



WisDOT Bridge Manual

January 2023 Updates

James Luebke, P.E.
Policy and Standards Engineer
March 1, 2023

Agenda

- Housekeeping
- Resources
- Chapter Updates
- Other Updates
- Questions and/or Feedback



Housekeeping

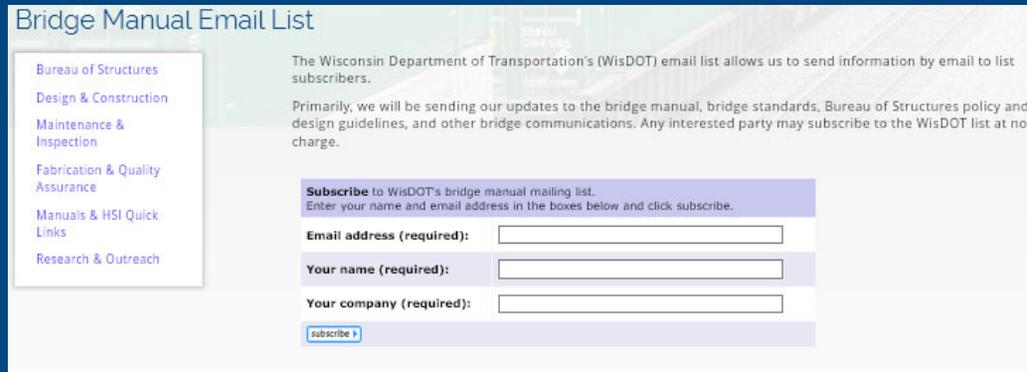
- All participants are muted.
- A handout of this webinar is posted on our website (See Update Archives)
- If you have a question, please use the chat feature to submit your question or raise your hand. Questions will be addressed at the end of the webinar.
- Follow-up questions, please send to James.Luebke@dot.wi.gov



Resources

<https://wisconsin.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/strct/bm-mail-list.aspx>

- Added to email distribution list:



The screenshot shows a web page titled "Bridge Manual Email List". On the left is a navigation menu with links: "Bureau of Structures", "Design & Construction", "Maintenance & Inspection", "Fabrication & Quality Assurance", "Manuals & HSI Quick Links", and "Research & Outreach". The main content area explains that the Wisconsin Department of Transportation's (WisDOT) email list allows sending information by email to subscribers. It states that updates will be sent regarding the bridge manual, standards, policy, and design guidelines. Below this is a subscription form with the following fields: "Email address (required)", "Your name (required)", and "Your company (required)". A "Subscribe" button is located at the bottom of the form.

- Removed from email distribution list:
 - Send an email to James.Luebke@dot.wi.gov



Resources

<https://wisconsin.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/strct/bridge-manual.aspx>
Or web search “WisDOT Bridge Manual”

Design Policy Memos

- Bureau of Structures
- Design & Construction**
- Maintenance & Inspection
- Fabrication & Quality Assurance
- Manuals & HSI Quick Links
- Research & Outreach

Design & Construction

[Policy Memos](#) | [Bridge Manual](#) | [Special Provisions](#) | [Standard Bridge Design Tool](#) | [Survey Reports & Checklists](#) | [Structure Costs](#) | [Plan Submittal](#) | [Bridge Technical Committee](#) | [Construction Resources](#) | [Contacts](#)

Description	Date
Standard Bridge Design Tool	09/17/21
BOS Contact on Structure Plans	02/11/20
Updates to QA/QC Plan Requirements	06/20/19
MASH Parapet Clarification	09/14/17
On Time Submittal and SSR Training	03/02/16

Bridge Manual Chapters

- Bureau of Structures
- Design & Construction**
- Maintenance & Inspection
- Fabrication & Quality Assurance
- Manuals & HSI Quick Links
- Research & Outreach

Bridge Manual

[Chapters](#) | [Standard Drawings](#) | [Insert Sheets \(C3D\)](#) | [Insert Sheets \(MicroStation\)](#) | [C3D Resources](#) | [MicroStation Resources](#) | [Updates Archive](#)

Updates to the Bridge Manual chapters occur about every six months. [Sign up to receive updates to the Bridge Manual.](#)

Description	Updated
Chapter 1 - Index	07/20
Chapter 2 - General	01/23



Resources

- Bridge Manual
 - Standard Drawings
 - Insert Sheet (C3D)
 - C3D Resources
 - Updates Archives

Bridge Manual Chapters

Bureau of Structures
Design & Construction
Maintenance & Inspection
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Bridge Manual

[Chapters](#) | [Standard Drawings](#) | [Insert Sheets \(C3D\)](#) | [Insert Sheets \(MicroStation\)](#) | [C3D Resources](#) | [MicroStation Resources](#) | [Updates Archive](#)

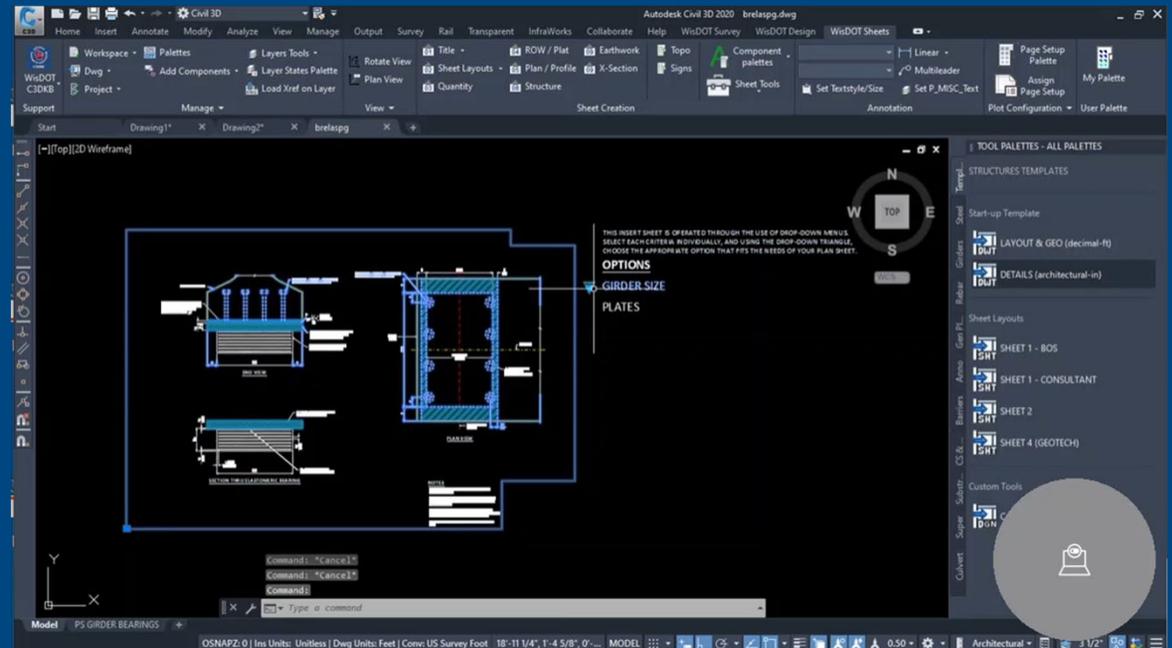
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Description	Updated
Chapter 1 - Index	07/20
Chapter 2 - General	01/23



Resources

- Bridge Manual
 - C3D Resources



Structures insert sheets - Download and modify insert sheets
[pln-prod-struct-ins-01.mp4](#) 5:07



Resources

- Update Archives
 - Update Memo
 - Bridge Manual Text Update Summary
 - Standard Details Update Summary
 - Standards Tracker
 - Update Presentation Slides *New*



DATE: January 26, 2023
 TO: Bridge Manual Users
 FROM: DTSD - Bureau of Structures
 SUBJECT: January 2023 Bridge Manual Update

January 2023 Bridge Manual Text Update Summary

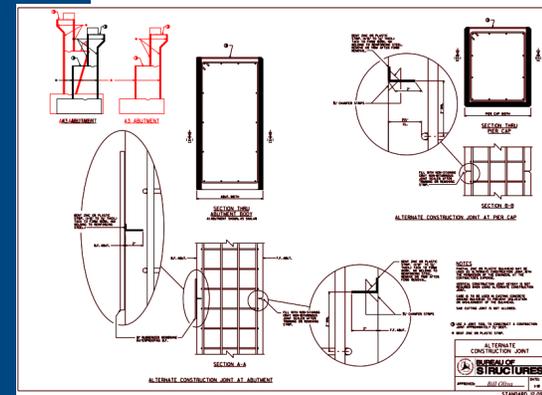
Chapter	Page Number(s)	Change
2	3	Updated Bureau of Structures organization chart
	15	Added text "only one structure number for the site."
6	45	Changed "Subsurface" to "Site"
	47	Changed "Subsurface" to "Site"
	47	Added bullet point 3: "Final Site Investigation Report"
	48	Added Section 6.5.7 - Locally-Funded Projects
	49	Changed "Subsurface Exploration" to "Site Investigation"

January 2023 Standard Details Update Summary

Chapter	Page Number(s)	Change
19	44	Cla req
	19E-4	Adt. forh cont req
	2	Ch

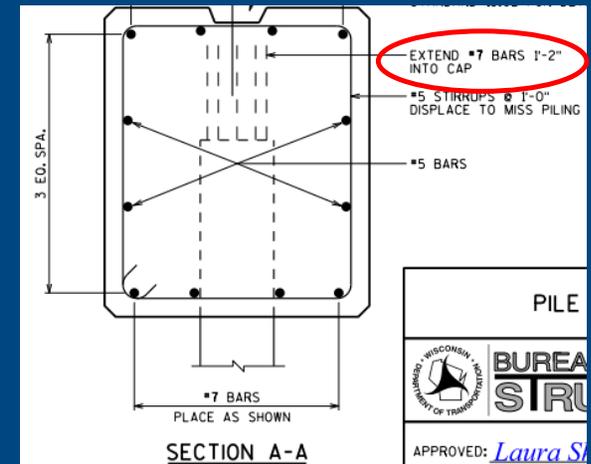
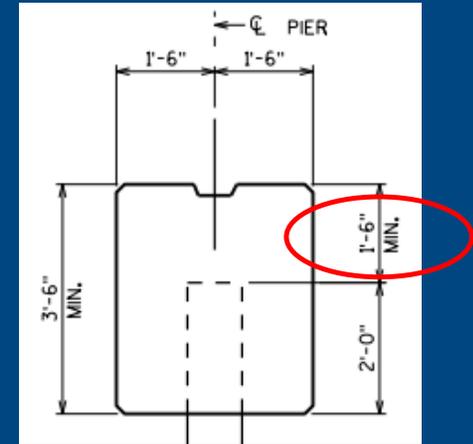
- Chapter 4**
- Std 4.01 ■ No revisions.
 - Std 4.02 ■ No revisions.
 - Std 4.03 ■ No revisions.
 - Std 4.04 ■ No revisions.
 - Std 4.05 ■ No revisions.

- Chapter 7**
- Std 7.01 ■ No revisions.



Chapter Updates

- Chapter 13 – Pile Bent Standard
 - Added 1'-6" dimension
 - Added CIP reinforcement extensions



Standard: 13.04



Chapter Updates

- Chapter 18 – Slab Falsework Removal

SELECT ONE

PARAPETS, SIDEWALKS, AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

(FOR NON-STAGED CONSTRUCTION)

SLAB-SUPPORTING FALSEWORK SHALL REMAIN IN-PLACE UNTIL ALL STAGES OF THE SUPERSTRUCTURE HAS CURED, FOR DEFLECTION CONTROL BETWEEN STAGES. DO NOT RELEASE ANY FALSEWORK UNTIL PARAPETS, SIDEWALKS, AND MEDIANS HAVE CURED. (FOR STAGED CONSTRUCTION)

Standards: 18.01, 18.02, 18.03



Chapter Updates

- Chapter 19 – Lifting Checks
 - Clarified:
 - Span < 153 ft → Lifting check not required
 - Span ≥ 153 ft → Noted as a Long Span and lifting check required at 1/10 points

THIS NOTE APPLIES TO LONG SPANS AS DEFINED IN THE NOTES FOR THE 72W" GIRDER, TABLE 19.3-2 OF THE BRIDGE MANUAL: FOR STORAGE, HANDLING, AND TRANSPORTING, THIS GIRDER IS REINFORCED TO ALLOW A MAXIMUM OVERHANG FROM THE LIFTING LOCATION OR POINT OF SUPPORT OF UP TO 1/10 THE GIRDER LENGTH. THE CONTRACTOR IS RESPONSIBLE FOR LATERAL STABILITY OF THE GIRDER UNTIL THE DECK IS CURED. (IF NOTE DOESN'T APPLY, REFERENCE SECT. 503.3.4 OF STD. SPEC. FOR GUIDANCE)



Chapter Updates

- Chapter 19 – Lifting Checks
 - Updated E19-4 Lifting Check for PS Girders
 - Changed girder length from 146 feet to 147 feet (to match E19-1)
 - Added note that a lifting check is not required for a 147 span, but lifting check calculations provided for information purposes.



Chapter Updates

- Standard 36.08 - Guardrail Post Anchorage System
 - Updated to MASH 2016 (TL-3)
 - Re-evaluated Adhesive Anchors and for a 3,500-psi condition
 - See FDM SDD 14B51 for more information

July 2022

THIS RAILING AND ANCHORAGE SYSTEM MEET NCHRP 350 EVALUATION CRITERIA FOR TEST LEVEL 3 (TL-3).

GUARDRAIL POST ANCHORS TYPE 1

USE FOR THICKNESS "T" OF 10 INCHES OR MORE AND MINIMUM CONCRETE STRENGTH (f'_c) OF 4,000 PSI

January 2023

THIS 'MGS' GUARDRAIL SYSTEM AND ANCHORAGE SYSTEM MEET MASH 2016 EVALUATION CRITERIA FOR TEST LEVEL 3 (TL-3).

GUARDRAIL POST ANCHORS TYPE 1

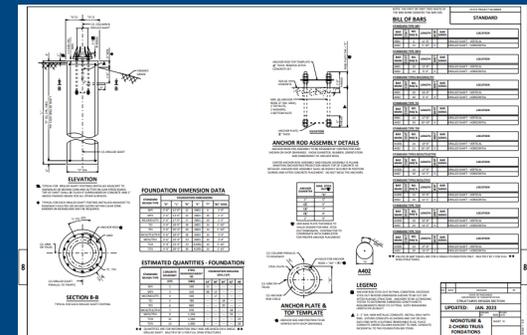
USE FOR THICKNESS "T" OF 11-INCHES OR MORE WITH A MINIMUM EMBEDMENT "K" OF 9-INCHES FOR A CONCRETE STRENGTH (f'_c) OF 3,500 PSI

USE FOR THICKNESS "T" OF 10-INCHES OR MORE WITH A MINIMUM EMBEDMENT "K" OF 8-INCHES FOR A CONCRETE STRENGTH (f'_c) OF 4,000 PSI



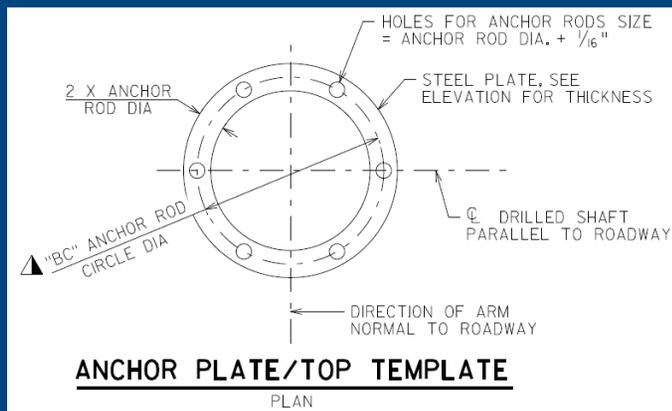
Chapter Updates

- Chapter 39 - LRFD Standardized Overhead Sign Structure Plans
 - Updated Files (numerous minor changes)
 - Converted to Civil 3D
 - MicroStation files last updated August 2021 (to be archived)



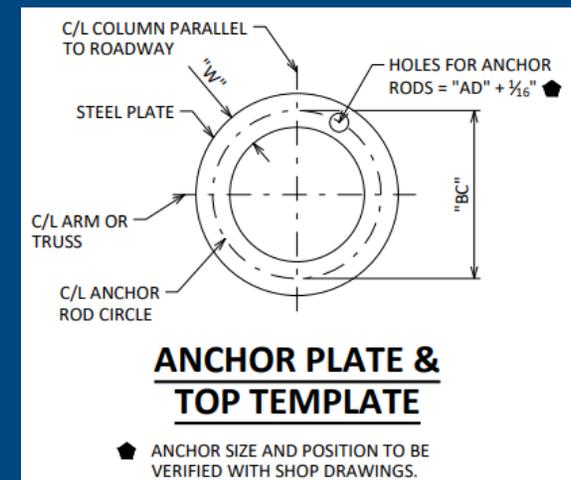
Chapter Updates

- Chapter 39 – Contractor Designed Structures
 - Clarified anchor rods are contractor designed



▲ ANCHOR ROD NUMBER, DIAMETER, LENGTH & ORIENTATION AS SHOWN ON FABRICATION DRAWING.

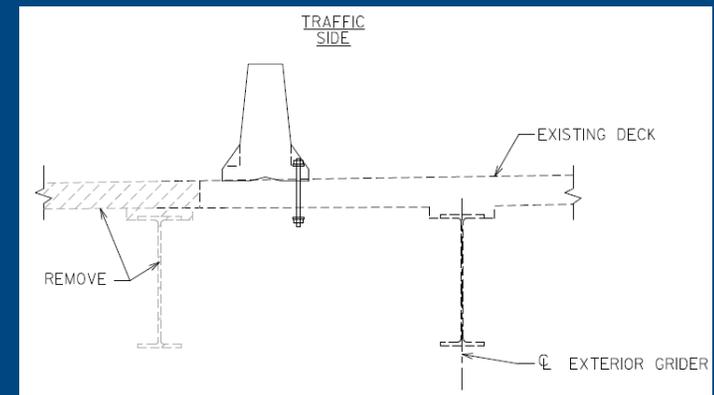
March 2021



January 2023

Chapter Updates

- Chapter 40 – Staged Temporary Support
 - Added guidance for deck replacements with staged construction.
 - Evaluate Temporary Support Condition
 - Use Temporary Support SPV bid item for contractor-designed support



Chapter Updates

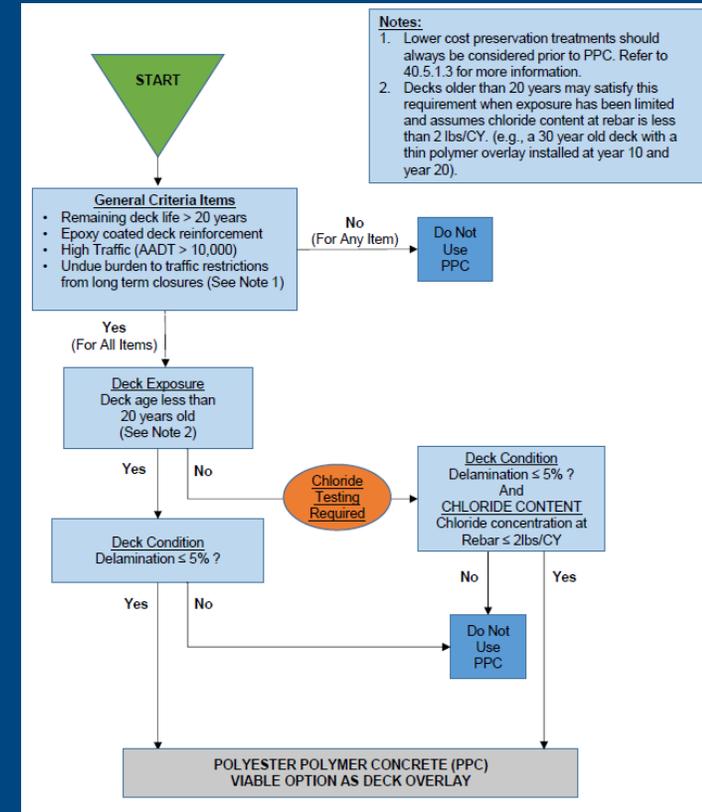
- Chapter 40 – PPC Overlay Criteria
 - New criteria expands PPC overlay eligibility
 - PPC should not be used unless lower cost preservation treatments (e.g. thin polymer overlays) have proven ineffective.
 - Other factors that may affect approval: Proximity to other high ADT roadways, Backbone/Interstate, Preservation of slab structure



Chapter Updates

• Chapter 40 – PPC Overlay Criteria

- NBI: 7 → 6
- Deck Exposure: 15 years → 20 years
- AADT: 20,000 → 10,000
- Chloride Content: 5 lbs/CY → 2 lbs/CY



Chapter Updates

- Chapter 45 – Slab Load Rating using Load Factor Ratings (LFR)
 - Single Lane Load Distribution Width – 1.71 (12 ft/7 ft) x Multi-Lane Distribution Width, ≤ 12 ft.
 - LFR Slab Example (E45-5) Updated July 2022

Multi - Lane Loading:	$E = 48.0 + 0.06 \cdot S$	≤ 84 in	Std [3.24.3.2]
Single - Lane Loading:	$E = 144$	in	[45.6.2.1]

January 2021

Multi-Lane Loading:	$E = 48.0 \text{ in} + 0.06 S$	≤ 84 in	Std [3.24.3.2]
Single-Lane Loading:	$E = (12/7) \cdot (48.0 \text{ in} + 0.06 S)$	≤ 144 in	[45.6.2.1]

July 2022 Update



Other Updates

- New Approved Products List (APL) and Updated STSP:
 - **Sheet Membrane Waterproofing for Asphalt Overlays (516.0600.S)**
< 6-inches between membrane and asphaltic pavement
 - **Sheet Membrane Waterproofing for Buried Structures (516.0610.S)**
≥ 6-inches between membrane and asphaltic pavement



Other Updates

- Updated BOS Special Provisions:
 - Temporary Support 02/23
 - Temporary Bridge Widening 02/23
 - Temporary Structure 02/23

Special Provisions

Bureau of Structures
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Design & Construction
[Policy Memos](#) | [Bridge Manual](#) | [Special Provisions](#) | [Standard Bridge Design Tool](#) | [Survey Reports & Checklists](#) | [Structure Costs](#) | [Plan Submittal](#) | [Bridge Technical Committee](#) | [Construction Resources](#) | [Contacts](#)

File	Description	Updated
Adjusting Diaphragms	This special provision describes adjusting diaphragms and cross frames where girders are vertically realigned. Perform the work in accordance with section 506 of the standard specifications, as shown on the plans, and as hereinafter provided.	04/18
Asphalt Panels	This special provision describes furnishing and placing asphalt protection in accordance with Chapter 29, Part 2 of the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual, as shown on the plans, and as hereinafter provided.	04/18
Bearing Maintenance	This special provision describes removing the expansion bearings at the abutments and piers, blast cleaning and painting them, and reinstalling the bearings, in accordance with the plans and as hereinafter provided.	04/18
Bearing Repair	This special provision describes removing the bearings at the piers, blast cleaning and priming the bearings, furnishing and placing shims, resetting the bearings, and furnishing and placing new anchor bolts. All work shall be in accordance with the pertinent provisions of the standard specifications, the plans, and as hereinafter provided.	04/18
Boulder Retards	This special provision describes furnishing and placing boulder retards in a given waterway.	04/18



Questions and/or Feedback

Contact:

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