

**Date & Time:** Wednesday, April 21, 2021 (2:00 p.m.)

**Location:** Virtual

ITEM	DATE	DESCRIPTION	STATUS	DUE DATE	BALL IN COURT
3.10	3/28/18	Jacking Loads on Structure Plans	Open	<del>7/2018</del> <del>7/2019</del> 7/2021	WisDOT

David Stanke inquired about bridge design engineers including jacking loads on plans requiring jacking. It has been BOS's stance that there are many variables that are controlled by the means and methods of jacking which preclude designers from placing accurate loads on the plans. David Stanke stated that industry is only looking to get service dead loads (and potentially live loads in the event that jacking is required to be done under traffic) from designers. Dave Kiekbusch stated that in a survey of other North Central States, 6 of the 7 states stated that they provide loads. BOS will review this issue, will consider adding loads on the plans, and if it is decided to go this route a policy item will be added to the Bridge Manual.

2019-03: BOS Development continues to review this issue and plans on developing a resolution in the coming months. Anticipated delivery timeline for this resolution is within the next year.

2021-04: July edition of Bridge Manual will include information on this. Intent is to include loads on plans and clarify what loading condition the table of loads applies to in order for contractors to be able to adjust to their particular situation.

5.10	4/21/21	Field Welding on Piling to Attach Falsework	Open	7/1/2021	WisDOT
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Tim MacLaughlin-Barck indicated that the field responses to contractors welding to abutment piling or coring holes through the tops of abutment/pier piling are dramatically different from project to project. These attachments/modifications are made to support rebar cages and/or formwork for the different pours. Additionally, there was discussion about the fact that field welding is the only way that formwork is able to be completed on concrete faced timber lagging walls. WisDOT BOS will look into this issue and work with others within the Department to try to clarify what can/cannot be done either through specifications or details.

5.11 4/21/21 Falsework Bolts Through Piling in Piers/Formwork Bolting Conflicts Open 7/1/2021 WisDOT

This issue is similar in nature to item 5.10 and should be considered in conjunction with the research done on that item.

5.12 4/21/21 Protective Surface Treatment Application on Small Projects Closed

Tim MacLaughlin-Barck indicated that he was looking for clarification on whether contractors should be charging time for projects when they are waiting on the deck to cure prior to protective surface treatment placement. Tim also indicated that the 2022 standard specifications address this issue, so no follow-up is needed.

5.13 4/21/21 3D Models/Plan Details Closed

\*\*This item is a continuation of item 1.18 from the meeting on 3/21/16.

3/21/16: 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.*

2021-04: BOS is looking to get any updated thoughts/opinions on whether 3D models would have any benefit to industry. Jason Samz indicated that ZTI is moving towards 100% 3D models for internal construction engineering and that they would gain value from receiving models from structures engineers. Jason indicated that they'd get value out of "for information only" files as it is better than starting their models from scratch. Laremy Sacia indicated that Lunda has not gone down the path of 3D models to date as they haven't been required.

5.14 4/21/21 CRI Process – Development and Acceptance Closed

Industry would like to get feedback from BOS on how CRI's of all sizes are being reviewed. Are "smaller" CRI's being reviewed by BOS or is the project team providing a response without input? What is the formal process that WisDOT utilizes for CRI's? Aaron Bonk stated that the formal process is that contractors need to submit CRI's through the construction project team, the project team develops a response (which involves getting BOS insight on structures related requests), that response gets sent to a statewide CRI review committee for review/comment, and then the official response is sent to the contractor. If contractors do not feel that BOS is getting pulled in adequately, then they should make the request to have a discussion with the construction project team and BOS to appropriately review CRI's.

5.15 4/21/21 Partial-Depth Precast Deck Panel Detailing Closed

BOS is looking to get feedback from industry on the details that were developed for the IH 94 NS project and why they were not used. This system was inserted into the contract to help with the construction timelines of the project, but both contractors involved elected to pay to redesign the decks to remove these elements. Jason Samz and Laremy Sacia both indicated that there were project specific issues that didn't lend the IH 94 NS project to need to utilize these elements (access to strip forms, suppliers charging premiums for precast members, etc.). Jason indicated that there weren't detail issues with the contract plans that would lead these details to be a fatal flaw on the right project situation in the future.

5.16 4/21/21 Demolition Means/Methods Involving DNR Closed

Industry would like to have more clarification on what will/will not be allowed for the different levels of removals as WisDOT/WDNR enforcement has not been consistent in the past. Aaron discussed the current STSP's and the future Standard Spec Bid items that are used to cover these structure removals. Aaron also discussed updated CMM guidance that has been/is being developed to assist with statewide consistency on project enforcement. If additional coordination is needed, BOS can be engaged for project-by-project discussions, but more guidance that can be provided to

gain statewide project implementation consistency the better.

5.17 4/21/21 Partial Removals of Abutment Backwalls/Wingwalls Open 7/1/2021 WisDOT

Industry would like WisDOT to allow saw cutting of abutment backwalls and upper wings to the removal limits shown on the plans, and drill and epoxy reinforcement back in. Preserved portions are prone to significant spalling and saving the existing rebar is questionable. Dave Kiebusch indicated that research underway to study this situation in WHRP. Current stance is to not allow this due to adhesive anchor design issues, close spacing, constant tension in these members, etc. Jason Samz also indicated that the contractor's ability to get paid for replacing deteriorated reinforcement (not damaged during removals), is an issue that should be addressed. BOS will review plan notes and specifications to clarify payment for replacement deteriorated bars.

5.18 4/21/21 Concurrent Structural Approach Slab Pours Closed

WisDOT is inquiring if there are better ways of detailing this so that the finished product that we get is of a higher quality? We have had multiple issues on concurrent pours, and BOS would like to improve constructability of the detail to improve quality if industry still wants to be using it. Luke Haun indicated that some other states allow for sawcuts in lieu of HDPE plates, and will pass this information along to WisDOT BOS for review. Industry can provide additional input to BOS for review and comment as they see fit if they'd like to continue the use of concurrent pours on future projects.

5.19 4/21/21 Elimination of Hat Bars on Steel Girder Bridges Closed

Industry didn't indicate that there were particular project situations where removal of the plan-detailed hat bars for taller shear studs would be beneficial. No significant discussion on this topic.

5.20 4/21/21 Allowance for Sawcutting P/S Girder Stirrups Closed

Jason Samz inquired about the ability for contractors to sawcut the horizontal legs of shear stirrups projecting out of the top flange of prestressed girders. This has been reviewed in the past and James Luebke indicated that from an analysis/code check standpoint, there is little ability to remove portions of those horizontal legs.

Further consideration of this will be made on a case-by-case basis.

**Bridge Technical Committee - Structures Design & Construction Subcommittee**  
**Meeting 4/21/2021 Sign In Sheet**

Name	Title	Company	Email
Bill Oliva	Chief Structures Development Engineer	WisDOT BOS	<a href="mailto:william.oliva@dot.wi.gov">william.oliva@dot.wi.gov</a>
Aaron Bonk	Chief Structures Design Engineer	WisDOT BOS	<a href="mailto:aaron.bonk@dot.wi.gov">aaron.bonk@dot.wi.gov</a>
Dave Kiekbusch	Development Supervisor	WisDOT BOS	<a href="mailto:david.kiekbusch@dot.wi.gov">david.kiekbusch@dot.wi.gov</a>
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Tim MacLaughlin-Barck		Larson	<a href="mailto:tim@larsonbridges.com">tim@larsonbridges.com</a>



## Bridge Tech Committee – Design & Construction Subcommittee Meeting

**Date:** April 21, 2021

**Time:** 2:00 pm - 3:30 pm

**Location:** Virtual

### Agenda Items

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	1.	Introductions	All
5 min	2.	Review of the Intent of Subcommittee	Bonk
5 min	3.	Jacking Loads on Structures	Kiebusch
10 min	4.	Field Welding on Piling to Attach Falsework (Snap ties, etc.)	Industry
10 min	5.	Falsework Bolts Through Piling in Piers/Formwork Bolting Conflicts	Industry
10 min	6.	Protective Surface Treatment Application on Small Projects	Industry
5 min	7.	3D Models/Plan Details	Bonk
5 min	8.	CRI Process – Development and Acceptance	Bonk
5 min	9.	Partial-Depth Precast Deck Panel Detailing	Bonk
5 min	10.	Demolition Means/Methods Involving DNR	Bonk
5 min	11.	Partial Removals of Abutment Backwalls/Wingwalls	Kiebusch
10 min	12.	Concurrent Structural Approach Slab Pours	Luebke
10 min	13.	Elimination of Hat Bars on Steel Girder Bridges	All
5 min	14.	New Action Items Review	Bonk



# Bridge Technical Committee Structures Design & Construction Subcommittee

April 21, 2021



# Agenda

- Introductions
- Review of the Intent of Subcommittee
- Carryover Items
  - Jacking loads on structure plans
- New Industry Items
  - Field welding, falsework bolting, protective surface treatment
- New WisDOT Items
  - 3D models, CRI process, precast deck panels, structure removals, approach slab pours, hat bar elimination
- Review of Action Items



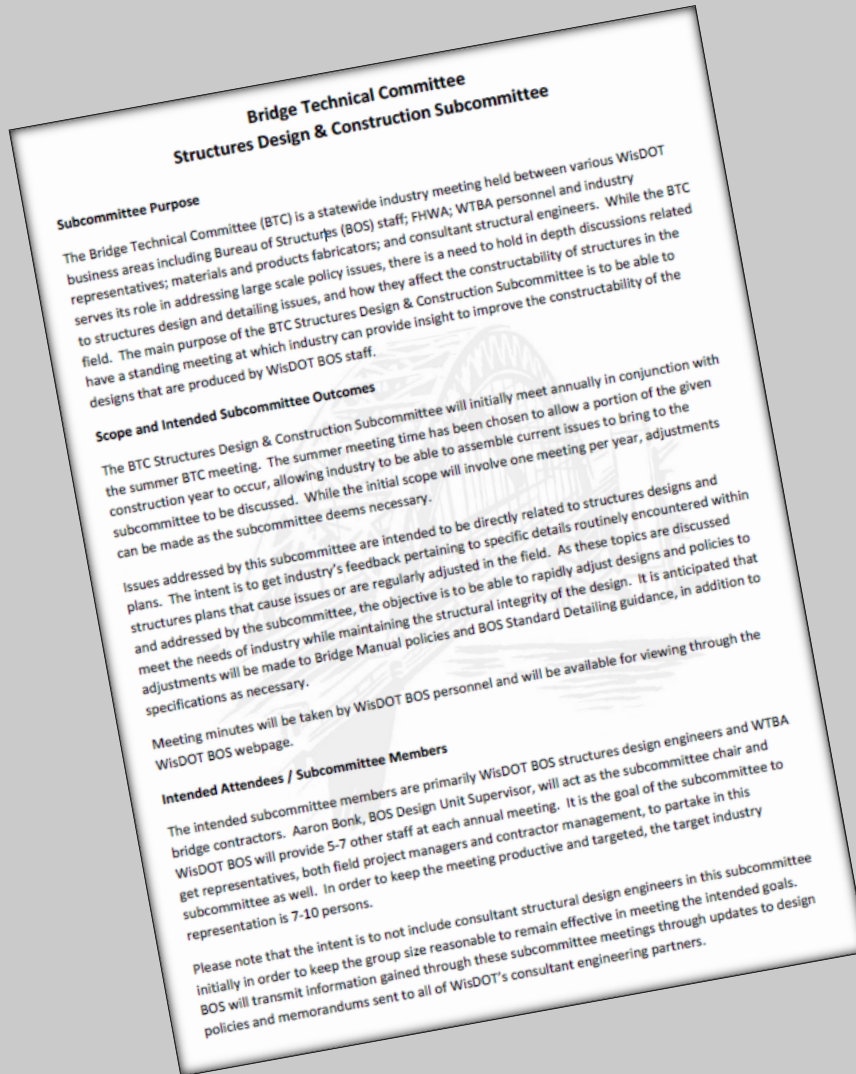
# Introductions

- Name
- Organization you work for
- What is your role within your organization
- How long have you been working in bridges/structures



# Review of Subcommittee Intent

- In-Depth Discussions on Structures Design & Detailing Issues
- Quickly Address Detailing Issues to Improve Constructability
- Share Knowledge for Why Certain Details are Done the Way They Are



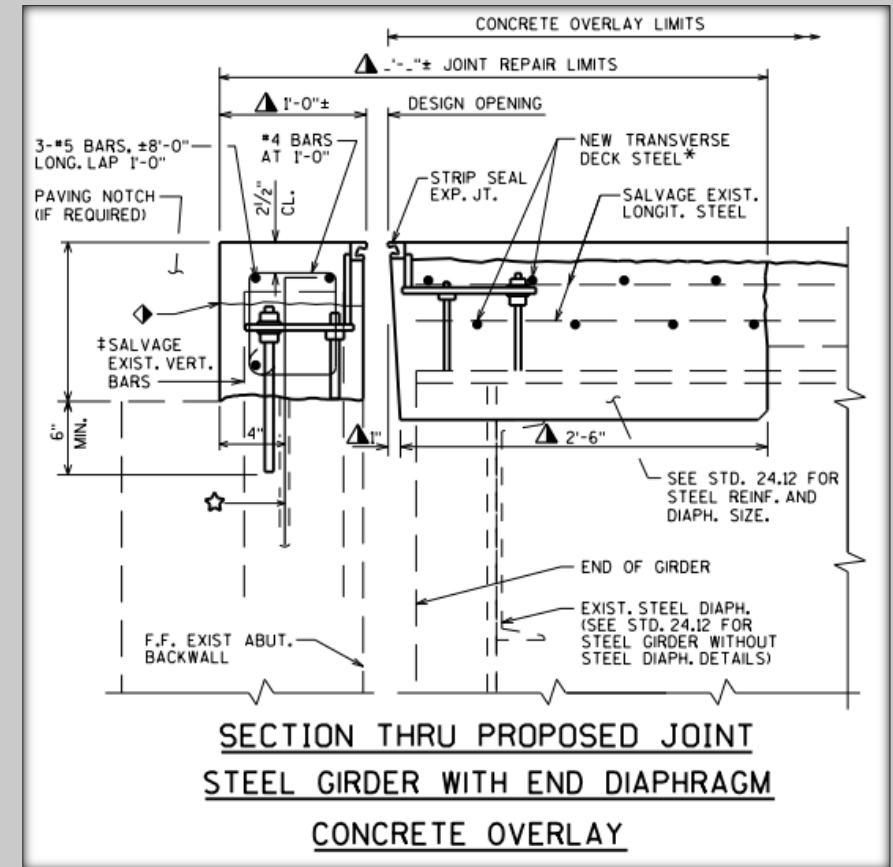
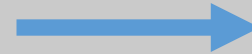
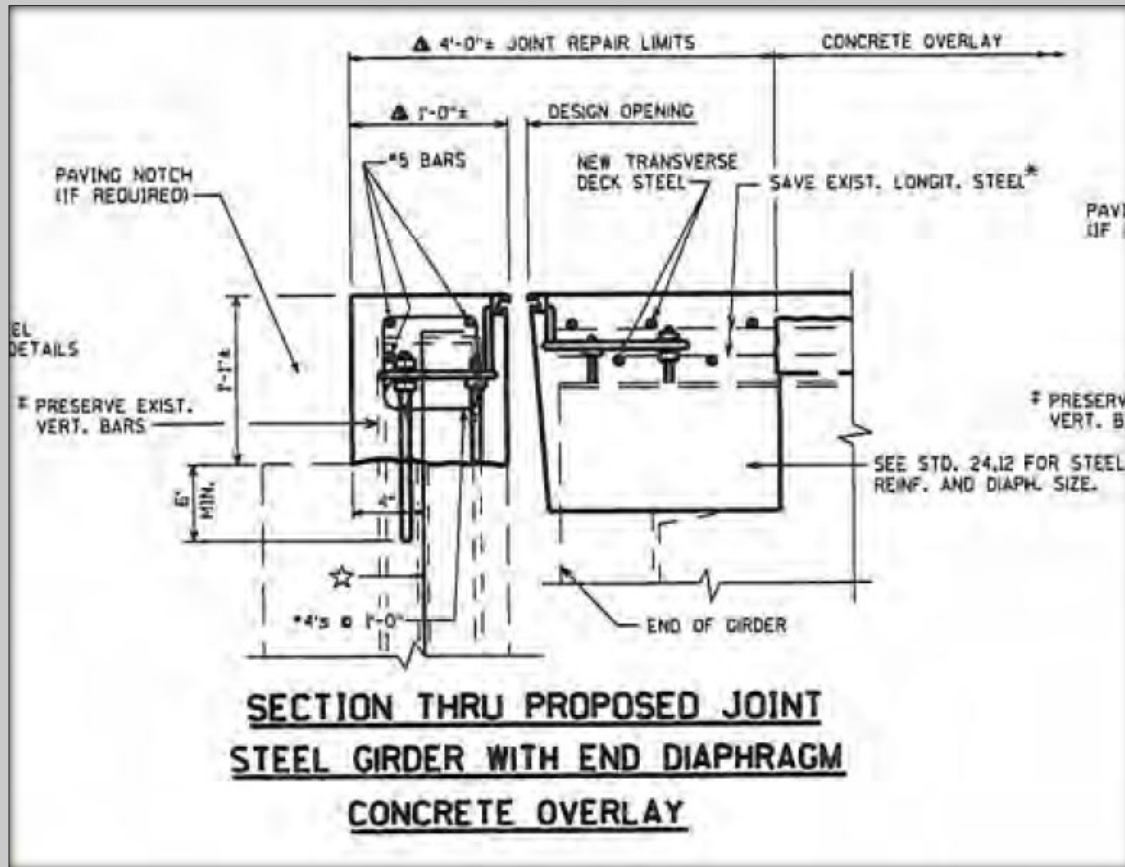
# Review of Subcommittee Intent

- Example – Concrete Overlay Detailing at Expansion Joints



# Review of Subcommittee Intent

- Example – Concrete Overlay Detailing at Expansion Joints



# Carryover Items

- Jacking Loads on Structure Plans
  - Occasionally, contractors have inquired about structure designers including jacking loads on structure plans
  - Historically, structure designers have not included this information due to concerns over lack of awareness of means/methods, optional staged/phased/coordinated jacking configurations, etc.
  - Service (unfactored) dead and live load girder design reactions sufficient?

## GIRDER REACTIONS AT BEARINGS (KIPS)

		€ BRG. SUPPORT NAME	€ BRG. SUPPORT NAME	€ BRG. SUPPORT NAME
INTERIOR GIRDER	DL			
	LL			
EXTERIOR GIRDER	DL			
	LL			

## NOTES

THE THEORETICAL SERVICE LOADS (UNFACTORED) ARE SHOWN IN THE TABLE. ADDITIONAL LOAD RESULTING FROM CONTRACTOR OPERATIONS, SUCH AS UNEVEN JACKING OF ADJACENT GIRDER OR ADJACENT SUBSTRUCTURE UNITS, IS NOT INCLUDED.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ADEQUACY OF THE GIRDER AT THE JACKING LOCATION.

## DESIGNER NOTES

ADD 10% TO THE EXTERIOR GIRDER DL TO ACCOUNT FOR VARIABILITY IN COMPOSITE DL DISTRIBUTION METHODS.

# New Industry Items

- Field Welding on Piling to Attach Falsework
- Falsework Bolts Through Piling in Piers/Formwork Bolting Conflicts
- Protective Surface Treatment Application on Small Projects



# New WisDOT Items

- 3D Models/Plan Details
  - In 2016, BOS inquired with industry on their thoughts with potential use of 3D
  - At the time, industry indicated that 2D plans were sufficient and that they didn't see significant benefit in moving to 3D models for structures
- Any updated thoughts from industry on potential benefits of 3D in structures plan production?
  - What are you already doing, if anything?
  - Using 3D fabrication with your subs?
  - Other?





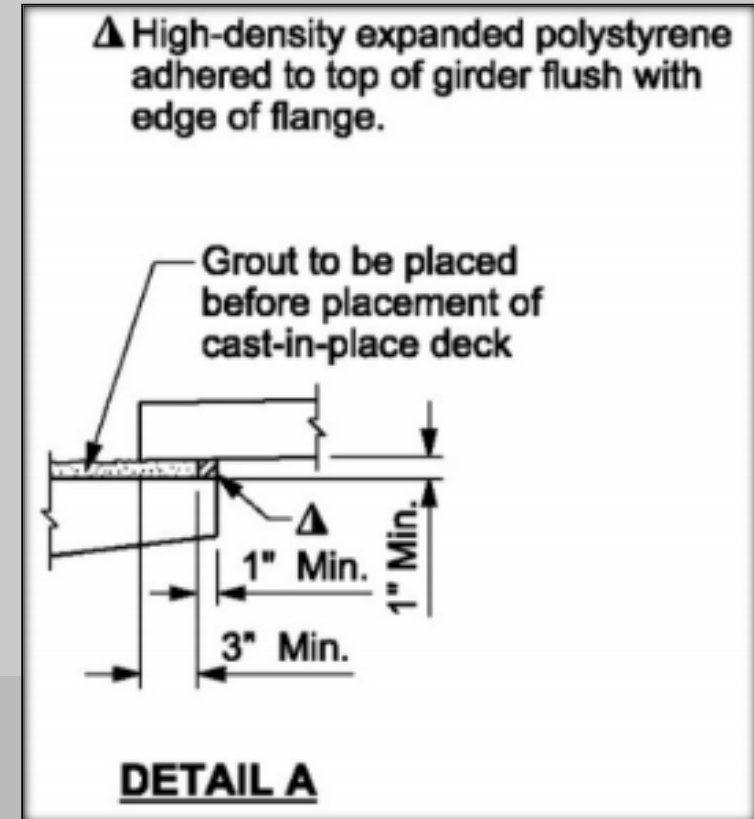
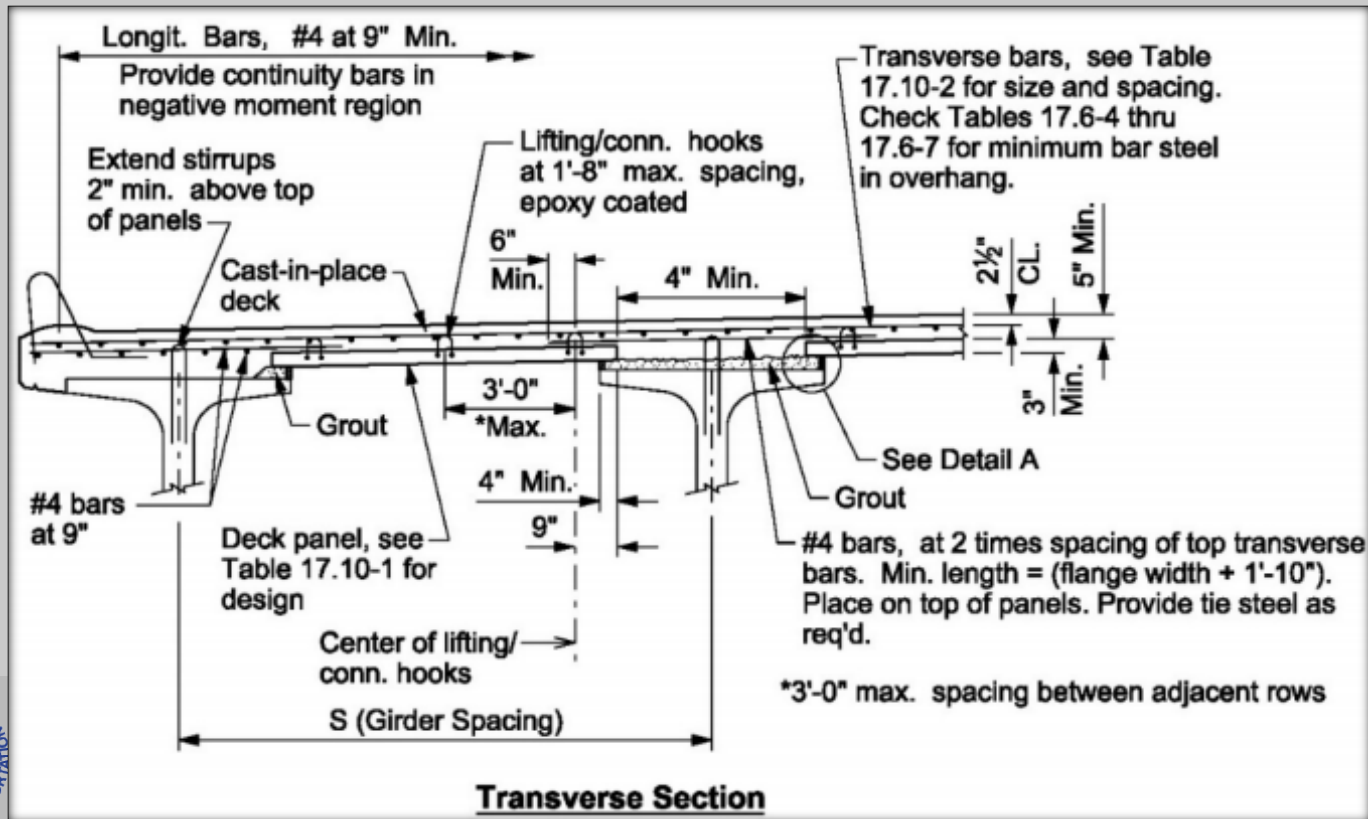
# New WisDOT Items

- CRI Process – Development and Acceptance
  - Industry has inquired about the Department’s CRI process and who is all involved on the Department’s side
  - Formal Process
    - 1- Contractor Submits to Construction Project Team
    - 2- Construction Project Team Develops Response (BOS Involvement)
    - 3- Draft Project Team Response Sent to Statewide CRI Review Committee
    - 4- Statewide CRI Review Committee Provides Concurrence (or not)
    - 5- Construction Project Team Responds to Contractor
  - Can request discussion with BOS and Construction Project Team



# New WisDOT Items

- Partial-Depth Precast Prestressed Deck Panel Detailing
  - IH 94 North South – Contract Plans Included Details, Contractors Elected to Redesign with Conventional Decks
  - Are there detailing issues that caused these changes?



# New WisDOT Items

- Demolition Means/Methods Involving DNR
  - As of October 2021 Lettings, the “Removing Old Structure” Bid Items are Moving to the Standard Spec
  - Removing Structure Over Waterway Remove Debris (Structure)
    - Used when not able to remove without dropping, not env. sensitive waterway, etc.
  - Removing Structure Over Waterway Minimal Debris (Structure)
    - Used when able to remove without dropping, not env. sensitive waterway, etc.
  - Removing Structure Over Waterway Debris Capture (Structure)
    - Used when additional protection is required due to env. sensitive waterway



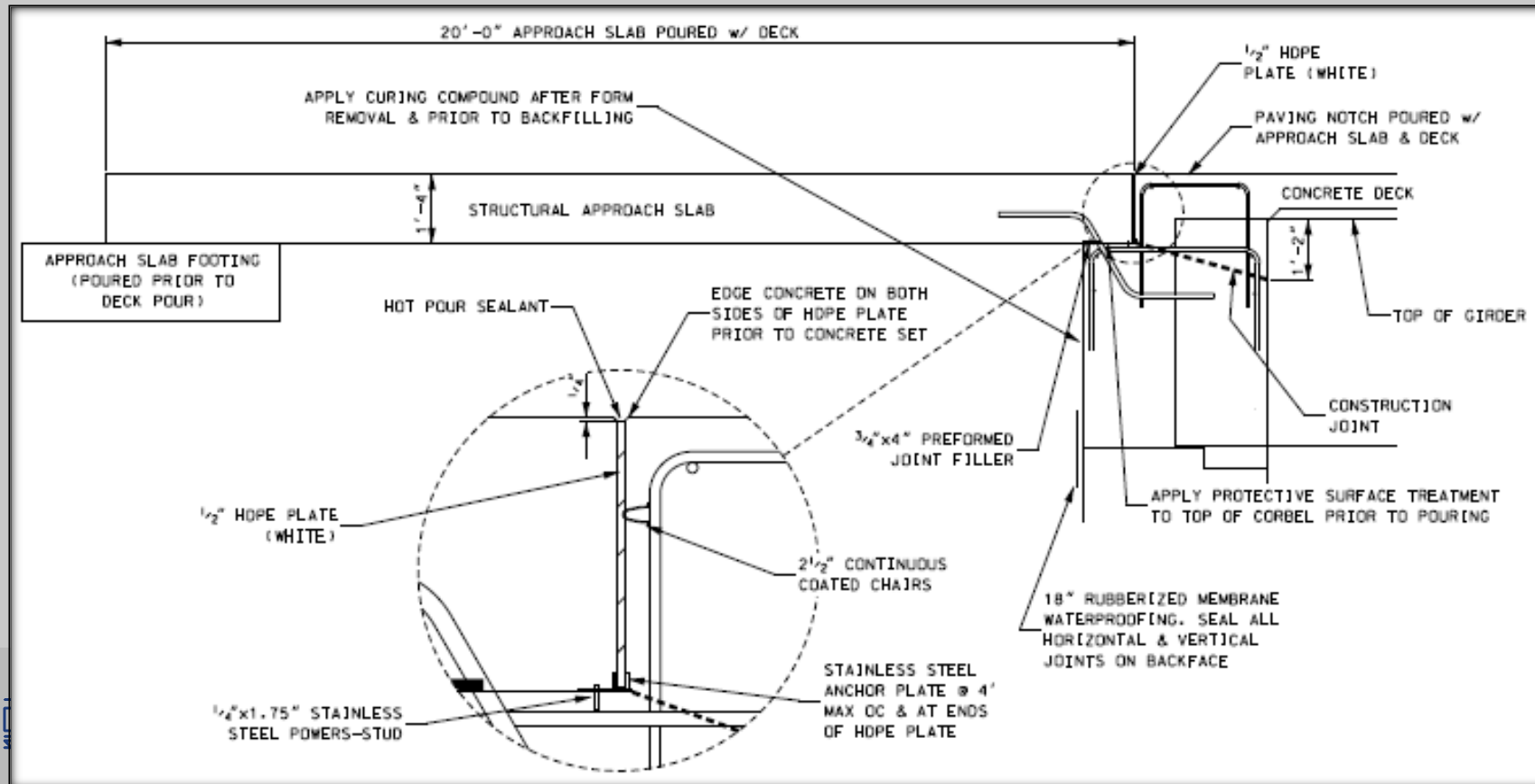
# New WisDOT Items

- Partial Removals of Abutment Backwalls/Wingwalls
  - When replacing abutment backwalls or upper wingwalls, questions have come from industry on whether sawcutting the existing vertical reinforcement is sufficient in conjunction with addition of new adhesive anchors
  - Recent convention has been to call for incorporating existing vertical reinforcement from abutment/lower wing pours into new work, along with adding adhesive anchors



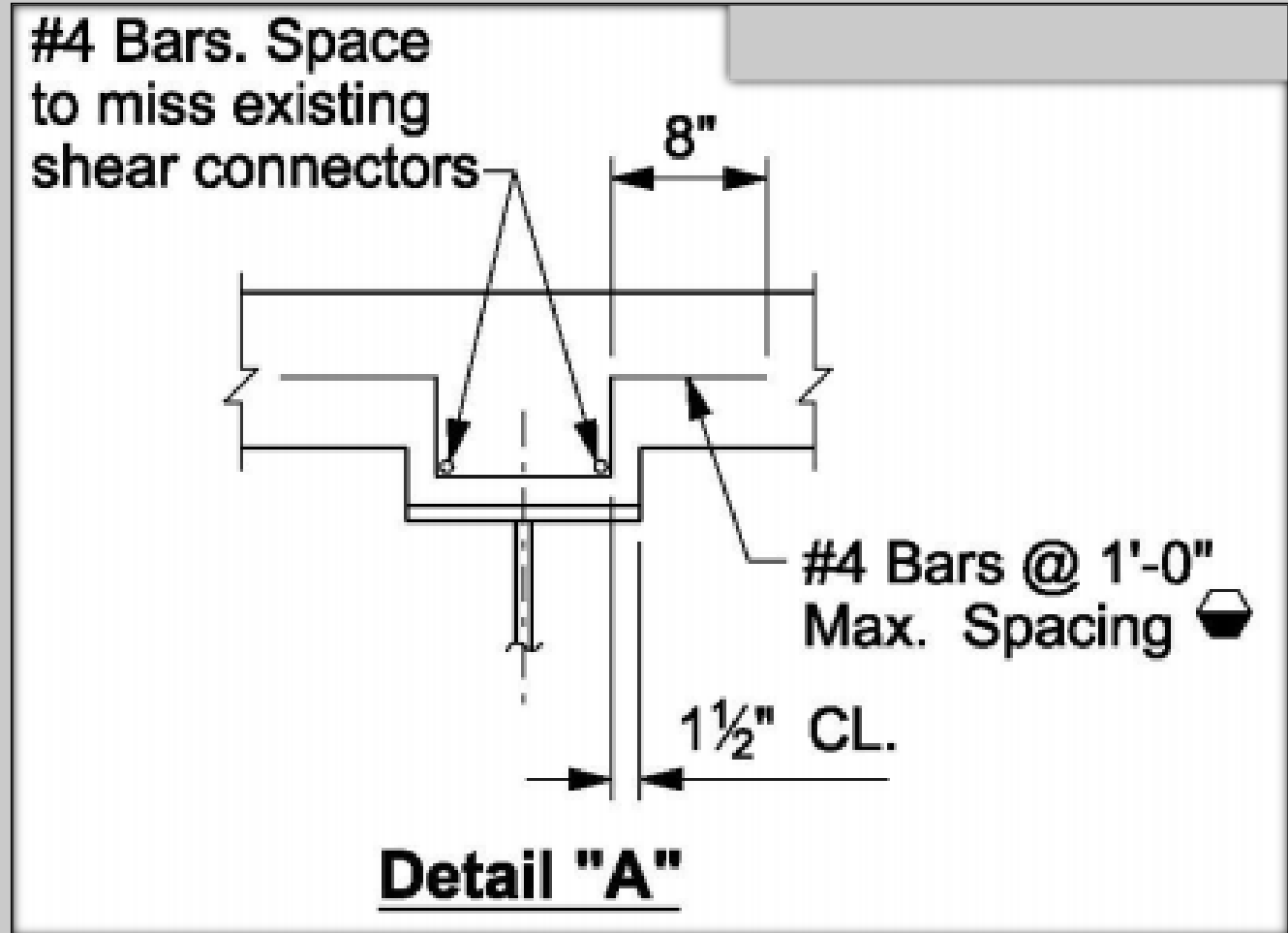
# New WisDOT Items

- Concurrent Structural Approach Slab Pours
  - Have had multiple issues with construction of these in the field
  - Request is to work with BOS to improve detail if intent is to keep using it



# New WisDOT Items

- Elimination of Hat Bars on Steel Girder Bridges
  - Have been inquiries about replacing hat bars shown in plans with additional shear studs
  - Industry input – what situations would benefit from this type of allowance



# Review of Action Items

- To Be Determined...

