

DATE: July 19, 2023  
TO: Bridge Manual Users  
FROM: DTSD – Bureau of Structures  
SUBJECT: **July 2023 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 5** – Updated structure costs. Added 2021 and 2022 bridge cost data.
- **Chapter 14** – Updated MSE wall differential settlement criteria.
- **Chapter 45** – Updated wheel load distributions for longitudinal spike or nail laminated slab bridges that were rated with ASR.
- **Chapter 45** – Full re-write of bridge-length culvert load rating for calculated, assigned, or field evaluation methods.
- **Overhead Sign Structure - Standard Design Drawings** – Assigned Standard Numbers (Std 39.01 thru Std 39.38) to OSS standard design drawings and added Standards to the “July 2023 Standard Details Update Summary”.
- **Overhead Sign Structure – Insert Sheets** – Added a placeholder on Total Estimated Quantities table for Bid Item 204.0245 “Removing Ancillary Structure (Structure)” or Bid Item 204.0246 “Removing Ancillary Structure with Restoration (Structure)”.

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.

## July 2023 Bridge Manual Text Update Summary

<u>Chapter</u>	<u>Page Number(s)</u>	<u>Change</u>
2	3	New Structures Inspection & Repair Unit Supervisor
	13	Updated contacts for assigning structure numbers.
5	6-13	Removed 2016 and 2017 cost data. Added 2021 and 2022 cost data.
6	25-26	Added "Give beam seat corner dimensions along the front face of abutment" and added Figure 6.3-1"Example of Skewed Abutment Dimensions"
	32	Clarified box culverts should typically use the "Removing Structure (structure)" bid item
14	22	Specified railings attached on top of the wall will typically require a reinforced CIP concrete coping to resist railing loads.
	22	Add Section 14.3.1.15 for Minor Walls
	47,69,73	Updated Table 14.4-3 for MSE wall differential settlement
	47	Updated total differential settlement criteria to 1:200 for MSE walls w/ large precast panels (>30sf & ≤75sf) per LRFD C11.10.4.1.1(2020)
	47	Updated total differential settlement criteria to 1:100 for MSE walls w/ small precast panels (≤30sf) per LRFD C11.10.4.1.1(2020)
	69	Updated settlement responsibilities
	73	Updated MSE wall concrete panel shapes
18	7	Clarified Table 18.2-1 minimum slab depth recommendations are not required if the appropriate checks are provided.
32	8	Clarified maximum allowable conduit runs in concrete parapets.
45	23-27	Minor formatting correction
	46	Updated table reference to Section 45.5.2.5
	46	Removed recommendation to evaluate timber superstructures when rating fails below 1.25.
	46-47	Updated wheel load distributions for longitudinal spike or nail laminated slab bridges that were rated with ASR. This update was based on research from the WHRP.
	49-52	Full re-write of bridge-length culvert rating methods
	74	Add reference for WHRP Report No. 0092-20-01 (Analytical and Testing Methods for Rating Longitudinal Laminated Timber Slab Bridges)

## **July 2023 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 ■ Added Designer Note "Use this sheet for beam seat details (with or without a structural approach slab)."
  - Modified Legend Note with symbol \*\* to show Wing Width for Type "NY4" railing on a Sidewalk; also added text to match same Note on Std. 12.03
- Std 12.02 ■ Added dimension for Wing Width for Type "NY4" railing on a Sidewalk
  - Added Note to slope Top Surface of Wing to match Sidewalk slope when Type "NY4" is used on a Sidewalk
  - Changed spacing shown for longitudinal bars on front face of wing in the upper pour to #4 bars at 1'-0" spacing to match Std. 12.04
- Std 12.03 ■ Modified Legend Note with symbol \*\* to show Wing Width for Type "NY4" railing on a Sidewalk
- 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 ■ Changed "Cofferdams (Structure)" Bid Item Number from 206.5000 to 506.5001  
Changed "Cofferdams (Structure)" Bid Item Unit from "LS" to "EACH"
- Std 13.10 ■ No revisions.
- Std 13.11 ■ No revisions.

#### **Chapter 14**

- Std 14.02 ■ No revisions.
- Std 14.03 ■ Added Name Plate location and Designer Note
- 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 ■ Defined SE Abut. seat reinforcement: #4 bars @ 1'-0" and (2) #4 bars  
■ Clarified SE Abut. paving notch reinforcement: #5 bars @ 1'-0"  
■ Added symbol for paving notch reinforcement spacing and orientation
- Std 18.02 ■ Added symbol for paving notch reinforcement spacing and orientation
- Std 18.03 ■ Added notes for sidewalk or open railing applications

#### **Chapter 19**

- Std 19.01 ■ Changed Approval of the "Structures Maintenance Section" to "Structures Design Section" in Notes.
- Std 19.02 ■ No revisions.
- Std 19.03 ■ No revisions.
- Std 19.04 ■ No revisions.
- Std 19.11 ■ Changed Approval of the "Structures Maintenance Section" to "Structures Design Section" in Notes.
- Std 19.12 ■ No revisions.
- Std 19.13 ■ Changed Approval of the "Structures Maintenance Section" to "Structures Design Section" in Notes.
- Std 19.14 ■ No revisions.
- Std 19.15 ■ Changed Approval of the "Structures Maintenance Section" to "Structures Design Section" in Notes.
- Std 19.16 ■ No revisions.
- Std 19.17 ■ Changed Approval of the "Structures Maintenance Section" to "Structures Design Section" in Notes.

- Std 19.18 ■ No revisions.
- Std 19.19 ■ Changed Approval of the "Structures Maintenance Section" to "Structures Design Section" in Notes.
- 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 ■ No revisions.
- 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 ■ Changed anchor bolt material ASTM F1554 Grade 50 to ASTM F1554 Grade 55
- Std 27.05 ■ No revisions.
- Std 27.06 ■ Changed anchor bolt material ASTM F1554 Grade 50 to ASTM F1554 Grade 55
- Std 27.07 ■ Added top plate painting requirements
- Std 27.08 ■ Changed anchor bolt material ASTM F1554 Grade 50 to ASTM F1554 Grade 55
- Std 27.09 ■ Changed anchor bolt material ASTM F1554 Grade 50 to ASTM F1554 Grade 55
- 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 ■ Updated galvanizing reference from "AASHTO M232 Class C" to "ASTM F2329" in Detail Of Anchor Assembly.
- 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 ■ No revisions.
- Std 30.28 ■ No revisions.
- 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 ■ Replaced "Fillet" with "Chamfer" in note
- Std 36.03 ■ Replaced "Fillet" with "Chamfer" in notes
- 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 ■ No revisions.
- Std 39.03 ■ No revisions.
- Std 39.04 ■ Corrected symbol used for anchor rods in "Anchor Rod Assembly Details"
- Std 39.11 ■ No revisions.
- Std 39.12 ■ No revisions.
- 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 ■ No revisions.
- Std 39.33 ■ No revisions.
- Std 39.34 ■ No revisions.
- 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 ■ Corrected surface treatment reseal bid item numbers (502.3215 and 502.3205)
- 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.
- 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 ■ Changed Approval of the "Structures Development Section" to "Structures Design Section" in Notes, and highlighted WWF substitution submittal process.
- Std 40.14 ■ No revisions.
- Std 40.15 ■ Removed Detail Of Anchor Assembly
- Std 40.16 ■ No revisions.
- Std 40.17 ■ Changed Approval of the "Structures Development Section" to "Structures Design Section" in Notes, and highlighted WWF substitution submittal process.
- Std 40.18 ■ No revisions.
- Std 40.19 ■ Changed Approval of the "Structures Development Section" to "Structures Design Section" in Notes, and highlighted WWF substitution submittal process.
- 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 ■ No revisions.
- Std 40.32 ■ No revisions.
- Std 40.33 ■ No revisions.
- Std 40.34 ■ No revisions.
- Std 40.40 ■ No revisions.
- Std 40.41 ■ No revisions.
- Std 40.42 ■ Changed Approval of the "Structures Maintenance Section" to "Structures Design Section" in Notes, and highlighted WWF substitution submittal process.