

**Technical Note  
e-Notification**

No. 03

October 21, 2019

Updated: 1/29/2020,  
4/9/2020,  
5/1/2020, &  
**4/16/2024**

**Technical Note 03**

**Updated Item 3 Bullets 19.2.2 & 19.5,  
Updated Bridge Posting Flowchart,  
and Updated Item 8**

**1. LRFR and LFR/ASR Ratings:**

In accordance with the Load Rating Guidance Document (LRGD) Section 6.9.3, all bridges shall be rated using the LRFR methodology initially. If any of the Legal and/or Permit rating factors for LRFR are < 1.0, then an additional rating analysis shall be performed: ASR for timber/masonry bridges and LFR for all other bridges designed prior to October 1, 2010, unless approved by the State Bridge Maintenance Engineer (SBME) or designated representative. Both sets of rating results should be included in the appropriate worksheets of the “A20.1\_South Carolina\_LRS\_Template\_20191021” excel spreadsheet. A new version of this spreadsheet has been posted to the ProjectWise server.

For both of the above cases (LRFR and ASR/LFR ratings), **Section 3 – Bridge Load Rating Summary**, of the LRSF shall be completed with respect to the Legal load rating vehicles:

*Controlling Legal Truck* – Enter the legal rating vehicle with the lowest rating factor (note: if bridge is on an interstate, the SC SHV vehicles are not considered legal vehicles).

On the LRFR form, this shall be the controlling legal vehicle as determined by the LRFR analysis. On the LFR/ASR form, this cell shall be the controlling legal vehicle as determined by the LFR/ASR analysis at Operating level.

*Load Posting Required* – On the LRFR form, enter “No” for cases where all LRFR legal vehicle ratings are > 1.0 and posting is not required.

On the LRFR or LFR/ASR form (as applicable), enter “No, see [LRFR or LFR/ASR] form” for cases where one of the two analysis methodologies results in legal ratings < 1.0 while the other results in legal ratings > 1.0, eliminating the need for posting.

On the LRFR and the LFR/ASR forms, enter “Yes” only if both the LRFR and the ASR/LFR Operating rating factors for the legal trucks are < 1.0, all posting avoidance measures have been pursued, and the bridge still requires posting.

**Technical Note  
e-Notification**

No. 03

October 21, 2019

Updated: 1/29/2020,  
4/9/2020,  
5/1/2020, &  
**4/16/2024**

**Technical Note 03**

**Updated Item 3 Bullets 19.2.2 & 19.5,  
Updated Bridge Posting Flowchart,  
and Updated Item 8**

*Controlling Legal  
Rating Factor –*

On the LRFR form, enter the lowest LRFR legal vehicle rating factor.

On the LFR/ASR form, enter the lowest ASR/LFR legal vehicle rating factor (at Operating level).

Rating Example 1: all LRFR legal and permit ratings > 1.0

- No LFR/ASR analysis required
- Load posting is not required

Rating Example 2: all LRFR legal ratings > 1.0; one or more LRFR permit ratings < 1.0

- Perform an LFR/ASR analysis. If one or more permit ratings at the LFR/ASR Operating level are < 1.0, impact factor reductions shall not be considered. Permit rating factors < 1.0 shall be reported as-is on the LRS form.
- Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.
- Load posting is not required.

Rating Example 3: one or more LRFR legal ratings < 1.0; all LRFR permit ratings > 1.0

*Note: for interstate bridges, the SC SHVs are not legal loads and, therefore, they do not need to meet the legal load rating requirements as shown in these examples*

- Perform an LFR/ASR analysis.
  - If legal ratings at the LFR/ASR Operating level are all > 1.0, no further action is required. Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.
  - Load posting not required.

**Technical Note  
e-Notification**

No. 03

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4/9/2020,  
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**4/16/2024**

**Technical Note 03**

**Updated Item 3 Bullets 19.2.2 & 19.5,  
Updated Bridge Posting Flowchart,  
and Updated Item 8**

- If one or more legal ratings at the LFR/ASR Operating level are  $< 1.0$ , perform the posting avoidance options as outlined in LRGD Section 19.2. Submit a BMO Approval Form for the option(s) to be utilized.
  - If posting avoidance option(s) results in legal ratings  $> 1.0$  (for LRFR at the Legal level and/or for LFR/ASR at the Operating level), then posting is not required.
  - Otherwise, load posting is required in accordance with LRGD Section 19.3 thru 19.6. Refer to Section #2 of this Technical Note for more information on posting.
  - Document all posting avoidance measures in the “Remarks” section of the LRSF.
  - Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.

Example 4: one or more LRFR legal ratings  $< 1.0$ ; one or more LRFR permit ratings  $< 1.0$

- Perform an LFR/ASR analysis.
  - If all legal ratings at the LFR/ASR Operating level are all  $> 1.0$ , no further action is required. Include a signed and sealed LFR/ASR rating summary with the load rating deliverables. Load posting is not required.
  - If one or more legal ratings at the LFR/ASR Operating level are  $< 1.0$ , perform the posting avoidance options as outlined in LRGD Section 19.2. Submit a BMO Approval Form for the option(s) to be utilized.
    - If posting avoidance option(s) results in legal ratings  $> 1.0$  (for LRFR at the Legal level or LFR/ASR at the Operating level), then posting is not required.
    - Otherwise, load posting is required in accordance with LRGD Section 19.3 thru 19.6. Refer to Section #2 of this Technical Note for more information on posting.
    - Document all posting avoidance measures in the “Remarks” section of the LRSF.
    - Include a signed and sealed LFR/ASR rating summary with the signed and sealed LRFR rating summary and all other load rating deliverables.

**Technical Note  
e-Notification**

No. 03

October 21, 2019

Updated: 1/29/2020,  
4/9/2020,  
5/1/2020, &  
**4/16/2024**

**Technical Note 03**

**Updated Item 3 Bullets 19.2.2 & 19.5,  
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and Updated Item 8**

- If one or more permit ratings at the LFR/ASR Operating level are < 1.0, impact factor reductions shall not be considered. Permit rating factors < 1.0 shall be reported as-is on the LRS form.

Readers are also directed to the Bridge Posting Flowchart, previously shown below and now updated in Technical Note 06, for more detailed step-by-step information with respect to the posting process.

**2. Load Posting Signs:**

An additional worksheet entitled **Posting Summary** has been added to the “A20.1\_South Carolina\_LRS\_Template\_20191021” spreadsheet to assist the load rating engineer in completing the Bridge Signing/Posting Form from LRGD Appendix A19.1. The new version of this spreadsheet has been posted to the ProjectWise server. The “Posting Summary” worksheet is linked to the rating results from the “LFRF Summary” and “ASR-LFR Summary” worksheets.



*Figure 1 – New Posting Summary Worksheet*

The load rating engineer shall select the posting methodology (cell E3) which produces the more favorable posting results. Cell E5 is linked to the “Bridge Description Input” worksheet and is used to determine the applicability of the SC SHV vehicles as it relates to posting.

This worksheet shall be considered a tool to assist with completing the Bridge Signing/Posting Form. It is ultimately the responsibility of the load rating engineer and the engineer of record to ensure the proper posting values are used for the bridge under consideration.

**Technical Note  
e-Notification**

No. 03

October 21, 2019

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4/9/2020,  
5/1/2020, &  
**4/16/2024**

**Technical Note 03  
Updated Item 3 Bullets 19.2.2 & 19.5,  
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The screenshot shows a portion of the LFR BRIDGE POSTING SUMMARY form. It includes the SCDOT logo and the title. Two input fields are visible: 'Choose Posting Methodology:' with the value 'LFR' and 'Is the bridge on an interstate route?' with the value 'Yes'.

Figure 2 – Posting Summary “user input” cells

The screenshot shows the full LFR BRIDGE POSTING SUMMARY worksheet. It includes the SCDOT logo and the title. The main table lists vehicle types, axle configurations, posting vehicles, GVW (tons), Rating Factor, Posting Limit (tons), Single Axle (tons), and Tandem Axle (tons). To the right, there is a 'Posting Check' section indicating 'Posting is required', a 'Posting Signs' section with 'BRIDGE WEIGHT LIMIT - TONS' (Single Vehicle: 2 or 3 Axles: 25 T, 4 or More Axles: 32 T; Combinations: 40 T) and 'EMERGENCY VEHICLE WEIGHT LIMITS' (Single Axle: 16 T, Tandem: 23 T, Gross: 32 T).

Vehicle Type	Axle Configuration	Posting Vehicle	GVW (tons)	Rating Factor	Posting Limit (tons)	Single Axle (tons)	Tandem Axle (tons)
Single Unit	2 Axles	SC-SU2	20	1.657	-		
		SC Representative School Bus	17.525	1.957	-		
	3 Axles	SC-SU1A	32.5				
		SC-SU1B	35				
		SC-Type 3 (AASHTO Modified)	25	1.298	-		
	4 or More Axles	SC-SU2A	33				
		SC-SU2B	40				
		SU4	27	1.153	-		
		SU5	31	1.060	-		
		SU6	34.75	0.952	32		
Combination Unit	5 or More Axles	SU7	38.75	0.879	32		
		SC-SU3A	42.5				
		SC-SU3B	35				
		SC-Type 3S2 (AASHTO Modified)	36.6	1.343	-		
		Type 3-3	40	1.482	-		
Emergency Vehicles	2 Axles	Lane Type Legal Load (Neg. Moment)	40	-	-		
		Lane Type Legal Load (Span > 200')	40	-	-		
		EV2	28.75	1.151	32	16	23
	3 Axles	EV3	43	0.747			

Figure 3 – Posting Signs Auto-Populated by the Worksheet

**3. BMO Approvals Form:**

**Technical Note  
e-Notification**

No. 03

October 21, 2019

Updated: 1/29/2020,  
4/9/2020,  
5/1/2020, &  
**4/16/2024**

**Technical Note 03**

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Updated Bridge Posting Flowchart,  
and Updated Item 8**

BMO Approvals Form should be submitted with the information identified below.

If the load rater determines that posting avoidance measures would not have a significant impact on the posting need, the load rater shall submit the Bridge Signing/Posting Form with guidance as documented Technical Note 06, Item 3 along with a BMO Approvals Form completed as described below.

LRGD Appendix A20.2 – BMO Approvals Form:

The “SECTION 4: COMMENTS (REQUESTOR)” section of **all** BMO approval forms should contain:

- a description of the request and justification for the request

In order to accommodate efficient and productive reviews of the submitted BMO Approvals Form(s), additional documentation is required to be submitted along with the BMO Approval Form, as described below.

*3.3 – Approval for using load rating software other than BrR*

- No additional documentation

*14.3 – Approval for using load rating software other than BrR to rate concrete/masonry substructure*

- No additional documentation

*15.3 – Approval for using load rating software other than BrR to rate steel substructure*

- No additional documentation

*16.3 – Approval for using load rating software other than BrR to rate timber substructure*

- No additional documentation

*18.2.1 – Approval for using load rating software other than BrR for complex bridge rating*

- No additional documentation

*5.6 – Approval to perform Site Assessment*

- N/A

**Technical Note  
e-Notification**

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6.7.1 – Approval to use alternate impact factor allowance - **Do not utilize this section.**

- An alternate impact allowance for design and legal loads will not be considered. Load raters are instructed to not request approval for a reduced impact.

6.9.3 & 19.2.3 – Alternate rating method to LRFR for bridges designed after October 1, 2010

- No additional documentation

6.10.1 – Approval to use alternate impact factor allowance - **Do not utilize this section.**

- An alternate impact allowance for permit loads will not be considered. Load raters are instructed to not request approval for a reduced impact.

6.11.3.2 – Approval of rating factors < 1.0 from use of MBE Table 6A.4.3.4-1 system factors

- LRS Form
- BrR .xml file
- Bridge Plans

6.12 & 19.2.1 – Approval for load testing, NDT, or material testing to improve rating

- TBD

11.2.1.1 – Approval to use top or bottom flange lateral bracing members in 3D or grid analysis

- Bridge plans

11.2.1.1 – Approval to consider top flanges of through girder bridge as braced

- Bridge plans
- Supporting analysis and/or calculations providing justification

17.2.1 – Coordination of culvert load ratings with large fills, showing signs of distress and carrying normal traffic for an appreciable period

- Culvert plans
- BrR .xml file
- LRS Form
- Summary of recommended procedure/plan/analysis/etc. to determine appropriate rating factor

19.1 & 19.3 – Approval for posting avoidance options

- Bridge plans

**Technical Note  
e-Notification**

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4/9/2020,  
5/1/2020, &  
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- BrR .xml file
- LRS Form without proposed posting avoidance option(s)
- LRS Form with proposed posting avoidance option(s)
- Justification for applying the posting avoidance option(s)

~~19.2.2 – Approval to ignore Service III limit state~~

- ~~• Bridge plans~~
- ~~• BrR .xml file with two member alternatives defined for each girder: one alternative which includes the SVC III check and one which does not.~~
- ~~• LRS Form with the Service III check~~
- ~~• LRS Form without the Service III check~~
- ~~• Justification for ignoring Service III concrete tension (i.e., the latest bridge inspection report and/or site assessment data documenting prestressed girders which do not show signs of flexural and/or shear distress and do not exhibit cracking under normal traffic and any reasons(s) the load rating engineer believes salt intrusion is not expected to be a concern at the bridge location)~~

~~19.2.4 – BMO notified of discrepancies which invalidate a previous rating which accounted for the traffic barrier stiffness~~

- ~~• Bridge plans~~
- ~~• Inspection report and/or site assessment documenting the discrepancy~~
- ~~• Existing analysis and calculations accounting for traffic barrier stiffness~~
- ~~• Existing LRS Form~~

~~19.5 – BMO notified if the recommended posting is below the Operating capacity~~

~~See Technical Note 06, Item 3~~

- ~~• LRS Form~~
- ~~• Bridge Posting Form~~
- ~~• Justification for posting below Operating capacity~~

**4. Load Cases:**

The following load cases will be used to distinguish between the different kinds of loads on the bridge. Sign loads input in AASHTOWare BrR shall utilize the Sign Load (DW) load case.

## Technical Note e-Notification

No. 03

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Updated: 1/29/2020,  
4/9/2020,  
5/1/2020, &  
**4/16/2024**

## Technical Note 03

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Updated Bridge Posting Flowchart,  
and Updated Item 8**

Load Case Name	Description	Stage	Type	Time* (Days)
DC1	DC acting on non-composite section	Non-composite (Stage 1)	D,DC	
DC2	DC acting on long-term composite section	Composite (long term) (Stage 2)	D,DC	
DW	DW acting on long-term composite section	Composite (long term) (Stage 2)	D,DW	
SIP Forms (DC1)	Weight due to stay-in-place forms	Non-composite (Stage 1)	D,DC	
Haunch (DC1)	Weight due to haunch	Non-composite (Stage 1)	D,DC	
Parapet (DC2)	Weight due to parapet	Composite (long term) (Stage 2)	D,DC	
Sign Load (DW)	Weight due to sign	Composite (long term) (Stage 2)	D,DW	

### 5. Plan Notes vs LRGD:

The plans notes shall override the Load Rating Guidance Document (LRGD) when applicable. The inputter will need to utilize all the notes on the plans before referring to the LRGD for guidance or making assumptions.

Example: The LRGD gives direction for sacrificial thickness for decks based on year constructed. Plan notes may indicate the sacrificial thickness to be used. Make sure to use the plan notes.

LRGD: and consider the top 2 1/4" as effective for bridges designed after February 14, 1996, unless noted otherwise on the as-built plans.

Plan Notes:

**CONCRETE**  
THE CLASS OF CONCRETE SHALL BE AS NOTED ON OTHER SHEETS OF THESE PLANS.

BUILD-UPS ON BENT CAPS SHALL BE CAST MONOLITHIC WITH CAP UNLESS INDICATED OTHERWISE IN THESE PLANS. THE TOP OF EACH BUILD-UP SHALL BE LEVEL.

PAYMENT FOR CONCRETE IN SLAB WILL BE BASED ON THEORETICAL PLAN QUANTITY. ANY NECESSARY ADJUSTMENT IN QUANTITY DUE TO VARIATION IN CAMBER SHALL BE AT THE CONTRACTOR'S EXPENSE.

SIMPLE SPANS 80 FEET OR LESS SHALL BE POURED WITHOUT A TRANSVERSE CONSTRUCTION JOINT. FOR SIMPLE SPANS OVER 80 FEET IN LENGTH, TRANSVERSE STRIPS OF THE SLAB CENTERED AT MID-SPAN AND COMPRISING APPROXIMATELY 1/3 OF THE SLAB SHALL BE POURED FIRST AND ALLOWED TO CURE FOR NOT LESS THAN 4 DAYS BEFORE THE REMAINING END SECTIONS ARE POURED. HOWEVER, WHEN FAVORABLE WEATHER CONDITIONS EXIST THE ENGINEER MAY PERMIT THE ENTIRE SLAB TO BE POURED PROVIDED A SUITABLE RETARDING AGENT IS USED IN SUCH AMOUNTS THAT NONE OF THE CONCRETE OF THE POUR SHALL REACH INITIAL SET PRIOR TO COMPLETION OF THE POUR.

ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.

THE MINIMUM ACCEPTABLE CONCRETE COVER FOR REINFORCING STEEL MAY BE ONE HALF INCH LESS THAN THE PLAN DIMENSIONS WHEN REQUIRED BY REINFORCING BAR FABRICATION TOLERANCES.

THE TOP ONE FOURTH INCH OF ALL CONCRETE SLABS SHALL BE CONSIDERED AS A WEARING SURFACE AND SHALL NOT BE INCLUDED IN THE SLAB DEPTH USED FOR THE CALCULATION OF SECTION PROPERTIES.

### 6. Wearing

### Surface:

If the wearing surface has been measured in the field by the Site Assessment (SA) team, the load rater shall check the "Thickness field measured" box to reduce the wearing surface load factor.

## Technical Note e-Notification

No. 03

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4/9/2020,  
5/1/2020, &  
**4/16/2024**

## Technical Note 03 Updated Item 3 Bullets 19.2.2 & 19.5, Updated Bridge Posting Flowchart, and Updated Item 8

Wearing surface material:

Description:

Wearing surface thickness =  in  Thickness field measured (D<sub>W</sub> = 1.25 if checked)

Wearing surface density =  pcf

Load case:

### 7. AASHTOWare BrR Description Window:

Values used in the general description window should match the National Bridge Inventory (NBI) Datasheet:

Bridge ID: 03486 NBI Structure ID (B): 03486  Template  Superstructures  
 Bridge Completely Defined  Culverts

Description: Description (cont'd) Alternatives Global Reference Point Traffic Custom Agency Fields

Name: 03486 Year Built: 1960

Description: As-Built created by Michael Baker International (SLS) (2019-08-09)  
As-Built checked by Michael Baker International (SLS) (2019-08-09)

Location: 5.0 MI NE Woodruff Length: 400.00 ft

Facility Carried (F): I-26 EB Route Number: 00006 (5-digit route #)

Feat. Intersected (S): South Tiger River M. Post: 33.26

Default Units: US Customary

Bridge ID: 03486 NBI Structure ID (B): 03486  Temp  Bridge

Description: Description (cont'd) Alternatives Global Reference Point Traffic Cuts

X = 0.000 ft  
Y = 0.000 ft  
Elevation = ft  
Longitude = 81.95 Degrees  
Latitude = 34.76 Degrees

Bridge ID: 03486 NBI Structure ID (B): 03486  Template  Bridge Complete

Description: Description (cont'd) Alternatives Global Reference Point Traffic Custom Agency

Truck PCT: 18 %  
ADT: 13750  
Directional PCT: 100.0 %  
Recent ADTT: 2475  
Design ADTT:   
Est. annual traffic growth rate:   
Fatigue importance factor: Main Arterial, Interstate, Other  
 Importance factor override

2018 National Bridge Inventory	
Bridge Report	
Bridge Identification:	
Structure Number: 3486	(006) Location: 5.0 MI NE WOODRUFF
(001) State: SC	(009) County: Spartanburg
(002) Highway Agency Dist: 3	(010) Highway Agency Dist: 3
(007) Facility Carried: I-26 EB	(011) Facility Crossed: SOUTH TIGER RIVER
(008) Facility Crossed: SOUTH TIGER RIVER	(012) Level of Service: Mainline
(010) Latitude: 34° 43' 33.84"	(013) Route Signing Prefix: Interstate Highway
(017) Longitude: 081° 07' 34.43"	(014) Route Number: 026
(011) Kilometer Point: 33.264	(015) Directional Suffix: East
(012) Base High. Network: Route on base highway network	(13A) LRS Inventory Route: 00-000260
(009) Border Br. Struct. Num: N/A	(13B) Subroute: 00
	(09A) Neighbor State Code: N/A
	(08B) % Responsibility: N/A
Classifications:	
(112) NBS Bridge Length: Yes	(155) Federal Lands Hwy: N/A
(104) Key Span or Bay: N/A	(116) Design National Netw: Part of national network for trucks
(026) Functional Class: Rural - Principal Arterial - Interstate	(020) Toll: On free road
(140) STAGNED Design: On Interstate STRAHNET route	(021) Maintenance Respons: State Highway Agency
(101) Parallel Design: Right Bridge	(022) Owner: State Highway Agency
(102) Direction of Traffic: 1-way traffic	(037) Historical Value: Not eligible for National Register
(103) Temp Struct Design: N/A	
Age and Service:	
(027) Year Built: 1960	(040) Structure Type: Prestressed concrete
(106) Year Reconst: 1995	(43A) Main Struct Material: Stringer/Multi-beam or Girder
(42A) Type Serv on Bridge: Highway	(43B) Main Struct Type: Stringer/Multi-beam or Girder
(42B) Type Serv under Br: Waterway	(44A) # Age Spans: 0
(28A) # Lanes on Struct: 2	(44B) Appr Struct Material: N/A
(28B) # Lanes under Struct: 0	(44C) Appr Struct Type: N/A
(029) ADT @ 0.050 Year: 13750	(107) Deck Struct Type: Concrete Cast-in-Place
(109) Truck ADT: 18 %	(108A) Type Wearing Sur: Monolithic Concrete
(075) Oppose Dir. Length: 1.2 miles	(108B) Type Membrane: None
	(108C) Deck Protection: Unknown
Geometric Data:	
(046) Max Span Length: 49.9 ft	(033) Navigation Cont: No navigation control on waterway
(049) Struct Length: 400 ft	(070) Max Vert Clear: 0 ft
(050) Sidewalk Right: 0 ft	(045) Max Horiz Clear: 0 ft
(05A) Sidewalk Left: 0 ft	(111) Max Pier Foot: N/A
(051) Chb to Curb: 44 ft	
(052) Deck Out to Owl: 46.9 ft	

Values used in the general description "con't" window should match the NBI Datasheet:

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5/1/2020, &  
**4/16/2024**

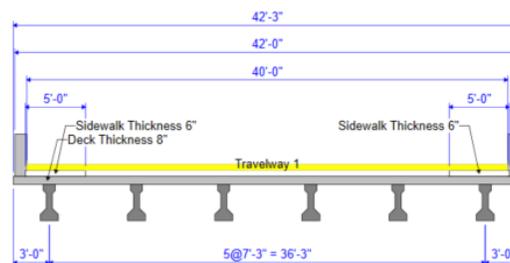
## Technical Note 03 Updated Item 3 Bullets 19.2.2 & 19.5, Updated Bridge Posting Flowchart, and **Updated Item 8**

2018 National Bridge Inventory	
<b>Bridge Identification:</b>	
Structure Number: 10061	
(001) State: SC	(009) Location: 6.3 MI NW GREENVILLE
(003) County: Greenville	
(002) Highway Agency Dist: 3	
(007) Facility Carried: C-23-1064	(5C) Level of Service: Mainline
(006) Facility Crossed: I-385	(5B) Route Signing Prefix: County Highway
(016) Latitude: 34° 48' 53.83"	(5D) Route Number: 1064
(017) Longitude: 082° 17' 22.14"	(5E) Directional Suffix: N/A
(011) Kilometer Point: 0.763	(13A) LRS Inventory Route: 000000000
(012) Base High. Network: Route not on base highway network	(13B) Subroute: 00
(099) Border Br. Struct. No: N/A	(98A) Neighbor State Code: N/A
	(98B) % Responsibility: N/A
<b>Classifications:</b>	
(112) NBIS Bridge Length: Yes	(105) Federal Lands Hwy: N/A
(104) Hwy Sys of Inv Rte: Not on NHS	(110) Desig National Netw: Not part of national network for trucks
(026) Functional Class: Urban - Local	(020) Toll: On free road
(100) STRAHNET Desig: Not on STRAHNET route	(021) Maintenance Respon: County Highway Agency
(101) Parallel Desig: Not parallel structure	(022) Owner: County Highway Agency
(102) Direction of Traffic: 1-way traffic	(037) Historical Value: Not eligible for National Register
(103) Temp Struc Desig: N/A	
<b>Age and Service:</b>	
(027) Year Built: 1980	<b>Structure Type and Material:</b>
(106) Year Recon: N/A	(045) # Main Spans: 1
(42A) Type Serv on Bridge: Highway	(43A) Main Struct Material: Steel continuous
	(43B) Main Struct Type: Stringer/Multi-beam or Girder

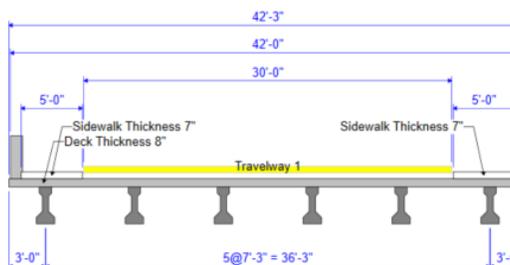
## 8. Sidewalks and Pedestrian Loading:

### Sidewalks

If the traffic face of the sidewalk is **≤ 6" high**, assume the sidewalk can be mounted by trucks and define the travelway from face-to-face of barrier in AASHTOWare BrR:



If the traffic face of sidewalk is **> 6" high**, assume the sidewalk cannot be mounted by trucks and define the travelway from face-to-face of sidewalk in BrR:



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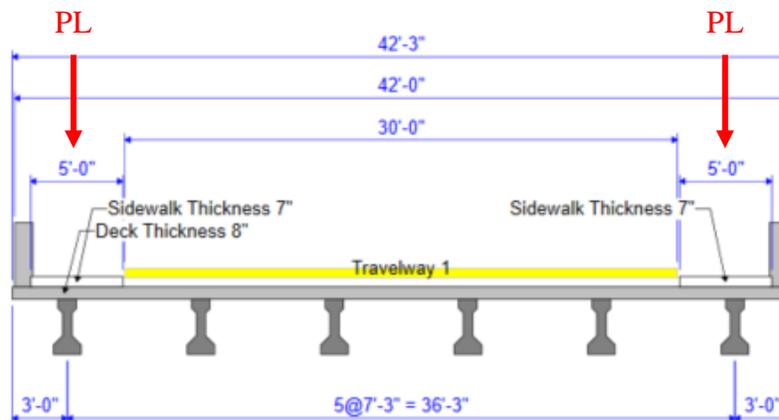
Pedestrian Loading

As per Load Rating Guidance Document (LRGD) Section 6.4.2, “pedestrian loading on sidewalks need not be considered simultaneously with vehicular loads when load rating a bridge *unless* the load rater has reason to expect that significant pedestrian loading will coincide with the maximum vehicular loading.” In general, bridges shall not be rated with pedestrian loading. Only in special circumstances (i.e., when the bridge is near a stadium, convention center, concert venue, etc.) shall pedestrian loading be included in AASHTOWare BrR as a “Member Load”:



Note: pedestrian loading shall be applied similar to other superimposed composite dead loads (i.e., distributed equally to the nearest 3 girders under the sidewalk).

Note: if pedestrian loading is applied on a sidewalk, the sidewalk in AASHTOWare BrR should be assumed non-mountable, even if it is **≤ 6” tall** (i.e., truck loading and pedestrian loading cannot be on the same sidewalk simultaneously):



Note: The change for mountable curbs from 9” to 6” was implemented in Technical Note 06, Item 4. This change does not have to be adjusted retroactively for bridges already rated.

**Technical Note  
e-Notification**

No. 03

October 21, 2019

Updated: 1/29/2020,  
4/9/2020,  
5/1/2020, &  
**4/16/2024**

**Technical Note 03**

**Updated Item 3 Bullets 19.2.2 & 19.5,  
Updated Bridge Posting Flowchart,  
and Updated Item 8**

**9. Minimally Stressed P/S Strands**

Minimally stressed top strands are not input in the prestressing profile as fully stressed strands in AASHTOWare BrR.

**10. Variable Overhangs**

For bridges with variable overhangs, the average overhang may width be used in AASHTOWare BrR. Add this to the list of assumptions on the Load Rating Summary Form (LRSF) if the average overhang width is used.

The following Help Desk e-Notifications are incorporated into this Technical Note.

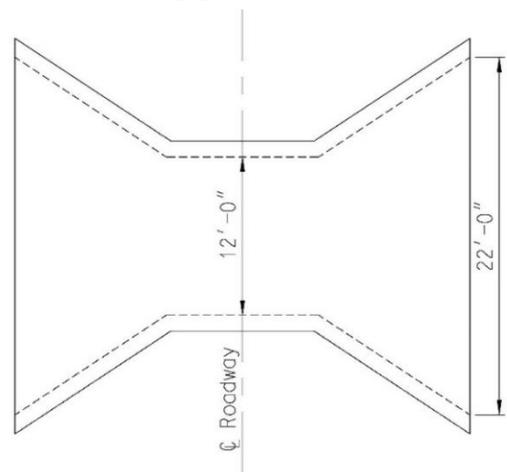
**11. Help Desk e-Notification 011 – How to Handle Data Correction where Structure Length Becomes < 20 feet**

**Question:**

During the Data Correction Task, if it is found that the value for FHWA coding guide Item 49, Structure Length gets corrected from the incorrect value of more than 20 feet to a correct value which happens to be less than 20 feet, should this bridge or culvert be removed from the list?

If so, what is the process? Should the Data Correction be made in the Bridge Inspection Online (BIO) system and the Data Correction Form submitted to document the change, and then remove the bridge or culvert as described in Help Desk e-Notification 010?

For example, a culvert is coded as 22 feet long. As per FHWA coding guide, Item 49 is the clear distance between inside



**Technical Note  
e-Notification**

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**Updated Item 3 Bullets 19.2.2 & 19.5,  
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surface of outer walls of the culvert measured along the centerline of roadway, resulting in a corrected Item 49 value of 12 feet.

**Answer:**

Yes, culvert and pipe structures encountered matching this general description should be removed. First the Data Correction should be reported in ProjectWise to document the change, then updated in BIO, and finally the structure should be removed following the process outlined in Help Desk e-Notification 010.

Per the FHWA Coding Guide, culvert length is measured along the centerline of roadway between inside faces of exterior walls. Culverts that measure less than 20 feet along the center line of roadway, regardless of maximum span length (see example sketch), shall be classified as Non-NBI Bridges and do not require a load rating.

**12. Help Desk e-Notification 019 – Data Correction Items 63 to 66 & 418**

**Question:**

Since the AASHTO Load Resistance Factor Rating (LRFR) is the default load rating method required for SCDOT load ratings, National Bridge Inventory (NBI) Items 63 & 65 will be coded as 3 (LRFR), and Items 64 & 66 will be the governing HL-93 ratings (rating factor x 36 tons as presented in the AASHTOWare BrR results).

- A. When the AASHTO Load Factor Rating (LFR) is used as a posting avoidance measure, should items 63 to 66 still be coded as the HL-93 ratings for the LRFR method? Or should the LFR ratings for HS-20 be presented in such cases?
- B. The NBI Coding Guide states that rating values for Items 64 & 66 are to be in metric tons. Should these be entered in US units instead, consistent with other NBI data items in Bridge Inventory Online (BIO)?

**Technical Note  
e-Notification**

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C. The structure condition ratings are already listed in Items 58 to 62. Should Item 418 Conditions During Rating be left blank? If not, please state how this item should be coded?

**Answer:**

- A. Items 63 to 66 should always be coded using the HL-93 LRFR ratings. If LFR is used for posting avoidance, still report items 63 to 66 using the HL-93 LRFR factors.
- B. NBI 64 and 66 should be reported as a rating factor. Refer to Help Desk e-Notification 023.
- C. Item 418 should be filled out using the bridge inspection report and the site assessment. The information is 418 is the data entered in 58, 59, and 60. For example: 7, 8, 8. For culverts, the first digit is the culvert rating and the last two digits are blank. Refer to the LRGD Data Correction Form Instructions.

**13. Help Desk e-Notification 020 – Culvert Wall Ratings with RFs Below 1.0**

**Question:**

The Load Rating Guidance Document (LRGD) 17.2.1, paragraph 1 states that if the AASHTOWare BrR rating factor is 0.00, and the wall reinforcing governs the rating, increase reinforcing by 20% until the wall does not control the ratings, if the culvert carries normal traffic with no distress.

If the wall ratings govern and the rating factors for posting trucks are greater than zero but less than 1.0, can the wall reinforcing be increased by 20% until the wall no longer governs or the rating factors go above 1.0, since the intent of the above referenced paragraph is to eliminate the wall rating from governing on low-rated culverts?

**Answer:**

Please refer to the latest version of the following file, now located in the SCDOT Load Rating project “Reports to File\SCDOT LR Files” ProjectWise folder. As a reminder, please check the sites often for updates, as there will not always be regular notices of updates.

**Technical Note  
e-Notification**

No. 03

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and Updated Item 8**

SCDOT LR Culvert Guidance.pdf

Please direct any questions concerning the above to:

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Approved: \_\_\_\_\_  
Director of Bridge Management

4/17/24  
\_\_\_\_\_  
Date

- LRGD Technical Note 01, August 9, 2019
- LRGD Technical Note 02, January 17, 2020
- LRGD Technical Note 03, June 17, 2020
- LRGD Technical Note 04, January 17, 2020
- LRGD Technical Note 05, December 17, 2019
- LRGD Technical Note 06, July 13, 2021
- LRGD Technical Note 07, June 16, 2021
- LRGD Technical Note 08, April 13, 2020
- LRGD Technical Note 09, July 13, 2021
- LRGD Technical Note 10, October 5, 2020
- LRGD Technical Note 11, February 22, 2021
- LRGD Technical Note 12, May 25, 2022
- LRGD Technical Note 13, August 25, 2021
- LRGD Technical Note 14, August 31, 2022
- LRGD Technical Note 15, June 21, 2023