot and will not be paid for separately.

SECTION 401, AFTER LINE ~~1005~~999, DELETE AND INSERT AS FOLLOWS:

Inertial Profiler, HMA LS
Joint Adhesive, LFT
course type
Liquid Asphalt Sealant LFT
QC/QA-HMA, .58, , mm TON
(ESAL⁽¹⁾) (PG⁽²⁾) (Course⁽³⁾) (Mix⁽⁴⁾)
Void Reducing Asphalt Membrane for HMA LFT

(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 - 2228

(3) Surface, Intermediate, or Base

(4) Mixture Designation

SECTION 606, BEGIN LINE 44, DELETE AS FOLLOWS:

606.02 Materials

Materials shall be in accordance with the following:

~~Liquid Asphalt Sealant 902.01~~
Pavement Markings 808

CONSTRUCTION REQUIREMENTS

606.03 General Requirements

In the presence of D-1 pavement joints or castings which conflict with the location

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of the corrugations, the corrugations shall be gapped a maximum of 5 ft and not within 6 in. of the joint or casting.

~~Corrugations installed on HMA shall be sealed using liquid asphalt sealant in accordance with 401.15.~~

SECTION 606, BEGIN LINE 99, DELETE AS FOLLOWS:

~~Where corrugations are placed in an existing HMA surface, liquid asphalt sealant shall be included in the cost of the pay items.~~

SECTION 808, BEGIN LINE 129, DELETE AS FOLLOWS:

(e) Markings in Retrofitted Corrugations

In sections where corrugations are being placed in the existing surface, all existing pavement markings shall be removed in accordance with 808.10 and any existing sealants shall be removed by routing or grinding. Temporary pavement markings placed in accordance with 801.12 shall be offset a sufficient distance from the longitudinal joint so as to not obstruct the installation of the corrugations or the application of the liquid asphalt sealant.

SECTION 902, AFTER LINE 121, INSERT AS FOLLOWS:

(f) VRAM

The asphalt material comprising the VRAM shall be in accordance with the following:

<i>Characteristics</i>	<i>Requirements</i>	<i>Test Method</i>
<i>Dynamic shear @ 88°C (unaged), G*/sin δ, kPa</i>	<i>1.00 min.</i>	<i>AASHTO T 315</i>
<i>Creep stiffness @ -18°C (unaged), Stiffness (S), MPa m-value</i>	<i>300 max. 0.300 min.</i>	<i>AASHTO T 313</i>
<i>Ash, %</i>	<i>1.0 - 4.0</i>	<i>AASHTO T 111</i>
<i>Elastic Recovery, 100 mm elongation, cut immediately, 25°C, %</i>	<i>70 min.</i>	<i>AASHTO T 301</i>
<i>Separation of Polymer, Difference in °C of the softening point (Ring and Ball)</i>	<i>3 max.</i>	<i>ASTM D7173, AASHTO T 53</i>

Elastomers shall be added to a base asphalt and shall be either a styrene-butadiene diblock or triblock copolymer without oil extension, or a styrene-butadiene rubber. Air blown asphalt, acid modification, or other modifiers will not be allowed.

VRAM shall be furnished by a supplier on the QPL of Performance-Graded Asphalt Binder Suppliers. A type A certification for the VRAM material shall be furnished in

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accordance with 916 and shall show the results of tests for the characteristics listed in the table above.

410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA

(Revised 10-17-24)

The Standard Specifications are revised as follows:

SECTION 101, AFTER LINE 152, INSERT AS FOLLOWS:

VRAM void reducing asphalt membrane

SECTION 410, BEGIN LINE 303, DELETE AND INSERT AS FOLLOWS:

410.15 Joints

Longitudinal joints in the surface shall be at the lane lines of the pavement.

Transverse joints shall be constructed by exposing a near vertical full depth face of the previous course. For areas inaccessible to rollers, other mechanical devices shall be used to achieve the required density.

If constructed under traffic, temporary transverse joints shall be feathered to provide a smooth transition to the driving surface.

(a) Hot Poured Joint Adhesive for Applications

Hot poured joint adhesive in accordance with 906 shall be applied to longitudinal joints constructed between ~~two adjacent HMA courses in the top course of dense graded intermediate mixtures and all 9.5 mm and 12.5 mm~~ SMA mixture *intermediate courses or longitudinal joints constructed between the SMA mixture intermediate courses and dense graded HMA intermediate courses.* Likewise, surface courses shall have hot poured joint adhesive applied when not receiving treatment in accordance with 410.15(b). This includes joints within the traveled way as well as between any of the following:

- ~~(a)~~1. traveled way and an auxiliary lane,
- ~~(b)~~2. traveled way and a paved shoulder, and
- ~~(c)~~3. auxiliary lane and a paved shoulder.

SECTION 410, ~~AFTER~~BEGIN LINE ~~333~~327, DELETE AND INSERT AS FOLLOWS:

Transverse joints shall be constructed by exposing a near vertical full depth face of the previous course. For areas inaccessible to rollers, other mechanical devices shall be used to achieve the required density.

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~~If constructed under traffic, temporary transverse joints shall be feathered to provide a smooth transition to the driving surface.~~

(b) VRAM for Applications

VRAM in accordance with 902 shall be applied under the area where a longitudinal joint will be formed in the top course of all SMA surface mixture courses. This shall include the area where a longitudinal joint will be formed within the traveled way, ~~between the traveled way and an auxiliary lane, between the traveled way and a paved shoulder, and between an auxiliary lane and a paved shoulder.~~ as well as between any of the following:

- 1. traveled way and an auxiliary lane,*
- 2. traveled way and a paved shoulder, and*
- 3. auxiliary lane and a paved shoulder.*

This shall not include the area where a longitudinal joint will be formed with a commercial drive, private drive, or mailbox approach.

When placing lanes which are 8 ft or more in width, ~~t~~The Contractor may request to construct the pavement joint with hot longitudinal joints in lieu of VRAM. Application of VRAM will not be required provided the adjacent lane is paved prior to the first lane cooling below 180°F and densification of the joint does not occur prior to the placement of the adjacent lane. Constructing a hot longitudinal joint shall not alter the maintenance of traffic or phases as shown in the contract.

Application of the VRAM material shall be with a distributor in accordance with 409.03(a) that is equipped with a heating and recirculating system along with a functioning auger agitating system or vertical shaft mixer in the tank to prevent localized heating. Material from a melting kettle may be dispensed through a pressure feed wand with an applicator shoe or through a pressure feed wand into a hand-operated thermal push-cart used for transport and application. All transport and storage assets for the VRAM material shall be equipped with a heating and recirculating system along with a functioning auger agitating system or vertical shaft mixer in the tank to prevent localized heating.

Prior to the application of the VRAM, the existing surface to be treated shall be free of foreign materials deemed detrimental by the Engineer and shall also be dry and cleaned of all dust, debris and any substances that will prevent adherence. The VRAM may be placed before or after the tack coat. If after, the tack coat shall be fully cured prior to placement of VRAM.

The width and minimum application rate shall be in accordance with the following table:

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<i>VRAM Application Rate</i>		
<i>SMA Planned Lay Rate, lb/sq yd</i>	<i>VRAM Width, in.</i>	<i>VRAM Application Rate*, lb/ft</i>
165	18	1.26
220	18	1.51
<i>Tolerance</i>		± 10%
<p>* The application rate has a surface demand for liquid included within it. The nominal thickness of the VRAM may taper from the center of the application to a lesser thickness on the edge of the application. The width and weight per foot shall be maintained. If the material is placed under a joint formed between a SMA mixture and a dense graded HMA mixture, the lower application rate shall be used.</p>		

The application shall be within 2 in. of being centered under the joint of the course being constructed. When only half of the joint is exposed, the application shall be applied at half the prescribed width, shall be adjacent to the center of the joint, and the vertical face of the cold joint left in place shall also be coated.

The Contractor shall furnish a bill of lading to the Engineer for each tanker supplying material to the project. The flow, application rate, and tracking of material will be verified within the first 1,000 ft of the day's scheduled application length and every 12,000 ft the remainder of the day. For projects less than 3,000 ft, the rate will be verified once. A suitable paper or pan shall be placed at a random location in the path of placement. The paper or pan shall be picked up and weighed after application to determine the weight per foot yield. The Contractor shall replace the VRAM in the areas where the samples were taken.

The VRAM shall be applied in a single pass. A distributor or melting kettle shall apply the material to within 1 1/2 in. of the width specified. Placement shall stop and remedial action shall be taken if the material flows more than 2 in. from initial placement. Release paper shall be placed over the previous application to prevent doubling the thickness when starting another run.

The VRAM shall be suitable for construction traffic to drive on without pickup or tracking within 30 minutes of placement. Placement shall stop and damaged areas shall be repaired if pickup or tracking occurs. The paver end plate and grade control device shall be raised above the finished height of the material prior to start of paving.

Cores for density determination shall be in accordance with 401.16 and 401.20 and shall not be taken within 12 in. of either the confined edge or the non-confined edge of the course placed where VRAM has been applied.

REVISION TO SPECIAL PROVISIONS

401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA
410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA
400-R-680 QC/QA SAMPLING AND TESTING ON 401 AND 410 PAY ITEMS

SECTION 410, BEGIN LINE 505, INSERT AS FOLLOWS:

Joint adhesive will be measured by the linear foot in accordance with 109.01(a).
VRAM for SMA will be measured by the linear foot.

SECTION 410, BEGIN LINE 517, INSERT AS FOLLOWS:

Joint adhesive will be paid for by the linear foot, complete in place. *VRAM for SMA will be paid for at the contract unit price per linear foot for full width applications. VRAM for SMA will be paid for at half the linear foot for half width applications. Hot longitudinal joints will be paid for as VRAM for SMA at the contract unit price per linear foot and will not be paid for separately.*

SECTION 410, ~~AFTER BEGIN LINE 533~~29, ~~DELETE~~ AND INSERT AS FOLLOWS:

Joint Adhesive, LFT
course type
QC/QA - HMA, 4, 58E, mm, - SMA..... TON
(ESAL⁽¹⁾)(PG⁽²⁾)(Course⁽³⁾)(Mix⁽⁴⁾)
~~Quality Assurance Adjustment~~.....~~DOL~~
Void Reducing Asphalt Membrane for SMA..... *LFT*

- (1) ESAL Category as defined in 410.04
- (2) Number represents the high temperature binder grade. *Letter represents traffic loading designation.* Low temperature grades ~~are~~ *are* - 2228
- (3) Surface or Intermediate
- (4) Mixture Designation

SECTION 902, AFTER LINE 121, INSERT AS FOLLOWS:

(f) VRAM

The asphalt material comprising the VRAM shall be in accordance with the following:

Characteristics	Requirements	Test Method
Dynamic shear @ 88°C (unaged), $G^*/\sin \delta$, kPa	1.00 min.	AASHTO T 315
Creep stiffness @ -18°C (unaged), Stiffness (S), MPa m-value	300 max. 0.300 min.	AASHTO T 313
Ash, %	1.0 - 4.0	AASHTO T 111
Elastic Recovery, 100 mm elongation, cut immediately, 25°C, %	70 min.	AASHTO T 301
Separation of Polymer, Difference in °C of the softening point (Ring and Ball)	3 max.	ASTM D7173, AASHTO T 53

REVISION TO SPECIAL PROVISIONS

401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA
410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA
400-R-680 QC/QA SAMPLING AND TESTING ON 401 AND 410 PAY ITEMS

Elastomers shall be added to a base asphalt and shall be either a styrene-butadiene diblock or triblock copolymer without oil extension, or a styrene-butadiene rubber. Air blown asphalt, acid modification, or other modifiers will not be allowed.

VRAM shall be furnished by a supplier on the QPL of Performance-Graded Asphalt Binder Suppliers. A type A certification for the VRAM material shall be furnished in accordance with 916 and shall show the results of tests for the characteristics listed in the table above.

400-R-680 QC/QA SAMPLING AND TESTING ON 401 AND 410 PAY ITEMS

(Adopted 06-21-18)

Each location shown in the table below that has a quantity less than 300 t per item number shall have joint adhesive applied in accordance with 401.15(a) and will be accepted by a type D certification in accordance with 402.09. VRAM in accordance with 401.15(b) will not be required. Compaction of mixtures at locations shown in the table below that have an original contract pay item quantity less than 300 t per item number shall be in accordance with 402.15, except rollers shall not be operated in vibratory mode for mixtures in accordance with 410.

Pay Item Number	___	___	___	___	___	___	___
Pay Item Description							
Des No. and Location							

COMMENTS AND ACTION

401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA
410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA
400-R-680 QC/QA SAMPLING AND TESTING ON 401 AND 410 PAY ITEMS

DISCUSSION:

This item was introduced by Mr. Reilman who stated that liquid asphalt sealant may potentially be reducing the longevity of pavement markings. The Department Strategic Steering Committee has decided to eliminate liquid asphalt sealant and to use VRAM in its place.

Mr. Reilman proposed to modify the language in the RSPs to eliminate all references to liquid asphalt sealant and require VRAM on all surface courses

Based on feedback from a recent meeting with the asphalt industry, Mr. Reilman further proposed to incorporate the changes shown in these minutes. Mr. Reilman revised his motion. Seconded by Mr. Koch.

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

<p>Motion: Mr. Reilman Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES</p>	<p><u>Action:</u></p> <p><input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn</p>
<p>2024 Standard Specifications Sections: 401 pg. 301 - 330; 410 pg. 351 - 365.</p> <p>Recurring Special Provisions or Plan Details: 401-R-750 VOID REDUCING ASPHALT MEMBRANE FOR HMA 410-R-751 VOID REDUCING ASPHALT MEMBRANE FOR SMA 400-R-680 QC/QA Sampling and Testing on 401 and 410 Pay Items (edit.)</p>	<p><input checked="" type="checkbox"/> 2026 Standard Specifications (changes shown in 401-R-750 and 410-R-751)</p> <p><input type="checkbox"/> Revise Pay Items List Notification to Designers if change is <u>not</u> addressed by RSP</p> <p><input type="checkbox"/> Create RSP (No. __) Effective:</p> <p><input checked="" type="checkbox"/> Revise RSP (No. 400-R-680) Effective: September 1, 2025</p>
<p>Standard Drawing affected: NONE</p>	<p><input type="checkbox"/> Standard Drawing Effective:</p>
<p>Design Manual Chapter: NONE</p>	<p><input type="checkbox"/> Create RPD (No. __) Effective:</p>
<p>GIFE Section: NONE</p>	<p><input type="checkbox"/> GIFE Update <input type="checkbox"/> Frequency Manual Update <input type="checkbox"/> SiteManager Update</p>

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: To enhance the safety of the motorists and construction workers and support the Buckle-Up/Phones-Down initiative we have been and will continue to install Dynamic Message Signs on Butterfly Cantilever Sign Structures at various freeway interchanges. Designing and detailing of this structure is not currently standardized so is being done on a project specific basis. Lead times for aluminum gratings can slow down production, steel is more readily available but not currently an option in the Standard Specifications.

PROPOSED SOLUTION: Adopt a new drawing series for Dynamic Message Butterfly Cantilever Sign Structures and revise the Standard Specification to allow steel walkways.

APPLICABLE STANDARD SPECIFICATIONS: Sections 802.12 (add pay items) and 910.19 (steel walkway)

APPLICABLE STANDARD DRAWING: New Series

APPLICABLE DESIGN MANUAL CHAPTER: 502

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISION OR PLAN DETAILS: N/A

PAY ITEMS AFFECTED: Yes

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Traffic Subcommittee, Bridge Design

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: 802-12648 and 802-12649 pay items (structure and foundation)

IMPACT ANALYSIS (attach report): Yes

Submitted By: David Boruff

Title: Manager, Office of the Traffic Administration

Division: Traffic Engineering

E-mail: Dboruff@indot.in.gov

Date: 1/24/25

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? No

Construction time? Yes

Customer satisfaction? No

Congestion/travel time? No

Ride quality? N/A

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

For motorists? No

For construction workers? No

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? N/A

Design process? Yes

Will this change provide the contractor more flexibility? Yes

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

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

REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

SECTION 802 – SIGNS
802.12 Basis of Payment
SECTION 910 – METAL MATERIALS
910.19 Overhead Sign Structures

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 802, AFTER LINE 357, INSERT AS FOLLOWS:

Overhead DMS Butterfly Cantilever Sign Structure
Foundation *EACH*
type
Overhead Sign Structure, _____, Remove EACH
type
Overhead Sign Structure, Box Truss, _____ EACH
type
Overhead Sign Structure, Bridge Bracket Assembly EACH
Overhead Sign Structure, Butterfly Cantilever EACH
Overhead Sign Structure, DMS Butterfly Cantilever *EACH*

SECTION 910, AFTER LINE 1208, DELETE AND INSERT AS FOLLOWS:

910.19 Overhead Sign Structures

The complete structure with signs in place shall be able to withstand loads in accordance with AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. The structure shall be designed to resist fatigue of the material in accordance with the AASHTO specifications.

All prefabricated structural units shall be packed so that there is no injury or defacement during transportation to the point of destination.

All bolts, nuts, and washers for bridge bracket assemblies shall be stainless steel in accordance with ASTM F593.

Strain poles for cable span signs shall be in accordance with 922.10(a). Each strain pole shall include three band-type attachments for span wire clamps. Such attachments shall be galvanized in accordance with ASTM A153. Cable shall be in accordance with 922.10(e)2. Each cable shall include three wire rope clips at each end. Anchor bolts shall be in accordance with 922.10(c)5. All sign mounting hardware, except for the extruded aluminum bar, shall be galvanized in accordance with ASTM A153.

Grating material for the walkway shall be as shown on the plans and as specified herein. ~~Gratings for the walkway~~ Aluminum grating shall be ~~of aluminum~~ in accordance with ASTM B221, alloy 6061-T6 or 6063-T6. Cross bars and bent connecting bars shall be of aluminum in accordance with ASTM B221, alloy 6061, 6063 or 3003 conforming to ASTM B210. Steel grating shall be in accordance with ASTM A1011 CS Type B and be galvanized in accordance with ASTM A123. Handrail support posts for steel walkways shall be in accordance with ASTM A53 Grade B. Handrail support posts for steel walkways

REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

SECTION 802 – SIGNS
802.12 Basis of Payment
SECTION 910 – METAL MATERIALS
910.19 Overhead Sign Structures

shall be in accordance with ASTM A53 Grade B and shall be galvanized in accordance with ASTM A123.

SECTION 910, AFTER LINE 1269, DELETE AND INSERT AS FOLLOWS:

(b) Steel Overhead Sign Structures, Cantilever, Monotube, Tri-Chord, Bridge Attached, and End-Supports for Box Truss and Dynamic Message Sign Structure

End-support members for box truss and dynamic message sign structure shall be fabricated from constant cross-section tubular steel or extruded steel shapes as indicated on the drawings. Sections used for end-support columns, diagonal and horizontal members shall be constant cross-section tubular members in accordance with ASTM A53, types E or S, Grade B, minimum yield strength of 35,000 psi, or ASTM A500 grades B or C; or ASTM A 1085; or American Petroleum Institute 5L PSL2 grades X42 thru X80. ASTM A53 and ASTM A500 steel shall have a Charpy V-notch toughness of 25 ft-lb at 40°F.

REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-01 DYNAMIC MESSAGE SIGN BUTTERFLY CANTILEVER STRUCTURE INDEX

INDEX	
SHEET NO.	SUBJECT
1	Dynamic Message Sign Butterfly Cantilever Structure Index
2	Structure Plan, Elevation, Member Sizes, and Camber
3	Quadri-Chord and Flange Details
4	Upper Chords Connection Details
5	Lower Chords Connection Details
6	Base Plate, Anchor Bolt, and Metal Skirt Details
7	Handhole and I.D. Tag Details
8	Access Details
9	Walkway Details
10	Handrail Details
11	Ladder Details
12	Security Gate Details
13	Wiring Layout Details
14	Foundation at 33" Concrete Barrier
15	Foundation at 45" Concrete Barrier
16	Foundation 4'-0" Ø Drilled Shaft

GENERAL NOTES:

1. All butterfly tubular structure members shall be steel in accordance with ASTM A 53, Grade B.
2. All anchor bolts shall be in accordance with ASTM F1554, Grade 36.
3. Plates, bars and rolled shapes shall be in accordance with ASTM A36.
4. Refer to the Standard Specifications for acceptable alternate materials.

INDIANA DEPARTMENT OF TRANSPORTATION

DYNAMIC MESSAGE SIGN BUTTERFLY
CANTILEVER STRUCTURE
INDEX
SEPTEMBER 2025

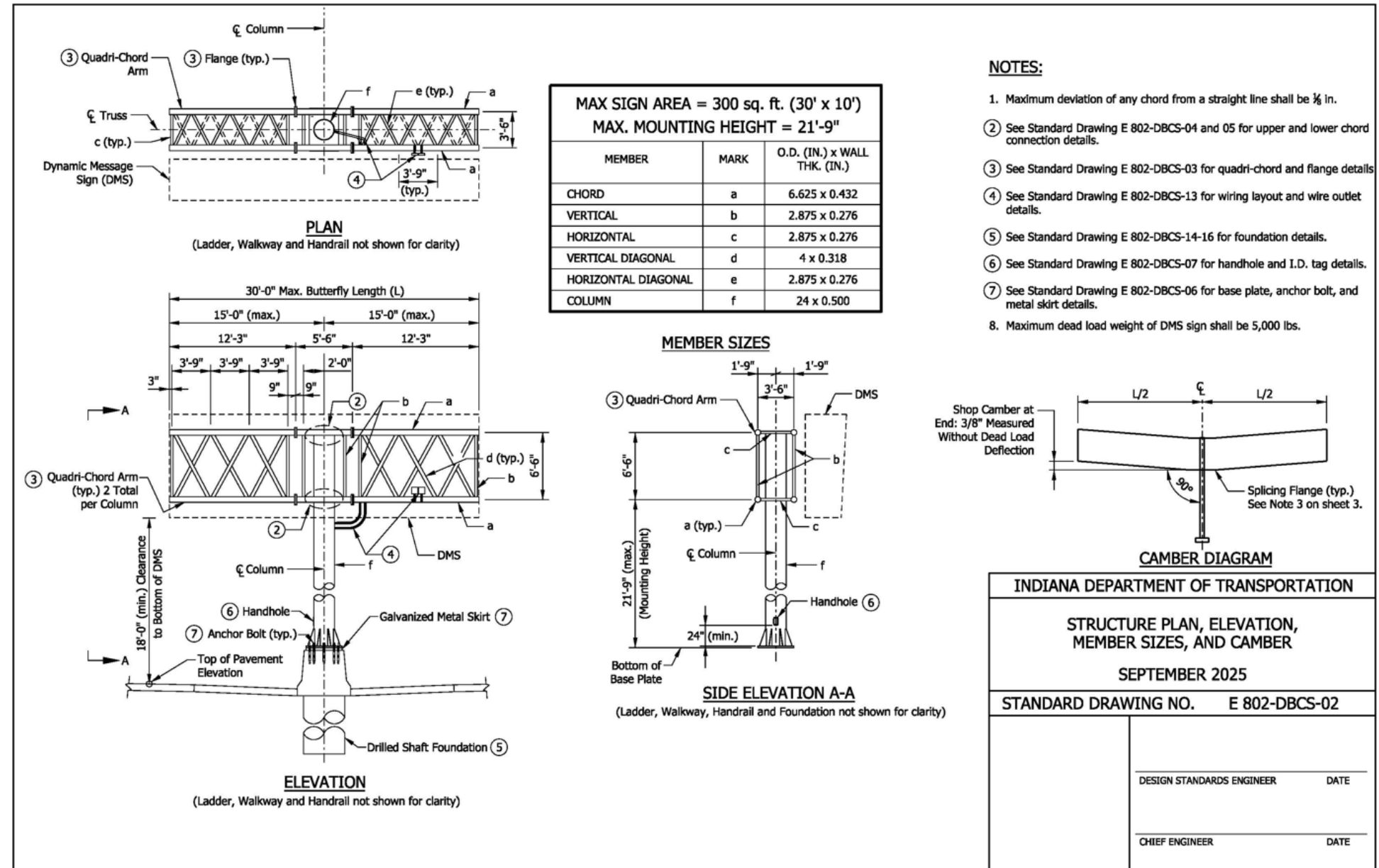
STANDARD DRAWING NO. E 802-DBCS-01

DESIGN STANDARDS ENGINEER DATE

CHIEF ENGINEER DATE

REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-02 STRUCTURE PLAN, ELEVATION, MEMBER SIZES, AND CAMBER

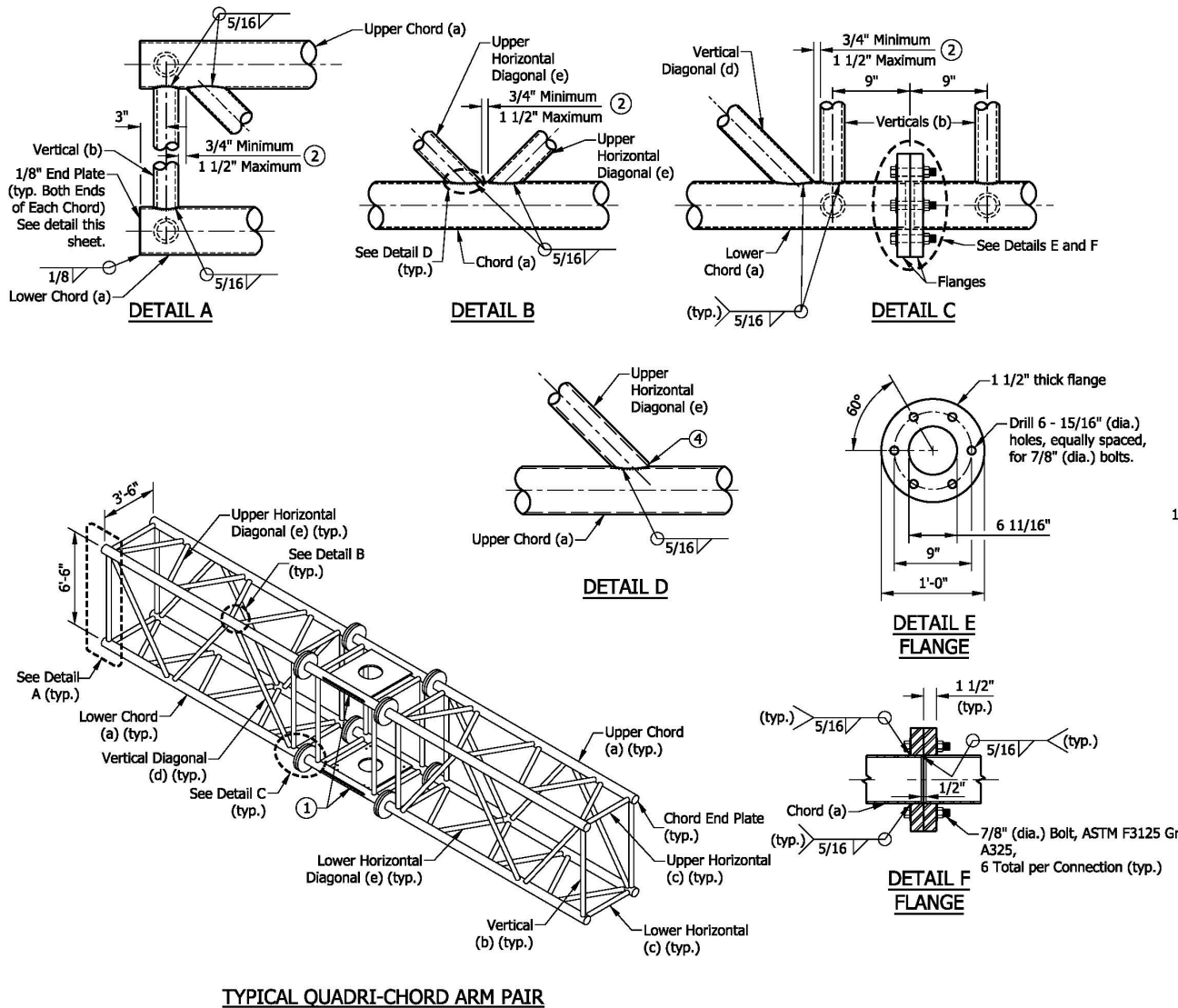


REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-03 QUADRI-CHORD AND FLANGE DETAILS

NOTES:

- See Standard Drawings E 802-DBCS-04 and 05 for upper and lower chords connection details.
- Diagonals shall have a minimum offset from the panel point based on the following: Offset shall be such as to provide a $\frac{3}{4}$ in. minimum to $1\frac{1}{2}$ in. maximum clearance between any diagonal and any vertical member, and to provide clearance for U-bolt connections of signs.
- Splicing flanges shall be attached to each arm unit with the arm shop-assembled to camber shown. Arm units shall be in proper alignment and flange surfaces shall be shop-bolted into full contact before welding. Sufficient external welds or tacks shall be made to secure flanges until remaining welds are made after disassembly. Adjacent flanges shall be "match marked" to ensure proper field assembly.
- Toe edge of diagonal member shall be cut back to facilitate throat thickness per AWS D1.1, Figure 3.2.



INDIANA DEPARTMENT OF TRANSPORTATION

QUADRI-CHORD AND FLANGE DETAILS

SEPTEMBER 2025

STANDARD DRAWING NO. E 802-DBCS-03

DESIGN STANDARDS ENGINEER

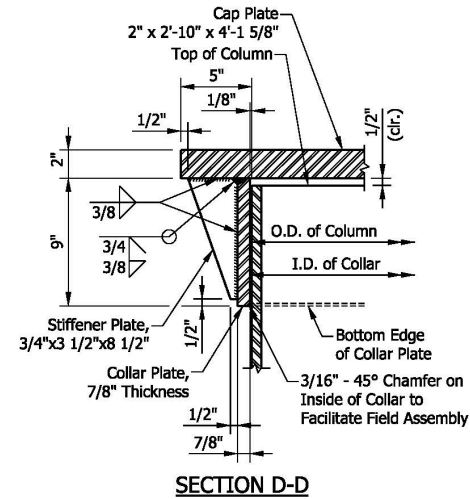
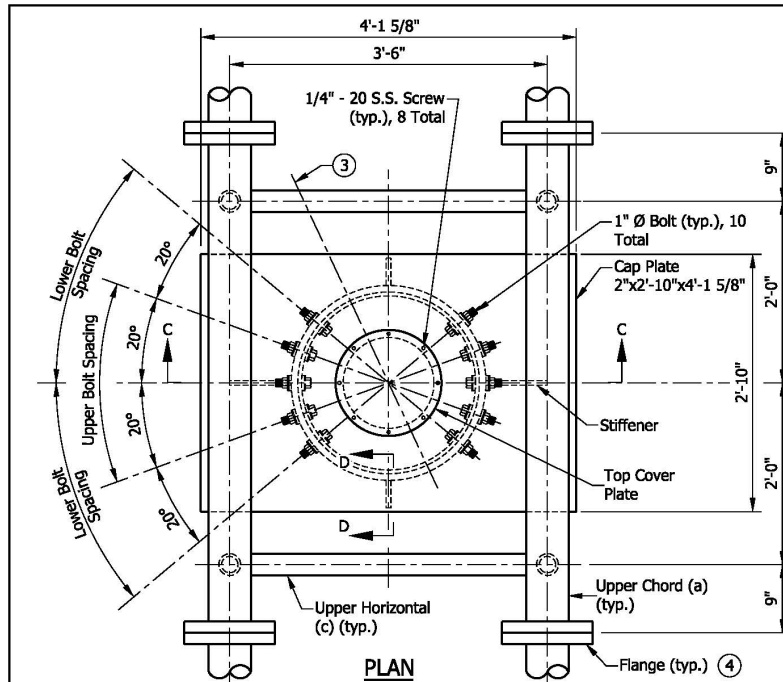
DATE

CHIEF ENGINEER

DATE

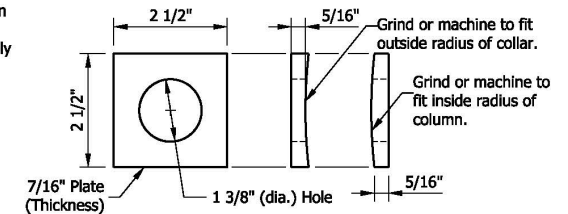
REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-04 UPPER CHORDS CONNECTION DETAILS

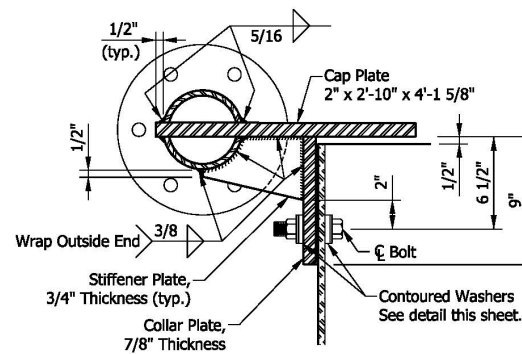
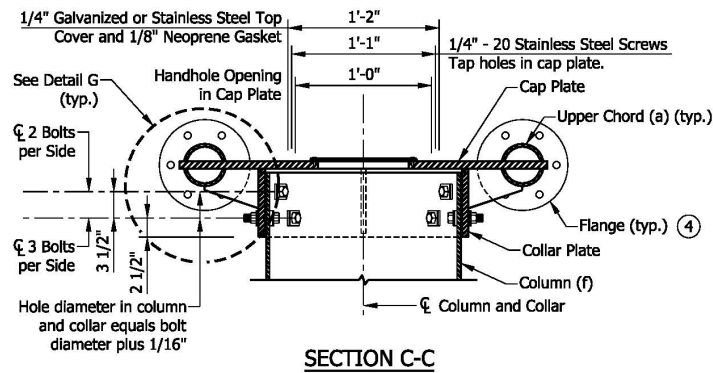


NOTES:

1. Connection bolts in collar and bolts at lower chord connection shall be high strength with matching locknuts. Connection bolts shall each have two (2) stainless steel flat, washers. Bolts, contoured washers, and locknuts shall be galvanized.
2. After galvanizing, collar inside diameter shall equal outside diameter of galvanized column plus $\frac{1}{8}$ in. ($\pm \frac{1}{8}$ in.). Maximum gap between column and collar at any location shall be $\frac{1}{8}$ in. before tightening bolts.
- ③ 3. Optional full-penetration weld in collar may be made at two locations 180° apart. X-ray or UT 100%.
- ④ 4. See Standard Drawing E 802-DBCS-03 for flange details.



CONTOURED WASHER DETAIL

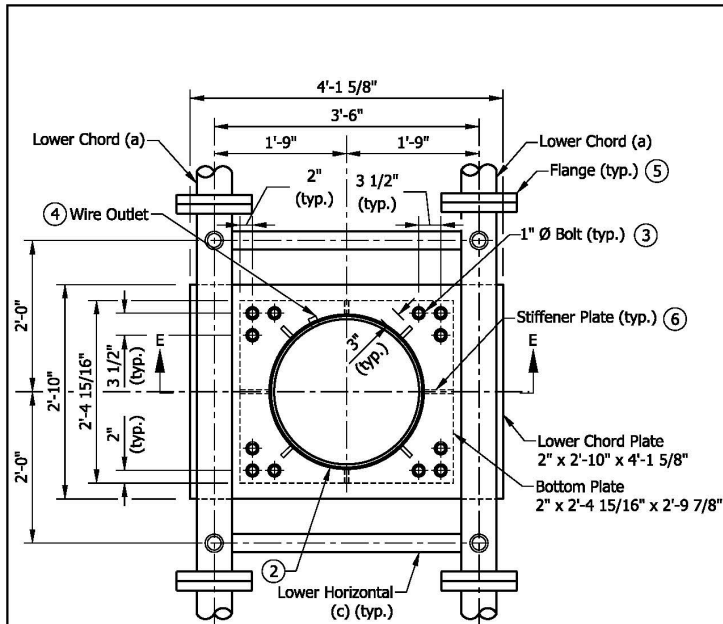
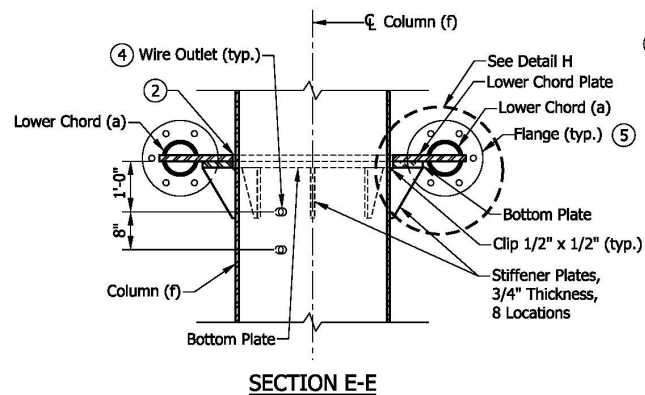
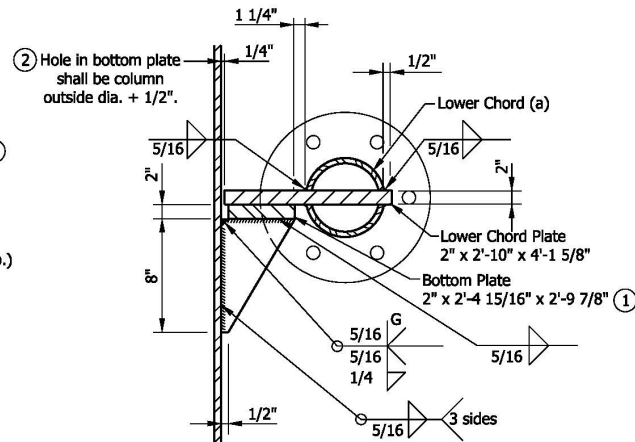


DETAIL G

INDIANA DEPARTMENT OF TRANSPORTATION	
UPPER CHORDS CONNECTION DETAILS	
SEPTEMBER 2025	
STANDARD DRAWING NO.	E 802-DBCS-04
	_____ DESIGN STANDARDS ENGINEER DATE
	_____ CHIEF ENGINEER DATE

REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-05 LOWER CHORDS CONNECTION DETAILS

**PLAN SECTION THROUGH COLUMN ABOVE LOWER CHORDS****SECTION E-E****DETAIL H****NOTES:**

- ① Top of plate shall fully seat lower chord plate, any grinding damage of galvanizing shall be repaired before assembly.
- ② After tightening lower connection bolts, gaps shall be filled with non-hardening silicone caulk suitable for exterior exposure.
- ③ Connection bolts in collar and bolts at lower chord connection shall be high strength with matching locknuts. Each connection bolt shall have two stainless steel flat washers.
- ④ Pipe shall be oriented toward DMS, see detail on Standard Drawing E 802-DBCS-13.
- ⑤ See Standard Drawing E 802-DBCS-03 for flange details.
- ⑥ Stiffeners shall be extended to edge of bottom plate, unless noted otherwise.

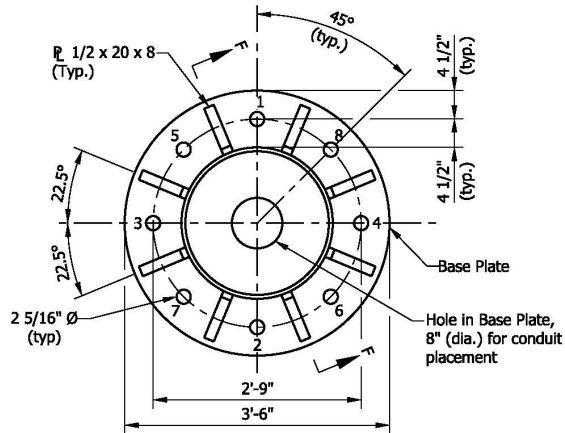
INDIANA DEPARTMENT OF TRANSPORTATION**LOWER CHORDS CONNECTION DETAILS****SEPTEMBER 2025****STANDARD DRAWING NO. E 802-DBCS-05**

DESIGN STANDARDS ENGINEER DATE

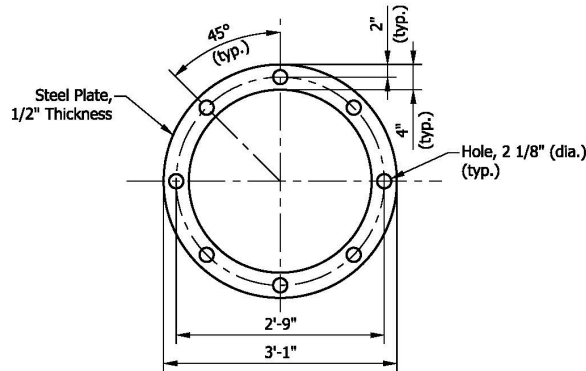
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REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

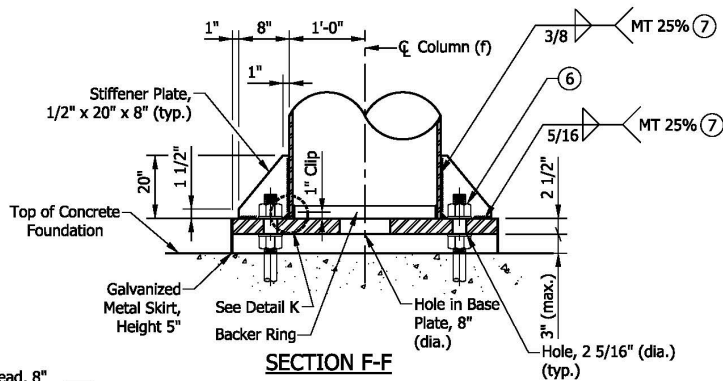
E 802-DBCS-06 BASE PLATE, ANCHOR BOLT, AND METAL SKIRT DETAILS



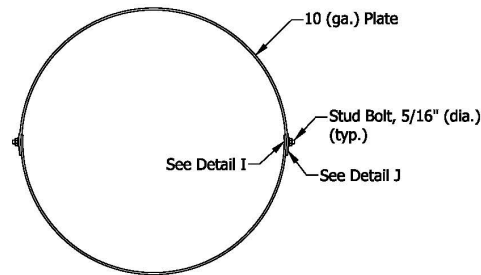
PLAN ⑥



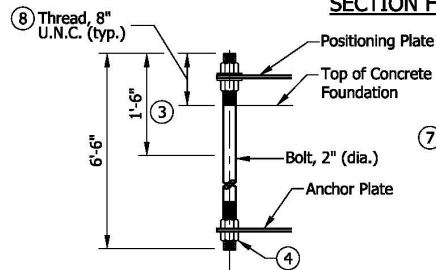
ANCHOR AND POSITIONING PLATE



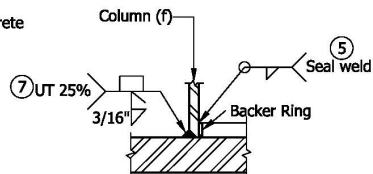
SECTION F-F



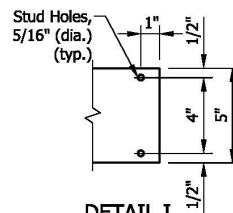
METAL SKIRT DETAIL



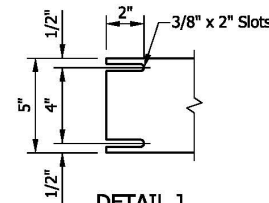
ANCHOR BOLT DETAIL



DETAIL K
BASE PLATE WELD



DETAIL I



DETAIL J

NOTES:

1. Temporary positioning plate and leveling nuts or other engineer-approved methods shall be used to maintain anchor bolt alignment during concrete placement. Positioning plate and associated nuts shall be removed upon completion of the foundation.
2. Threads shall be protected during concrete placement with tape, sleeves, or other means.
3. Minimum length of galvanizing shall be 1 ft - 6 in. Entire bolt may be galvanized at contractor's option.
4. Uncoated nut shall be provided at bottom of anchor plate. A deformed thread or chemical thread lock shall be used to secure.
5. Continuous backer ring shall be used, $\frac{1}{4}$ in. x 3 in. minimum. Tack welds shall be used only in the root area of final weld.
6. Anchor bolt nuts shall be tightened in numeral order in accordance with the procedure given on Standard Drawing E 802-SBTS-17.
7. UT - Ultrasonic Testing, 25% of entire column to base plate weld.
MT - Magnetic Particle Testing, 25% or 1 side of 4 stiffeners.
8. The clear distance between the concrete surface and the bottom of the leveling nut shall be equal to or less than one anchor bolt diameter. The threads of the anchor bolts shall be Unified National Coarse (U.N.C.).

INDIANA DEPARTMENT OF TRANSPORTATION

BASE PLATE, ANCHOR BOLT, AND METAL SKIRT DETAILS

SEPTEMBER 2025

STANDARD DRAWING NO.	E 802-DBCS-06
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DESIGN STANDARDS ENGINEER

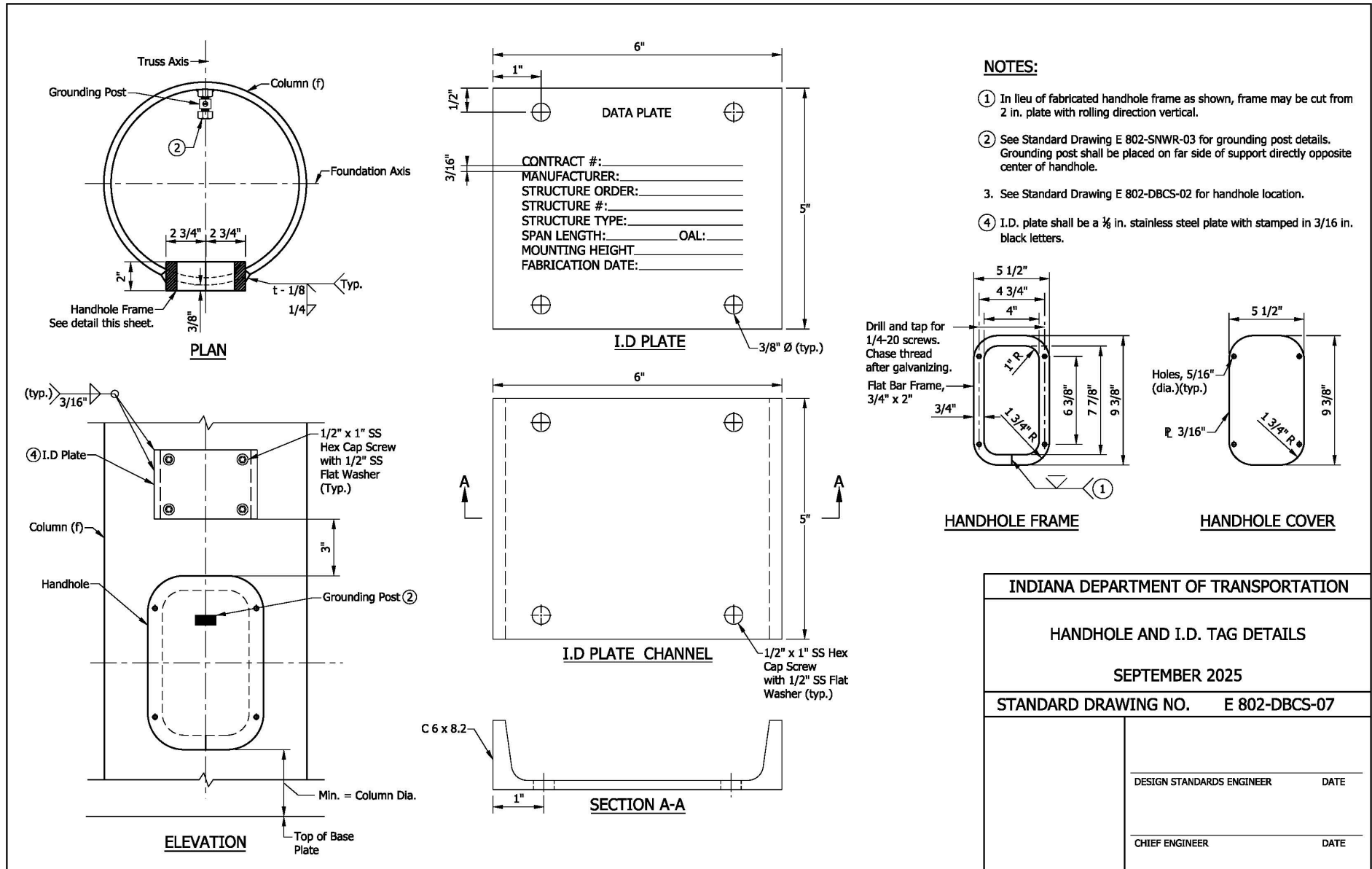
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CHIEF ENGINEER

DATE _____

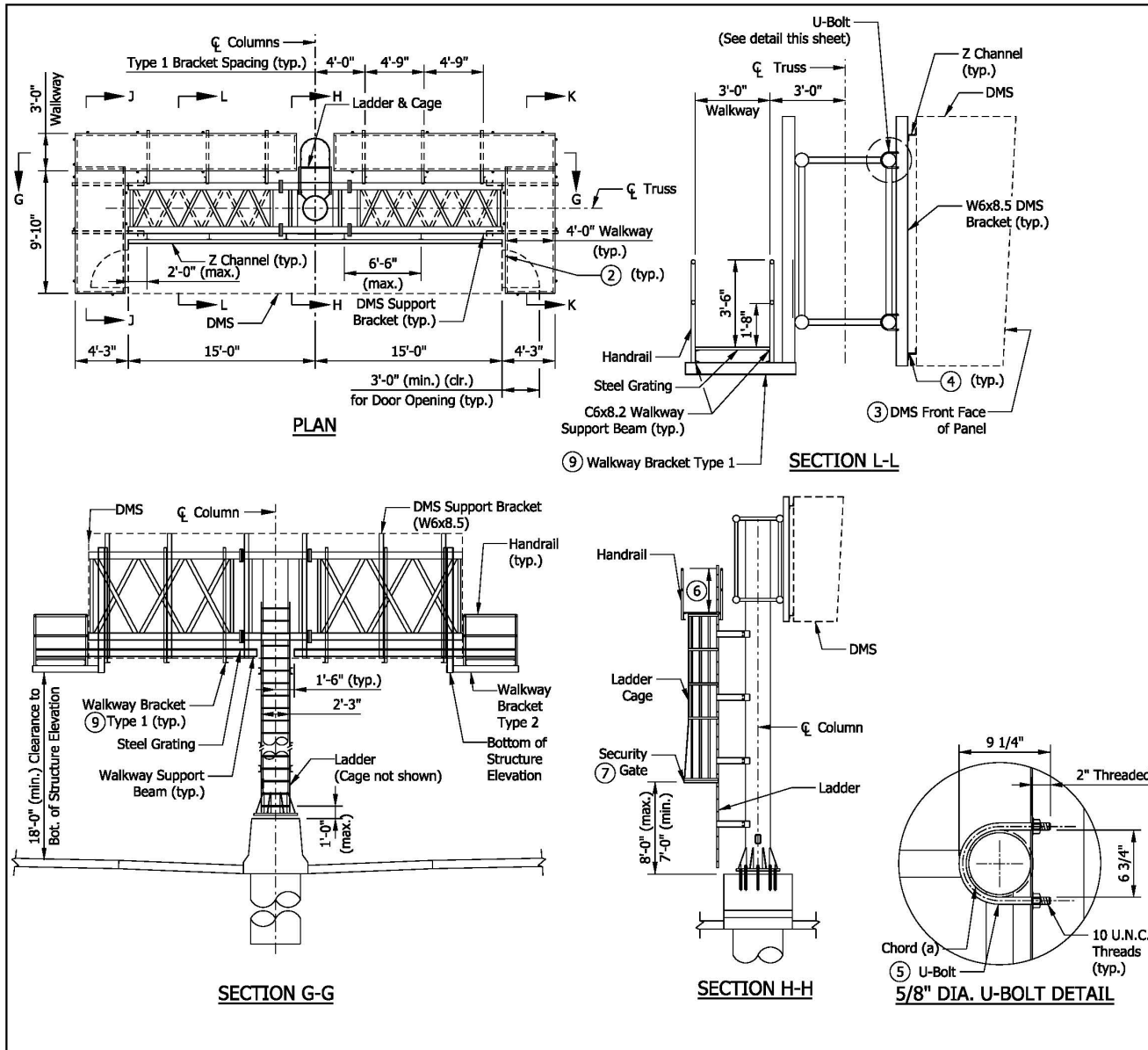
REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-07 HANDHOLE AND I.D. TAG DETAILS



REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-08 ACCESS DETAILS

**NOTES:**

1. Walkway gratings shall consist of galvanized steel 19W4 - 1 1/4 in. x 3/16 in. bar grating. Crossbar shall have a maximum gap of 4 in. Moment of inertia $I_x = 0.308$ in 4 in. A different grating of equal strength may be used upon approval. Attachment shall be clip type or welded to supports per manufacturer's recommendations.
2. The Contractor shall coordinate with the sign manufacturer so floor inside DMS is 3 in. max up or down to the side of grating. The bottom of the DMS door shall open without obstruction from the grating.
3. The front face of the DMS shall be tilted at 3° toward approaching traffic. If the DMS is not built with the front face tilted appropriately, a block shall be placed on the top of the back face to obtain the 3° tilt.
4. One ASTM F3125 Grade A325 bolt 1/2 in. x 2 in. on each side of the W6x8.5 steel bracket web with one flat washer and one lock nut.
5. ASTM A449 or A193 Grade B8 U-Bolts. two flat washers, two lock washers, and two lock nuts per U-bolt; 4 required per DMS bracket.
6. Ladder shall extend 3 ft-6 in. minimum above top of grating.
7. See Standard Drawing E 802-DBCS-12 for security gate details.
8. See Standard Drawing E 802-DBCS-09 for Section J-J and K-K.
9. Maximum walkway support bracket spacing shall be 4'-9".

INDIANA DEPARTMENT OF TRANSPORTATION

ACCESS DETAILS

SEPTEMBER 2025

STANDARD DRAWING NO. E 802-DBCS-08

DESIGN STANDARDS ENGINEER

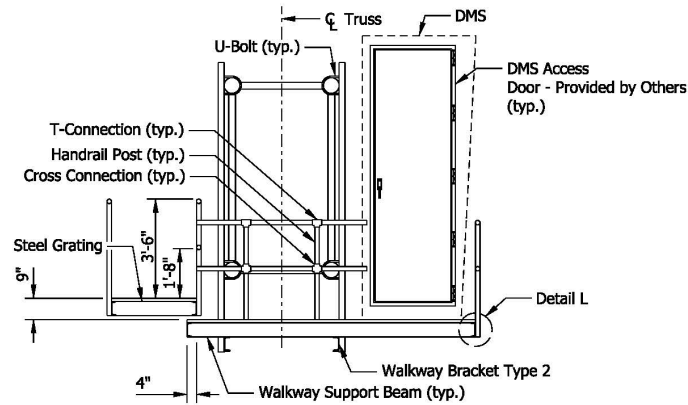
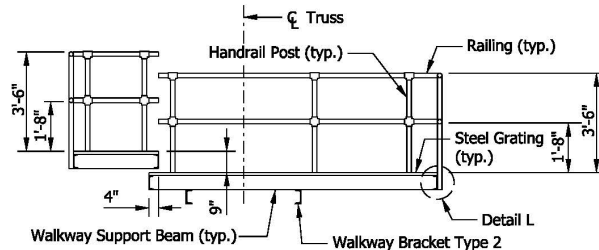
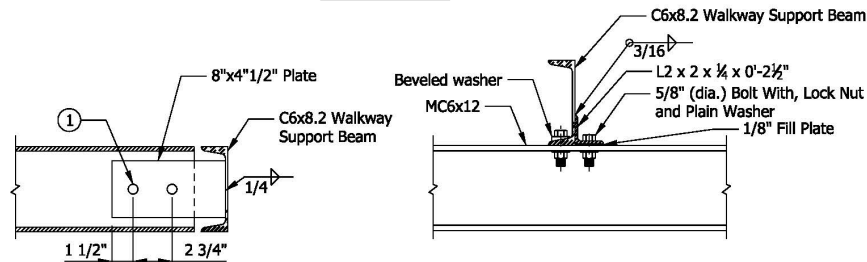
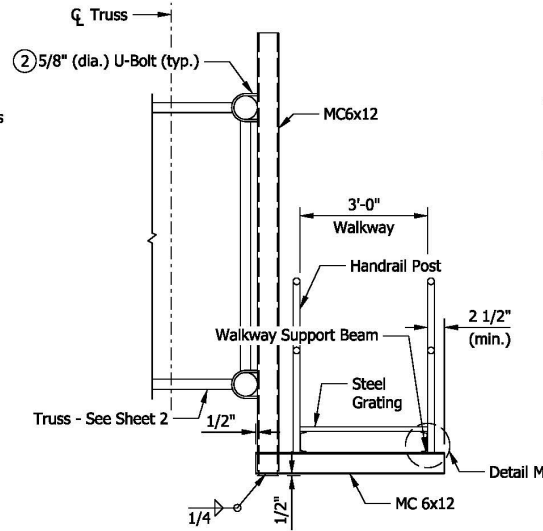
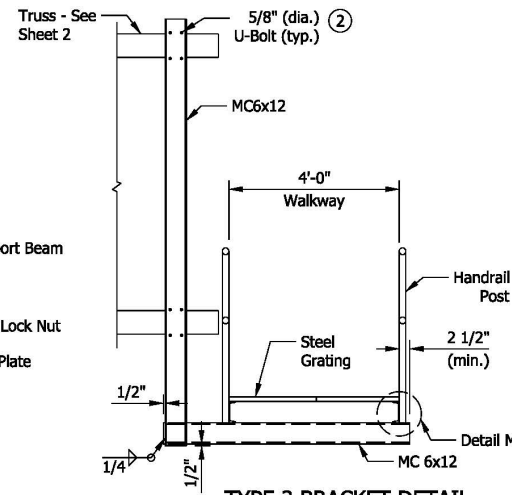
DATE

CHIEF ENGINEER

DATE

REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-09 WALKWAY DETAILS

**SECTION J-J****SECTION K-K****DETAIL L****DETAIL U****TYPE 1 BRACKET DETAIL****TYPE 2 BRACKET DETAIL****NOTES:**

- ① Two 5/8 in. diameter ASTM F3125 Grade A325 bolts with one flat washer and one lock nut each shall be provided per connection
- ② Two flat washers, two lock washers, and two lock nuts are required per U-bolt. Two U-Bolts are required per Type 1 bracket; 4 required per Type 2 bracket. See U-bolt detail on Standard Drawing E 802-DBCS-08.
3. Walkway members shall be ASTM A36 and the handrail supports shall be ASTM A53 Grade B.

INDIANA DEPARTMENT OF TRANSPORTATION

WALKWAY DETAILS

SEPTEMBER 2025

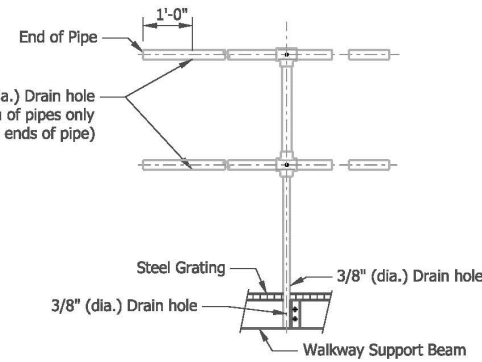
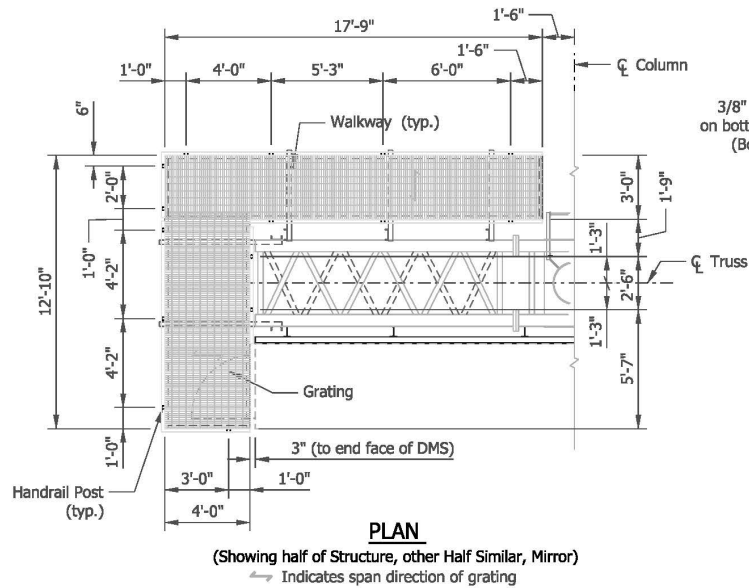
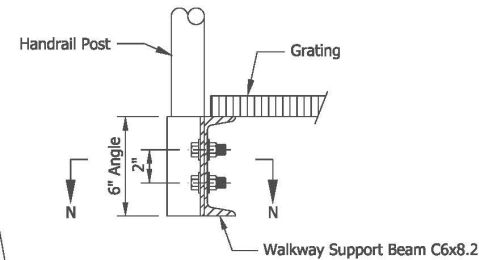
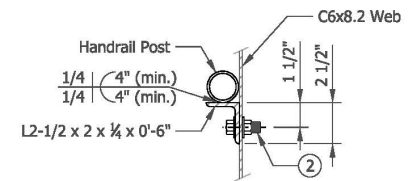
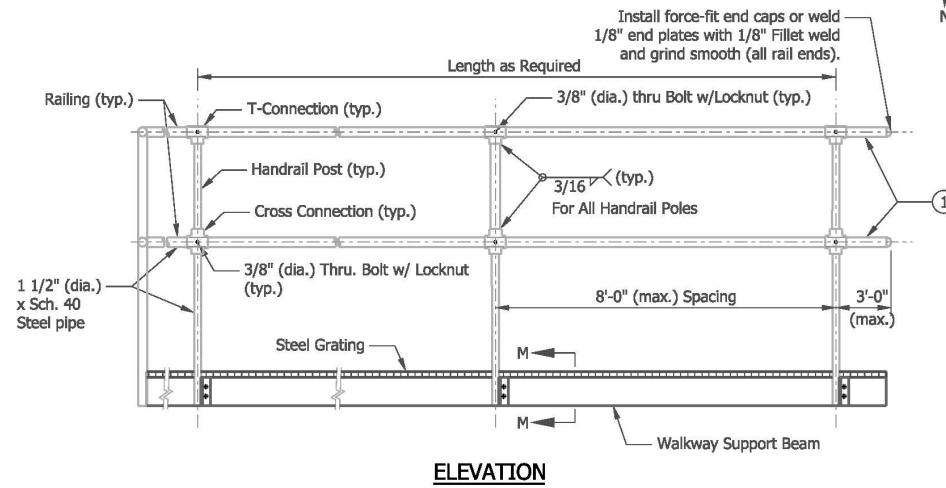
STANDARD DRAWING NO. E 802-DBCS-09

DESIGN STANDARDS ENGINEER DATE

CHIEF ENGINEER DATE

REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-10 HANDRAIL DETAILS

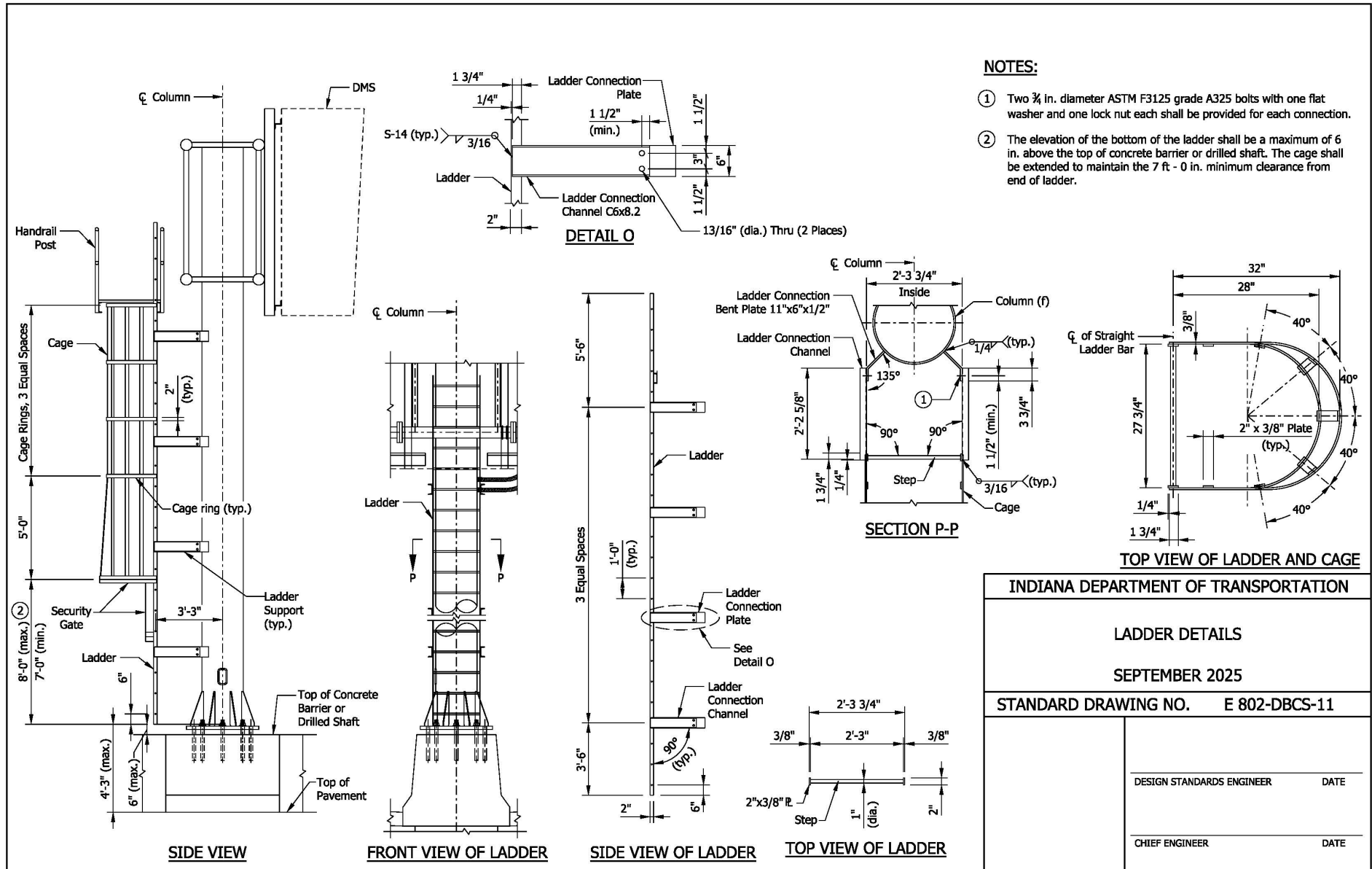
**HANDRAIL DRAIN HOLES DETAIL-TYPICAL****SECTION M-M****SECTION N-N****NOTES:**

- Horizontal rail member shall be continuous through fitting. Manufacturer shall provide 7/16 in. holes for fitting 3/8 in. bolt. 7/16 in. hole shall be field drilled in horizontal rail member and handrail attached with 3/8 in. through bolt with washer and locknut.
- Two 5/8 in. diameter F3125 Grade A325 bolts with one flat washer and one lock nut each shall be provided per connection.

INDIANA DEPARTMENT OF TRANSPORTATION**HANDRAIL DETAILS****SEPTEMBER 2025****STANDARD DRAWING NO. E 802-DBCS-10**

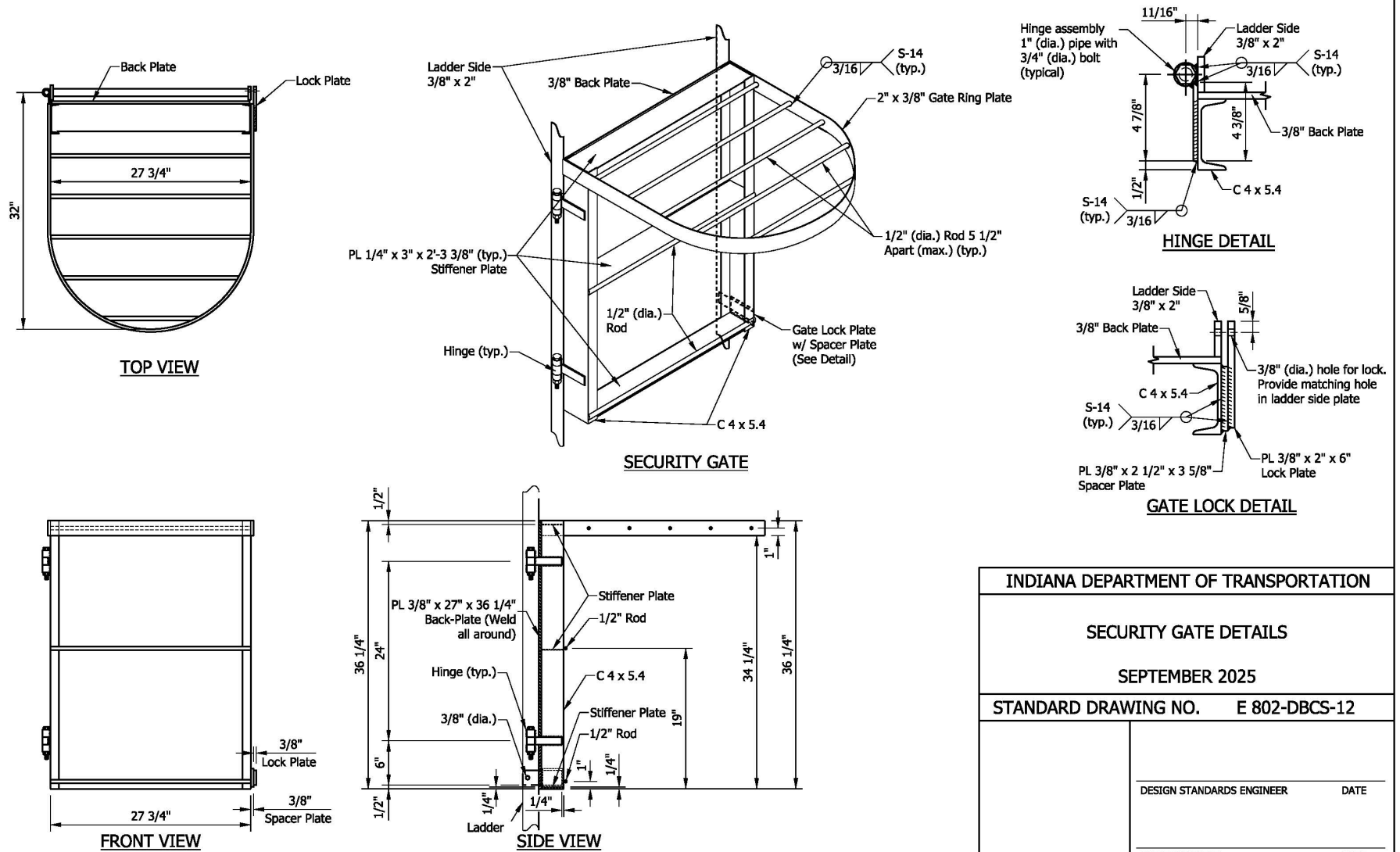
DESIGN STANDARDS ENGINEER DATE

CHIEF ENGINEER DATE



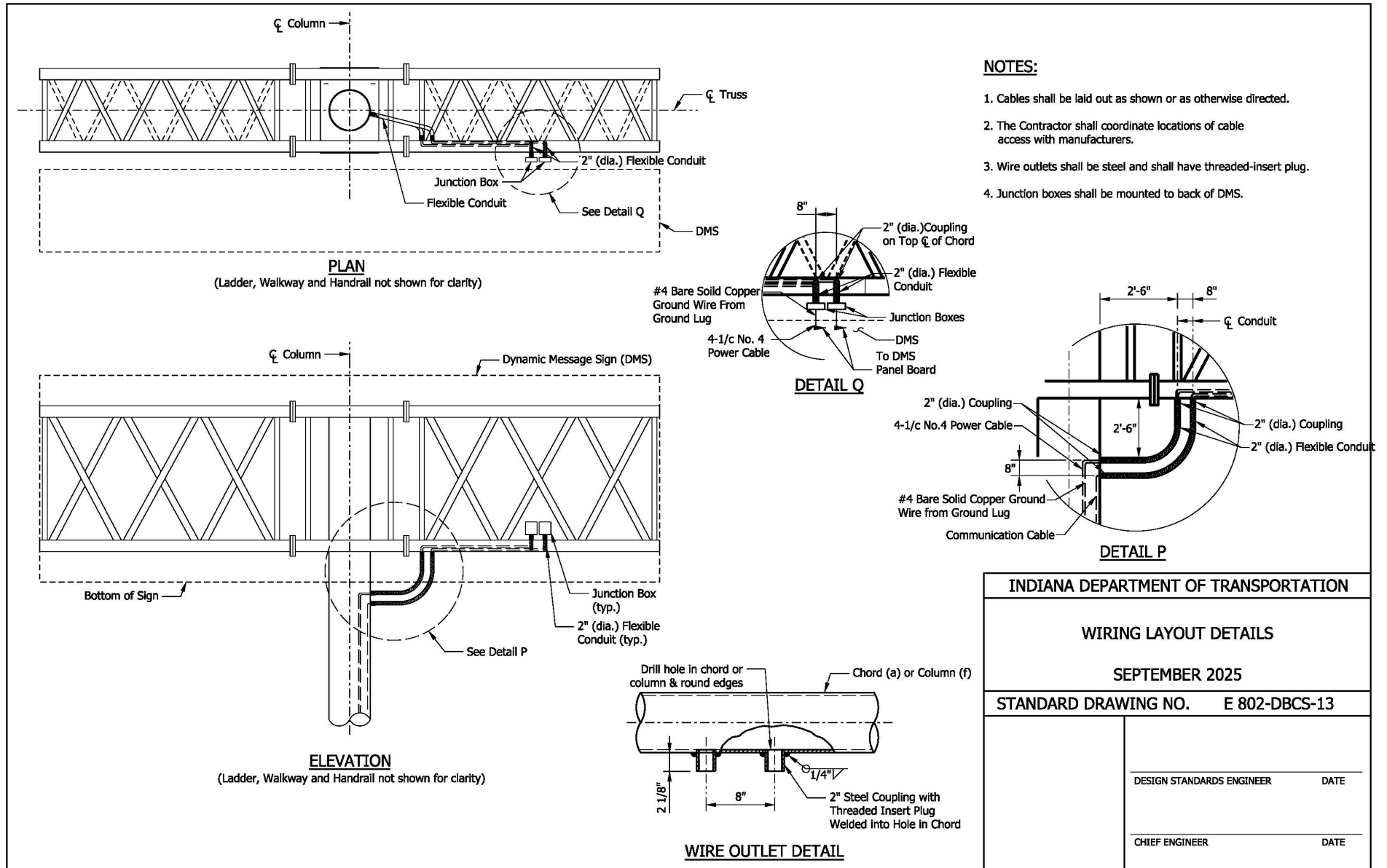
REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-12 SECURITY GATE DETAILS



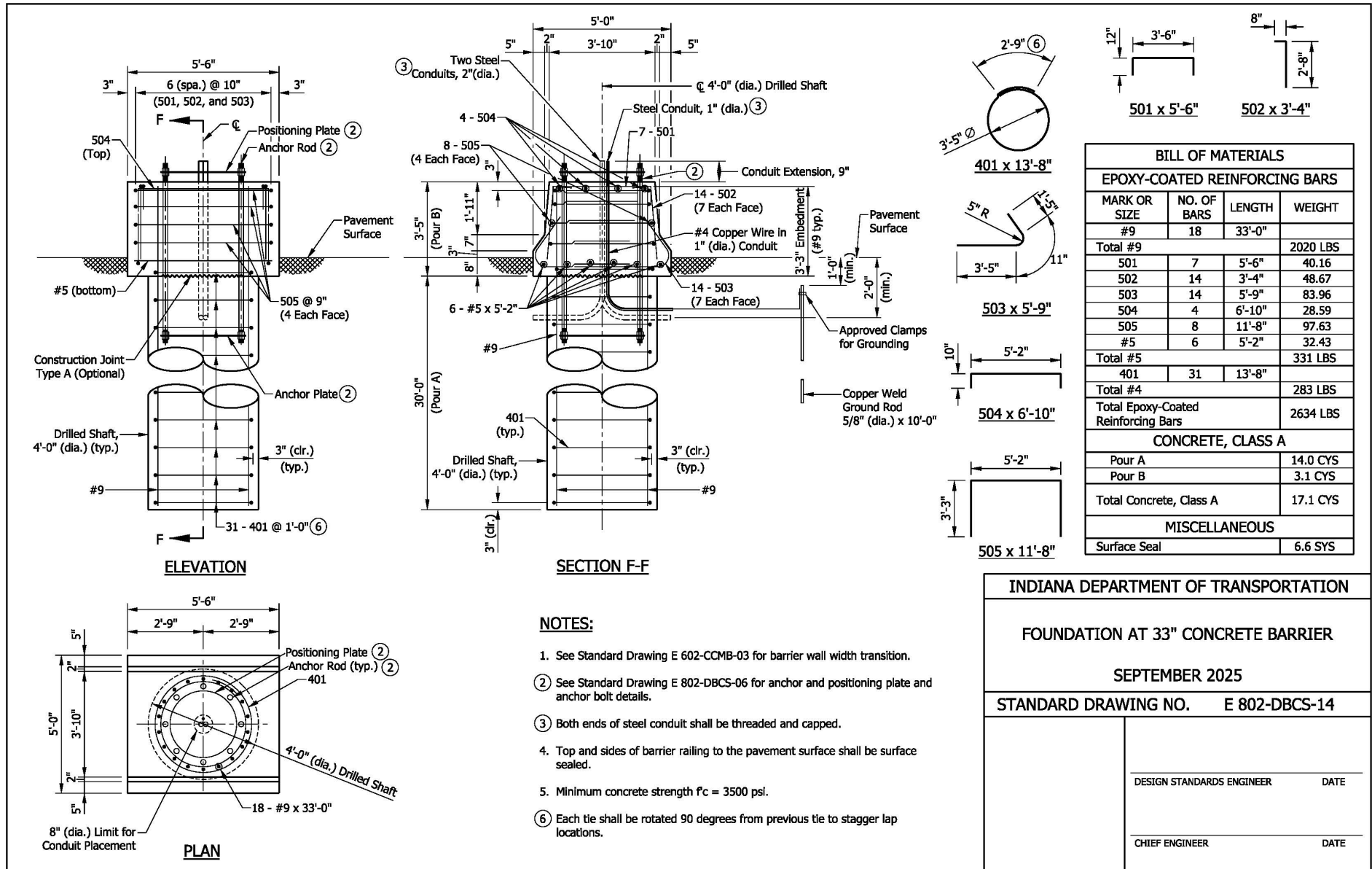
REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-13 WIRING LAYOUT DETAILS



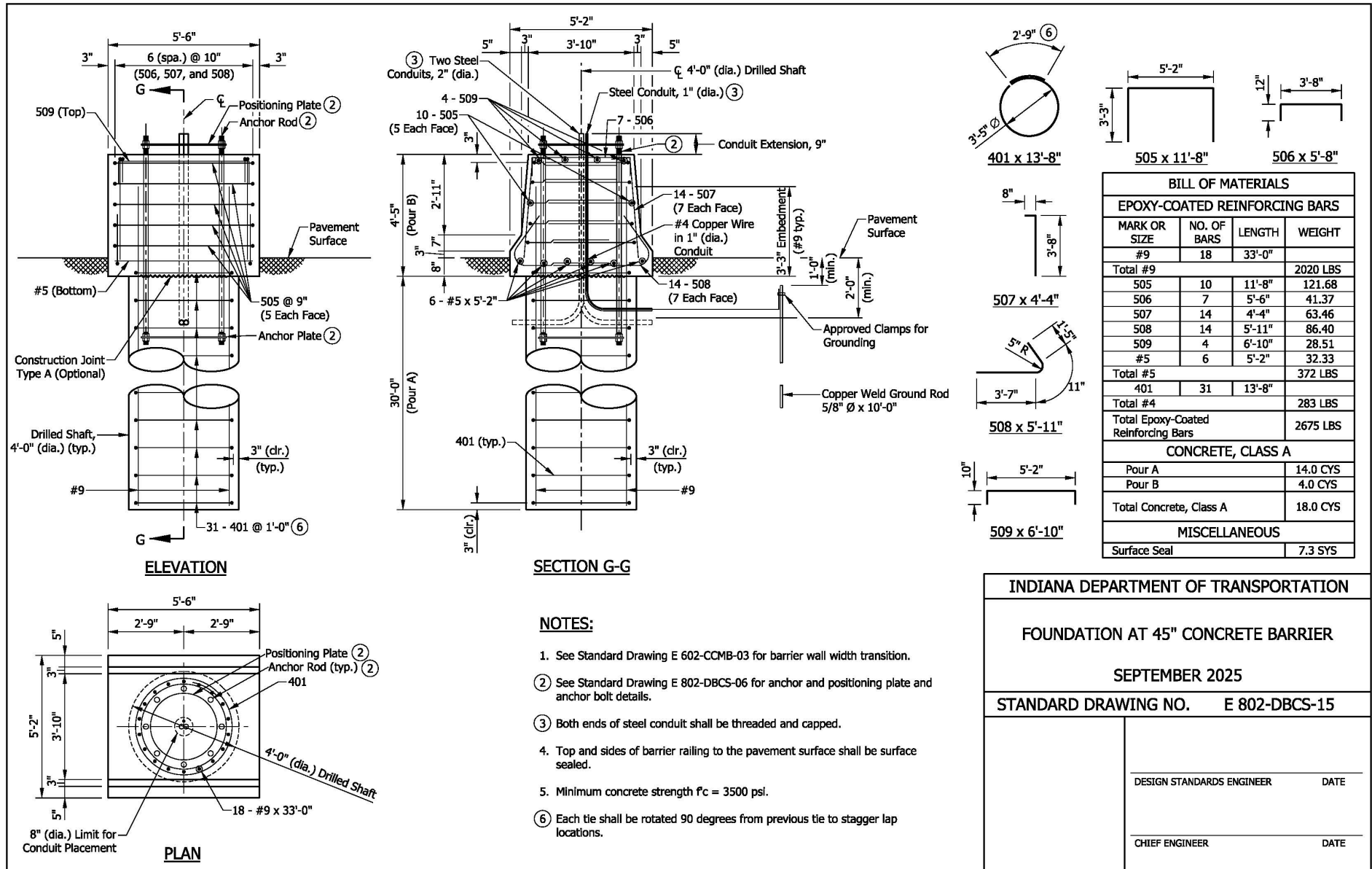
REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-14 FOUNDATION AT 33" CONCRETE BARRIER



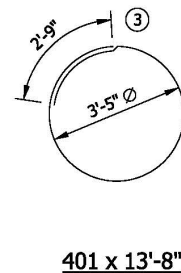
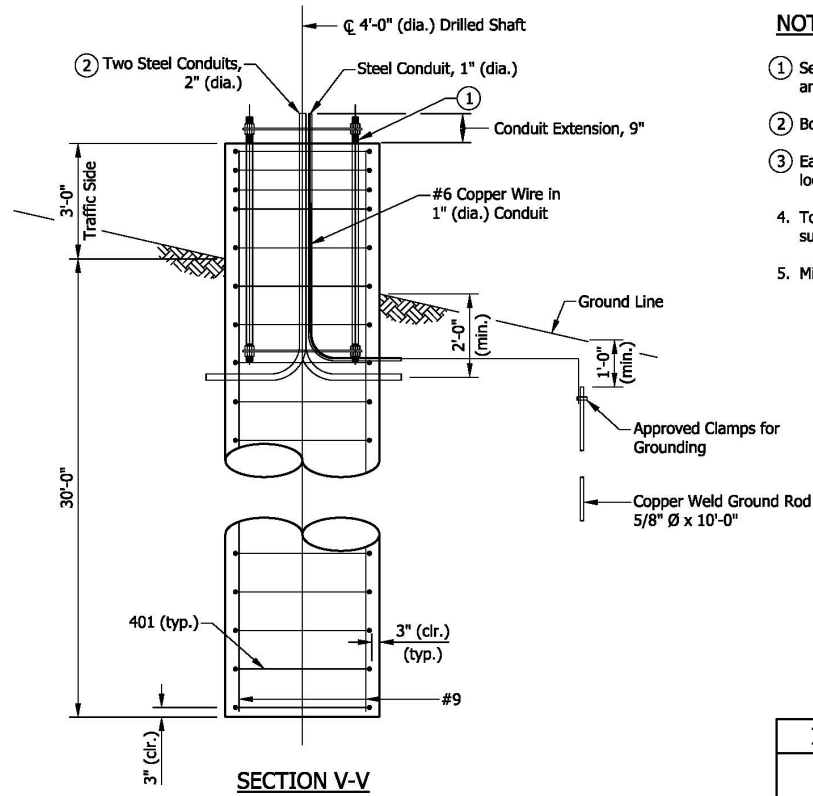
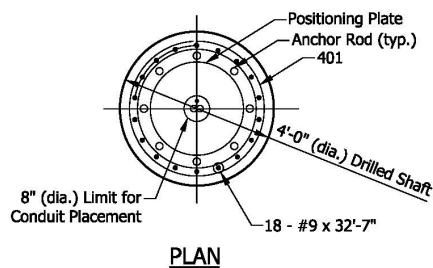
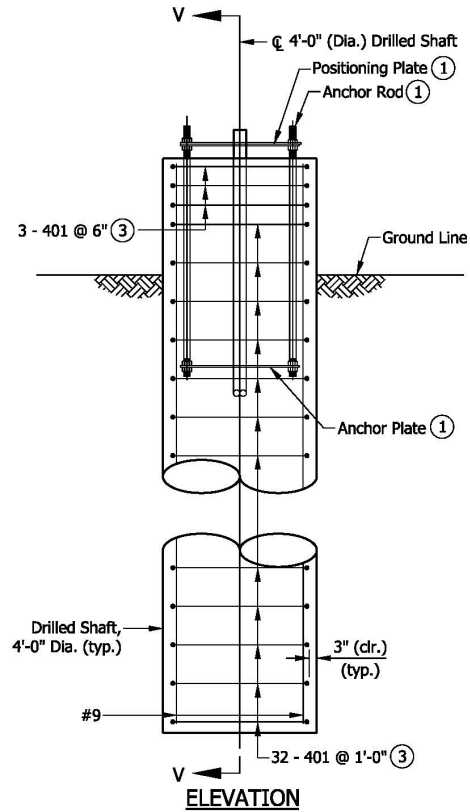
REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-15 FOUNDATION AT 45" CONCRETE BARRIER



REVISION TO 2024 STANDARD SPECIFICATIONS AND STANDARD DRAWINGS

E 802-DBCS-16 FOUNDATION 4'-0" Ø DRILLED SHAFT

**NOTES:**

- (1) See Standard Drawing E 802-DBCS-06 for anchor and positioning plate and anchor bolt details.
- (2) Both ends of steel conduit shall be threaded and capped.
- (3) Each tie shall be rotated 90 degrees from previous tie to stagger lap locations.
4. Top and sides of barrier railing to the pavement surface shall be surface sealed.
5. Minimum concrete strength $f'_c = 3500$ psi.

BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
#9	18	32'-7"	
Total #9			1994 LBS
401	35	13'-8"	
Total #4			320 LBS
Total Epoxy-Coated Reinforcing Bars			2314 LBS
MISCELLANEOUS			
Concrete, Class A			15.4 CYS
Surface Seal			6.3 SYS

INDIANA DEPARTMENT OF TRANSPORTATION

FOUNDATION 4'-0" Ø DRILLED SHAFT

SEPTEMBER 2025

STANDARD DRAWING NO. E 802-DBCS-16

DESIGN STANDARDS ENGINEER DATE

CHIEF ENGINEER DATE

COMMENTS AND ACTION

802.12 Basis of Payment
 910.19 Overhead Sign Structures
 E 802-DBCS-01 thru -16

DISCUSSION:

Mr. Boruff introduced and presented this item stating that to enhance the safety of the motorists and construction workers and support the Buckle-Up/Phones-Down initiative we have been and will continue to install Dynamic Message Signs on Butterfly Cantilever Sign Structures at various freeway interchanges. Designing and detailing of this structure is not currently standardized so it is being accomplished on a project specific basis. Lead times for aluminum gratings can slow down production, and steel is more readily available but is not currently an option in the Standard Specifications.

Mr. Boruff proposed to adopt a new drawing series for Dynamic Message Butterfly Cantilever Sign Structures and revise the Standard Specifications to allow steel walkways. Mr. Boruff also proposed some additional revisions as shown above in 910.19(b). Further edits were incorporated during the meeting for simplicity and clarification.

Mr. Boruff revised his motion. Seconded by Mr. Novak.

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

Motion: Mr. Boruff Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES	<u>Action:</u> <input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn
2024 Standard Specifications Sections: 802 pg. 902; 910 pg. 1081. Recurring Special Provisions or Plan Details: NONE Standard Drawing affected: proposed new series Design Manual Chapter: 502 GIFE Section: NONE	<input checked="" type="checkbox"/> 2026 Standard Specifications <input checked="" type="checkbox"/> Revise Pay Items List <input type="checkbox"/> Notification to Designers if change is <u>not</u> addressed by RSP <input type="checkbox"/> Create RSP (No.) Effective: <input type="checkbox"/> Revise RSP (No.____) Effective: <input checked="" type="checkbox"/> Standard Drawing (E 802-DBCS-01 through -16) Effective: <u>September 1, 2025</u> <input type="checkbox"/> Create RPD (No. ____) Effective: <input type="checkbox"/> GIFE Update <input type="checkbox"/> Frequency Manual Update <input checked="" type="checkbox"/> SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Modifications are needed for self consolidating concrete.

PROPOSED SOLUTION: The minimum air content when low permeability concrete is used is being decreased. The modifications to the table for slump flow are only for clarification and do not change the existing limits. The term "passing ability" is being used to align with terminology in ASTM C1621. ASTM C1712 uses metric units and it is better to state mm instead of inches.

APPLICABLE STANDARD SPECIFICATIONS: 707

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 committee, Jim Reilman, Mike Nelson, Pete White, Tommy Nantung

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE:

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: (317) 522-9692

Date: 2/3/2025

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? N/A

Design process? N/A

Will this change provide the Contractor more flexibility? Yes

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

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

SECTION 707 – PRECAST CONCRETE AND PRECAST PRESTRESSED CONCRETE STRUCTURAL MEMBERS

707.04(c)1 Self-Consolidating Concrete, SCC

(Note: Proposed changes shown highlighted gray)

The Standard Specifications are revised as follows:

SECTION 707, BEGIN LINE 165, DELETE AND INSERT AS FOLLOWS:

SCC PROPERTIES		
Physical Test	Specification	Requirement
Slump Flow ^[1]	ASTM C1611	Design: 22 in. to 28 in. Min. 20 in. Max. 30 in. Tolerance: ±2 in. Production Tolerance ^[2] : ±2 in.
Visual Stability Index (VSI)	ASTM C1611	0 or 1
Relative Viscosity, T ₅₀	ASTM C1611	2 sec ≤ T ₅₀ ≤ 7 sec
J-Ring Passing Ability	ASTM C1621	Difference between the slump flow and J-ring flow must shall be ≤ 2.0 in.
Static Segregation	ASTM C1712	≤ 1/2 in. < 13 mm
Column Segregation	ASTM C1610	≤ 12%
Water-cement ratio, max.	ITM 403	0.44
^[1] The selected target value shall be included in the concrete mix design.		
^[2] Actual production shall not be below the min or above the max.		

SECTION 707, BEGIN LINE 178, INSERT AS FOLLOWS:

SCC PROPERTIES FOR LOW PERMEABILITY		
Physical Test	Specification	Requirement
Absorption rates, max.	ASTM C1585	7.0 x 10 ⁻³ mm/s ² (Initial) 1.5 x 10 ⁻³ mm/s ² (Secondary)
Absorption, max.	ASTM C1585	1.5 mm (Initial) 3.0 mm (Secondary)
Resistivity, min.	ASTM C1876	130 Ohm-m
Air Content ^[1]	AASHTO T 152	Min. 3.0% Max. 8.0% Production Tolerance ^[2] : ±1.5%
^[1] The selected target value shall be included in the concrete mix design.		
^[2] Actual production shall not be below the min or above the max.		

COMMENTS AND ACTION

707.04(c)1 Self-Consolidating Concrete, SCC

DISCUSSION:

Mr. Reilman introduced and presented this item explaining that modifications are needed for self-consolidating concrete.

Mr. Reilman proposed the revisions shown, since the minimum air content when low permeability concrete is used is being decreased. The modifications to the table for slump flow are only for clarification and do not change the existing limits. The term "passing ability" is being used to align with terminology in ASTM C1621. ASTM C1712 uses metric units and it is preferred to state mm instead of inches. Mr. Nelson provided further clarification of the additions shown in the second table.

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

<p>Motion: Mr. Reilman Second: Mr. White Ayes: 10 Nays: 0 FHWA Approval: YES</p>	<p><u>Action:</u></p> <p><input checked="" type="checkbox"/> Passed as Submitted <input type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn</p>
<p>2024 Standard Specifications Sections: 707.04 pg. 667</p> <p>Recurring Special Provisions or Plan Details: NONE</p> <p>Standard Drawing affected: NONE</p> <p>Design Manual Chapter: NONE</p> <p>GIFE Section: NONE</p>	<p><input checked="" type="checkbox"/> 2026 Standard Specifications <input type="checkbox"/> Revise Pay Items List <input type="checkbox"/> Notification to Designers if change is <u>not</u> addressed by RSP</p> <p><input type="checkbox"/> Create RSP (No. __) Effective:</p> <p><input type="checkbox"/> Revise RSP (No. __) Effective:</p> <p><input type="checkbox"/> Standard Drawing Effective:</p> <p><input type="checkbox"/> Create RPD (No. __) Effective:</p> <p><input type="checkbox"/> GIFE Update <input type="checkbox"/> Frequency Manual Update <input checked="" type="checkbox"/> SiteManager Update</p>

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: There has been some feedback from FCR review of e-tickets and the e-ticket incentive, this has led to the need for some minor revisions and clarifications to the RSP.

PROPOSED SOLUTION: Clarify e-ticket incentive requirements as shown in the proposal.

APPLICABLE STANDARD SPECIFICATIONS: 106.01(b)

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: 13.19

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: N/A

APPLICABLE SUB-COMMITTEE ENDORSEMENT: N/A

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE:
Required for all contracts except LPA sponsored contracts.

IMPACT ANALYSIS (attach report):

Submitted By: Joe Novak

Title: State Construction Engineer

Organization: INDOT

Phone Number: 317-501-7805

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? No

Construction time? Yes

Customer satisfaction? Yes

Congestion/travel time? No

Ride quality? No

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

For motorists? No

For construction workers? Yes

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? No

Design process? No

Will this change provide the contractor more flexibility? Yes

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

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

REVISION TO SPECIAL PROVISIONS
106-C-280 E-TICKETING INCENTIVE

106-C-280 E-TICKETING INCENTIVE
(Adopted 06-15-23)

Description

This work shall consist of furnishing an electronic material delivery ticket, e-ticket, and delivering the e-ticket to the Department's e-ticketing portal, MyDOTportal, in accordance with 105.03.

Construction Requirements

The Department will pay an incentive for each e-ticket which is delivered to the Department's e-ticketing portal *when the portal has been approved for use on the contract by the Engineer*. The incentive will only apply to e-tickets which are:

- (a) The latter of submitted after June 30, 2023 or the date this provision was added to the contract,
- (b) One of the following material types: Asphalt, Concrete, or Aggregate, *and*
- ~~(c) Marked "Delivered" by Department personnel in MyDOTportal, and~~
- ~~(d)~~ Utilized as the basis of payment or source document in the final construction record.

The e-ticket furnished and delivered to the Department's e-ticketing portal shall be in accordance with 106.01(b)1. The information provided on each e-ticket furnished shall be in accordance with 106.01(b)2.

Method of Measurement

The e-ticket incentive will be measured by the number of tickets, furnished and delivered to the Department's e-ticketing portal. The Department will provide a report to the Contractor showing the number of delivered tickets per supplier.

Basis of Payment

The e-ticket incentive will be paid for at the contract unit price per each ticket, furnished and delivered to the Department's e-ticketing portal. The unit price for this incentive will be \$2.00 per ticket. The incentive will be applied as a one-time payment on the partial pay estimate after the contract is substantially complete.

Payment will be made under:

Pay Item	Pay Unit Symbol
E-Ticket Incentive.....	EACH

The incentive will not apply to alternate e-ticket systems selected by the Contractor or Supplier that do not furnish and deliver e-tickets to the Department's e-ticketing portal.

COMMENTS AND ACTION

106-C-280 E-TICKETING INCENTIVE

DISCUSSION:

This item was introduced and presented by Mr. Novak who explained that there has been some feedback from FCR review of e-tickets and the e-ticket incentive, which has led to the need for some minor revisions and clarifications to the RSP.

Mr. Novak proposed to clarify e-ticket incentive requirements as shown in the proposal.

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

<p>Motion: Mr. Novak Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES</p>	<p><u>Action:</u></p> <p><input checked="" type="checkbox"/> Passed as Submitted <input type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn</p>
<p>2024 Standard Specifications Sections referenced and/or affected: 106.01(b) pg 64.</p> <p>Recurring Special Provisions or Plan Details: 106-C-280 E-TICKETING INCENTIVE</p> <p>Standard Drawing affected: NONE</p> <p>Design Manual Sections affected: NONE</p> <p>GIFE Sections cross-references: 13.19</p>	<p><input type="checkbox"/> 2026 Standard Specifications <input type="checkbox"/> Revise Pay Items List</p> <p><input type="checkbox"/> Create RSP (No. __) Effective:</p> <p><input checked="" type="checkbox"/> Revise RSP (No. 106-C-280) Effective: September 1, 2025</p> <p><input type="checkbox"/> Standard Drawing Effective:</p> <p><input type="checkbox"/> Create RPD (No. __) Effective:</p> <p><input type="checkbox"/> GIFE Update <input type="checkbox"/> Frequency Manual Update <input type="checkbox"/> SiteManager Update</p>

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The current specification for smoothness on bridge contracts is not comprehensive, new decks and deck replacements require a 10 ft straightedge during placement followed by a 16 ft straightedge as a final check. However, bridge deck overlays have no requirement for smoothness and RCBA's only require a 10 ft straightedge for smoothness. In addition, transitional HMA and terminal joints have no requirement for smoothness even though this area is exempt from smoothness requirements on highway contracts. This leaves bridge projects without a comprehensive smoothness requirement and results in the potential for less than satisfactory ride quality for the motoring public.

PROPOSED SOLUTION: Construction Management has been piloting bridge encounter smoothness recently with the use of a USP and in order to continue the piloting effort would like to convert the USP into an RSP. The RSP will require comprehensive smoothness review on the entire length of bridge contract work and diamond grinding correction when necessary.

APPLICABLE STANDARD SPECIFICATIONS: N/A

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: 704-000080 Inertial Profiler, Bridge Encounter,
704-000082 Corrective Grinding, Bridge Encounter

APPLICABLE SUB-COMMITTEE ENDORSEMENT: N/A

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE: As approved by the State Construction Engineer

IMPACT ANALYSIS (attach report):

Submitted By: Joe Novak

Title: State Construction Engineer

Organization: INDOT

Phone Number: 317-501-7805

Date: 2/3/24

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? No

Construction time? No

Customer satisfaction? Yes

Congestion/travel time? No

Ride quality? Yes

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

For motorists? No

For construction workers? No

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? Yes

Design process? No

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? Yes

AASHTO or other design code? No

Is this item editorial? No

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

REVISION TO SPECIAL PROVISION

704-X-XXX BRIDGE ENCOUNTER SMOOTHNESS (*proposed new*)

704-X-XXX BRIDGE ENCOUNTER SMOOTHNESS

(Adopted xx-xx-25)

Description

This work shall consist of measuring and correcting the smoothness of bridge encounters, in accordance with 105.03 and as specified herein.

Construction Requirements

Longitudinal smoothness of the bridge encounter will be accepted by means of an inertial profiler or a 16 ft long straightedge as specified herein. Transverse smoothness of the bridge encounter will be accepted by means of a 10 ft long straightedge as specified herein. The smoothness of the bridge encounter mainline travel lanes shall be measured and corrected as required prior to the final longitudinal grooving surface finish.

The bridge encounter will be defined as 50 ft of existing entry pavement, the entry RCBA slab, the bridge concrete floor slab, the exit RCBA slab, and 50 ft of existing exit pavement including all joints. When the plans specify a rigid bridge deck overlay, the full extent of the rigid overlay material shall be included in the bridge encounter including bridge floor slab overlay, RCBA overlay, terminal joints overlay, and PCCP transition overlay. When the contract includes any of the following work: PCCP or HMA terminal joints, concrete lugs, JRC transition slabs, HMA pavement wedges, transition milling and transition overlays whether HMA or PCCP, the length of the bridge encounter shall be extended at each end to include all such components, and the bridge encounter shall extend an additional 50 ft into the entry and exit existing pavements.

Bridge encounter smoothness measurements shall be performed after all final surfaces are in place within the bridge encounter lanes being measured and all ~~hmc~~HMA and concrete surfaces have reached specified curing and equipment loading requirements. The placement of expansion joint material, strip seals, expansion seals, or similar material shall occur after completing any required corrective grinding specified herein. Temporary material shall be placed in lieu of expansion joint material prior to profile measurement ~~in order~~ to prevent errors in profile measurement caused by an empty joint. For structural expansion joints required to be cast in place only the straightedge requirements will apply to joint smoothness.

The Contractor may choose to place the bridge concrete floor slab and approach slabs, including overlays, up to 1/4 in. thicker than designed to allow for loss of cover during corrective grinding and mitigate the risk of replacement as specified herein when smoothness thresholds are exceeded.

(a) Inertial Profiler

When a pay item for Inertial Profiler, Bridge Encounter is included in the contract, the Contractor shall furnish, calibrate, and operate an approved inertial profiler in accordance with ITM 917 for the acceptance of longitudinal smoothness on the final surfaces throughout the length of the bridge encounter in each travel lane. Operating the Inertial Profiler on a bridge encounter will only be required when the posted speed is

REVISION TO SPECIAL PROVISION

704-X-XXX BRIDGE ENCOUNTER SMOOTHNESS (*proposed new*)

greater than 30 mph. When the posted speed is 30 mph or less, section (b) requirements for longitudinal smoothness shall apply.

The International Roughness Index, IRI, profiles and results, including areas of localized roughness, will become the property of the Department. The inertial profiler shall remain the property of the Contractor.

After final placement of all new bridge encounter slabs, pavements, overlays, terminal joints, lugs, and transitions, the Contractor shall collect inertial profiler smoothness measurements in accordance with section (d) in both wheel paths in each travel lane during one continuous pass per lane throughout the length of the bridge encounter. The bridge encounter shall be corrected in accordance with section (e) to meet the required thresholds.

(b) 16 ft Straightedge

The Contractor shall furnish and operate a 16 ft straightedge in accordance with 306.03(d) and as described below. The 16 ft straightedge or the inertial profiler simulating the 16 ft straightedge shall be used to measure bridge encounter smoothness along the direction of mainline traffic.

The 16 ft straightedge shall be utilized to ensure longitudinal smoothness is corrected to within 1/4 in. prior to the final longitudinal grooving surface finish. Locations on the bridge encounter surface scraped by the straightedge shall be marked. The bridge encounter shall be corrected in accordance with section (e) to meet the required tolerance.

(c) 10 ft Straightedge

The 10 ft straightedge will be in accordance with 306.03(d). The 10 ft straightedge will be used to check transverse slopes across travel lanes and shoulders on the full bridge encounter surface.

The 10 ft straightedge will be utilized to ensure transverse smoothness is corrected to within 1/8 in. prior to the final longitudinal grooving surface finish. Locations on the bridge encounter surface scraped by the straightedge shall be marked. The bridge encounter shall be corrected in accordance with section (e) to meet the required tolerance.

(d) Areas of Localized Roughness, ALR

The inertial profiler shall be used to measure longitudinal smoothness on the final surfaces throughout the length of the bridge encounter. The bridge encounter will be analyzed utilizing continuous IRI with a 25 ft window for each wheel path in each lane ~~in order to~~ locate individual ALR's. All bridge encounter areas having a localized roughness in excess of the following IRI thresholds, ~~(in./mi.)~~, shall be corrected subject to approval by the Engineer:

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704-X-XXX BRIDGE ENCOUNTER SMOOTHNESS (*proposed new*)

Bridge Encounter Areas	All Interstate Bridges; All Other Bridges - Greater Than 50 mph IRI (in./mi.)	All Other Bridges - 50 mph or less IRI (in./mi.)
Full Depth Floor Slab Deck	150	175
RCBA	150	175
Rigid Overlay, Deck and RCBA	175	200
Transitional Lengths, HMA and Concrete	175	200
Lugs and Terminal Joints	175	200
Expansion Joints, 2 in. wide and greater	225	250
*Existing RCBAs including Patching	225	250
*Existing Entry and Exit Pavement Areas, HMA and Concrete	225	250
* The Contractor will be permitted to submit prework IRI profiles of the existing pavement smoothness condition at these locations to demonstrate that the required thresholds were exceeded prior to beginning work on the project due to the existing conditions. The Engineer will review the profiles and determine an acceptable threshold for such existing pavement and existing approach areas.		

After ALRs have been identified, a grinding simulation shall be performed to estimate whether the ALR can be corrected to an IRI value of less than the specified threshold with no more than 1/4 in. grind depth on floor slab or deck locations and no more than 3/8 in. grind depth at all other locations. ~~If such correction is not possible, then an ALR with an IRI value not exceeding the thresholds specified by more than 25 in./mi. can remain uncorrected if approved by the Engineer.~~ If the simulated grinding depth exceeds the specified depths, the corrective grinding shall be capped at the specified depths. Areas unable to be corrected within the established grind depth limitations and still exceeding the specified thresholds, ~~by more than 25 in./mi.~~, shall be replaced or overlaid in a manner acceptable to the Engineer.

When an individual ALR's influence extends into more than one bridge encounter area listed in the table of thresholds, the actual profiled location of the ALR will be determined and the required threshold to be met will be based upon the actual profiled location of the originating roughness event.

(e) Smoothness Correction

When a pay item for Corrective Grinding, Bridge Encounter, is included in the contract, the Contractor shall furnish and operate corrective grinding equipment as determined necessary to meet the thresholds specified in section (d). Every location exceeding the specified thresholds in each wheel path of each lane shall be corrected. Corrective grinding equipment shall be selected from one of the following:

- 1. Diamond Grinder** - a power-driven self-propelled grinding machine specifically designed to smooth and

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704-X-XXX BRIDGE ENCOUNTER SMOOTHNESS (*proposed new*)

texture concrete and HMA surfaces utilizing diamond blades. The grinding head shall be a minimum of 4 ft wide for longitudinal surface grinding and a minimum of 2 ft wide for transverse joint grinding. The diamond saw blades shall be gang mounted on the grinding head at a minimum rate of 50 blades per ft.

- 2. Flatliner Precision Grinding Attachment** - a power driven self-propelled bump grinding attachment that consists of a flat tooth drum system attached to a skid steer that is specifically designed to smooth and texture concrete and HMA surfaces utilizing flat tooth cutting technology. The grinding head shall be a minimum of four feet wide for longitudinal surface grinding and a minimum of two feet wide for transverse joint grinding. The cutting heads shall be either: flat tooth carbide or flat tooth PCD cutters, or PCD single round and double round cutters. The flatliner drum and cutters shall be designed and spaced for effective IRI smoothness correction and improvement.

Grinding of the floor slab will not be allowed until flexural strength testing yields a modulus of rupture meeting the requirements of 702.24(a). Grinding of all other bridge encounter areas defined herein will not be allowed until such materials have met the applicable specification requirements for opening to traffic. The grinding of the bridge encounter to correct the profile shall be accomplished in either the longitudinal or the transverse direction. The texture after grinding shall be uniform.

Longitudinal grooving of concrete surfaces shall be completed after corrective grinding and in accordance with 722.11.

The width of the corrected area may be partial or full lane width, depending on the respective wheel path profiles and IRI results. After the corrective grinding is complete, the inertial profiler or 16 ft straightedge as applicable shall be operated throughout the entire affected smoothness section to verify the adequacy of the corrective action. The post-grind IRIs, profile results, and ALRs will be submitted for approval to the Engineer.

When the inertial profiler is utilized for longitudinal smoothness measurement, a ProVAL grinding simulation shall be performed and submitted for approval to the Engineer. When only the 16 ft straightedge is utilized for longitudinal smoothness, a grinding plan shall be submitted for approval to the Engineer. The depths and extents of grinding shall be planned and controlled to maintain lines, grades, drainage, safety, friction, steel cover, and joint function. Long term structural integrity and retention of steel cover on the bridge floor slab shall override the smoothness goal if the activities are in conflict.

(f) Profile Data File Requirements

The Contractor shall measure smoothness by generating a single data file for each lane in each direction. The files generated shall be named and organized in accordance with ITM 917. Each bridge encounter file for

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704-X-XXX BRIDGE ENCOUNTER SMOOTHNESS (proposed new)

each lane in each direction shall have data flags or events placed in each profile collected to precisely locate the following locations when applicable in each wheel path:

1. Existing Pavement to New Pavement Transition Joint - flag the transition leading into the bridge encounter and leading out of the bridge encounter at each end of the project.
2. PCF Expansion Joint on the pavement side of the RCBA - flag the PCF joints on both ends of the bridge on each RCBA.
3. 1A Joint on the bridge side of the RCBA - flag the 1A joints on both ends of the bridge on each RCBA.
4. All other Expansion Joints on the bridge deck - flag all other expansion joints located throughout the length of the bridge deck and in accordance with 724.

Prior to finalizing the IRI data files and submitting them to the Engineer, ensure the file has been generated in a manner that enables the GPS coordinates to be active and usable when reviewing the file in ProVAL. When the GPS is enabled, the ALR results in ProVAL will be visible when the map function is selected and will be located at the correct mapped geographic location.

(g) RCBA Finishing

The RCBA shall be finished in accordance with 609.09, except that only a vibratory screed finisher or a mechanical bridge deck finishing machine will be allowed as finishing equipment.

Method of Measurement

Furnishing, calibrating, operating the inertial profiler, and furnishing IRI profile information will not be measured for payment. Furnishing and operating corrective grinding equipment on the bridge encounter will not be measured for payment.

Basis of Payment

Furnishing, calibrating, operating the inertial profiler, and furnishing IRI profile information will be paid for at the contract lump sum price for Inertial Profiler, Bridge Encounter.

Furnishing and operating corrective grinding equipment on the bridge encounter will be paid for at the contract lump sum price for Corrective Grinding, Bridge Encounter.

Payment will be made under:

Pay Item	Pay Unit Symbol
Inertial Profiler, Bridge Encounter.....	LS
Corrective Grinding, Bridge Encounter.....	LS

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The lump sum price for Inertial Profiler, Bridge Encounter will be full compensation regardless of how often the inertial profiler is used or how often the IRI is determined.

The lump sum price for Corrective Grinding, Bridge Encounter will be full compensation regardless of how often the corrective grinding equipment is used or mobilized to the bridge encounter.

Furnishing and operating the 16 ft straightedge and the 10 ft straightedge shall be included in the cost of the pay items within this section.

~~The Standard Specifications are revised as follows:~~

~~SECTION 609, BEGIN LINE 67, INSERT AS FOLLOWS:~~

~~**609.09 Finishing**~~

~~The RCBA shall be finished with equipment in accordance with 508.04(c)3 and 508.04(c)4 *except that only the vibratory screed finisher or mechanical bridge deck finishing machine shall be permitted as finishing equipment.* The operations shall be controlled so that an excess of mortar and water is not worked to the top. Long-handled floats may be used to smooth and fill in open textured areas. The edges of formed RCBA shall be tooled or chamfered.~~

COMMENTS AND ACTIONS

704-X-XXX BRIDGE ENCOUNTER SMOOTHNESS (*proposed new*)

DISCUSSION:

Mr. Novak introduced and presented this item stating that the current specification for smoothness on bridge contracts is not comprehensive. New decks and deck replacements require a 10 ft straightedge during placement followed by a 16 ft straightedge as a final check. However, bridge deck overlays have no requirement for smoothness and RCBA's only require a 10 ft straightedge for smoothness. In addition, transitional HMA and terminal joints have no requirement for smoothness even though this area is exempt from smoothness requirements on highway contracts. This leaves bridge projects without a comprehensive smoothness requirement and results in the potential for less than satisfactory ride quality for the motoring public.

Mr. Novak proposed that since Construction Management has been piloting bridge encounter smoothness recently with the use of a USP and to continue the piloting effort would like to convert the USP into an RSP. The RSP will require comprehensive smoothness review on the entire length of bridge contract work and diamond grinding correction when necessary.

Minor editorial revisions are as shown. Additional ALR language revisions were made following discussions between Mr. Koch, Mr. Novak and Mr. Blanchard.

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

<p>Motion: Mr. Novak Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES</p>	<p><u>Action:</u></p> <p><input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn</p>
<p>2024 Standard Specifications Sections: 609.09 pg. 521</p> <p>Recurring Special Provisions or Plan Details: PROPOSED NEW</p> <p>Standard Drawing affected: NONE</p> <p>Design Manual Chapter: NONE</p> <p>GIFE Section: NONE</p>	<p>2026 Standard Specifications</p> <p><input checked="" type="checkbox"/> Revise Pay Items List Notification to Designers if change is <u>not</u> addressed by RSP</p> <p><input checked="" type="checkbox"/> Create RSP (No. 704-R-794) Effective: September 1, 2025</p> <p><input type="checkbox"/> Revise RSP (No. ___) Effective:</p> <p><input type="checkbox"/> Standard Drawing Effective:</p> <p><input type="checkbox"/> Create RPD (No. ___) Effective:</p> <p><input type="checkbox"/> GIFE Update <input type="checkbox"/> Frequency Manual Update <input checked="" type="checkbox"/> SiteManager Update</p>

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: When the force account method is utilized to document the costs on a change order and the Contractors equipment includes small tools, there has been confusion about what a small tool consists of and whether or not such equipment should receive payment under the force account procedure. Additional clarifications to the subcontracting portion of force account are also needed.

PROPOSED SOLUTION: Revise the specification language to clarify the lower limits of tools and equipment that the Department will pay for during a force account change order. Clarify the subcontracting portion of the force account specification. Also updated other sections of the force account spec where editorial revisions provide clarification.

APPLICABLE STANDARD SPECIFICATIONS: 109

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: 2.19.11

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: N/A

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad Hoc: Joe Novak, Don Thornton, Jacob Blanchard

IF APPROVED AS RECURRING SPECIAL PROVISION OR PLAN DETAILS, PROPOSED BASIS FOR USE:
All Contracts

IMPACT ANALYSIS (attach report):

Submitted By: Joe Novak

Title: State Construction Engineer

Organization: INDOT

Phone Number: 317-501-7805

Date: 2/12/25

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? No

Construction time? No

Customer satisfaction? No

Congestion/travel time? No

Ride quality? No

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

For motorists? No

For construction workers? No

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? No

Design process? No

Will this change provide the contractor more flexibility? No

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

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

Is this proposal needed for compliance with:

Federal or State regulations? Yes

AASHTO or other design code? No

Is this item editorial? No

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

REVISION TO 2024 STANDARD SPECIFICATIONS

SECTION 109 – MEASUREMENT AND PAYMENT

109.05 Payment for Extra Work

(Note: Proposed changes shown highlighted gray.

Shaded changes have been discussed at the [May 17, 2024](#) meeting and been incorporated into 2026 SS.)

The Standard Specifications are revised as follows:

SECTION 109, BEGIN LINE 703, DELETE AND INSERT AS FOLLOWS:

4. Equipment

For Contractor owned machinery, ~~or special equipment, or tools other than small tools as defined herein,~~ the rates shall be not more than those listed in the current Rental Rate Blue Book as published by EquipmentWatch®. The rate used shall be the FHWA hourly rate which is the ownership cost rate plus the operating cost rate. Regardless of the time used, the ownership cost rate shall be the hourly rate obtained by dividing the monthly Blue Book rate by 176 with appropriate adjustments made for region and age. Actual transportation costs may be added to the FHWA rate. ~~Small tools will be defined as tools costing less than \$500 each, or an aggregate total of \$1,000 or less.~~

The Department will only pay for machinery, equipment, or tools with an FHWA hourly rate of greater than \$2.00 per hour as listed in the Rental Rate Blue Book published by EquipmentWatch®.

The Department will not pay for machinery, equipment, or tools which are not listed in the Rental Rate Blue Book published by EquipmentWatch® unless ~~they~~the machinery, equipment, or tools have a documented fair market value of greater than \$2,000 per item.

For machinery, ~~or special~~ equipment, or tools not owned by the Contractor, the rate shall be as shown on invoices. Actual fuel, lubricant and transportation costs may be added to the rental cost. The Engineer may designate the use of the fuel percentage of the Rental Rate Blue Book operating cost rate in lieu of actual fuel and lubricant costs. No payment will be made for repairs to rented equipment.

For equipment that is operational, on-site, and necessary for force account work, but is idle due to conditions beyond the control of the Contractor, a standby rate will apply. The standby rate will also apply during the period of transportation and on-site assembly and disassembly of the equipment for transportation purposes. The standby rate will be the published ownership cost rate reduced by 50%. Standby time will not be paid for in excess of 8 hours per day minus the number of hours paid for at the FHWA rate per day; or 40 hours per week minus the number of hours paid for at the FHWA rate per week. If rented equipment necessary for force account work is idle, the Department will pay the Contractor for the actual invoice rates for the duration of this idle period.

The Contractor shall provide a list of all information needed to verify the Blue Book rental rate for each piece of equipment. The information shall include the equipment type, manufacturer name, model number, year, any attachments used, and any other information necessary to determine the proper rate.

The Contractor will receive payment for the total costs agreed upon to which sum

REVISION TO 2024 STANDARD SPECIFICATIONS

SECTION 109 – MEASUREMENT AND PAYMENT
109.05 Payment for Extra Work

12% will be added.

5. Miscellaneous

No additional allowance will be made for general superintendence or other costs for which no specific allowance is herein provided.

6. Subcontracting

For administration costs in connection with approved subcontract work, the Contractor ~~shall~~ will receive an amount equal to 7% of the total cost of such work computed as set forth above. *The procedure set forth above in sections 1 through 5 will not be required for subcontracted portions of the work when either of the following takes place:*

- a. An agreed price as defined herein is accepted by the Department, in such case the 7% markup will not apply.*
- b. Three subcontractor quotes are submitted by the Contractor for the work and the lowest priced quote is accepted by the Department.*

7. Compensation

The Contractor and the Engineer shall compare records of the cost of work done as ordered on a force account basis at the end of each day. These records shall be ~~made in duplicate and~~ signed by both. Each shall retain one copy.

8. Statements

No payment will be made for work performed on a force account basis until the Contractor has furnished ~~triplicate~~ itemized statements of the cost of such force account work detailed as follows:

- a. name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman;
- b. designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment;
- c. quantities of materials, prices, and extensions;
- d. transportation of materials;
- e. cost of property damage, liability and worker's compensation insurance premiums, unemployment insurance contributions, and social security tax.

Statements shall be accompanied and supported by receipted invoices for all materials used and for transportation charges. However, if materials used on the force

REVISION TO 2024 STANDARD SPECIFICATIONS

SECTION 109 – MEASUREMENT AND PAYMENT

109.05 Payment for Extra Work

account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from its stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

If the Contractor fails or refuses to prosecute extra or force account work as directed, the Department may withhold payment of all current estimates until the Contractor's failure or refusal is eliminated.

FINAL DRAFT MINUTES

COMMENTS AND ACTION

109.05 Payment for Extra Work

DISCUSSION:

This item was introduced and presented by Mr. Novak who stated that when the force account method is utilized to document the costs on a change order and the Contractor's equipment includes small tools, there has been confusion about what a small tool consists of and whether or not such equipment should receive payment under the force account procedure. Additional clarifications to the subcontracting portion of force account are also needed.

Mr. Novak proposed to revise the specification language to clarify the lower limits of tools and equipment that the Department will pay for during a force account change order. Clarify the subcontracting portion of the force account specification. Also updated other sections of the force account spec where editorial revisions provide clarification.

Mr. Koch stated that he is uncertain as to what is being referred to 'procedure set forth above' in item 6. **Subcontracting.** Above is intent to be the entire B section but many will read just the language directly above. Based on previous conversation I believe the intent is to allow for portions of a force account to be accepted as agreed to pricing. Mr. Blanchard, Mr. Novak, and Mr. Thornton agreed to make the appropriate revisions to the language, as shown above. Mr. Koch agreed.

Other minor editorial revisions have been made for clarification.

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

<p>Motion: Mr. Novak Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES</p>	<p><u>Action:</u></p> <p><input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn</p>
<p>2024 Standard Specifications Sections: 109 pg. 115 - 117.</p> <p>Recurring Special Provisions or Plan Details: NONE</p> <p>Standard Drawing affected: NONE</p> <p>Design Manual Chapter: NONE</p> <p>GIFE Section: 2.19.11</p>	<p><input checked="" type="checkbox"/> 2026 Standard Specifications <input type="checkbox"/> Revise Pay Items List <input type="checkbox"/> Notification to Designers if change is <u>not</u> addressed by RSP</p> <p><input type="checkbox"/> Create RSP (No. __) Effective:</p> <p><input type="checkbox"/> Revise RSP (No. __) Effective:</p> <p><input type="checkbox"/> Standard Drawing Effective:</p> <p><input type="checkbox"/> Create RPD (No. __) Effective:</p> <p><input checked="" type="checkbox"/> GIFE Update <input type="checkbox"/> Frequency Manual Update <input type="checkbox"/> SiteManager Update</p>