Date & Time: Monday, March 21, 2016 (9:30 a.m.)

Location: Truax Lab, Antigo Silt Conference Room – Madison, WI

ITEM	DATE	DESCRIPTION	STATUS	DUE DATE	BALL IN COURT
1.10	3/21/16	Bar Steel Reinforcement Bid Items Industry has concern that change to "Bar Steel Reinf Structures" from individual Bridges, Culverts, and Retaining Wall bid items may cause issues with contract administration. Specific concern is that projects with multiple structure types and a different prime contractor or potentially different subs, etc. will have to use blended prices (bidding complications), subsequently causing problems when quantity over/underrun issues arise. *Due to the fact that this change is just now starting to show up in plans, this item will be reviewed over the next year to see if there is cause to revise bid items to be more specific. If issues arise, this item should be brought to the Bridge Tech Committee meeting as it is a contract administration item more than a specific structural detail item.*	Closed	N/A	N/A
1.11	3/21/16	Concrete Overlays at Expansion Joints Standard plan detailing calls for a full-depth paving block and end diaphragm pour to be done monolithically with the concrete overlay. Historically this detail has not been constructed this way – industry has held the paving block and end diaphragm pours down to the bottom of the overlay elevation and comes through with paving equipment to pour the overlay over the joint. BOS's concern is for the long-term maintenance of the paving block to resist spalling. Industry's concern is with getting a satisfactory ride quality on both sides of the joint. *Industry will follow up to determine exactly why the current detail can't be followed, particularly why the paving blocks at both ends can't be poured full-depth. BOS will review the detail and potentially allow for the contractor to pour the end diaphragm prior to pouring the concrete overlay on the deck side of the joint (i.e., optional construction joint below the overlay on the deck side). Any updates with come in the form of Standard detail updates in the next update to the Bridge Manual.* 2016-03-21: David Stanke discussed Zenith Tech's approach to constructing these bridge elements with BOS at the Bridge Tech Committee meeting. David indicated that the paving block located on the side of the bridge where the paving machine starts the overlay pour	Open	7/2016	WisDOT/WTBA

		is partially poured with the overlay, and the opposite end of the bridge's paving block is poured full-depth ahead of time. 2016-03-24: Dan Kowalski followed up with a phone call to BOS based on his research into how Lunda constructs this detail. Dan indicated that Lunda has historically poured the paving block to the bottom of the extrusion and finishes the paving block pour with the overlay. Dan stated that there are issues with moving batch trucks over the joint on wider pours and also that matching in the overlay pour with a previously completed paving block pour would cause the ride to be compromised. Another item of note is that field engineers/personnel have routinely told the contractors to hold the pours down to improve the ride at the joint, conflicting with the plan details.			
1.12	3/21/16	Substructure Reinforcing Steel Conflicts Contractors routinely encounter reinforcing steel in substructures when drilling for bearing anchor bolts. Designers should account for potential conflicts by bundling bar steel, utilizing or allowing for embedded blockout cans (in certain situations only as they are difficult to use in the field for industry), and providing allowable clearance details in the plans for clarification. WTBA recommended that a minimum of 4" clear for anchor bolts be used as guidance. WTBA also recommended that as much clear space as possible (5" to 6") be provided to allow for vibrating equipment, flow of concrete, etc. Zenith Tech stated that they utilized coped flanges on prestressed girders to allow for easier flow of concrete at diaphragm locations. *BOS will provide guidance to in-house and consultant designers with clearance recommendations and potential coped girder flange standard detailing in future updates to the Bridge Manual, and will mention both items at the June 2016 Structural Engineers Symposium.*	Open	11/2016	WisDOT
1.13	3/21/16	Bridge Widening Design & Constructability Industry indicated that it is very difficult to accommodate differential deflections and falsework creep when widening bridges during deck or slab pours. The current specifications with respect to pour rates limit the flexibility industry has to pour concrete to induce the deflections and then come back and finish the deck. Industry also indicated that they work to adjust grades in the field and it is highly dependent on the field engineer	Closed	N/A	N/A

		on the project if those adjustments are kept or revised. Industry indicated that preferred options to improve the outcome of deck widenings or staged construction pours would be the use of different pour rates, preloading girders with concrete, adding retarders, or using closure pours and overlaying the entire deck. *At this time WisDOT is not pursuing the use of the aforementioned preferred options and no further follow-up is needed as there is no historical evidence that these staged pours are causing long-term maintenance issues for WisDOT.*			
1.14	3/21/16	Cast-In-Place Parapet Reinforcing Steel Industry has expressed concerns that vertical face parapet bar steel extending out of deck causes issues with paving equipment during the deck pour. This is also an issue at wing locations. *BOS is currently working on updated Standard parapet reinforcing steel detailing and will provide guidance through the next update to the Bridge Manual.*	Open	7/2016	WisDOT
1.15	3/21/16	Pedestrian Bridge Curb Pours Industry brought up concerns that certain project staff allow separate deck and curb pours on pedestrian bridges, and other staff do not. The workmanship and efficiency are improved if two separate pours are allowed. WisDOT has historically had concern with water and deicing chemicals passing through the cold joint and negatively affecting the rate of corrosion of steel prefabricated truss members. *BOS will review this issue and determine whether alternatives can be presented to contractors for use in the field (i.e., monolithic pour vs. two pours and use of waterstop, etc.).*	Open	11/2016	WisDOT
1.16	3/21/16	Expansion Device Anchors on Ped Bridges BOS realizes that some designers are utilizing the Standard details for expansion joints without modifications on pedestrian bridges and the contractors need to field modify the anchors to fit within thinner decks on pedestrian bridges. *BOS will review this issue and provide updated guidance and potential Standard detail updates to the next update to the Bridge Manual.*	Open	7/2016	WisDOT
1.17	3/21/16	Box Culvert Construction Joint in Walls Lunda brought up the fact that the horizontal construction joint located 5½" above the top of the bottom slab is routinely asked to be removed in the field,	Open	7/2016	WisDOT

		and at times is allowed. *BOS will research this history of this joint being placed in the plans and determine if a modification to Standards and standard detailing in plans is necessary to match current construction practices.*			
1.18	3/21/16	3D Models/Plan Details BOS asked industry for their take on whether 3D models or plan details would be beneficial. Industry indicated that getting electronic files of any type, even 2D, would be helpful. Industry also mentioned that their staff build off of the 2D plans and that they are sufficient at this point. 3D models would be useful in certain areas (beam seat elevations, etc.) if they would be able to be handed directly to industry for use (i.e., steel fabrication models to be used by steel fabricators, etc.). Industry did mention that 3D models couldn't be used to pour bridge decks similar to roadway paving use of GPS because the deck thickness and relation of top of deck to reinforcing steel is what dictates where the deck is placed. *At this point, no further follow-up is required but BOS intends to continue to look for ways of utilizing 3D in an efficient manner.*	Closed	N/A	N/A
1.19	3/21/16	Construction Staging Clearances on Bridge Plans Zenith Tech brought forth the issue of construction staging clearances and the need for designers to fully assess the adequacy of the plan requirements. Staged construction joint locations on plans must physically be able to be met with some allowance for working room by field staff. Structural designers should work directly with roadway designers to make sure that adequate clearances are provided. *BOS will incorporate industry's concerns into the Structural Engineers Symposium to be held in June 2016 so that all designers, both WisDOT and consultants, are reminded that they should be looking at this issue during the design process.*	Open	7/2016	WisDOT

Bridge Technical Committee - Structures Design & Construction Subcommittee
Annual Meeting 3/21/2016 Sign In Sheet

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Agenda

Bridge Tech Committee – Structures & Construction Subcommittee Meeting

Truax Lab – Antigo Silt Conference Room
Monday, March 21st, 2016
9:30 – 11:30 AM

Agenda topics

1.	Introductions	5 minutes
2.	Subcommittee Background, Purpose, & Intended Outcomes	5 minutes
3.	Bar Steel Reinforcement Bid Items (Joe Larson)	10 minutes
4.	Concrete Overlay Construction at Expansion Joints	20 minutes
5.	Expansion Bearing Anchor Bolts and Substructure Reinforcing Conflicts	20 minutes
6.	Bridge Widening Design and Constructability	15 minutes
7.	Parapet Reinforcing Steel Cast into Decks on Pedestrian Bridges	15 minutes
8.	Expansion Device Anchors on Pedestrian Bridges	5 minutes
9.	3D Models/Plan Details – Contractor's Input and Perspective	5 minutes
10.	Action Items	

Bridge Technical Committee
Structures Design & Construction Subcommittee

Subcommittee Purpose

The Bridge Technical Committee (BTC) is a statewide industry meeting held between various WisDOT business areas including Bureau of Structures (BOS) staff; FHWA; WTBA personnel and industry representatives; materials and products fabricators; and consultant structural engineers. While the BTC serves its role in addressing large scale policy issues, there is a need to hold in depth discussions related to structures design and detailing issues, and how they affect the constructability of structures in the field. The main purpose of the BTC Structures Design & Construction Subcommittee is to be able to have a standing meeting at which industry can provide insight to improve the constructability of the designs that are produced by WisDOT BOS staff.

Scope and Intended Subcommittee Outcomes

The BTC Structures Design & Construction Subcommittee will initially meet annually in conjunction with the summer BTC meeting. The summer meeting time has been chosen to allow a portion of the given construction year to occur, allowing industry to be able to assemble current issues to bring to the subcommittee to be discussed. While the initial scope will involve one meeting per year, adjustments can be made as the subcommittee deems necessary.

Issues addressed by this subcommittee are intended to be directly related to structures designs and plans. The intent is to get industry's feedback pertaining to specific details routinely encountered within structures plans that cause issues or are regularly adjusted in the field. As these topics are discussed and addressed by the subcommittee, the objective is to be able to rapidly adjust designs and policies to meet the needs of industry while maintaining the structural integrity of the design. It is anticipated that adjustments will be made to Bridge Manual policies and BOS Standard Detailing guidance, in addition to specifications as necessary.

Meeting minutes will be taken by WisDOT BOS personnel and will be available for viewing through the WisDOT BOS webpage.

Intended Attendees / Subcommittee Members

The intended subcommittee members are primarily WisDOT BOS structures design engineers and WTBA bridge contractors. Aaron Bonk, BOS Design Unit Supervisor, will act as the subcommittee chair and WisDOT BOS will provide 5-7 other staff at each annual meeting. It is the goal of the subcommittee to get representatives, both field project managers and contractor management, to partake in this subcommittee as well. In order to keep the meeting productive and targeted, the target industry representation is 7-10 persons.

Please note that the intent is to not include consultant structural design engineers in this subcommittee initially in order to keep the group size reasonable to remain effective in meeting the intended goals. BOS will transmit information gained through these subcommittee meetings through updates to design policies and memorandums sent to all of WisDOT's consultant engineering partners.

Bridge Technical Committee
Structures Design & Construction Subcommittee

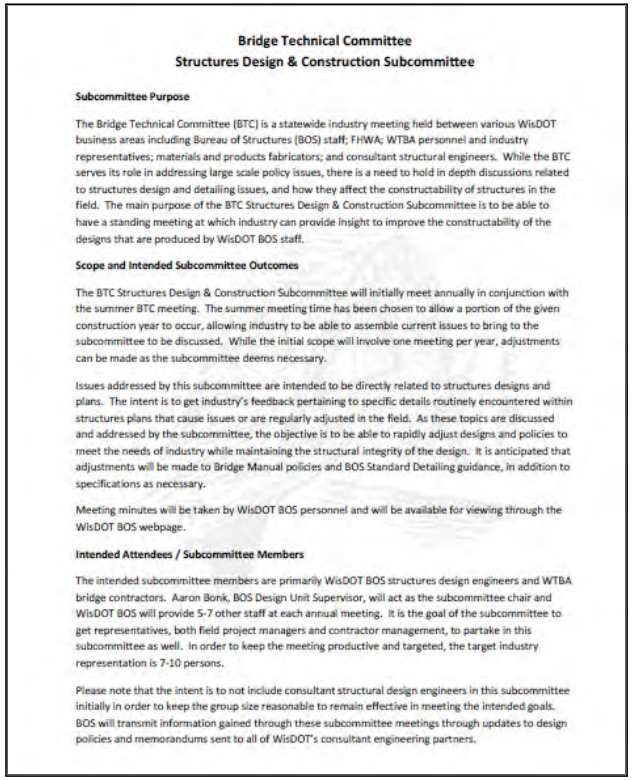
March 21, 2016

Agenda

- Introductions
- Subcommittee Background, Purpose, & Intended Outcomes
- Bar Steel Reinforcement Bid Items
- Concrete Overlay Construction at Exp. Joints
- Expansion Bearing Anchor Bolts and Substructure Reinforcing Conflicts
- Bridge Widening Design & Constructability
- Parapet Reinforcing Steel Cast into Decks on Pedestrian Bridges
- Expansion Device Anchors on Pedestrian Bridges
- 3D Models/Plan Details
- Action Items

Background, Purpose, & Outcomes

- Group comprised of WisDOT structural design engineers and industry representatives
- Recent design and construction issues highlighted need for pointed discussions
- Desire to improve constructability of structures designs/plans
- Rapid adjustments to designs and policies while maintaining structural integrity of designs



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Bar Steel Reinforcement Bid Items

- Change was made based on historical bid history data being comparable between the separate bid items
- Change was discussed at 4/30/15 Bridge Tech meeting
- Industry concern about blended prices (used to have individual “Bridges”, “Culverts”, and “Retaining Walls” bid items)

Replace separate Bar Steel bid items for bridges, culverts, and retaining walls with a single structures item.

505.0100	Bar Steel Reinforcement Structures	LB
505.0400	Bar Steel Reinforcement HS Structures	LB
505.0600	Bar Steel Reinforcement HS Coated Structures	LB
505.0904	Bar Couplers No. 4	EACH
505.0905	Bar Couplers No. 5	EACH
505.0906	Bar Couplers No. 6	EACH
505.0907	Bar Couplers No. 7	EACH
505.0908	Bar Couplers No. 8	EACH
505.0909	Bar Couplers No. 9	EACH
505.0910	Bar Couplers No. 10	EACH
505.0911	Bar Couplers No. 11	EACH
506.0105	Structural Steel Carbon	LB
506.0605	Structural Steel HS	LB
506.1005	Castings Steel	LB
506.1010	Castings Bronze	LB

Concrete Overlays at Exp. Joints

- Standard structures detailing practices

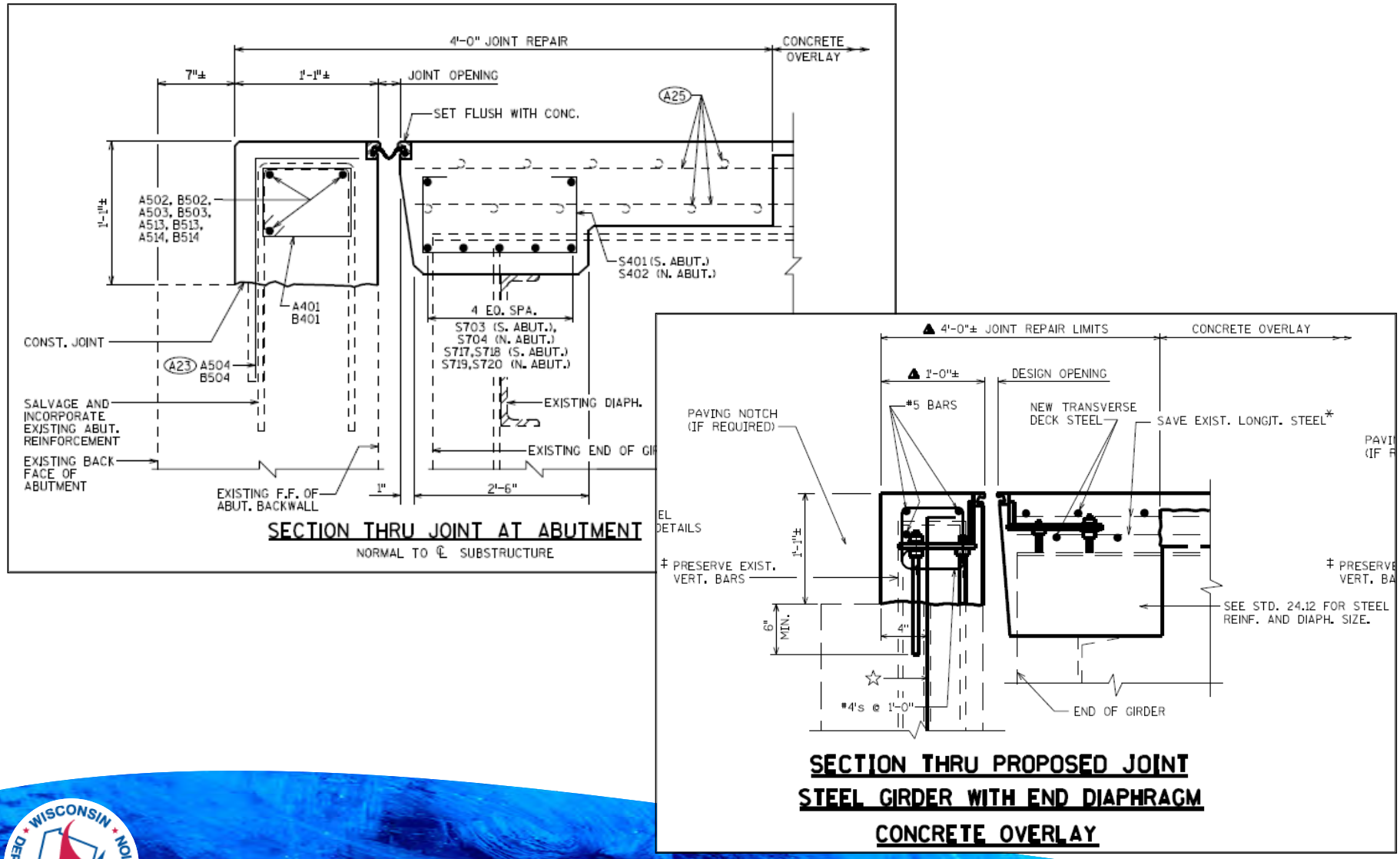
  ≠

  Standard construction practices

- Historical detailing practices show that paving block and end diaphragm are to be poured monolithically up to the top of overlay elevation

- Historical construction practice has been to pour paving block and end diaphragm to bottom of overlay, and follow-up with overlay over the length of bridge including the paving block

Concrete Overlays at Exp. Joints



Concrete Overlays at Exp. Joints

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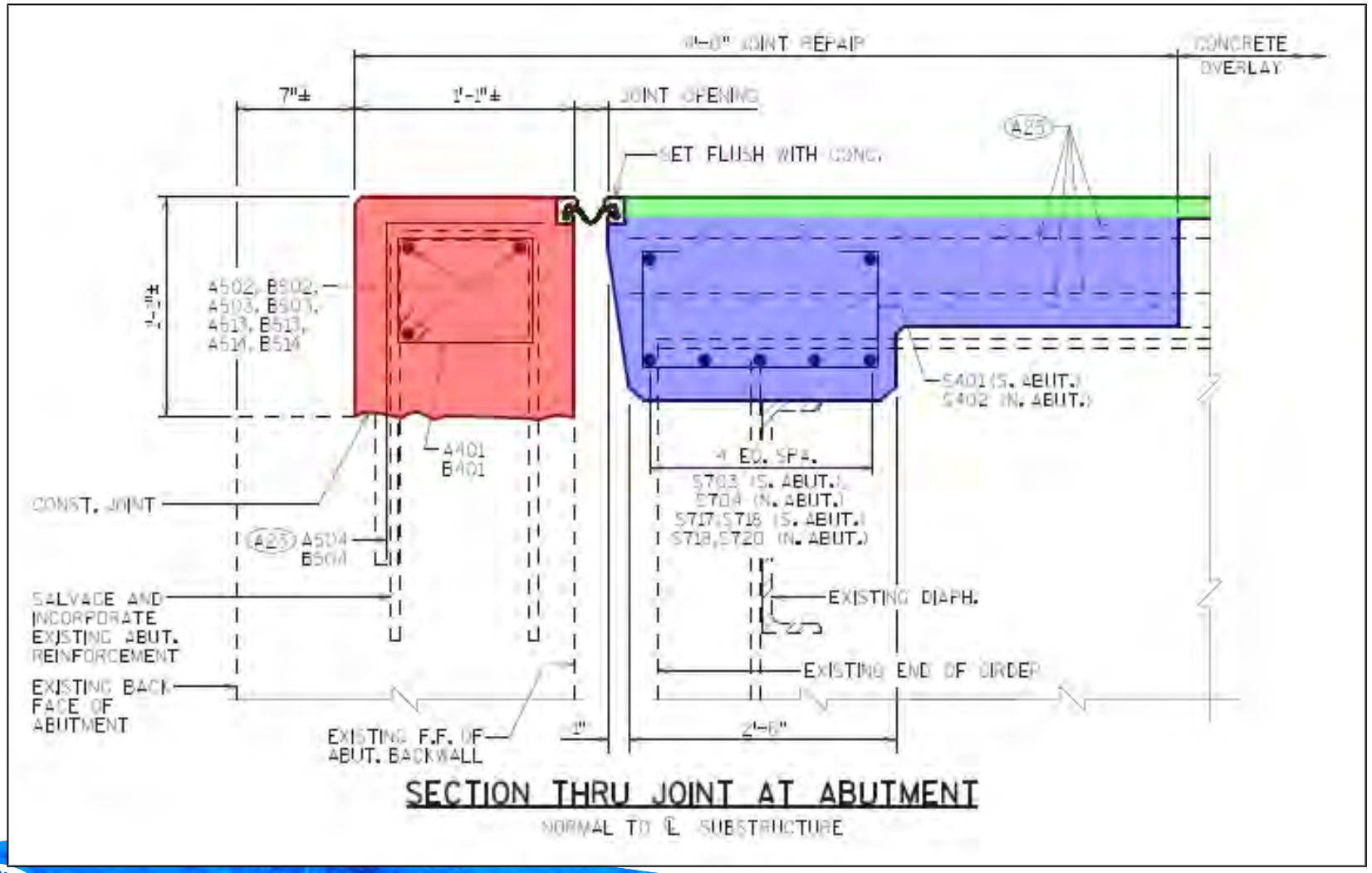


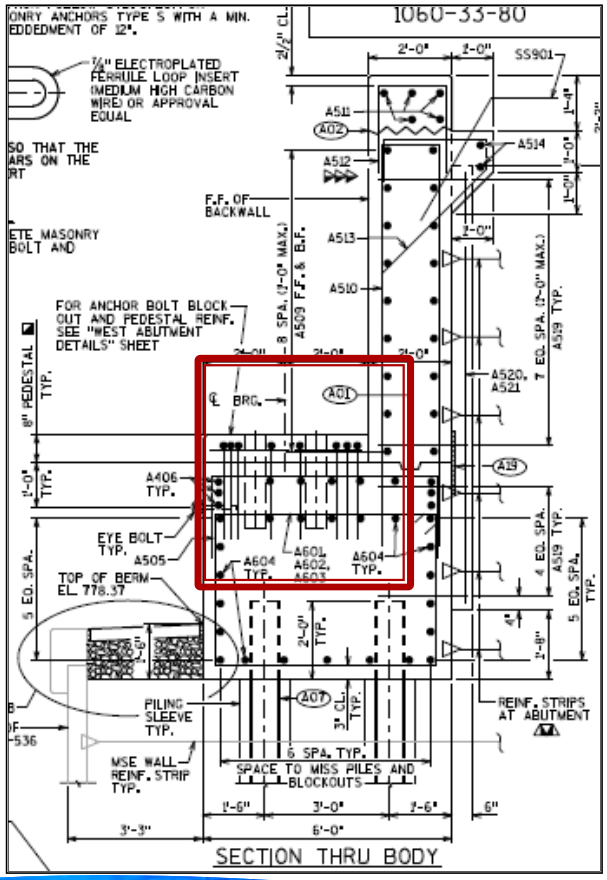
Anchor Bolts & Substructure Reinf. Conflicts

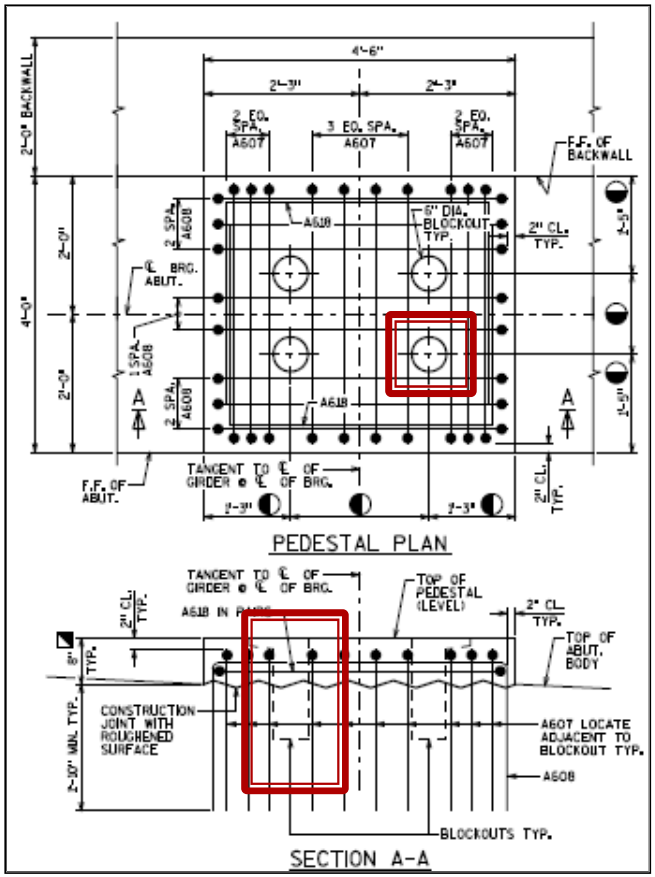
- Contractors drilling into conflicting substructure reinforcement when trying to install anchor bolts for girder bearings

- Construction possibilities (may be done already)
  - Anchor bolt templates while tying rebar cages
  - RFI to designer to bundle reinforcing steel
  - Other ideas?

Anchor Bolts & Substructure Reinf. Conflicts

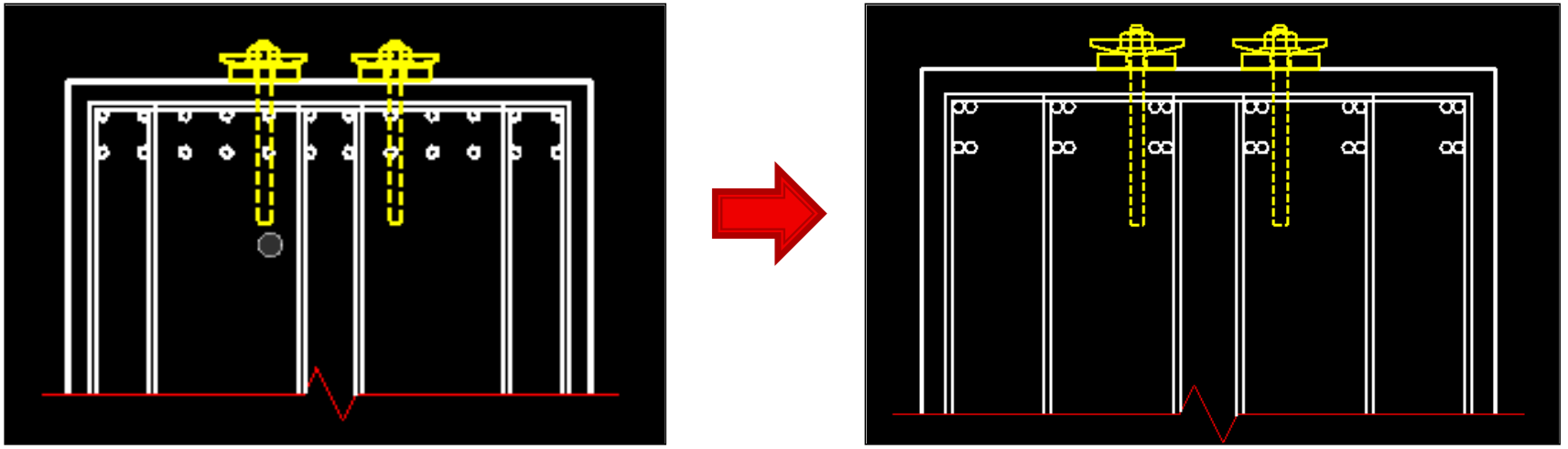
- One potential option in design – ANCHOR BOLT BLOCKOUTS





Anchor Bolts & Substructure Reinf. Conflicts

- Another potential option in design – BUNDLING BARS



- Better design and planning in the field should be able to limit this issue – especially on new structures
- If conflicts are encountered in the field, inquire with BOS for potential fixes/solutions

Bridge Widening Design & Constructability

- When widening a slab bridge, how do contractors match in-place work with fully cambered new work?

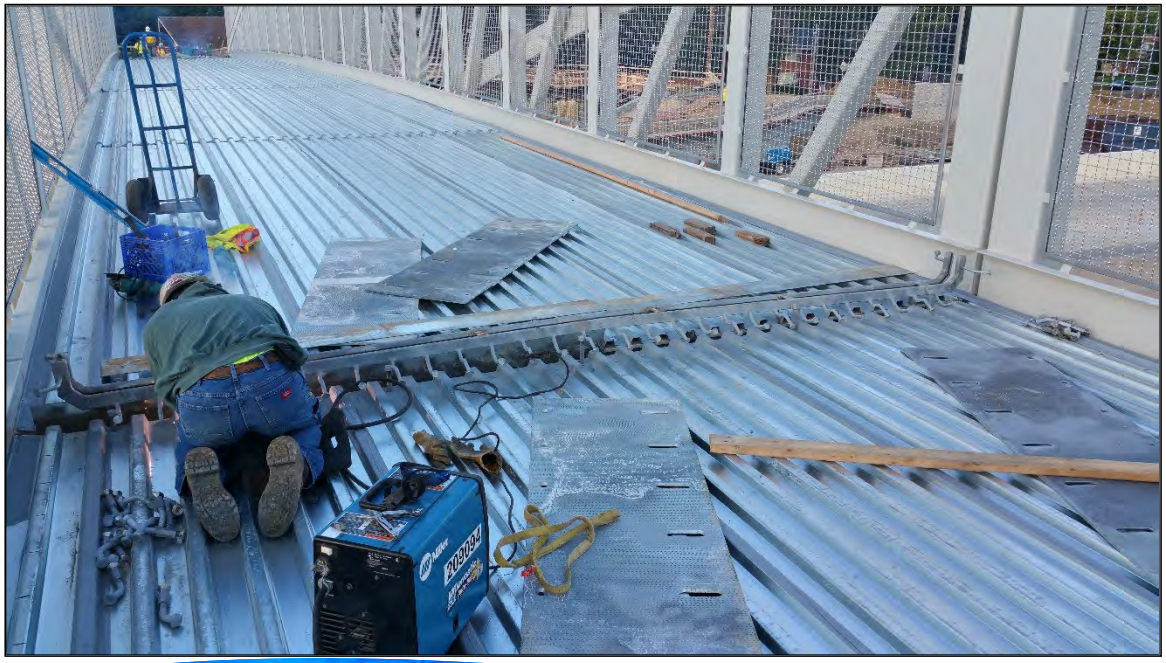
Parapet Steel on Pedestrian Bridges

- Need for different paving equipment on pedestrian bridges to get above embedded parapet bar steel?
- BOS is working on new standard details for “shorter” cast-in bar protrusions (anticipated completion: July Bridge Manual update)

Parapet Steel on Pedestrian Bridges

Expansion Joint Anchors on Pedestrian Bridges

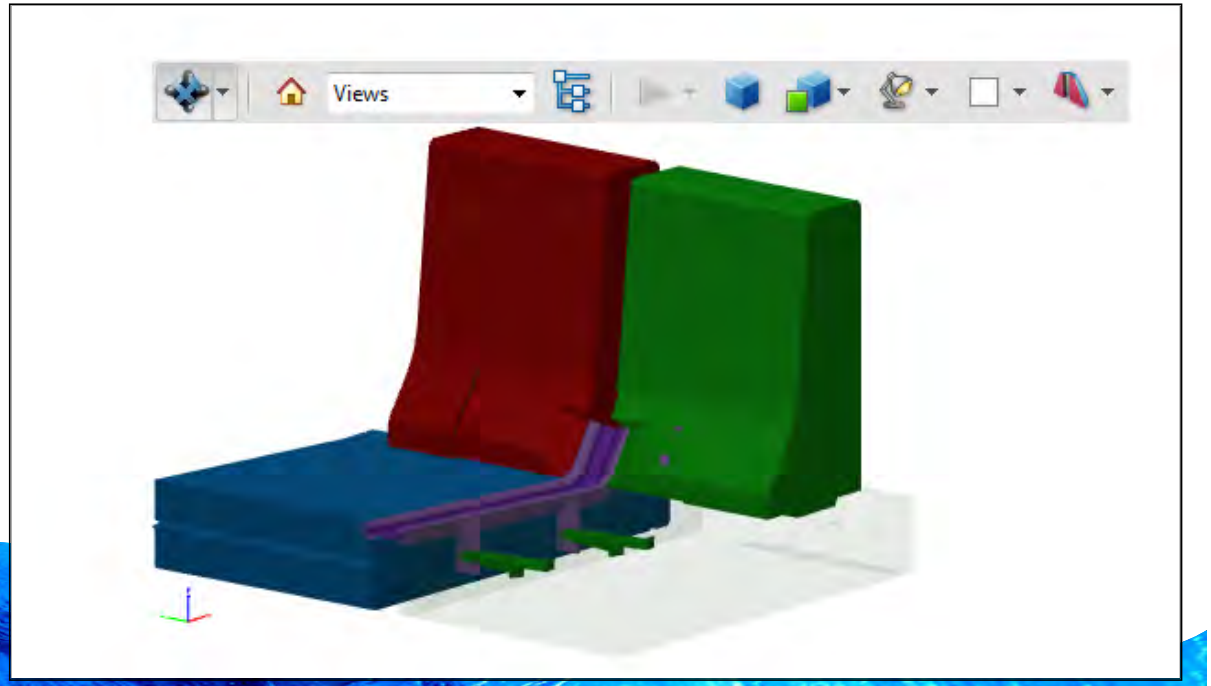
- Are shear studs on expansion devices routinely being adjusted in the field because of detail errors?



3D Models/Details – Contractor's Perspective

- National movement working towards 3D models
- What is industry's perspective on this potential shift?
- Are certain areas of structures plans more beneficial to have 3D models for use?
- Are 2D plan sets working fine and there is no reason to change, just to change?

- 3D PDF Example



Action Items

- To be determined

- Thank you for your time and insight – it is greatly appreciated!