



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

100 North Senate Avenue
Room N925
Indianapolis, Indiana 46204

PHONE: (317) 232-5456
FAX: (317) 232-5551

Michael R. Pence, Governor
Michael B. Cline, Commissioner

AGENDA

June 20, 2013 Standards Committee Meeting

MEMORANDUM

June 04, 2013

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Agenda for the June 20, 2013 Standards Committee Meeting

A Standards Committee meeting is scheduled for 09:00 a.m. on June 20, 2013 in the N955 Bay Window Conference Room. The following agenda items are listed for consideration.

A. GENERAL BUSINESS ITEMS

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

1. *Approval of the minutes from the May 16, 2013 meeting.*

B. CONCEPTUAL PROPOSAL ITEMS

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

(No items on this agenda)

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

OLD BUSINESS

(No items on this agenda)

NEW BUSINESS

Item No. 01 06/20/13 (2014 SS) Ms. Phillips pg 05

Standard Drawings:

605-CCSJ-01	CONCRETE AND ASPHALT/HMA CURBS AND SAWED JOINTS
706-MSRW-01	RAILING TYPE FC AND MOMENT SLAB ASIDE MSE WALL - PCCP
706-MSRW-02	RAILING TYPE FT AND MOMENT SLAB ASIDE MSE WALL - PCCP
706-MSRW-03	RAILING TYPE FC AND MOMENT SLAB ASIDE MSE WALL - HMA PAVEMENT
706-MSRW-04	RAILING TYPE FT AND MOMENT SLAB ASIDE MSE WALL - HMA PAVEMENT
706-MSRW-05	RAILING TYPE FC AND MOMENT SLAB ATOP MSE WALL - PCCP
706-MSRW-06	RAILING TYPE FT AND MOMENT SLAB ATOP MSE WALL - PCCP
706-MSRW-07	RAILING TYPE FC AND MOMENT SLAB ATOP MSE WALL - HMA PAVEMENT
706-MSRW-08	RAILING TYPE FT AND MOMENT SLAB ATOP MSE WALL - HMA PAVEMENT
706-MSRW-09	MOMENT SLAB JOINTS
706-MSRW-10	RAILING AND MOMENT SLAB AT MSE WALL GENERAL NOTES AND REINFORCING BAR - BENDING DIAGRAMS
706-TTXX-01	CONCRETE BRIDGE RAILING TRANSITION, TTX
706-TTXX-02	CONCRETE BRIDGE RAILING TRANSITION, TTX

Item No. 02 06/20/13 (2014 SS) Mr. Walker pg 33

Recurring Special Provision:

400-R-XXX	HMA VIBRATORY COMPACTION PROHIBITION
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Item No. 03 06/20/13 (2014 SS) Mr. Walker pg 36

401.05	Volumetric Mix Design
401.06	Recycled Materials
401.09	Acceptance of Mixtures
401.16	Density
401.14	Spreading and Finishing
410.09	Acceptance of Mixtures
410.16	Density
904.02 (b)	For HMA Mixtures

Item No. 04 06/20/13 (2014 SS) Mr. Boruff pg 43

Standard Drawings:

802-SCSB-01	SIGN CANTILEVER STRUCTURE BUTTERFLY DRAWING INDEX
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802-SCSB-02	SIGN CANTILEVER STRUCTURE BUTTERFLY PLAN, ELEVATION, MEMBER SIZE, AND CAMBER
802-SCSB-03	SIGN CANTILEVER STRUCTURE BUTTERFLY QUADRI-CHORD AND FLANGE DETAILS
802-SCSB-04	SIGN CANTILEVER STRUCTURE BUTTERFLY UPPER CHORDS CONNECTION
802-SCSB-05	SIGN CANTILEVER STRUCTURE BUTTERFLY LOWER CHORDS CONNECTION AND WIRE OUTLET DETAIL
802-SCSB-06	SIGN CANTILEVER STRUCTURE BUTTERFLY BASE PLATE, ANCHOR BOLT, AND METAL SKIRT DETAILS
802-SCSB-07	SIGN CANTILEVER STRUCTURE BUTTERFLY HANDHOLE AND I.D. TAG DETAILS
802-SCSB-08	SIGN CANTILEVER STRUCTURE BUTTERFLY FOUNDATION AT 33" CONCRETE BARRIER
802-SCSB-09	SIGN CANTILEVER STRUCTURE BUTTERFLY FOUNDATION AT 45" CONCRETE BARRIER

Item No. 05 06/20/13 (2014 SS) Ms. Gottschalk pg 54

Recurring Special Provision:
105-C-224

CONSTRUCTION ENGINEERING AND
~~INSPECTION FOR~~ MONITORING OF
UTILITY RELOCATION WORK

(continued)

cc: Committee Members
FHWA
ICA

SPECIFICATION, SPECIAL PROVISIONS AND DRAWINGS
REVISION TO STANDARD DRAWINGS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The following Standard Drawings contain errors or misleading information and require editorial corrections.

PROPOSED SOLUTION: The following editorial revisions to Standard Drawings are submitted for comment. Markups of existing drawings and final drafts incorporating proposed revisions are included.

605-CCSJ-01: Corrected drawing of HMA Curb to more accurately reflect 4" height, updated terminology to agree with current practice and pay items ("Mountable" changed to "Sloping", "Barrier" changed to "Vertical", "Asphalt" changed to "HMA"), reorganized sections at joint, updated drawing format in general.

706-MSRW-01 thru -10: Relocated dowel bars in moment slab to reflect 6" minimum clearance from edge of pavement, updated drawing format in general.

706-TTXX-01 and -02: Corrected spacing description in Elevation, updated terminology to agree with current practice and pay items ("Steel" changed to "Bars"), updated drawing format in general.

APPLICABLE STANDARD SPECIFICATIONS: none

APPLICABLE STANDARD DRAWINGS: 605-CCSJ-01, 706-MSRW-01 thru -10, 706-TTXX-01 and -02

APPLICABLE DESIGN MANUAL SECTION: none

APPLICABLE SECTION OF GIFE: none

APPLICABLE RECURRING SPECIAL PROVISIONS: none

PAY ITEMS AFFECTED: none

Submitted By: Elizabeth Phillips

Title: Manager, Office of Standards & Policy

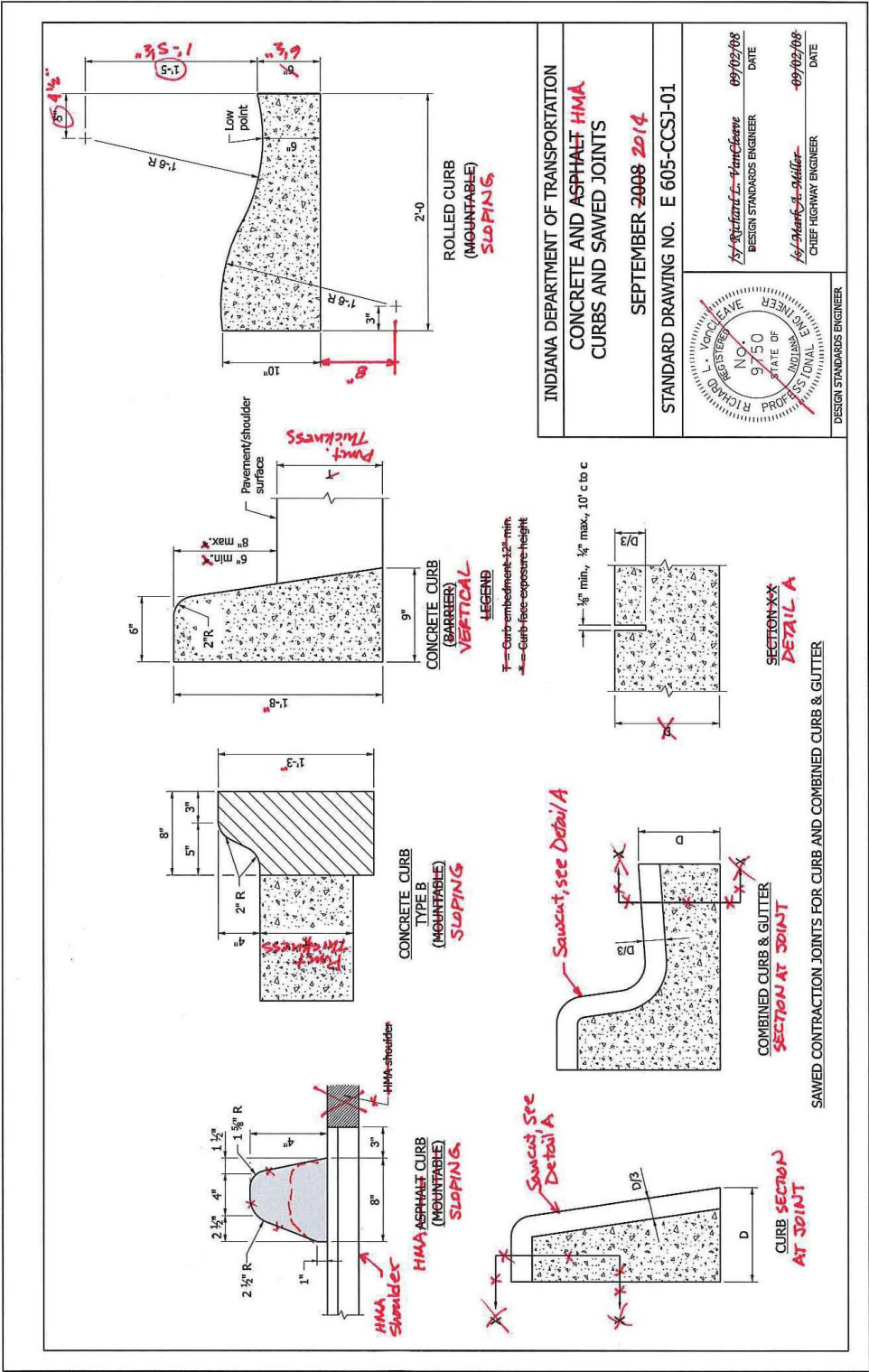
Organization: INDOT

Phone Number: 232-6775

Date: May 23, 2013

APPLICABLE SUB-COMMITTEE ENDORSEMENT:

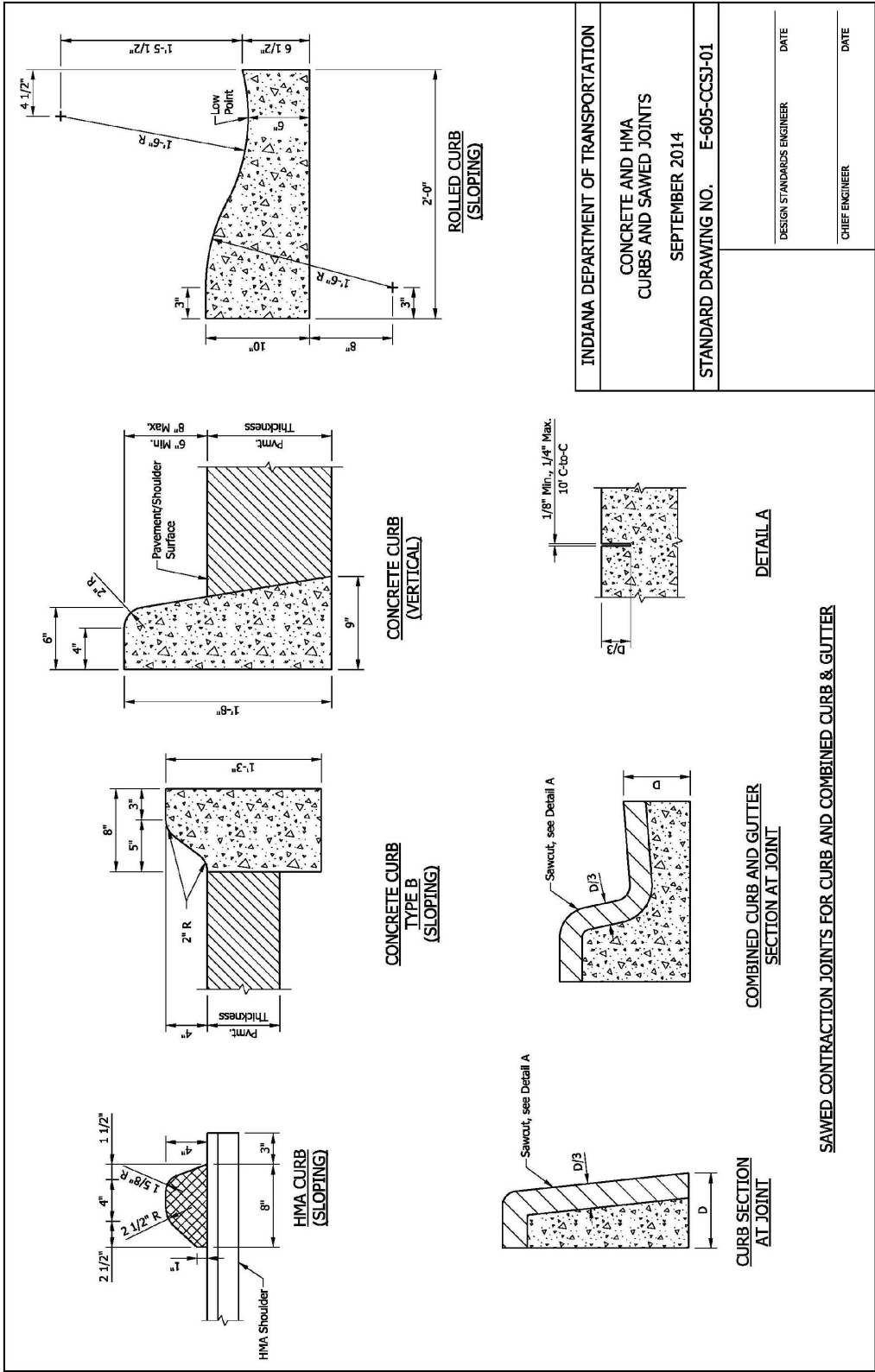
REVISION TO STANDARD DRAWINGS
605-CCSJ-01 CONCRETE AND ASPHALT CURBS AND SAWED JOINTS (WITH MARKUPS)



Update title block.

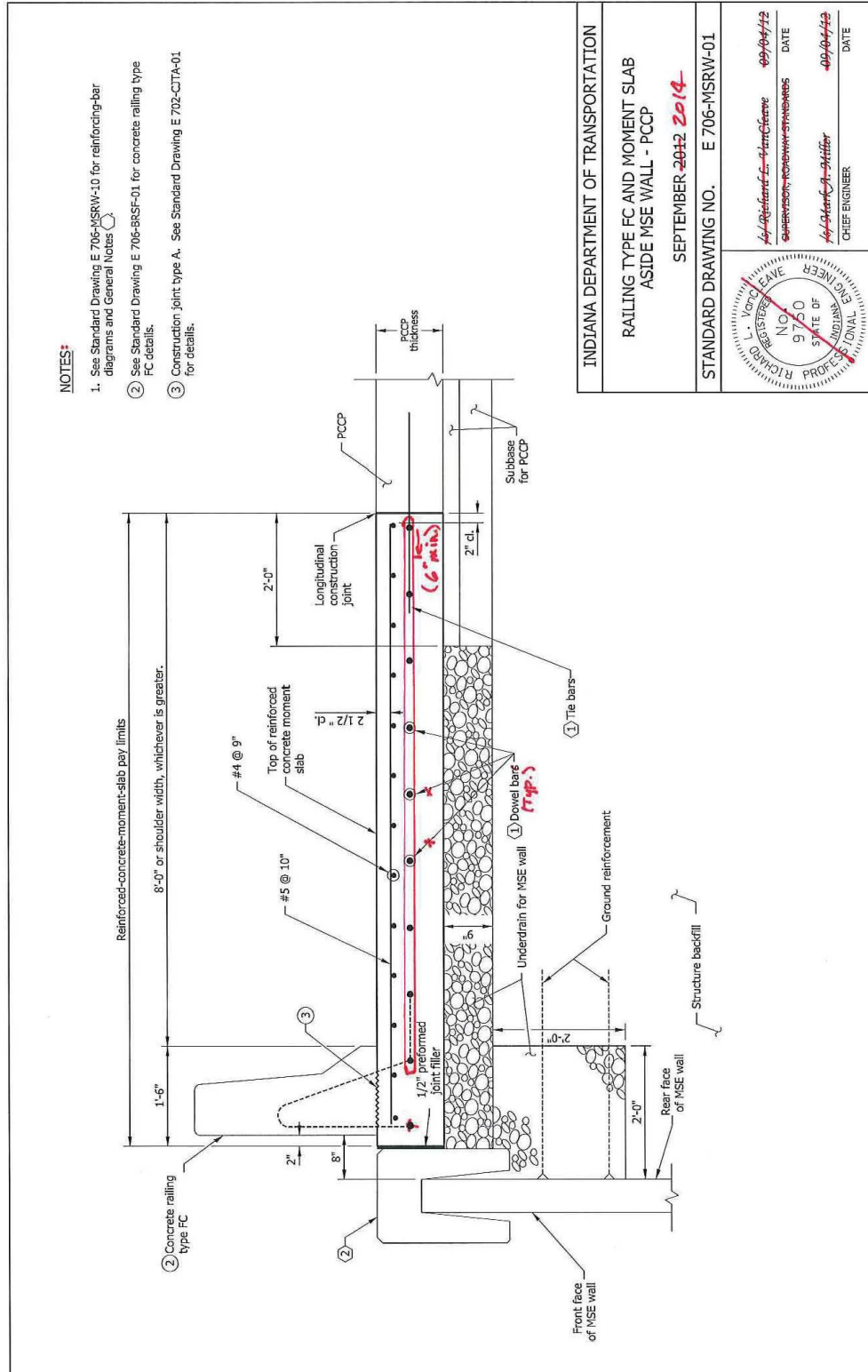
Update drawing format, text style, dimension style.

REVISION TO STANDARD DRAWINGS
605-CCSJ-01 CONCRETE AND HMA CURBS AND SAWED JOINTS (DRAFT)



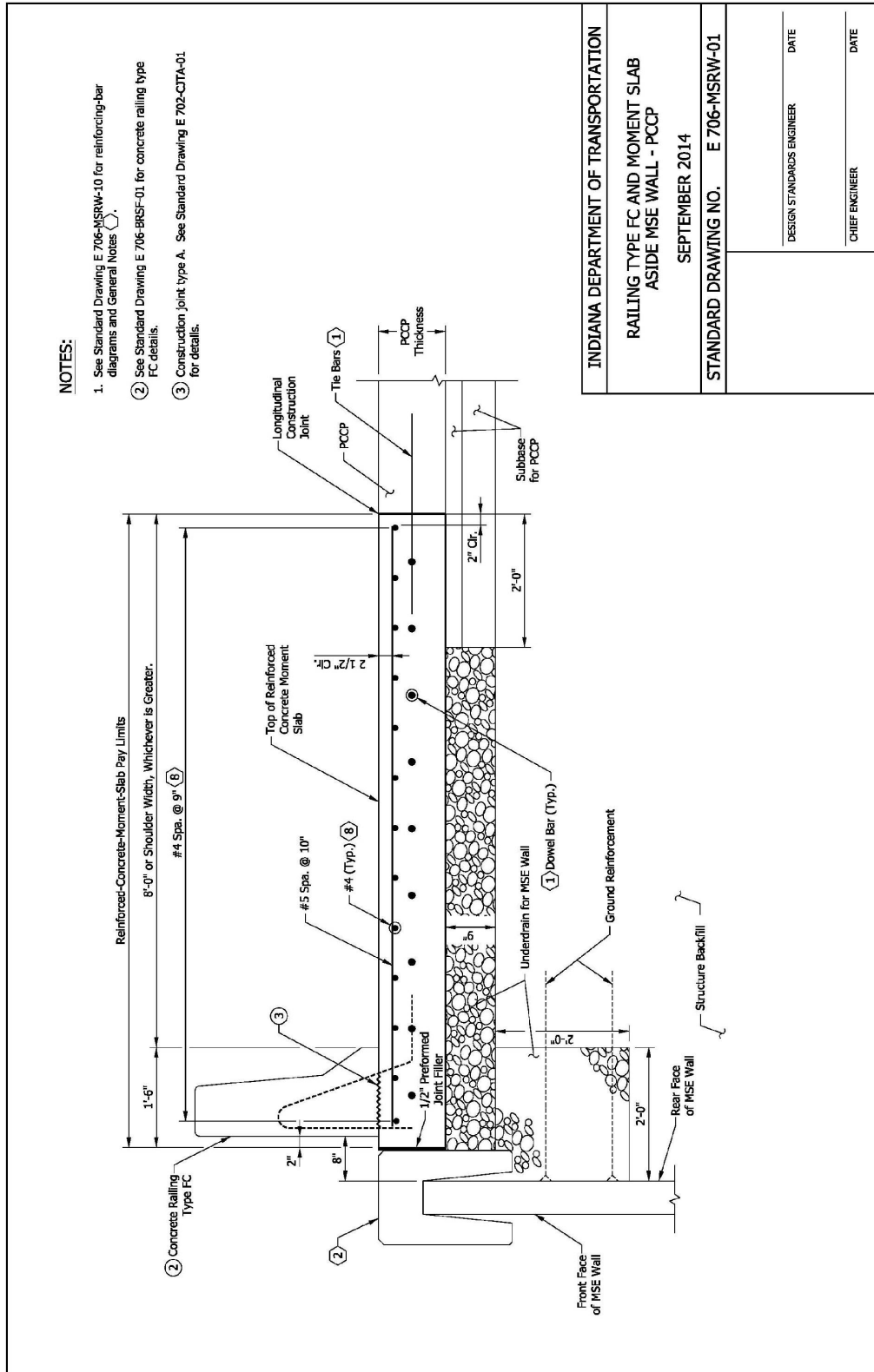
REVISION TO STANDARD DRAWINGS

706-MSRW-01 RAILING TYPE FC AND MOMENT SLAB ASIDE MSE WALL - PCCP (WITH MARKUPS)



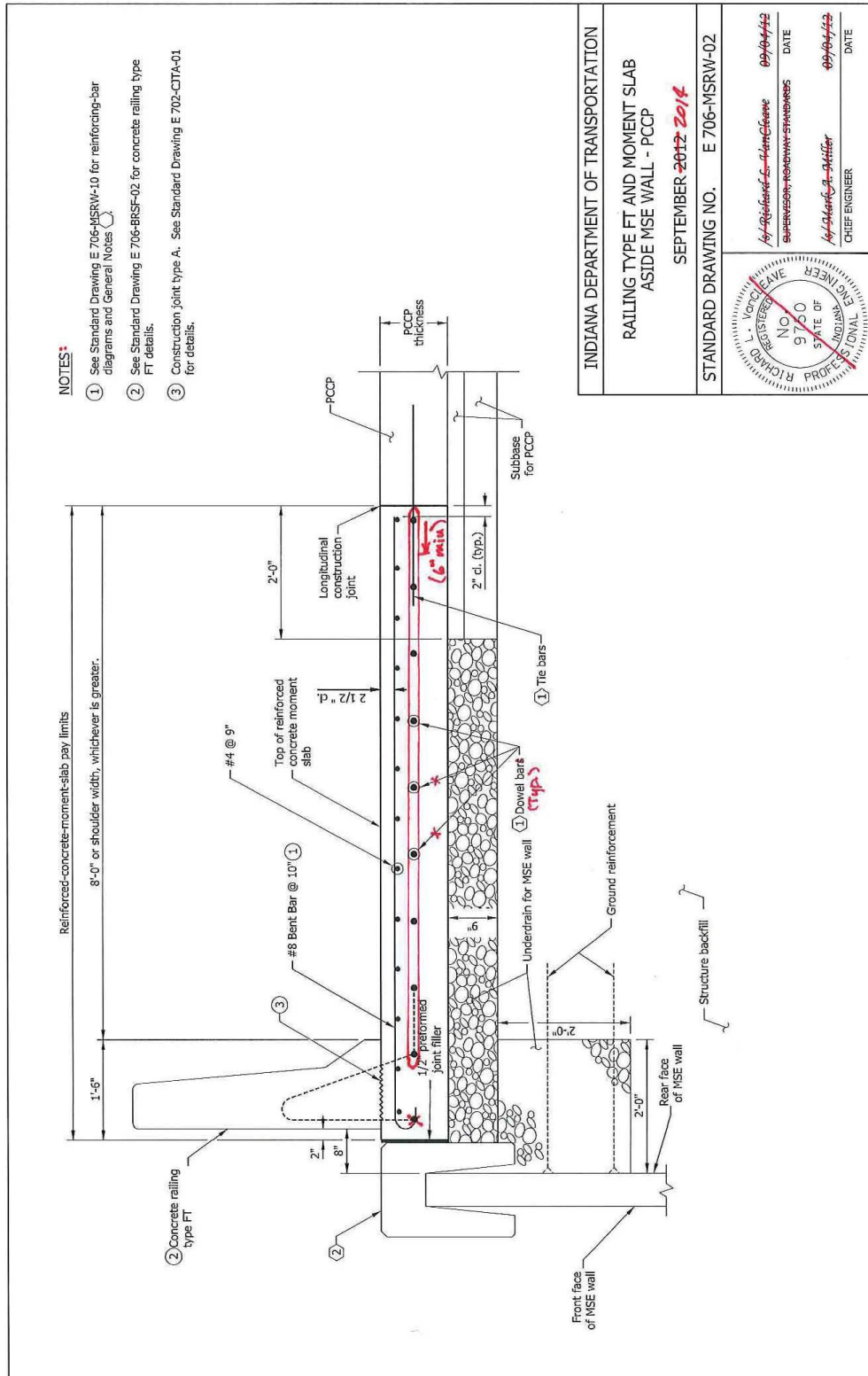
REVISION TO STANDARD DRAWINGS

706-MSRW-01 RAILING TYPE FC AND MOMENT SLAB ASIDE MSE WALL - PCCP
(DRAFT)



Date: 06/20/13

706-MSRW-02 RAILING TYPE FT AND MOMENT SLAB ASIDE MSE WALL - PCCP (WITH MARKUPS)

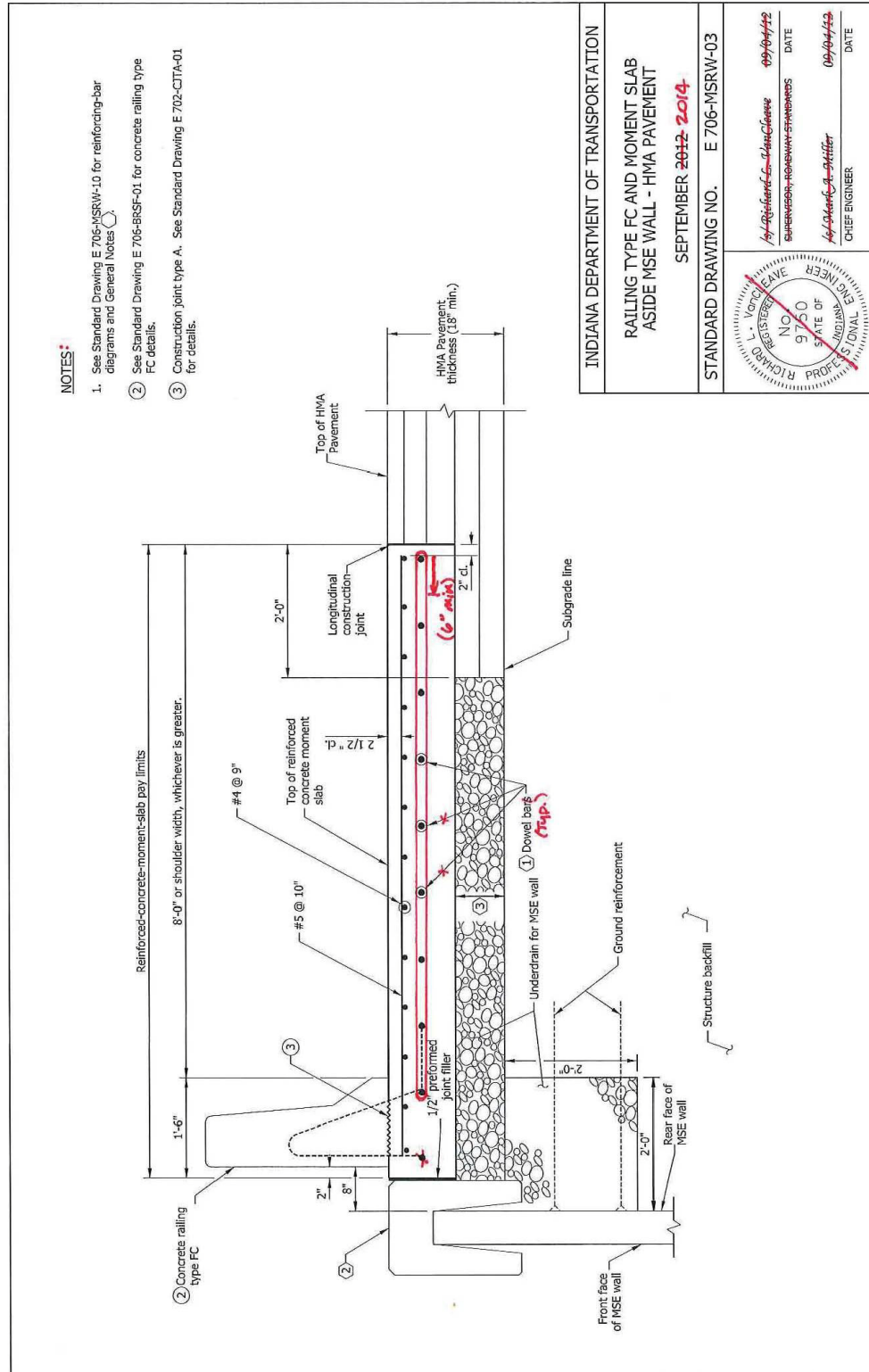


Update title block.

Update text style, dimension style.

REVISION TO STANDARD DRAWINGS

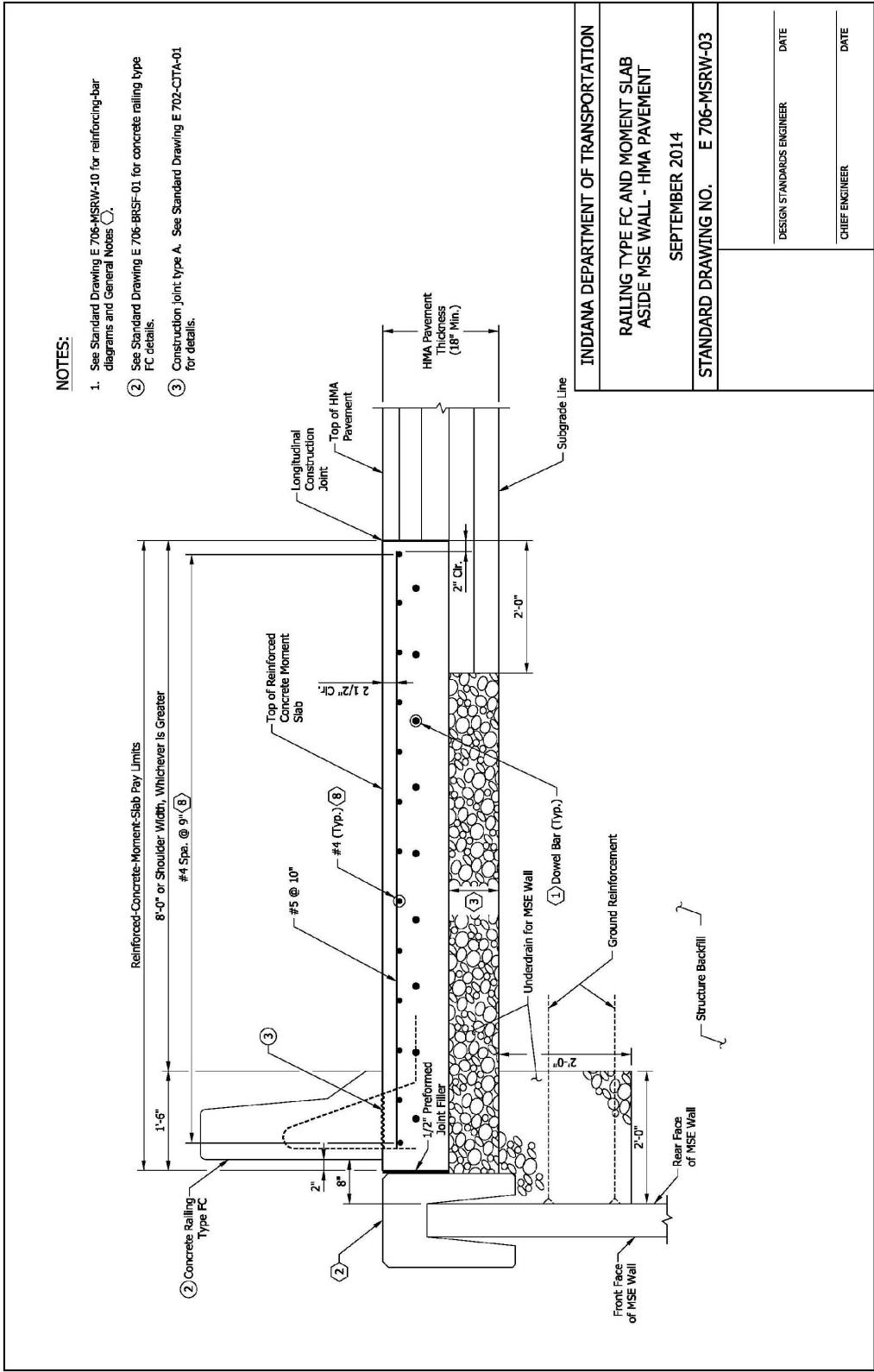
706-MSRW-03 RAILING TYPE FC AND MOMENT SLAB ASIDE MSE WALL - HMA
PAVEMENT (WITH MARKUPS)



Update title block.

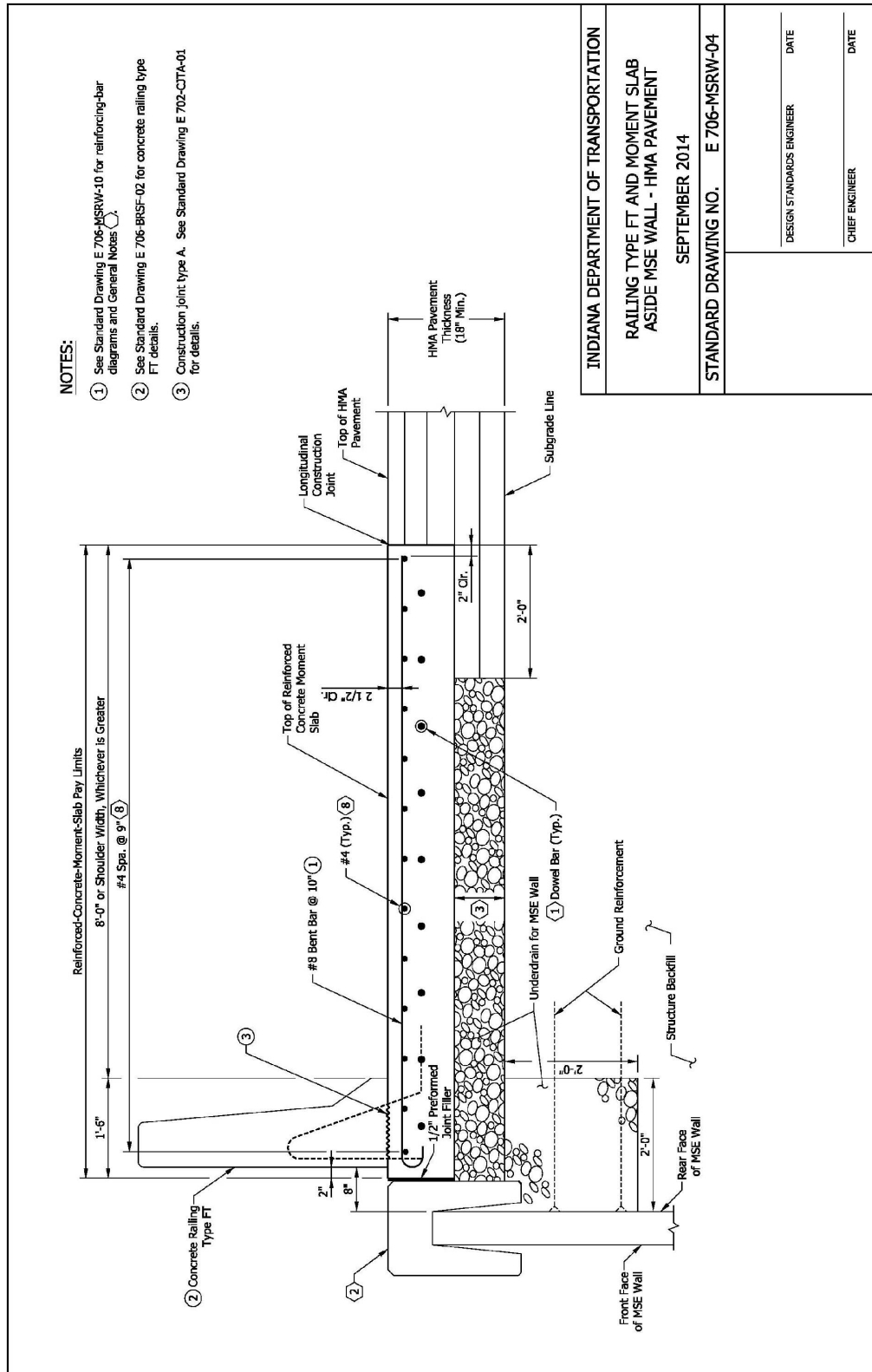
Update text style, dimension style.

REVISION TO STANDARD DRAWINGS
 706-MSRW-03 RAILING TYPE FC AND MOMENT SLAB ASIDE MSE WALL - HMA
 PAVEMENT (DRAFT)



REVISION TO STANDARD DRAWINGS

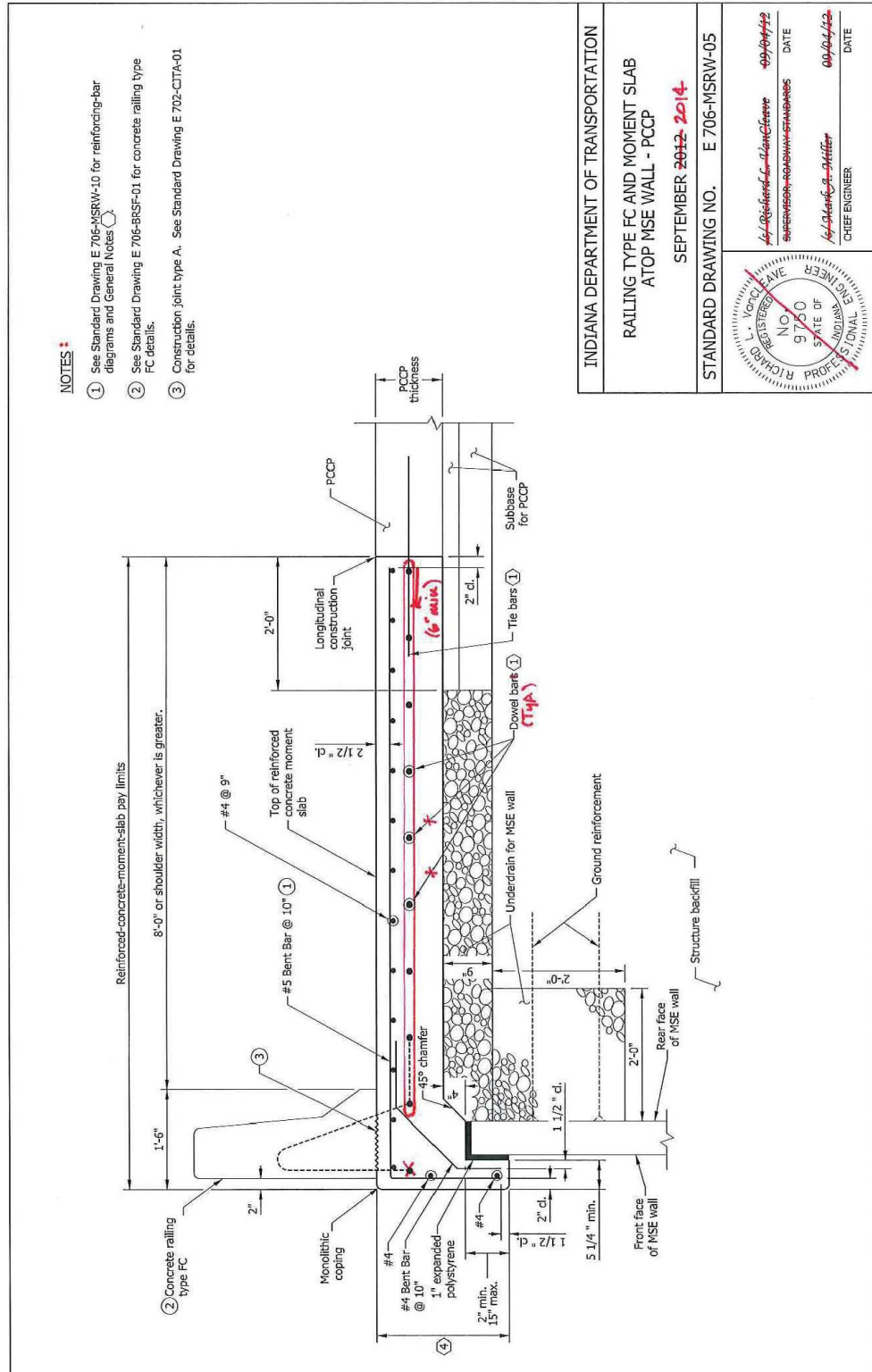
706-MSRW-04 RAILING TYPE FT AND MOMENT SLAB ASIDE MSE WALL - HMA
PAVEMENT (DRAFT)



Date: 06/20/13

REVISION TO STANDARD DRAWINGS

706-MSRW-05 RAILING TYPE FC AND MOMENT SLAB ATOP MSE WALL - PCCP (WITH MARKUPS)

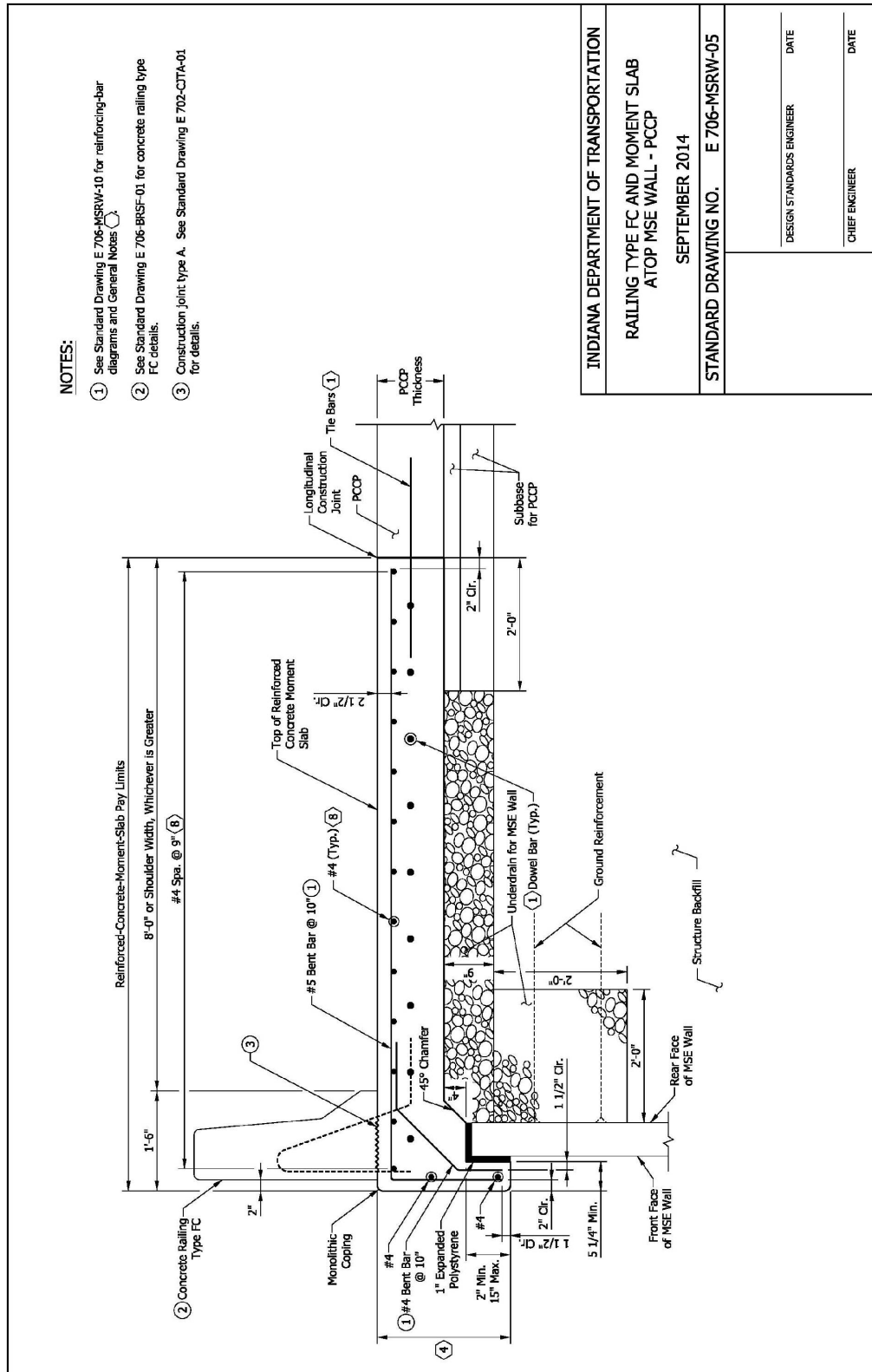


update title block.

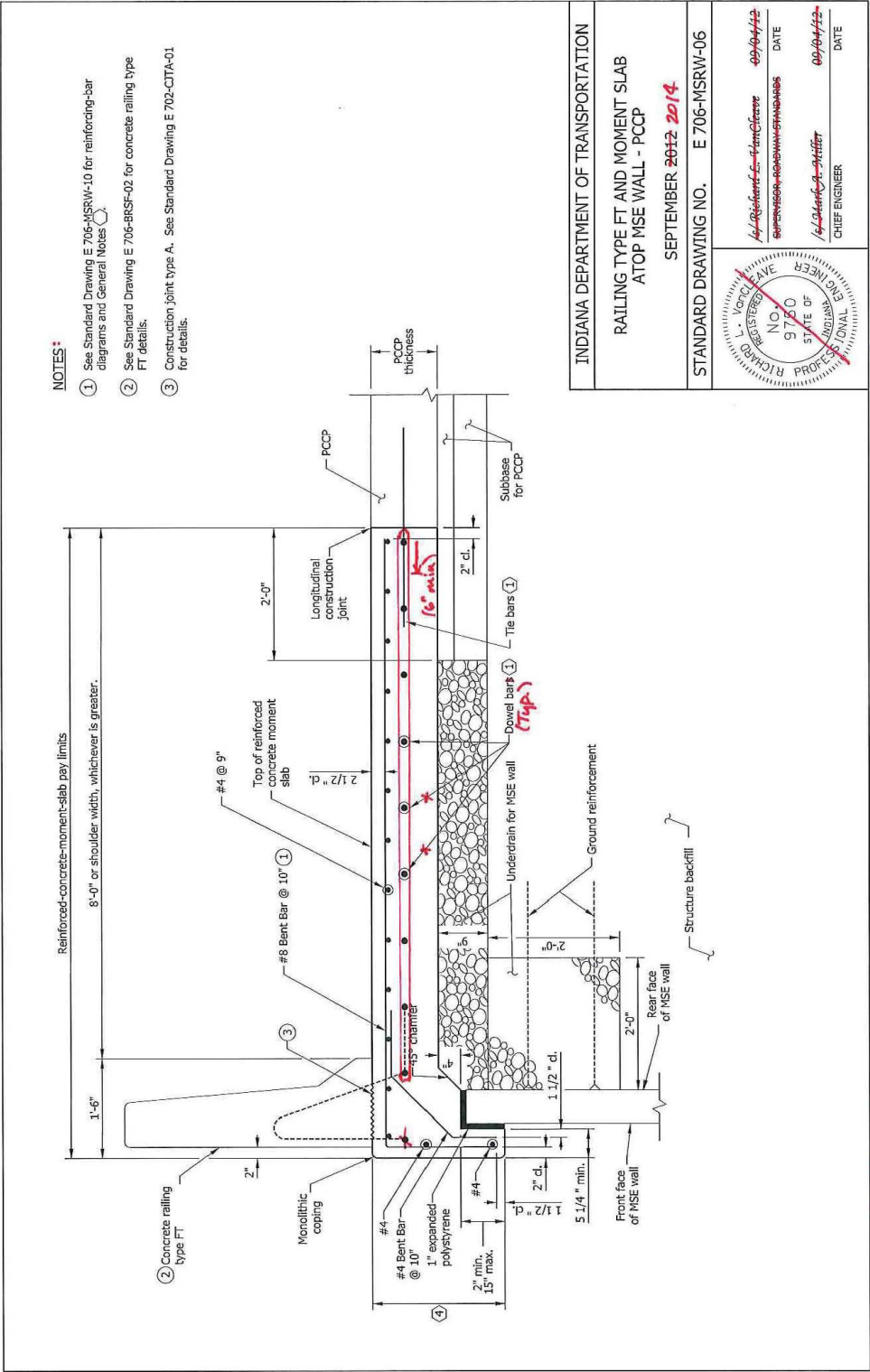
Update text style, dimension style.

REVISION TO STANDARD DRAWINGS

706-MSRW-05 RAILING TYPE FC AND MOMENT SLAB ATOP MSE WALL - PCCP
(DRAFT)

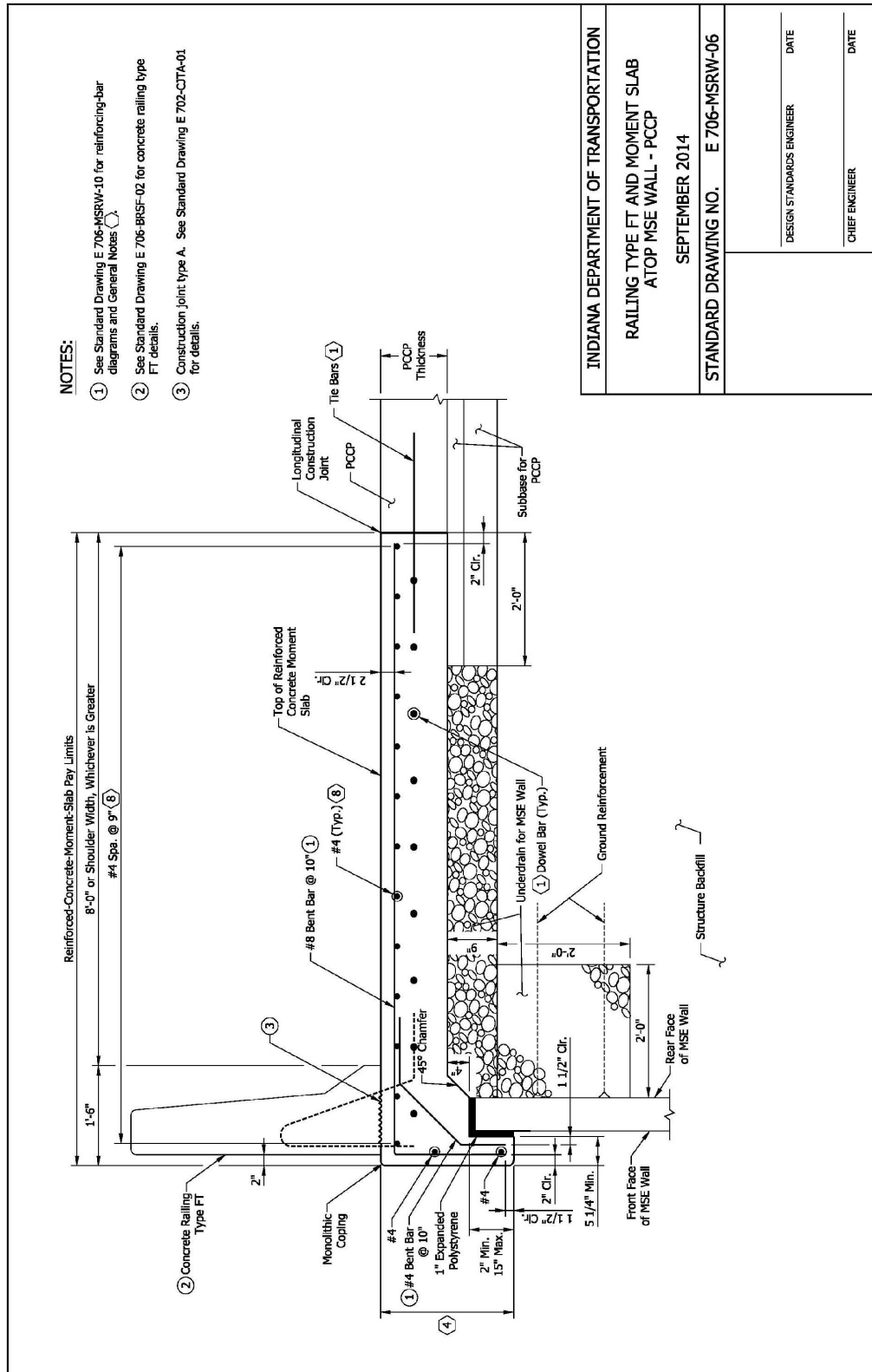


REVISION TO STANDARD DRAWINGS
 706-MSRW-06 RAILING TYPE FT AND MOMENT SLAB ATOP MSE WALL - PCCP (WITH MARKUPS)



REVISION TO STANDARD DRAWINGS

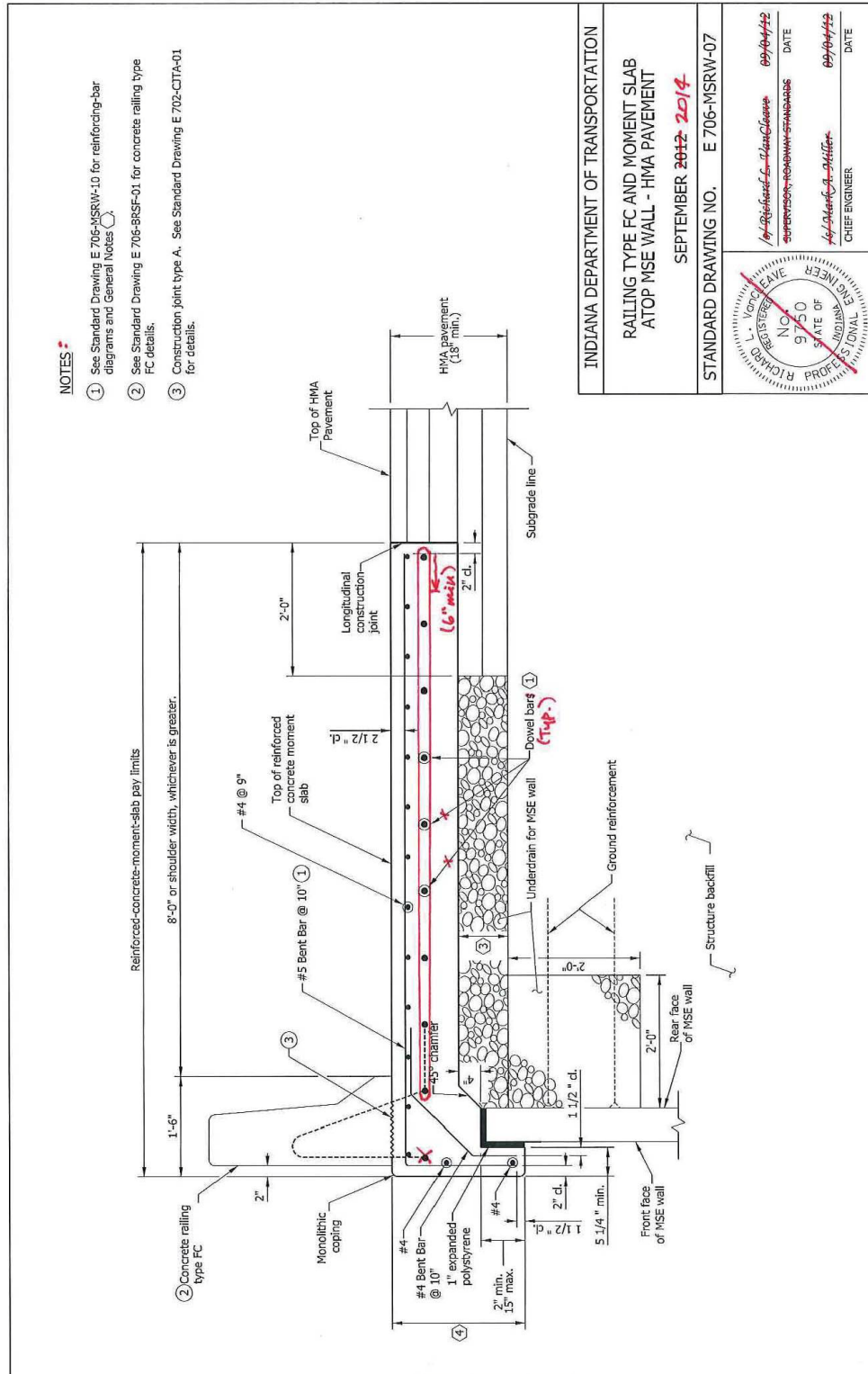
706-MSRW-06 RAILING TYPE FT AND MOMENT SLAB ATOP MSE WALL - PCCP
(DRAFT)



Date: 06/20/13

REVISION TO STANDARD DRAWINGS

706-MSRW-07 RAILING TYPE FC AND MOMENT SLAB ATOP MSE WALL - HMA
PAVEMENT (WITH MARKUPS)



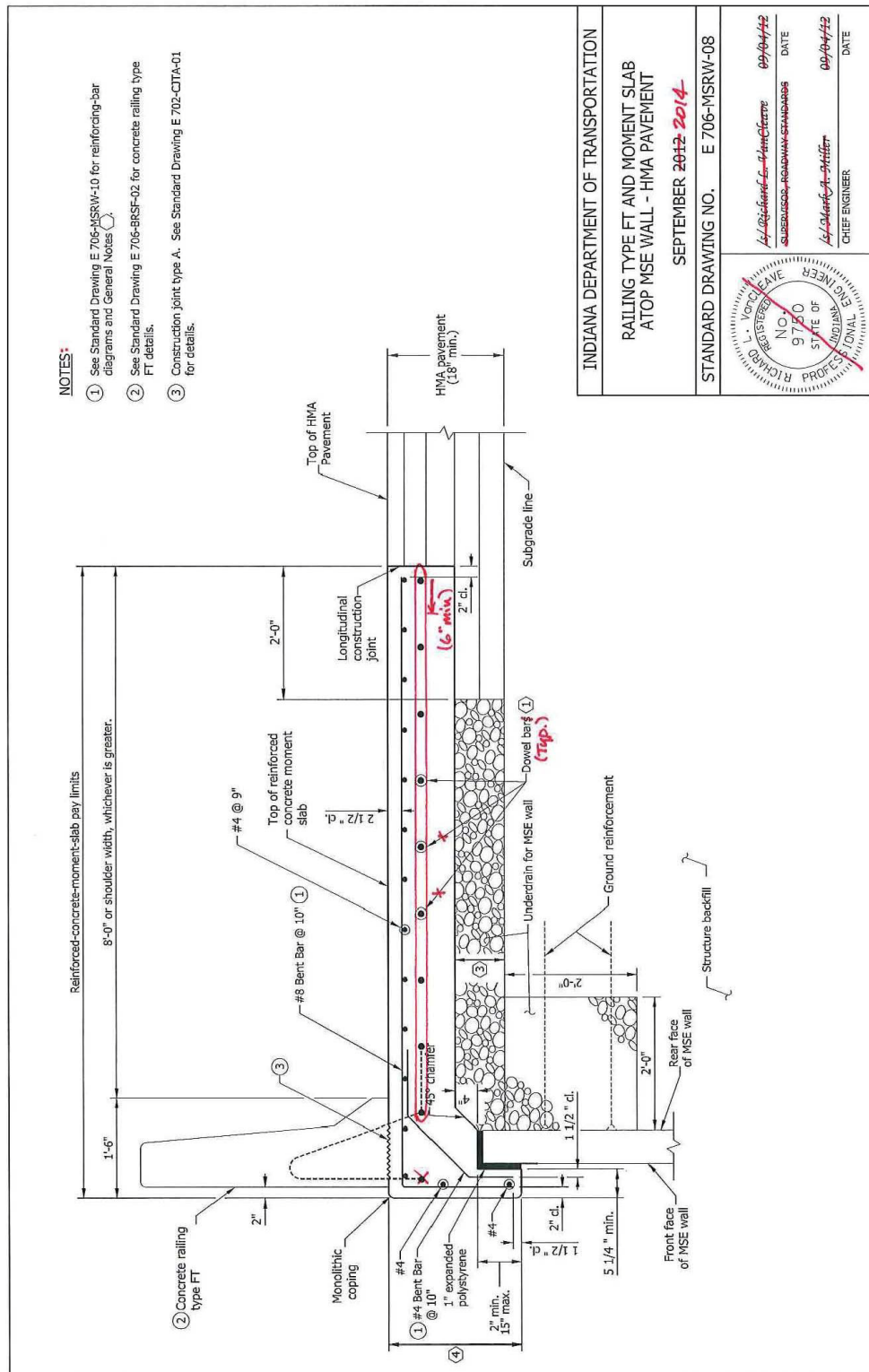
Update title block.

Update text style, dimension style.

Date: 06/20/13

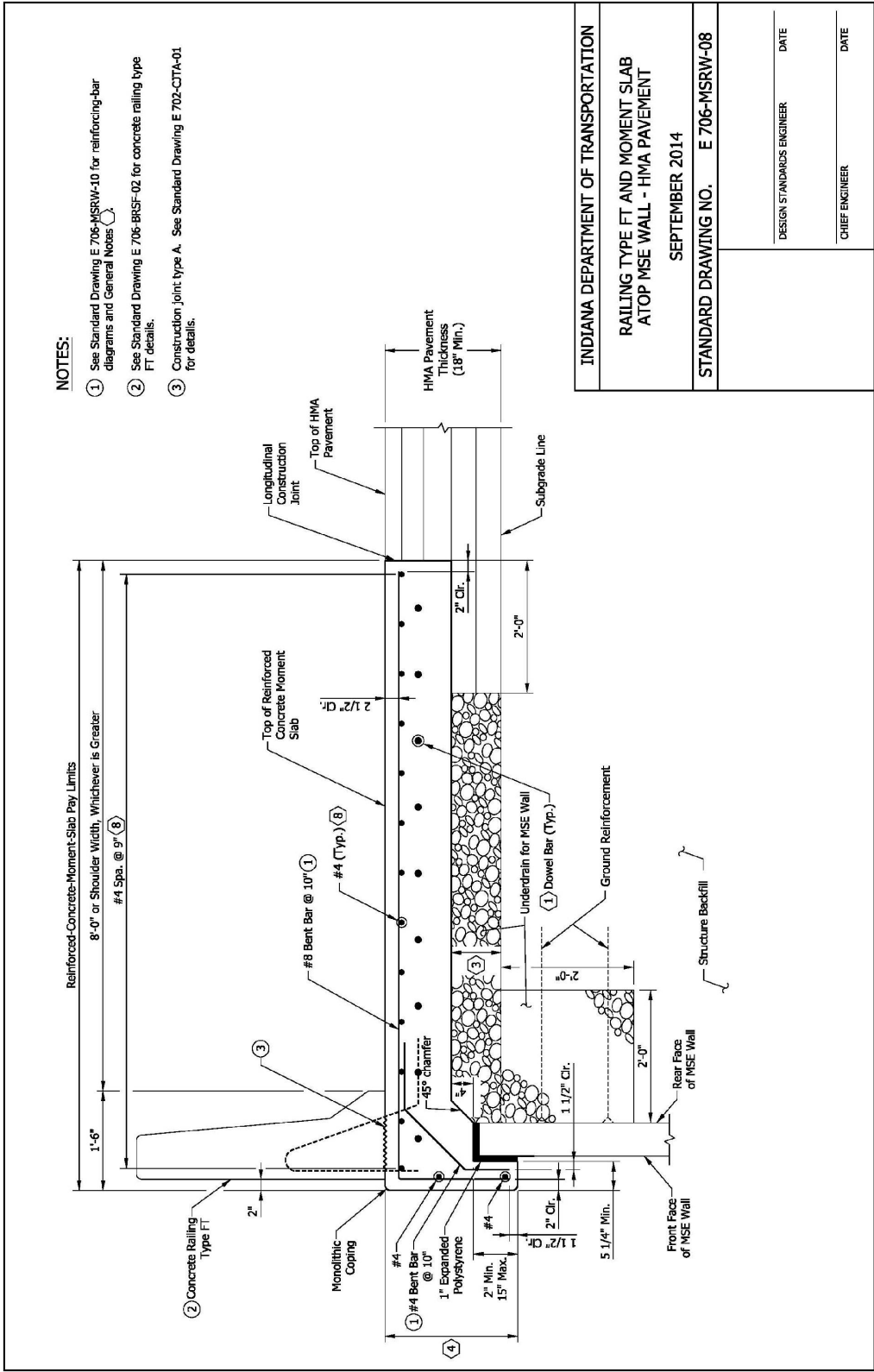
REVISION TO STANDARD DRAWINGS

706-MSRW-08 RAILING TYPE FT AND MOMENT SLAB ATOP MSE WALL - HMA
PAVEMENT (WITH MARKUPS)



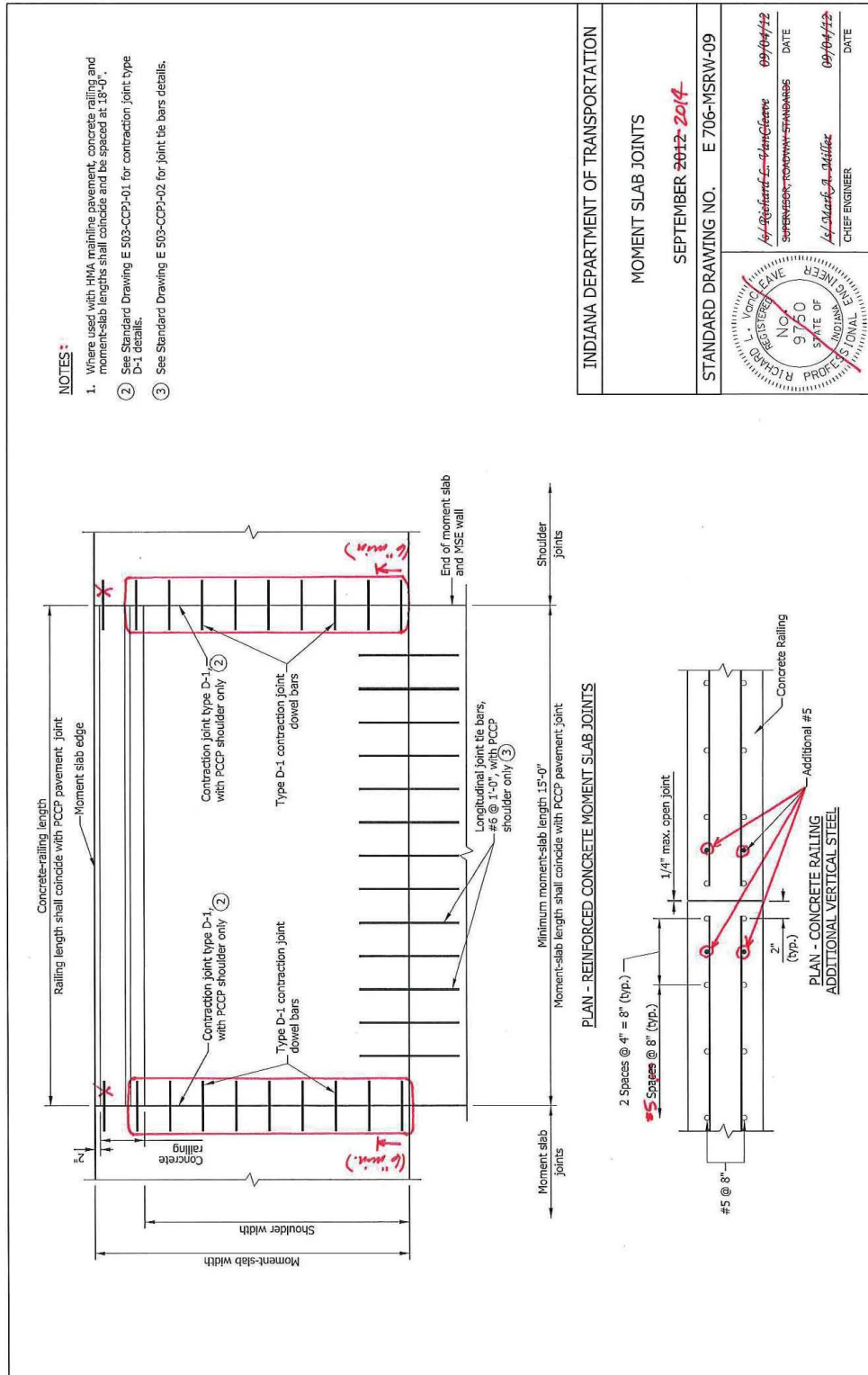
Update text style, dimension style.

REVISION TO STANDARD DRAWINGS
 706-MSRW-08 RAILING TYPE FT AND MOMENT SLAB ATOP MSE WALL - HMA
 PAVEMENT (DRAFT)



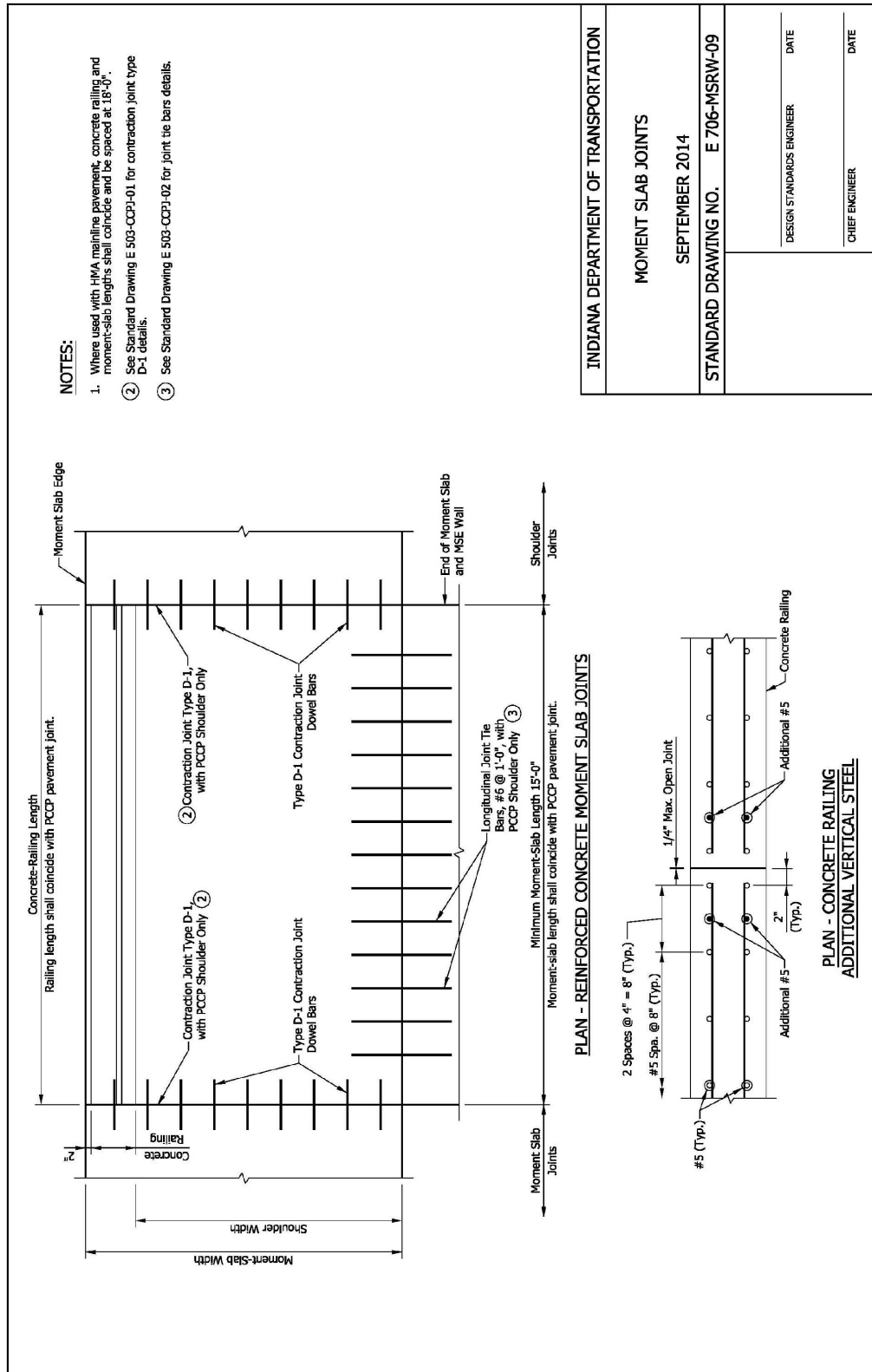
REVISION TO STANDARD DRAWINGS

706-MSRW-09 MOMENT SLAB JOINTS (WITH MARKUPS)



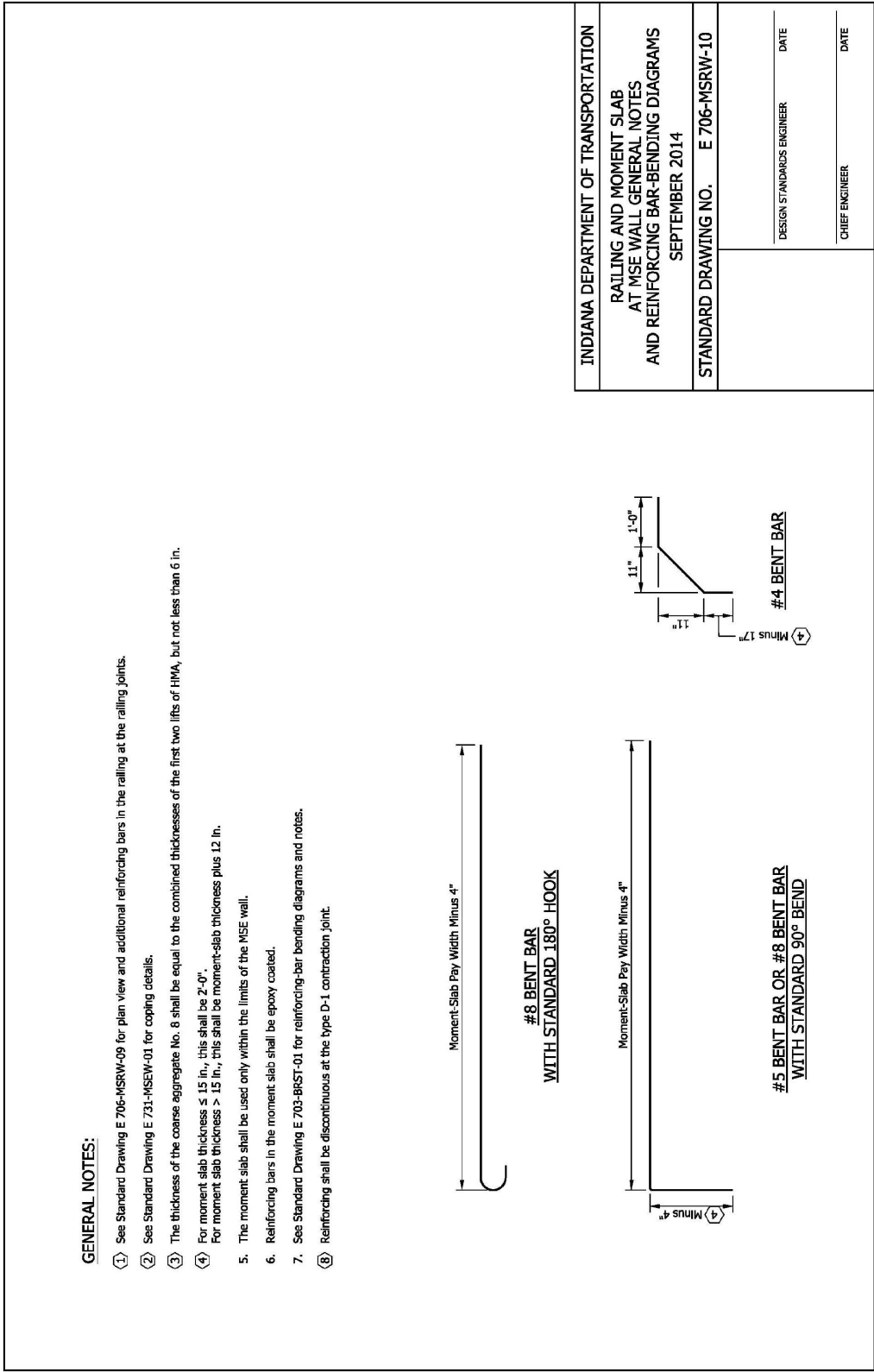
REVISION TO STANDARD DRAWINGS

706-MSRW-09 MOMENT SLAB JOINTS (DRAFT)



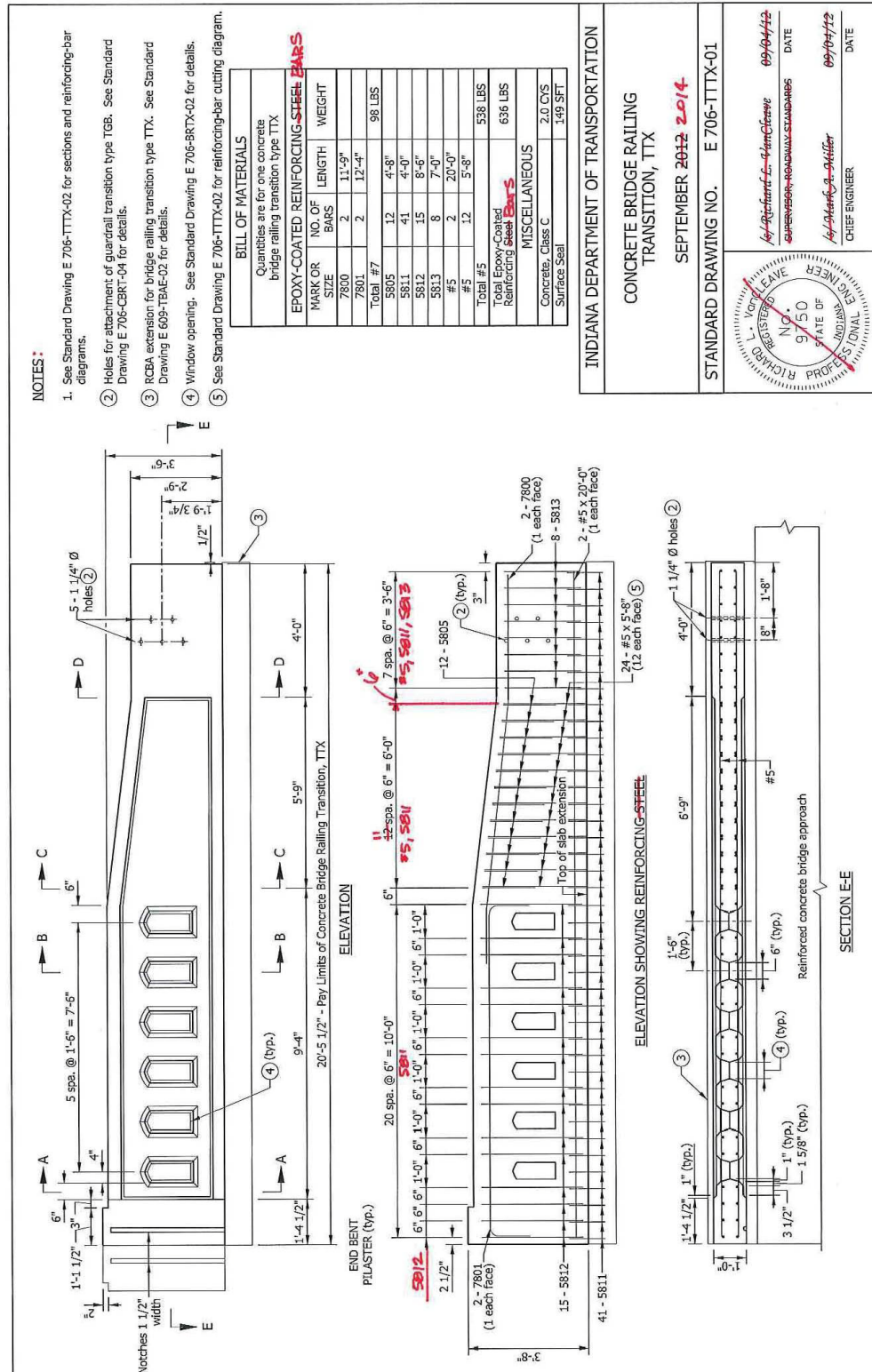
REVISION TO STANDARD DRAWINGS

706-MSRW-10 RAILING AND MOMENT SLAB AT MSE WALL GENERAL NOTES AND
REINFORCING BAR - BENDING DIAGRAM (DRAFT)



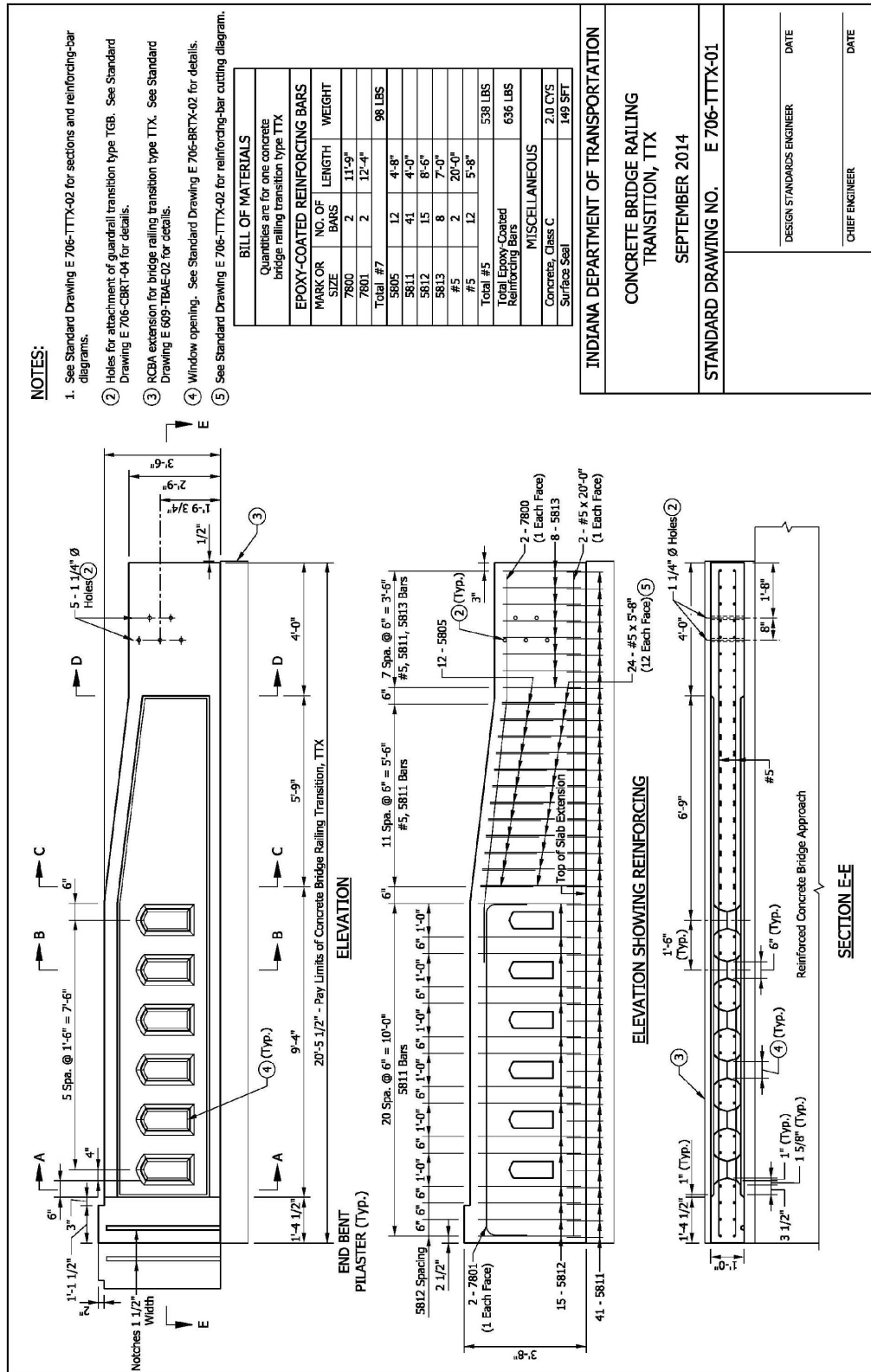
REVISION TO STANDARD DRAWINGS

706-TTXX-01 CONCRETE BRIDGE RAILING TRANSITION, TTX (WITH MARKUPS)

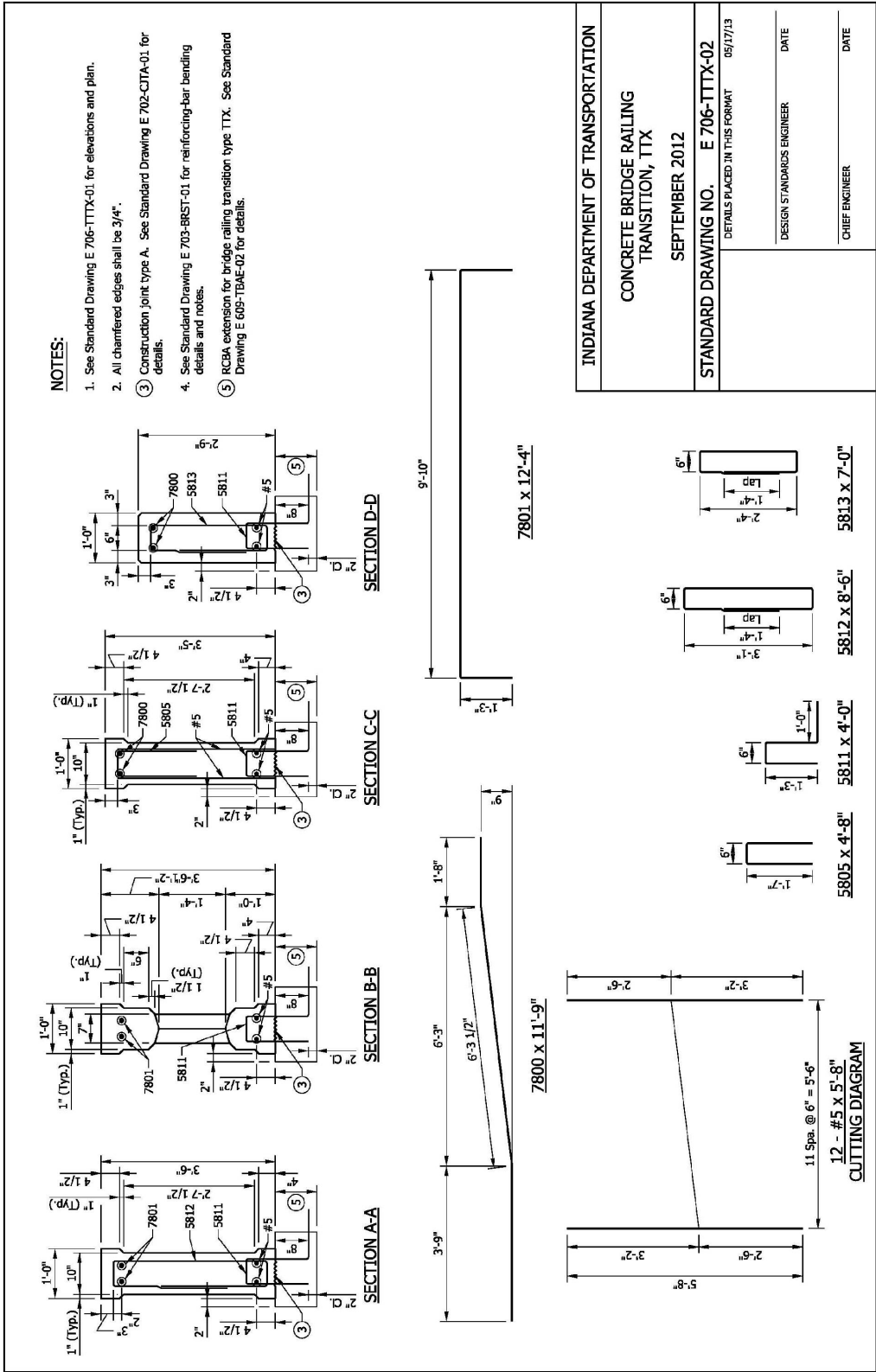


REVISION TO STANDARD DRAWINGS

706-TTXX-01 CONCRETE BRIDGE RAILING TRANSITION, TTX (DRAFT)



REVISION TO STANDARD DRAWINGS
 706-TTXX-02 CONCRETE BRIDGE RAILING TRANSITION, TTX (DRAFT)



COMMENTS AND ACTION

605-CCSJ-01
706-MSRW-01 THRU -10
706-TTTX-01 AND -02

Motion:	Action:
Second:	☐ Passed as Submitted
Ayes:	☐ Passed as Revised
Nays:	☐ Withdrawn
Standard Specifications Sections affected:	☐ 2016 Standard Specifications Book
NONE	☐ Revise Pay Items List
Recurring Special Provision affected:	☐ Create RSP (No.)
NONE	Effective Letting
Standard Sheets affected:	RSP Sunset Date:
605-CCSJ-01; 706-MSRW-01 THRU -10; 706-TTTX-01 and -02.	☐ Revise RSP (No.)
Design Manual Sections affected:	Effective Letting
NONE	RSP Sunset Date:
GIFE Sections cross-references:	Standard Drawing Effective
NONE	☐ Create RPD (No.)
	Effective Letting
	☐ Technical Advisory
	GIFE Update Req'd.? Y N
	By Addition or Revision
	Frequency Manual Update Req'd? Y N
	By Addition or Revision
	Received FHWA Approval?

SPECIFICATION, SPECIAL PROVISIONS AND DRAWINGS
REVISION TO SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED:

1. Currently, when vibratory rollers are not permitted in some areas, a special provision is inserted in the contract or the decision to waive the density is not made until after the contract is let.

PROPOSED SOLUTION:

1. Produce a Recurring Special Provision for vibratory roller prohibition to be inserted into contracts that have sections where vibratory rollers are not permitted. Density will be required on the other sections.

APPLICABLE STANDARD SPECIFICATIONS: 400

APPLICABLE STANDARD DRAWINGS:

APPLICABLE DESIGN MANUAL SECTION:

APPLICABLE SECTION OF GIFE:

APPLICABLE RECURRING SPECIAL PROVISIONS:

PAY ITEMS AFFECTED:

Submitted By: Ron Walker

Title: Manager, Office of Materials Management

Organization: INDOT

Phone Number: 317-610-7251 x 204

Date: 05-29-13

APPLICABLE SUB-COMMITTEE ENDORSEMENT: These specification revisions are recommended by the INDOT/APAI Technical Committee.

REVISION TO SPECIAL PROVISIONS

PROPOSED NEW 400-R-XXX HMA VIBRATORY COMPACTION PROHIBITION

400-R-XXX HMA VIBRATORY COMPACTION PROHIBITION

(Adopted XX-XX-13)

The Standard Specifications are revised as follows:

SECTION 401, AFTER LINE 381 (IN 2014 SS, AFTER LINE 383), INSERT AS FOLLOWS:

Vibratory rollers in accordance with 409.03(d)4 shall not be operated in the vibratory mode at locations indicated on the plans. Oscillatory rollers in accordance with 409.03(d)5 will be permitted for use but the vertical impact force capability shall not be used. Density acceptance shall be in accordance with 401.16.

SECTION 402, AFTER LINE 275, (IN 2014 SS, AFTER LINE 285) INSERT AS FOLLOWS:

Vibratory rollers in accordance with 409.03(d)4 shall not be operated in vibratory mode at locations indicated on the plans. Oscillatory rollers in accordance with 409.03(d)5 will be permitted for use but the vertical impact force capability shall not be used. Density acceptance shall be in accordance with 402.15.

SECTION 410, BEGIN LINE 286, (FOR 2014 SS, BEGIN LINE 298) DELETE AS FOLLOWS:

The rollers shall be operated to avoid shoving of the SMA and at speeds not to exceed 3 mph. Rollers shall be in accordance with 409.03(d)1, 2, or 6 (7, in 2014 SS). Vibratory rollers meeting the requirements of 409.03(d)4 may be used but shall not be operated in vibratory mode, ~~except the vibratory mode may be used on the 1st (first) pass to the paver.~~

COMMENTS AND ACTION

400-R-XXX HMA VIBRATORY COMPACTION PROHIBITION

Motion: Second: Ayes: Nays:	Action: ☐ Passed as Submitted ☐ Passed as Revised ☐ Withdrawn
Standard Specifications Sections affected: 401.14; 402.13 and 410.14. Recurring Special Provision affected: NONE	☐ 2016 Standard Specifications Book ☐ Revise Pay Items List ☐ Create RSP (No.____) Effective ____ Letting RSP Sunset Date: ____ ☐ Revise RSP (No.____) Effective ____ Letting RSP Sunset Date: ____
Standard Sheets affected: NONE	Standard Drawing Effective ____ ☐ Create RPD (No. ____) Effective ____ Letting ☐ Technical Advisory
Design Manual Sections affected: NONE	GIFE Update Req'd.? Y ____ N ____ By ____ Addition or ____ Revision
GIFE Sections cross-references: NONE	Frequency Manual Update Req'd? Y ____ N ____ By ____ Addition or ____ Revision Received FHWA Approval? ____

SPECIFICATION, SPECIAL PROVISIONS AND DRAWINGS
REVISION TO SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED:

1. A Unique Special Provision has been used for 4.75 mm surface mixtures for the past three years. The use of this specification has improved the surface friction performance of this mixture when compared to the current Section 401 4.75 mm mixture.
2. 9.5 mm open graded mixtures used for bond breaking layers prior to placing a PCCP Overlay are currently specified by a Unique Special Provision and should be added to Section 401.
3. Acceptance of QC/QA HMA dense graded mixtures quantities less than 300 t was recently changed to Type D Certification with the use of the standard rolling train for density. However, acceptance QC/QA open graded mixtures were left unchanged. This procedure would allow the possibility of having a mixture with plate sample acceptance underneath layers of mixture without plate sample acceptance.
4. Through design and specification changes, we have attempted to eliminate sections where QC/QA mixtures would need to be placed with a widener or other non-standard paving devices. However, small sections that are narrow or odd-shaped still exist on some projects, and if a sample is taken in these areas, the sample may not be representative of the subplot that was placed with a paver.

PROPOSED SOLUTION:

1. Incorporate 4.75 mm Unique Special Provision into 401 section
2. Incorporate 9.5 mm OG layer into 401 section
3. Accept QC/QA HMA open graded mixture by Type D Certification
4. Only take acceptance samples in areas placed with a paver in accordance with 409.03(c)1

APPLICABLE STANDARD SPECIFICATIONS: 401, 410, 904

APPLICABLE STANDARD DRAWINGS:

APPLICABLE DESIGN MANUAL SECTION:

APPLICABLE SECTION OF GIFE:

APPLICABLE RECURRING SPECIAL PROVISIONS:

SPECIFICATION, SPECIAL PROVISIONS AND DRAWINGS
REVISION TO SPECIAL PROVISIONS

(CONTINUED)

PAY ITEMS AFFECTED:

Submitted By: Ron Walker

Title: Manager, Office of Materials Management

Organization: INDOT

Phone Number: 317-610-7251 x 204

Date: 05-28-13

APPLICABLE SUB-COMMITTEE ENDORSEMENT: These specification revisions are recommended by the INDOT/APAI Technical Committee.

REVISION TO STANDARD SPECIFICATIONS

401.05 VOLUMETRIC MIX DESIGN
 401.06 RECYCLED MATERIALS
 401.09 ACCEPTANCE OF MIXTURES
 401.14 SPREADING AND FINISHING
 401.16 DENSITY
 410.09 ACCEPTANCE OF MIXTURES
 410.16 DENSITY
 904.02 (B) FOR HMA MIXTURES

(Note: Proposed changes shown as to 2014 Standard Specifications and highlighted gray.

The 2014 Standard Specifications book is available on-line at

<http://www.in.gov/dot/div/contracts/standards/book/index.html>)

The Standard Specifications are revised as follows:

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

Dense Graded, Mixture Designation – Control Point (Percent Passing)					
	25.0 mm	19.0 mm	12.5 mm	9.5 mm	4.75 mm**
Sieve Size					
50.0 mm					
37.5 mm	100.0				
25.0 mm	90.0 - 100.0	100.0			
19.0 mm	< 90.0	90.0 - 100.0	100.0		
12.5 mm		< 90.0	90.0 - 100.0	100.0	100.0
9.5 mm			< 90.0	90.0 - 100.0	95.0 - 100.0
4.75 mm				< 90.0	90.0 - 100.0
2.36 mm	19.0 - 45.0	23.0 - 49.0	28.0 - 58.0	32.0 - 67.0*	
1.18 mm					30.0 - 60.0 55.0
600 µm					
300 µm					
75 µm	1.0 - 7.0	2.0 - 8.0	2.0 - 10.0	2.0 - 10.0	6.0 - 12.0 3.0 - 8.0
* The mix design gradation shall be less than or equal to the PCS control point for 9.5 mm category 3, 4 and 5 surface mixtures.					
** The total blended aggregate gradation for the 4.75 mm mixture shall have a fineness modulus greater than or equal to 3.30 as determined in accordance with AASHTO T 27.					

PCS Control Point for Mixture Designation (Percent Passing)					
Mixture Designation	25.0 mm	19.0 mm	12.5 mm	9.5 mm	4.75 mm
Primary Control Sieve	4.75 mm	4.75 mm	2.36 mm	2.36 mm	NA
PCS Control Point	40	47	39	47	NA

Open Graded, Mixture Designation – Control Point (Percent Passing)			
	OG9.5	OG19.0	OG25.0
Sieve Size			
37.5 mm			100.0
25.0 mm		100.0	70.0 – 98.0
19.0 mm		70.0 – 98.0	50.0 – 85.0
12.5 mm	100.0	40.0 – 68.0	28.0 – 62.0
9.5 mm	75.0-100.0	20.0 – 52.0	15.0 – 50.0
4.75 mm	10.0-35.0	10.0 – 30.0	6.0 – 30.0
2.36 mm	0.0-15.0	7.0 – 23.0	7.0 – 23.0
1.18 mm		2.0 – 18.0	2.0 – 18.0
600 µm		1.0 – 13.0	1.0 – 13.0
300 µm		0.0 – 10.0	0.0 – 10.0
150 µm		0.0 – 9.0	0.0 – 9.0

REVISION TO STANDARD SPECIFICATIONS

401.05 VOLUMETRIC MIX DESIGN
 401.06 RECYCLED MATERIALS
 401.09 ACCEPTANCE OF MIXTURES
 401.14 SPREADING AND FINISHING
 401.16 DENSITY
 410.09 ACCEPTANCE OF MIXTURES
 410.16 DENSITY
 904.02 (B) FOR HMA MIXTURES

75 μ m	0-6.0	0.0 – 8.0	0.0 – 8.0
% of Binder	> 3.0	> 3.0	> 3.0

Dust/Calculated Effective Binder Ratio shall be taken from 0.6 to 1.2, when the aggregate gradation passes above the primary control sieve, PCS, control point and 0.8 to 1.6 when the aggregate gradation is less than or equal to the PCS. The Dust/Calculated Effective Binder Ratio for 4.75 mm mixtures shall be 0.9-0.8 to 2.0.

The optimum binder content shall produce the following air voids at N_{des} :

Air Voids at Optimum Binder Content								
Mixture Designation	Dense Graded					Open Graded		
	25.0 mm	19.0 mm	12.5 mm	9.5 mm	4.75 mm	25.0 mm	19.0 mm	9.5 mm
Air Voids	4.0%	4.0%	4.0%	4.0%	5.0%	15.0% - 20.0%	10.0% - 15.0%	

~~The optimum binder content for dense graded mixtures shall produce 4.0% air voids at N_{des} and for open graded mixtures shall produce 15.0% – 20.0% air voids at N_{des} .~~
 The design for dense graded mixtures shall have at least four points, including a minimum of two points above and one point below the optimum. A one point design may be used for open graded mixtures. The maximum specific gravity shall be mass determined in water in accordance with AASHTO T 209. The bulk specific gravity of the gyratory specimens shall be determined in accordance with AASHTO T 166, Method A or AASHTO T 275, if required, for dense graded mixtures and AASHTO T 331 for open graded mixtures.

SECTION 401, BEGIN LINE 128, INSERT AS FOLLOWS:

VOIDS FILLED WITH ASPHALT, VFA, CRITERIA @ N_{des}	
ESAL	VFA, %
< 300,000	70 – 80
300,000 to < 3,000,000	65 – 78
3,000,000 to < 10,000,000	65 – 75
10,000,000 to < 30,000,000	65 – 75
$\geq 30,000,000$	65 – 75
Notes: 1. For 9.5 mm mixtures, the specified VFA range shall be 73% to 76% for design traffic levels ≥ 3 million ESALs. 2. For 25.0 mm mixtures, the specified lower limit of the VFA shall be 67% for design traffic levels < 0.3 million ESALs. 3. For 4.75 mm mixtures, the specified VFA range shall be 75% to 78% for design traffic levels ≥ 3 million ESALs. 4. For OG 9.5 mm, OG19.0 mm, and OG25.0 mm mixtures, VFA is not applicable.	

REVISION TO STANDARD SPECIFICATIONS

401.05 VOLUMETRIC MIX DESIGN
401.06 RECYCLED MATERIALS
401.09 ACCEPTANCE OF MIXTURES
401.14 SPREADING AND FINISHING
401.16 DENSITY
410.09 ACCEPTANCE OF MIXTURES
410.16 DENSITY
904.02(B) FOR HMA MIXTURES

SECTION 401, BEGIN LINE 152, INSERT AS FOLLOWS:

RAS may be obtained from either pre-consumer or post-consumer asphalt shingles. Post-consumer asphalt shingles shall be in accordance with AASHTO MP 15 and prepared by a processing company with an IDEM Legitimate Use Approval letter. A copy of this letter shall be submitted to the Engineer. Deleterious material present in post-consumer asphalt shingles shall be limited to the percentages stated in AASHTO MP 15. Pre-consumer and post-consumer asphalt shingles shall not be blended for use in HMA mixtures ~~and shall be stockpiled separately from other materials.~~

SECTION 401, BEGIN LINE 202, INSERT AS FOLLOWS:

401.09 Acceptance of Mixtures

Acceptance of mixtures for binder content, VMA at N_{des} , and air voids at N_{des} for each lot will be based on tests performed by the Engineer for dense graded *9.5 mm, 12.5 mm, 19.0 mm and 25.0 mm* mixtures with original contract pay item quantities greater than or equal to 300 t. Acceptance of mixtures for binder content and air voids at N_{des} will be based on a type D certification in accordance with 402.09 for dense graded mixtures with original contract pay item quantities less than 300 t. *Acceptance of mixtures for binder content and air voids at N_{des} for each lot will be based on a type D certification in accordance with 402.09 for dense graded 4.75 mm mixtures.*

Acceptance of mixtures for binder content and air voids at N_{des} for each lot will be based on tests performed by the Engineer for open graded mixtures *with original contract pay item quantities greater than or equal to 300 t. Acceptance of mixtures for binder content and air voids at N_{des} will be based on a type D certification in accordance with 402.09 for open graded mixtures with original pay item quantities less than 300 t, except the air voids tolerance shall be $\pm 3.5\%$ from the DMF or JMF.*

SECTION 401, AFTER LINE 265, INSERT AS FOLLOWS:

Samples shall not be obtained from areas placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3. If a random location falls within this area, the Engineer will randomly select another location within the subplot for sampling. If an entire subplot falls within this area, test results from the previous subplot will be used for acceptance. If the previous subplot is not available, the subsequent subplot will be used for acceptance.

SECTION 401, BEGIN LINE 377, INSERT AS FOLLOWS:

The finished thickness of any course shall be at least two times but not more than four times the maximum particle size as shown on the DMF, *except 4.75 mm mixtures shall be at least 1.5 times but not more than 3 times the maximum particle size shown on the DMF.*

REVISION TO STANDARD SPECIFICATIONS

401.05 VOLUMETRIC MIX DESIGN
 401.06 RECYCLED MATERIALS
 401.09 ACCEPTANCE OF MIXTURES
 401.14 SPREADING AND FINISHING
 401.16 DENSITY
 410.09 ACCEPTANCE OF MIXTURES
 410.16 DENSITY
 904.02(B) FOR HMA MIXTURES

Vibratory rollers in accordance with 409.03(d)4 shall not be operated in vibratory mode when placing 4.75 mm mixtures. Oscillatory rollers in accordance with 409.03(d)5 will be permitted for use when placing 4.75 mm mixture but the vertical impact force capability shall not be used.

SECTION 401, AFTER LINE 437, INSERT AS FOLLOWS:

Cores shall not be obtained from areas placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3. If a random location falls within this area, the Engineer will randomly select another location within the subplot for coring. If an entire subplot falls within this area, test results from the previous subplot will be used for acceptance. If the previous subplot is not available, the subsequent subplot will be used for acceptance.

SECTION 410, AFTER LINE 231, INSERT AS FOLLOWS:

Samples shall not be obtained from areas placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3. If a random location falls within this area, the Engineer will randomly select another location within the subplot for sampling. If an entire subplot falls within this area, test results from the previous subplot will be used for acceptance. If the previous subplot is not available, the subsequent subplot will be used for acceptance.

SECTION 410, AFTER LINE 348, INSERT AS FOLLOWS:

Cores shall not be obtained from areas placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3. If a random location falls within this area, the Engineer will randomly select another location within the subplot for coring. If an entire subplot falls within this area, test results from the previous subplot will be used for acceptance. If the previous subplot is not available, the subsequent subplot will be used for acceptance.

SECTION 904, BEGIN LINE 128, INSERT AS FOLLOWS:

FINE AGGREGATE ANGULARITY		
TRAFFIC ESAL	DEPTH FROM SURFACE	
	≤ 4 in.	> 4 in.
< 300,000	(Note 1)	(Note 1)
300,000 to < 3,000,000	40 (Note 1)	40 (Note 1)
3,000,000 to < 10,000,000	45	40
10,000,000 to < 30,000,000	45	40
≥ 30,000,000	45	45
Note 1: For 4.75 mm mixtures, the fine aggregate angularity shall be 40 for <300,000 ESAL and 45 for 300,000 to <3,000,000 ESAL.		

COMMENTS AND ACTION

401.05 VOLUMETRIC MIX DESIGN
 401.06 RECYCLED MATERIALS
 401.09 ACCEPTANCE OF MIXTURES
 401.14 SPREADING AND FINISHING
 401.16 DENSITY
 410.09 ACCEPTANCE OF MIXTURES
 410.16 DENSITY
 904.02(b) FOR HMA MIXTURES

Motion: Second: Ayes: Nays:	Action: ☐ Passed as Submitted ☐ Passed as Revised ☐ Withdrawn
Standard Specifications Sections affected: 401.05; 401.06; 401.09; 401.14; 401.16; 410.09; 410.16 and 904.02. Recurring Special Provision affected: NONE Standard Sheets affected: NONE Design Manual Sections affected: NONE GIFE Sections cross-references: NONE	☐ 2016 Standard Specifications Book ☐ Revise Pay Items List ☐ Create RSP (No. ____) Effective ____ Letting RSP Sunset Date: ____ ☐ Revise RSP (No. ____) Effective ____ Letting RSP Sunset Date: ____ Standard Drawing Effective ____ ☐ Create RPD (No. ____) Effective ____ Letting ☐ Technical Advisory GIFE Update Req'd.? Y ____ N ____ By ____ Addition or ____ Revision Frequency Manual Update Req'd? Y ____ N ____ By ____ Addition or ____ Revision Received FHWA Approval? ____

SPECIFICATION, SPECIAL PROVISIONS AND DRAWINGS
REVISION TO STANDARD DRAWINGS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: INDOT does not have standard design and drawings for butterfly (cantilever) sign structures .

PROPOSED SOLUTION: Create new standard drawings detailing butterfly structures that have been designed to meet the current AASTHO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. This specification includes fatigue considerations.

APPLICABLE STANDARD SPECIFICATIONS: Sections 802 & 910 per 2014 book.

APPLICABLE STANDARD DRAWINGS: E 802-SCSB-01 Thru 09 (proposed new)

APPLICABLE DESIGN MANUAL SECTION: Chapter 75

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: Overhead Sign Structure, Butterfly Cantilever EACH

Submitted By: David Boruff

Title: Manager, Office of Traffic Administration

Organization: INDOT

Phone Number: 317 234 7975

Date: 5-29-2013

APPLICABLE SUB-COMMITTEE ENDORSEMENT:

Item No.04 06/20/13 (2014 SS) (contd.)
Mr. Boruff
Date: 06/20/13

REVISION TO STANDARD DRAWINGS

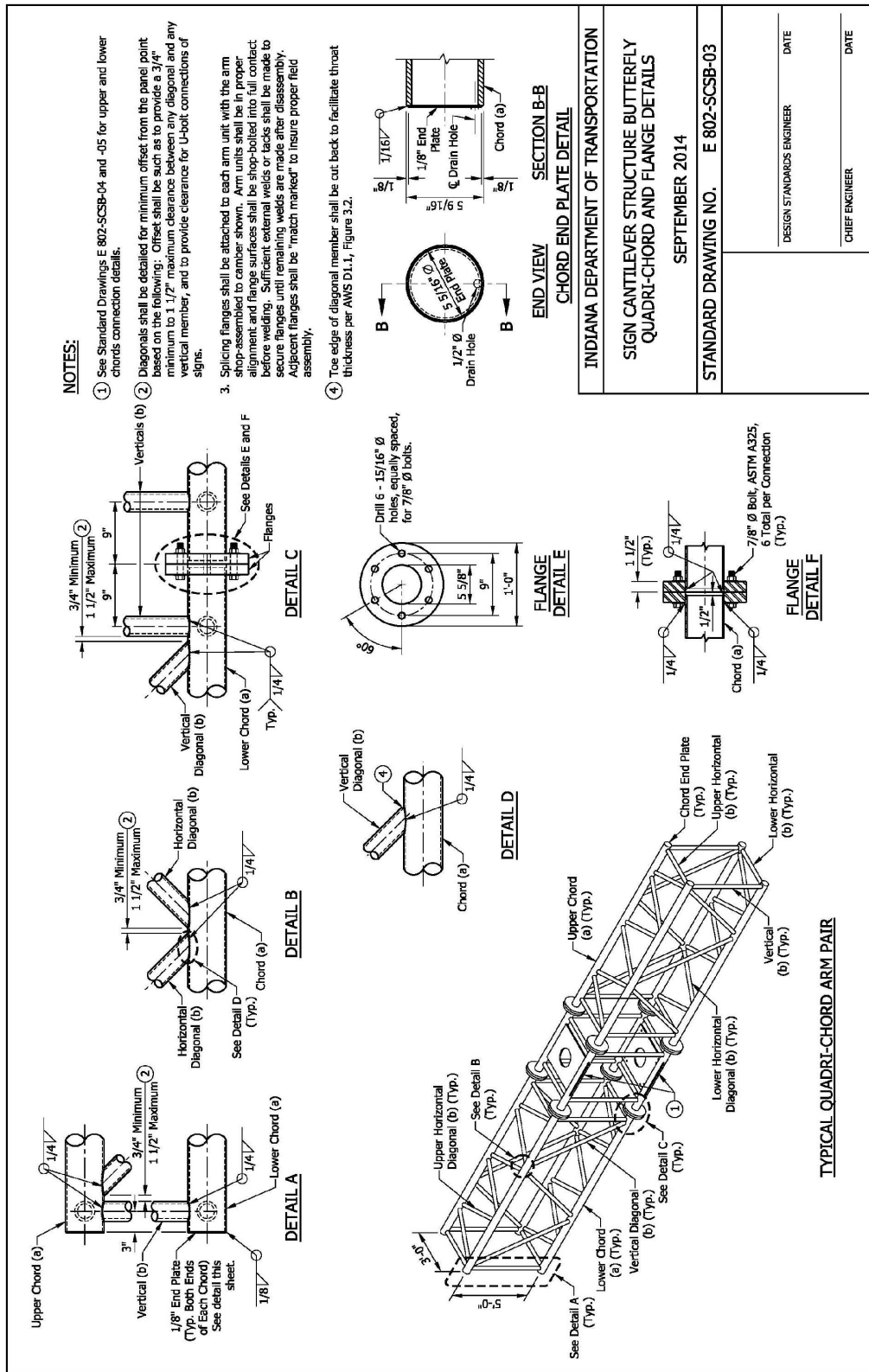
802-SCSB-01 SIGN CANTILEVER STRUCTURE BUTTERFLY DRAWING INDEX (DRAFT)

INDEX	
SHEET NO.	SUBJECT
1	Drawing Index
2	Plan, Elevation, Member Sizes, and Camber
3	Quadrant-Chord and Flange Details
4	Upper Chords Connection Details
5	Lower Chords Connection and Wire Outlet Details
6	Base Plate, Anchor Bolt, and Metal Skirt Details
7	Handhole and I.D. Tag Details
8	Foundation at 33° Concrete Barrier
9	Foundation at 45° Concrete Barrier

INDIANA DEPARTMENT OF TRANSPORTATION	
SIGN CANTILEVER STRUCTURE BUTTERFLY DRAWING INDEX SEPTEMBER 2014	
STANDARD DRAWING NO. E 802-SCSB-01	
DESIGN STANDARDS ENGINEER	DATE
CHIEF ENGINEER	DATE

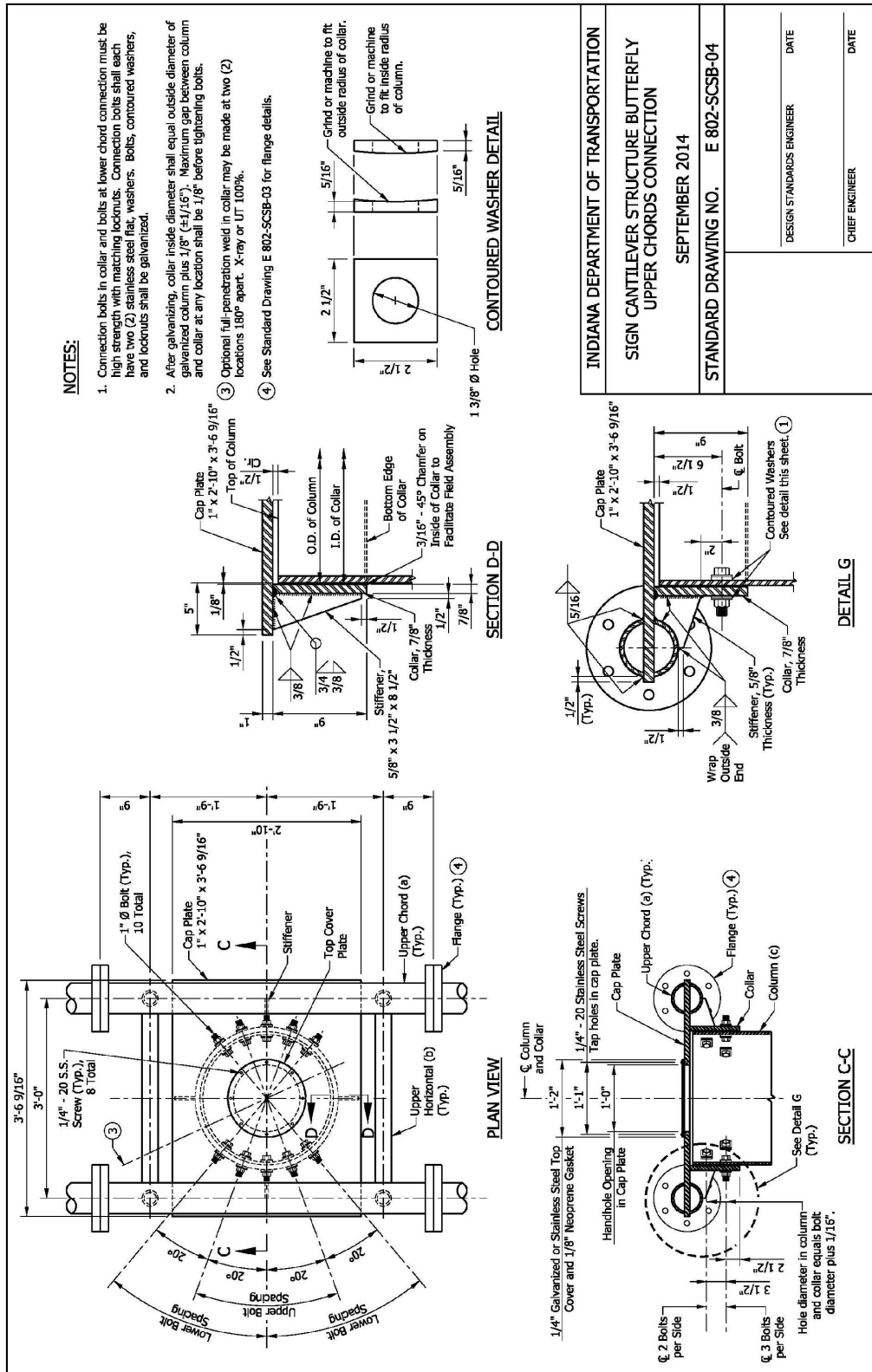
REVISION TO STANDARD DRAWINGS

DETAILS (DRAFT)



REVISION TO STANDARD DRAWINGS

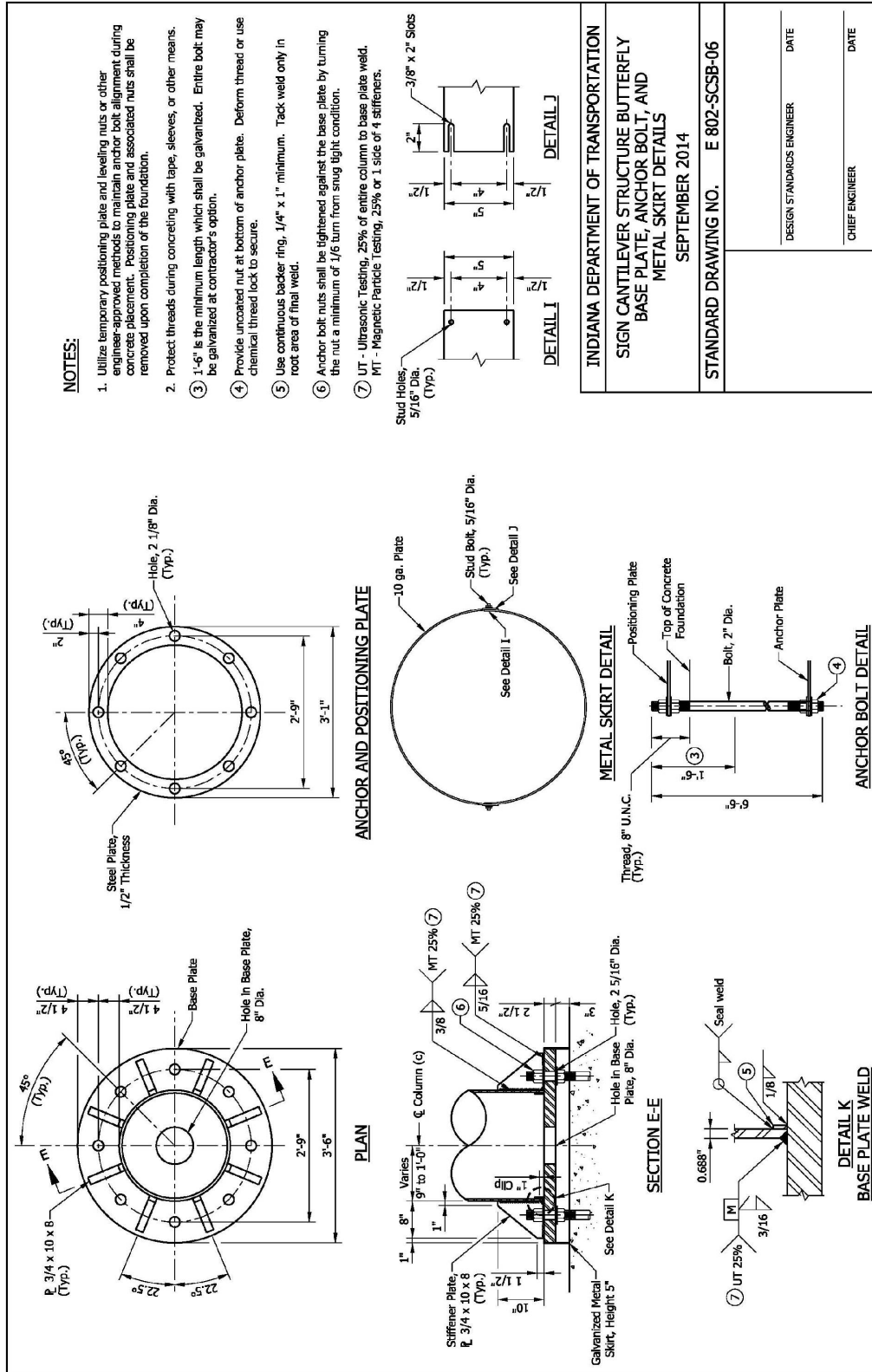
802-SCSB-04 SIGN CANTILEVER STRUCTURE BUTTERFLY UPPER CHORDS CONNECTION
(DRAFT)



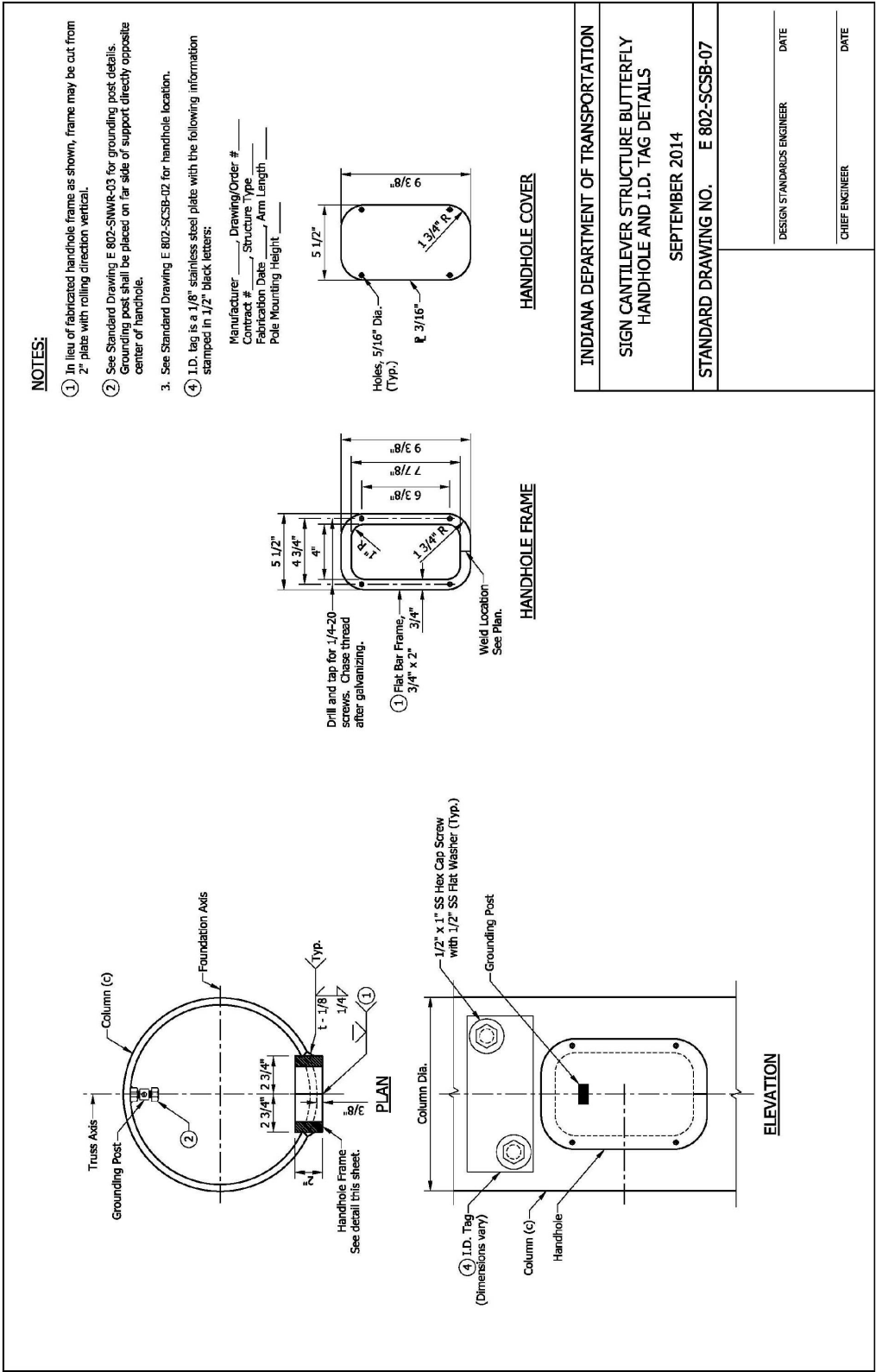
802-SCSB-05 SIGN CANTILEVER STRUCTURE BUTTERFLY LOWER CHORDS CONNECTION
AND WIRE OUTLET DETAIL (DRAFT)

REVISION TO STANDARD DRAWINGS

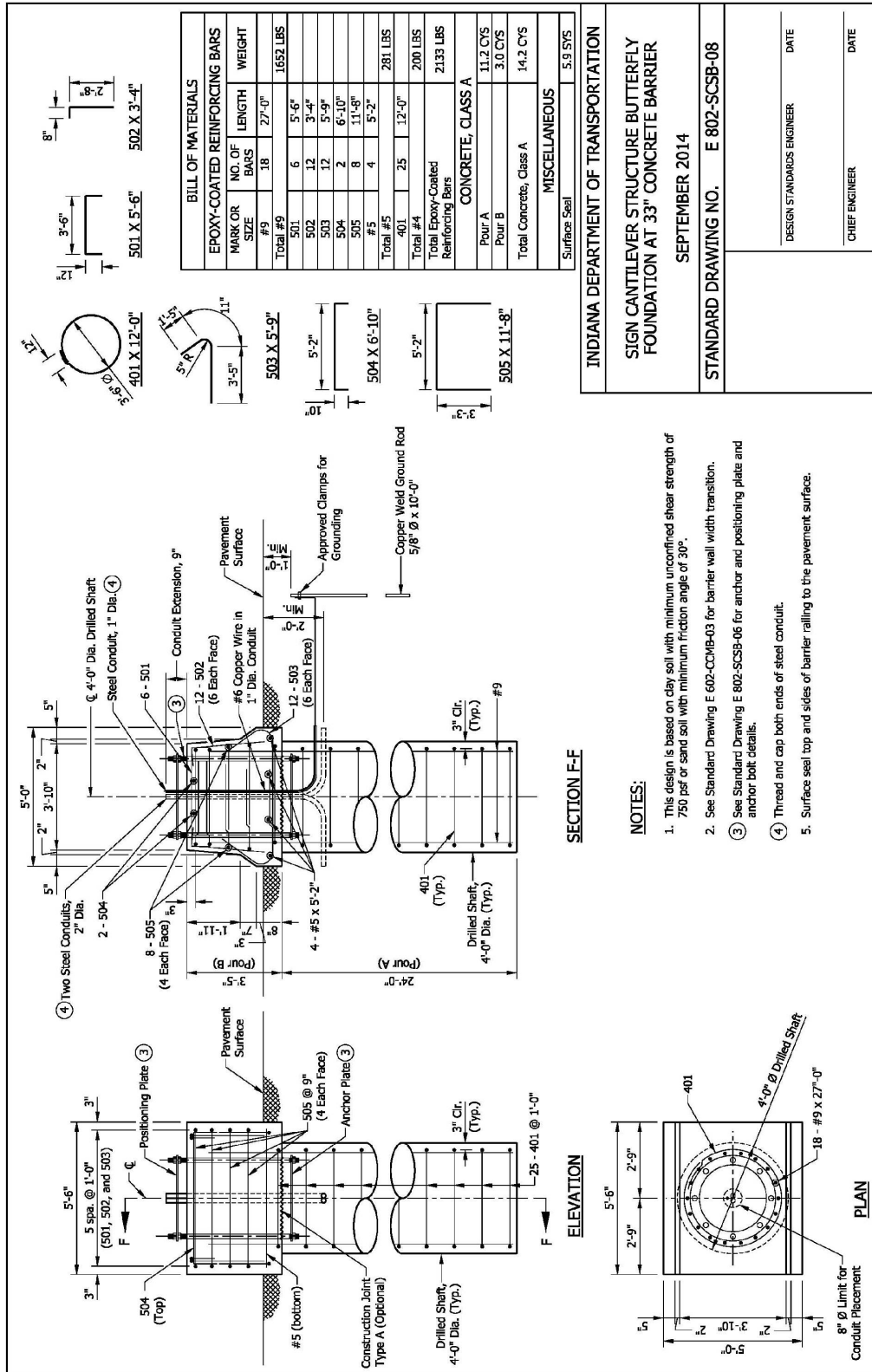
802-SCSB-06 SIGN CANTILEVER STRUCTURE BUTTERFLY BASE PLATE, ANCHOR BOLT, AND METAL SKIRT DETAILS (DRAFT)



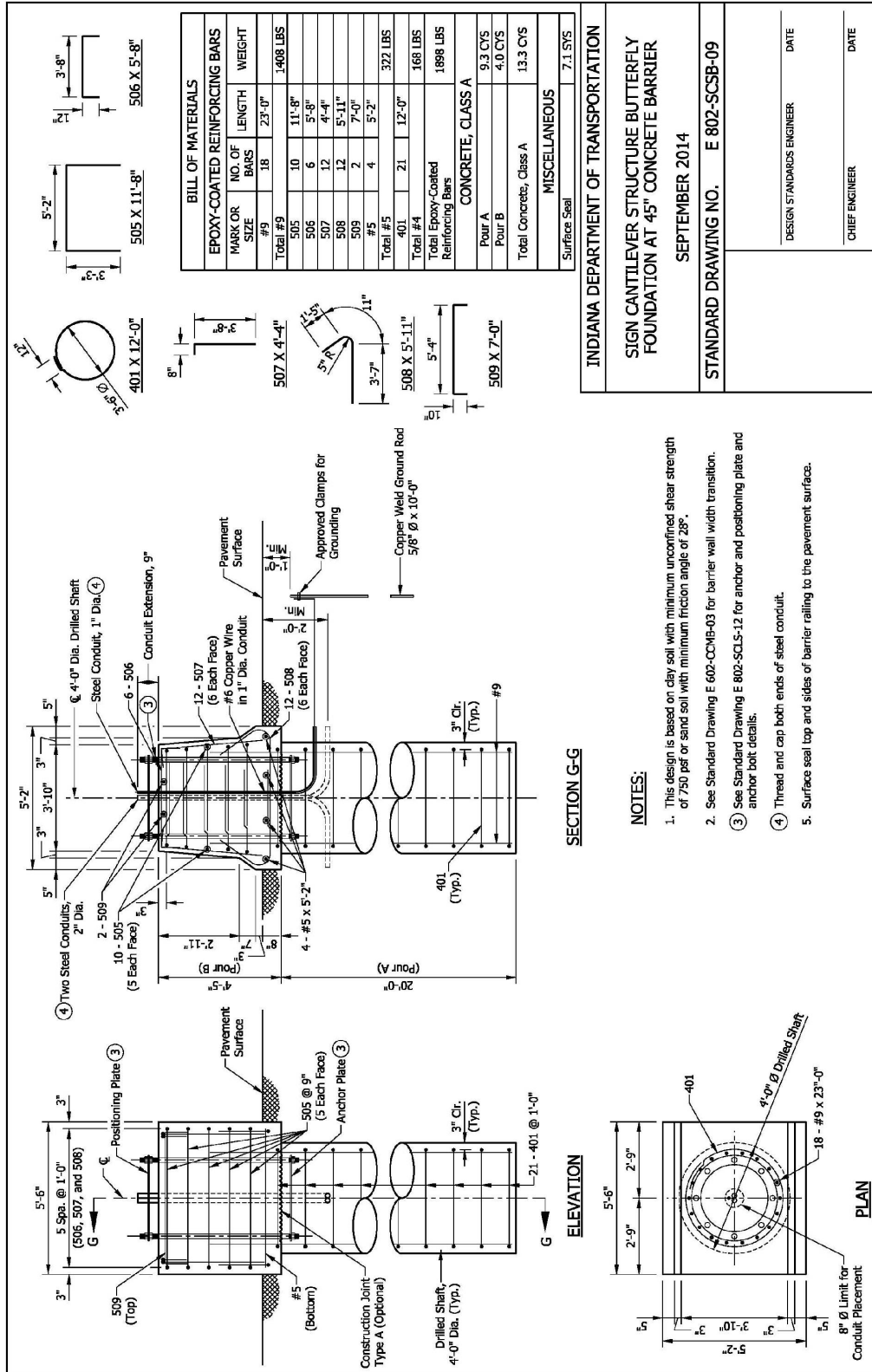
REVISION TO STANDARD DRAWINGS
802-SCSB-07 SIGN CANTILEVER STRUCTURE BUTTERFLY HANDHOLE AND I.D. TAG
DETAILS (DRAFT)



REVISION TO STANDARD DRAWINGS

802-SCSB-08 SIGN CANTILEVER STRUCTURE BUTTERFLY FOUNDATION AT 33"
CONCRETE BARRIER (DRAFT)

REVISION TO STANDARD DRAWINGS

802-SCSB-09 SIGN CANTILEVER STRUCTURE BUTTERFLY FOUNDATION AT 45"
CONCRETE BARRIER (DRAFT)

COMMENTS AND ACTION

802-SCSB-01 THRU -09 SIGN CANTILEVER STRUCTURE BUTTERFLY

Motion: Second: Ayes: Nays:	Action: ☐ Passed as Submitted ☐ Passed as Revised ☐ Withdrawn
Standard Specifications Sections affected:	☐ 2016 Standard Specifications Book ☐ Revise Pay Items List
NONE	
Recurring Special Provision affected:	☐ Create RSP (No. ____) Effective ____ Letting RSP Sunset Date: ____
NONE	
Standard Sheets affected:	☐ Revise RSP (No. ____) Effective ____ Letting RSP Sunset Date: ____
PROPOSED NEW 802-SCSB-01 THRU -09.	
Design Manual Sections affected:	Standard Drawing Effective ____ ☐ Create RPD (No. ____) Effective ____ Letting ☐ Technical Advisory
CHAPTER 75.	
GIFE Sections cross-references:	GIFE Update Req'd? Y ____ N ____ By ____ Addition or ____ Revision
NONE	
	Frequency Manual Update Req'd? Y ____ N ____ By ____ Addition or ____ Revision
	Received FHWA Approval? ____

SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Utility facilities relocated to the incorrect location may result in claims for delay costs due to errant placement of those utilities.

PROPOSED SOLUTION: Revise current Recurring Special Provision 105-C-224 that requires the contractor to provide construction engineering and monitoring of the placement of the utility facilities. The inclusion of this special provision will put the responsibility and motivation on the Contractor for diligent monitoring of placement in the specified areas to ensure that errant placement is identified quickly and that the Contractor will report it expeditiously in the interest of being paid for any potential delays caused by errant placement. Also, any delays, if encountered, may be shorter as a result of being caught in a more timely manner.

APPLICABLE STANDARD SPECIFICATIONS: 105

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: 104

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: 105-C-224

PAY ITEMS AFFECTED: Construction Engineering for Utility Placement

Submitted By: Michelle Gottschalk

Title: Construction Technical Support Director

Organization: INDOT

Phone Number: 317-232-7758

Date: 5/27/2013

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Kenny Franklin, Scott Trammell, Joe Gundersen

REVISION TO SPECIAL PROVISIONS

105-C-224 CONSTRUCTION ENGINEERING AND INSPECTION FOR UTILITY RELOCATION

(Note: The proposed changes are shown as follows:
insertions are in italics and highlighted gray; deletions shown as strikethroughs.
Proposed final draft of this RSP shown as a backup to this item beginning on page 57.)

105-C-224 CONSTRUCTION ENGINEERING AND ~~MONITORING OF INSPECTION FOR~~ UTILITY
RELOCATION ~~WORK~~

(Revised xx-xx-xx)

Description

The Contractor shall provide construction engineering and ~~monitoring of utility inspection for~~ relocation work in accordance with 105.06 and 105.08 (b) ~~of utilities within the areas noted below project limits.~~

Utility Relocation Areas		
No.	Utility	Location and Description

Construction Requirements

Construction engineering ~~for this~~ work shall consist of staking of right-of-way, staking of structure locations, plan reading and interpretation of the plans for the utilities, and all other ~~effort~~ construction engineering work required to facilitate accurate placement ~~relocation~~ of utilities within the areas noted.

~~Monitoring for this inspection~~ work shall consist of observing, measuring, recording and reporting to the Department all utility relocation work within the areas noted. ~~Reports project limits. Inspection reports for utility relocation work shall be prepared daily and submitted to the Engineer weekly. The reports shall be in a format acceptable to the Engineer. A separate report shall be submitted for each utility and shall include at a minimum the name of the utility, the service type, the name of the entity utility's contractor performing the relocation work, the location of the work, and the station, offset and elevation of the utility as measured verification performed by the Contractor. Measurements of the utility's location including elevations. The report shall indicate the location, results, and method of verification. Verification shall be made performed at all critical points for each utility within the areas noted. Critical points are as shown on the plans or as all utilities and planned contract work. The method and frequency of verification shall be determined by the Engineer Contractor.~~

The Contractor shall immediately notify the Engineer of any error greater than the allowable tolerance between the planned location and the actual location of a utility. The allowable tolerance for any error is one-half of the smallest unit of the specified dimension. The planned location of a utility shall be obtained from the specified station, elevation and offset detailed in the approved utility relocation plans, permits and permit addendums. The actual location of the utility shall be measured at the construction site by a field survey. Failure to report any error in a timely manner may result in quality adjustments not to exceed 0.1% of the total contract amount per day until the error is corrected.

REVISION TO SPECIAL PROVISIONS

105-C-224 CONSTRUCTION ENGINEERING AND INSPECTION FOR UTILITY RELOCATION

Utilities shall be relocated only to locations as shown on approved utility relocation plans, permits, and permit addendums as provided by the Department. The Contractor shall record the actual station, elevation and offset of each identified critical point on the plans.

~~The Engineer shall be notified immediately of any discrepancy between the planned relocation of a utility and the actual relocation, within accepted industry tolerances.~~

~~Plans will be provided by the Department showing the proposed location for each utility that will be relocated. The Contractor shall mark the plans to show the actual location of each relocated utility and the data from each verification check. The plans shall be kept current with the utility relocation work and shall be made available to the Engineer upon request. The plans shall be submitted to the Engineer upon completion of the project.~~

The Contractor's responsibility for construction engineering and inspection of utility relocation work shall begin ~~seven~~⁷ days from the date of the notice to proceed and shall continue until the date of final acceptance. Contract adjustments for delays resulting from incorrect relocation of utilities during the Contractor's period of responsibility will only be considered if the Contractor fulfills the requirements herein, *and in accordance with 105.06.*

Method of Measurement

The work described in this provision will not be measured for payment.

Basis of Payment

Payment for furnishing all necessary personnel, equipment, and materials for construction engineering and inspection of utility relocation will be made at the contract lump sum price.

Payment will be made under:

Pay Item

Pay Unit Symbol

Construction Engineering ~~for and Inspection,~~ Utility RelocationLS

The cost of all work required, including utility location verification by the methods determined by the Contractor shall be included in the cost of pay item.

REVISION TO SPECIAL PROVISIONS

BACKUP: PROPOSED FINAL DRAFT OF 105-C-224 CONSTRUCTION ENGINEERING AND
INSPECTION FOR UTILITY RELOCATION

105-C-224 CONSTRUCTION ENGINEERING AND MONITORING OF
UTILITY RELOCATION WORK

(Revised XX-XX-13)

Description

The Contractor shall provide construction engineering and monitoring of utility relocation work in accordance with 105.06 and 105.08(b) within the areas noted below.

Utility Relocation Areas		
No.	Utility	Location and Description

Construction Requirements

Construction engineering for this work shall consist of staking of right-of-way, staking of structure locations, plan reading and interpretation of the plans for the utilities, and all other efforts required to facilitate accurate placement of utilities within the areas noted.

Monitoring for this work shall consist of observing, measuring, recording and reporting to the Department all utility relocation work within the areas noted. Reports for utility relocation work shall be prepared daily and submitted to the Engineer weekly. The reports shall be in a format acceptable to the Engineer. A separate report shall be submitted for each utility and shall include at a minimum the name of the utility, the service type, the name of the entity performing the relocation work, the location of the work, and the station, offset and elevation of the utility as measured by the Contractor. Measurements shall be made at all critical points for each utility within the areas noted. Critical points are as shown on the plans or as determined by the Engineer.

The Contractor shall immediately notify the Engineer of any error greater than the allowable tolerance between the planned location and the actual location of a utility. The allowable tolerance for any error is one-half of the smallest unit of the specified dimension. The planned location of a utility shall be obtained from the specified station, elevation and offset detailed in the approved utility relocation plans, permits and permit addendums. The actual location of the utility shall be measured at the construction site by a field survey. Failure to report any error in a timely manner may result in quality adjustments not to exceed 0.1% of the total contract amount per day until the error is corrected.

Utilities shall be relocated only to locations as shown on approved utility relocation plans, permits, and permit addendums as provided by the Department. The Contractor shall record the actual station, elevation and offset of each identified critical point on the plans. The plans shall be kept current with the utility relocation work and shall be made available to the Engineer upon request. The plans shall be submitted to the Engineer upon completion of the project.

REVISION TO SPECIAL PROVISIONS

BACKUP: PROPOSED FINAL DRAFT OF 105-C-224 CONSTRUCTION ENGINEERING AND
INSPECTION FOR UTILITY RELOCATION

The Contractor's responsibility for construction engineering and inspection of utility relocation work shall begin seven days from the date of the notice to proceed and shall continue until the date of final acceptance. Contract adjustments for delays resulting from incorrect relocation of utilities during the Contractor's period of responsibility will only be considered if the Contractor fulfills the requirements herein, and in accordance with 105.06.

Method of Measurement

The work described in this provision will not be measured for payment.

Basis of Payment

Payment for furnishing all necessary personnel, equipment, and materials for construction engineering and inspection of utility relocation will be made at the contract lump sum price.

Payment will be made under:

Pay Item

Pay Unit Symbol

Construction Engineering for Utility Relocation.....LS

The cost of all work required, including utility location verification by the methods determined by the Contractor shall be included in the cost of pay item.

COMMENTS AND ACTION

105-C-224 CONSTRUCTION ENGINEERING AND INSPECTION FOR UTILITY RELOCATION

Motion: Second: Ayes: Nays:	Action: ☐ Passed as Submitted ☐ Passed as Revised ☐ Withdrawn
Standard Specifications Sections affected: SECTION 105. Recurring Special Provision affected: 105-C-224 CONSTRUCTION ENGINEERING AND INSPECTION FOR UTILITY RELOCATION Standard Sheets affected: NONE Design Manual Sections affected: NONE GIFE Sections cross-references: NONE	☐ 2016 Standard Specifications Book ☐ Revise Pay Items List ☐ Create RSP (No.) Effective Letting RSP Sunset Date: ☐ Revise RSP (No.) Effective Letting RSP Sunset Date: Standard Drawing Effective ☐ Create RPD (No.) Effective Letting ☐ Technical Advisory GIFE Update Req'd.? Y ☐ N ☐ By Addition or Revision Frequency Manual Update Req'd? Y ☐ N ☐ By Addition or Revision Received FHWA Approval?