

DATE: July 29, 2022
TO: Bridge Manual Users
FROM: DTSD – Bureau of Structures
SUBJECT: **July 2022 Bridge Manual Update**

The Bridge Manual revisions to text and standards are now complete and posted online for this six-month cycle. Please see the attached sheets for a list, with brief explanation, of the Text and Standards that were revised.

Of particular interest in this edition:

- **Chapter 36** – Removed WisDOT policy item specifying a 1.35 vertical earth pressure (EV) load factor for box culverts and replaced it with a 1.30 EV load factor in accordance with AASHTO LRFD Table 3.4.1-2 for rigid buried structures. In a future update, Example E36-1 will be updated accordingly.
- **Chapter 40** – Updated guidance on “enhanced” and “high” friction surface treatments. Contact BOS Design regarding usage of the new “High Friction Surface Treatment Polymer Overlay” Special Provision.
- **Chapter 41 and 45** – Added guidance related to Emergency Vehicle load rating and strengthening considerations.
- **Insert sheets** – MicroStation insert sheets have been converted to Civil 3D files and are available on the BOS website. MicroStation insert sheets have not been updated since the January 2022 Bridge Manual Update and will be achieved at a later date. Moving forward, Civil 3D insert sheets will be maintained with the most current information.

Additional Notes:

- BOS is in the process of updating the sheet membrane special provisions and providing Approved Products Lists (APL). Tentatively, contracts should use the revised bid item “Sheet Membrane Waterproofing for Asphalt Overlays (516.0600.S) or “Sheet Membrane Waterproofing for Buried Structures” (516.6010.S). Bid items should be used with asphaltic overlays (when approved by BOS) and when protecting pedestrian underpasses, respectively.
- LRFD Standardized Overhead Sign Structure Plans are still being converted from MicroStation files to Civil 3D files. Users will be notified once Civil 3D versions become available.

Most other changes are fairly minor. Please use the example calculations with care (follow along in AASHTO). A vertical black bar in the left margin notes all text changes.

The user’s feedback regarding the Bridge Manual is important to us as that is where we get many ideas for corrections, clarification and new ideas for enhancement.

July 2022 Bridge Manual Text Update Summary

<u>Chapter</u>	<u>Page Number(s)</u>	<u>Change</u>
2	3	Updated Bureau of Structures organization chart
6	32	Updated guidance on the designer gaining bid item consensus for selecting the appropriate Removing Structure bid item
12	20-21	Updated Fixed-Fixed seat selection for prestressed girders on A1 and A5 abutments in Figure 12.7-1. This includes removing the 36" girder option (achieved) and providing the same restriction for A5 as A1 (28" only)
	23	Changed reference from FDM 14-10-15 to FDM 14-10-25
36	5	Clarified that the top <u>and sides</u> of pedestrian underpasses should be waterproofed.
	9,15	Updated Vertical Earth Pressure Load Factor from 1.35 to 1.30
40	14	Updated guidance on "enhanced" vs "high" friction surface treatments
	50	Updated Table 40.16-1 minimum bond stress values
41	17	Added guidance to perform rating analysis early to identify potential strengthening needs.
45	10	Added guidance to perform rating analysis early to identify potential strengthening needs.
	12	Added guidance on reported load ratings for concrete slab structures
	65-66	Added Emergency Vehicles to be analyzed using a multi-lane distribution factor for bridge widths 18'-0" or larger.
45E-5	3,4,9,10	Changed the single-lane loading live load distribution per 45.6.2.1
	7	Corrected Inventory and Operating Ratings

July 2022 Standard Details Update Summary

Chapter 4

- Std 4.01 ■ No revisions.
- Std 4.02 ■ Altered Wing Length to show Finished Grade intersecting Top of Wall 2 feet from End of Wing as stated in Bridge Manual Sect. 12.4.1.1
- Std 4.03 ■ Altered Wing Length to show Finished Grade intersecting Top of Wall 2 feet from End of Wing as stated in Bridge Manual Sect. 12.4.1.1
- Std 4.04 ■ No revisions.
- Std 4.05 ■ No revisions.

Chapter 7

- Std 7.01 ■ No revisions.
- Std 7.02 ■ No revisions.
- Std 7.03 ■ No revisions.
- Std 7.04 ■ No revisions.
- Std 7.05 ■ No revisions.
- Std 7.06 ■ No revisions.
- Std 7.07 ■ No revisions.

Chapter 9

- Std 9.01 ■ No revisions.
- Std 9.02 ■ Added Detail "Typical Section Thru Box Culvert Wingwall"
- Std 9.03 ■ No revisions.

Chapter 11

- Std 11.01 ■ No revisions.

Chapter 12

- Std 12.01 ■ No revisions.
- Std 12.02 ■ No revisions.
- Std 12.03 ■ No revisions.
- Std 12.04 ■ No revisions.
- Std 12.07 ■ No revisions.
- Std 12.08 ■ No revisions.
- Std 12.09 ■ No revisions.
- Std 12.10 ■ No revisions.
- Std 12.11 ■ No revisions.
- Std 12.12 ■ No revisions.
- Std 12.13 ■ No revisions.

Chapter 13

- Std 13.01 ■ No revisions.
- Std 13.02 ■ No revisions.
- Std 13.03 ■ No revisions.
- Std 13.04 ■ No revisions.
- Std 13.05 ■ No revisions.
- Std 13.06 ■ No revisions.
- Std 13.07 ■ No revisions.
- Std 13.08 ■ No revisions.
- Std 13.09 ■ No revisions.
- Std 13.10 ■ No revisions.

Std 13.11 ■ No revisions.

Chapter 14

Std 14.02 ■ No revisions.

Std 14.03 ■ No revisions.

Std 14.04 ■ No revisions.

Std 14.05 ■ No revisions.

Std 14.11 ■ No revisions.

Std 14.12 ■ No revisions.

Std 14.13 ■ No revisions.

Chapter 15

Std 15.01 ■ No revisions.

Std 15.02 ■ No revisions.

Std 15.03 ■ No revisions.

Chapter 17

Std 17.01 ■ No revisions.

Std 17.02 ■ No revisions.

Std 17.03 ■ No revisions.

Chapter 18

Std 18.01 ■ No revisions.

Std 18.02 ■ No revisions.

Chapter 19

Std 19.01 ■ No revisions.

Std 19.02 ■ No revisions.

Std 19.03 ■ No revisions.

Std 19.04 ■ No revisions.

Std 19.11 ■ No revisions.

Std 19.12 ■ No revisions.

Std 19.13 ■ No revisions.

Std 19.14 ■ No revisions.

Std 19.15 ■ No revisions.

Std 19.16 ■ No revisions.

Std 19.17 ■ No revisions.

Std 19.18 ■ No revisions.

Std 19.19 ■ No revisions.

Std 19.20 ■ No revisions.

Std 19.31 ■ No revisions.

Std 19.32 ■ No revisions.

Std 19.33 ■ No revisions.

Std 19.34 ■ No revisions.

Std 19.35 ■ No revisions.

Std 19.36 ■ Removed 3 1/2" square plate washer on diaphragm face (std. still washer req'd)

Std 19.37 ■ No revisions.

Std 19.38 ■ No revisions.

Std 19.50 ■ No revisions.

Std 19.51 ■ No revisions.

Std 19.52 ■ No revisions.

Std 19.53 ■ No revisions.

- Std 19.54 ■ No revisions.
- Std 19.55 ■ No revisions.
- Std 19.56 ■ No revisions.

Chapter 23

- Std 23.01 ■ No revisions.
- Std 23.02 ■ No revisions.
- Std 23.03 ■ No revisions.

Chapter 24

- Std 24.02 ■ No revisions.
- Std 24.03 ■ No revisions.
- Std 24.04 ■ No revisions.
- Std 24.06 ■ No revisions.
- Std 24.08 ■ No revisions.
- Std 24.09 ■ No revisions.
- Std 24.10 ■ No revisions.
- Std 24.11 ■ No revisions.
- Std 24.12 ■ No revisions.

Chapter 27

- Std 27.02 ■ No revisions.
- Std 27.05 ■ No revisions.
- Std 27.06 ■ No revisions.
- Std 27.07 ■ Added plan note stating that the bearing was designed per "Method A"
- Std 27.08 ■ Clarified field weld should be on Plate "A" (not Plate "C") for brg replacements
- Std 27.09 ■ No revisions.
- Std 27.10 ■ No revisions.

Chapter 28

- Std 28.01 ■ No revisions.
- Std 28.02 ■ No revisions.
- Std 28.03 ■ No revisions.
- Std 28.04 ■ No revisions.
- Std 28.05 ■ No revisions.
- Std 28.06 ■ No revisions.
- Std 28.07 ■ No revisions.
- Std 28.08 ■ No revisions.

Chapter 29

- Std 29.01 ■ No revisions.
- Std 29.02 ■ No revisions.
- Std 29.03 ■ No revisions.

Chapter 30

- Std 30.02 ■ No revisions.
- Std 30.04 ■ No revisions.
- Std 30.05 ■ No revisions.
- Std 30.07 ■ No revisions.
- Std 30.08 ■ No revisions.
- Std 30.09 ■ No revisions.
- Std 30.10 ■ No revisions.

- Std 30.11 ■ No revisions.
- Std 30.14 ■ No revisions.
- Std 30.15 ■ No revisions.
- Std 30.16 ■ No revisions.
- Std 30.17 ■ No revisions.
- Std 30.18 ■ No revisions.
- Std 30.19 ■ No revisions.
- Std 30.20 ■ No revisions.
- Std 30.21 ■ No revisions.
- Std 30.22 ■ No revisions.
- Std 30.24 ■ No revisions.
- Std 30.25 ■ No revisions.
- Std 30.26 ■ No revisions.
- Std 30.27 ■ Corrected Detail for Anchorage of Bottom No. 5 Rail to End Post in "Elev. View"
 ■ Changed Text under "Field Erection Joint Detail" to match Standard 30.16 for
 Type "M" Railing
- Std 30.28 ■ Added solid or dashed lines that were missing and moved some existing
 dashed lines to their proper location
- Std 30.29 ■ No revisions.
- Std 30.30 ■ No revisions.
- Std 30.31 ■ No revisions.
- Std 30.32 ■ No revisions.
- Std 30.33 ■ No revisions.
- Std 30.34 ■ No revisions.
- Std 30.35 ■ No revisions.
- Std 30.36 ■ No revisions.
- Std 30.37 ■ No revisions.

Chapter 36

- Std 36.01 ■ No revisions.
- Std 36.02 ■ No revisions.
- Std 36.03 ■ Updated bid items for pedestrian underpass waterproofing
- Std 36.04 ■ No revisions.
- Std 36.05 ■ No revisions.
- Std 36.06 ■ No revisions.
- Std 36.07 ■ No revisions.
- Std 36.08 ■ No revisions.
- Std 36.10 ■ No revisions.
- Std 36.11 ■ No revisions.
- Std 36.12 ■ No revisions.
- Std 36.13 ■ No revisions.
- Std 36.14 ■ No revisions.
- Std 36.15 ■ No revisions.
- Std 36.16 ■ No revisions.

Chapter 37

- Std 37.01 ■ No revisions.
- Std 37.02 ■ No revisions.

Chapter 38

- Std 38.01 ■ No revisions.

Chapter 39

- Std 39.02 ■ No revisions.
- Std 39.03 ■ No revisions.
- Std 39.09 ■ No revisions.
- Std 39.10 ■ No revisions.
- Std 39.11 ■ No revisions.
- Std 39.12 ■ No revisions.
- Std 39.13 ■ No revisions.

Chapter 40

- Std 40.01 ■ No revisions.
- Std 40.02 ■ No revisions.
- Std 40.03 ■ Added Designer Note for providing Deck Condition Assessment Survey on plans
- Std 40.04 ■ No revisions.
- Std 40.05 ■ No revisions.
- Std 40.06 ■ No revisions.
- Std 40.07 ■ No revisions.
- Std 40.08 ■ No revisions.
- Std 40.09 ■ No revisions.
- Std 40.10 ■ No revisions.
- Std 40.11 ■ No revisions.
- Std 40.12 ■ No revisions.
- Std 40.13 ■ No revisions.
- Std 40.14 ■ No revisions.
- Std 40.15 ■ No revisions.
- Std 40.16 ■ No revisions.
- Std 40.17 ■ No revisions.
- Std 40.18 ■ No revisions.
- Std 40.19 ■ No revisions.
- Std 40.20 ■ No revisions.
- Std 40.21 ■ No revisions.
- Std 40.22 ■ No revisions.
- Std 40.23 ■ No revisions.
- Std 40.24 ■ No revisions.
- Std 40.25 ■ No revisions.
- Std 40.26 ■ No revisions.
- Std 40.27 ■ No revisions.
- Std 40.28 ■ No revisions.
- Std 40.31 ■ Added Designer Note for providing Deck Condition Assessment Survey on plans
- Std 40.32 ■ Added SPV Bid Item "High Friction Surface Treatment Polymer Overlay"
- Std 40.33 ■ Added Designer Note for providing Deck Condition Assessment Survey on plans
- Std 40.34 ■ Added Designer Note for providing Deck Condition Assessment Survey on plans
- Std 40.40 ■ No revisions.
- Std 40.41 ■ No revisions.