

DATE: January 24, 2024  
TO: Bridge Manual Users  
FROM: DTSD – Bureau of Structures  
SUBJECT: **January 2024 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 8** – Numerous updates throughout for added guidance on scour calculations and documentation.
- **Chapter 11** – Clarified and added guidance regarding preboring applications. For problem soils, contact the Bureau of Technical Services, Geotechnical Engineering Unit to discuss preboring considerations.
- **Chapter 24** – Added guidance for showing tension zones on contract plans. Calculate and show the tension zones on top and bottom flanges for all continuous steel girders. See Standard 24.02 for additional updates.
- **Standards** – Standards were converted from MicroStation files to Civil 3D files and re-printed. MicroStation based PDFs (July 2023 updates) are archived on the BOS website “Bridge Manual Updates Archive” for informational purposes.

Additional Notes:

- Reminder - Civil 3D insert sheets are maintained with the most current information. MicroStation insert sheets have not been updated since the January 2022 Bridge Manual Update and will be achieved at a later date.

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.

## January 2024 Bridge Manual Text Update Summary

<u>Chapter</u>	<u>Page Number(s)</u>	<u>Change</u>
2	13	The practice of assigning "unit" numbers to B-Structures has been discontinued.
	15	Changed example from a Bridge (B) to a Retaining Wall (R)
6	29-30	Added guidance for showing tension zones on contract plans.
	44	Added guidance for longitudinal grooving. See 17.8.2 for HPC usage.
8	4	Added "or 1% chance" for design discharge
	5	Replaced "This criteria" with "This criterion"
	6	Minor changes
	7	Section 8.2.1 has an updated reference for new regression equations published by USGS in 2023.
	7-8	Updated Section 8.2.3 from "Watershed Comparison" to "Project Site at Ungaged Location on a Gaged Stream"
	9	Added "Velocities with potential to compromise slope or streambed stability are not acceptable and should be avoided. This threshold will vary depending on site geometry and local stream geomorphology."
	11	Added guidance on "incipient overtopping"
	17	Added paragraph on scour calculation sources and noted that scour calculations performed using the HEC RAS built-in calculators are not allowed.
	18	Updated the location of the approach section for scour evaluations
	18	Added paragraph break in first paragraph and added sentence clarifying pressure flow scour depth and vertical contraction scour.
	22	Minor - Added paragraph break
	23	Clarified scour countermeasure design considerations
	50	Updated references #2 and #3
53	Added guidance on scour calculations for the Hydraulic/Site Report. The department has been seeking to improve report submittals for scour documentation.	
11	15, 16, 18, 41	Clarified guidance regarding preboring considerations. This includes short pile lengths and scour conditions.
12	9	Updated section to refer to Chapter 11 for deep foundations and 12.11 for bridge approach design considerations.
17	73	Added high performance concrete (HPC) guidance. This includes use of bid item "Longitudinal Grooving" and polymer overlays.
24	45, 71	Clarified guidance for showing tension zones on contract plans.
39	7	Removed minimum sign area and added Note 3 for 4-Chord Truss

40	20	Corrected 28-day concrete cure rather than 21-day
	45	Added AASHTO LRFD 5.13 reference for anchors

## **January 2024 Standard Details Update Summary**

### **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.
- 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 ■ No revisions.
- 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.
- Std 18.03 ■ 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.
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- 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 ■ Clarified zones where field welding to the flanges is prohibited.
- 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 ■ No revisions.
- Std 27.08 ■ No revisions.
- 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 ■ Added 4" dimension from CL of end post to end of C8x11.5
- Std 30.04 ■ No revisions.
- Std 30.05 ■ No revisions.
- Std 30.07 ■ Removed railing dimensions at joints. See railing standards for rail dimensions.
- 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.
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- Std 30.28 ■ No revisions.
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- 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 ■ Updated Design Data for new concrete box culverts. Designer shall provide load ratings on the plans.
  - Added Designer Note "See Chapter 45 for load rating of existing concrete box culverts".
- Std 36.02 ■ No revisions.
- Std 36.03 ■ No revisions.
- 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 39.01 ■ No revisions.
- Std 39.02 ■ Added "Truss Conn. Details" note "Angles preferred, other web designs allowed"
- Std 39.03 ■ No revisions.
- Std 39.04 ■ Updated "Anchor Plate & Top Template" anchor note.  
 ■ Added anchor note symbol to "BC" dimension in "Anchor Plate & Top Template"
- Std 39.11 ■ No revisions.
- Std 39.12 ■ Added post cap to "Column & Light Pole Elevation"  
 ■ Updated "Clamp Details" note to "Drill & tap for bolts"  
 ■ Removed "88" quantity from MFII 24"-diameter
- Std 39.13 ■ No revisions.
- Std 39.14 ■ No revisions.
- Std 39.21 ■ No revisions.
- Std 39.22 ■ No revisions.
- Std 39.23 ■ No revisions.
- Std 39.24 ■ No revisions.
- Std 39.25 ■ No revisions.
- Std 39.26 ■ No revisions.
- Std 39.27 ■ No revisions.
- Std 39.31 ■ No revisions.
- Std 39.32 ■ Added "PL THK" to two weld notes on "Tower Saddle Connection Details"
- Std 39.33 ■ No revisions.
- Std 39.34 ■ Added note "Not to be used at ends of truss segments" to "Chord Splice" Detail
- Std 39.35 ■ No revisions.
- Std 39.36 ■ No revisions.
- Std 39.37 ■ No revisions.
- Std 39.38 ■ No revisions.

**Chapter 40**

- Std 40.01 ■ No revisions.
- Std 40.02 ■ No revisions.
- Std 40.03 ■ No revisions.
- Std 40.04 ■ No revisions.
- Std 40.05 ■ No revisions.
- Std 40.06 ■ No revisions.
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- Std 40.40 ■ No revisions.
- Std 40.41 ■ No revisions.
- Std 40.42 ■ No revisions.