

Bridge Transition Identification Guide

March 2026

NEBRASKA

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION



Introduction

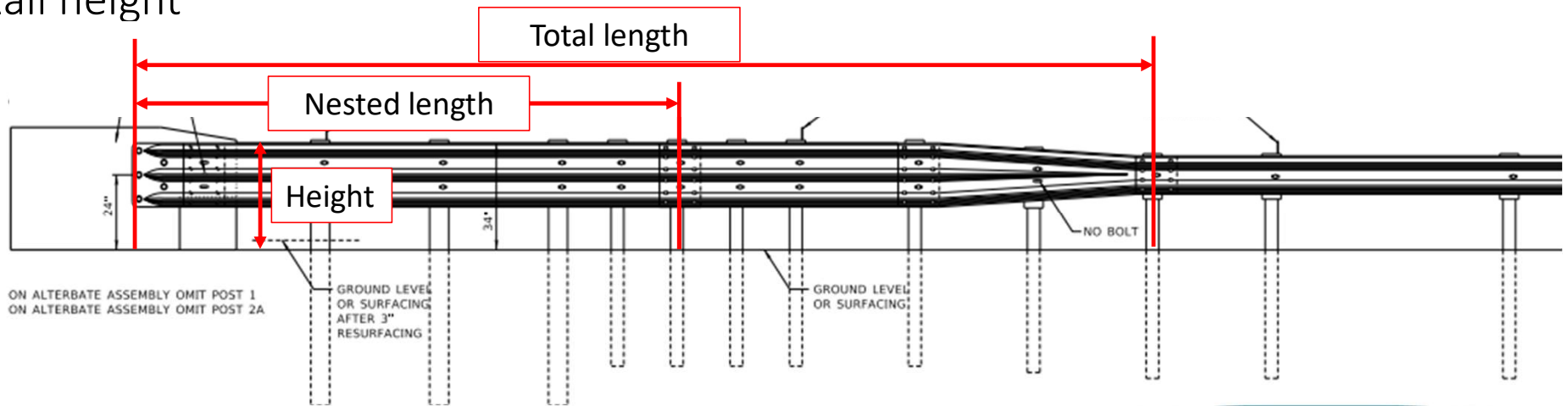
This guide is published by NDOT Bridge Division for use in conjunction with the NDOT BIP Manual to determine which test level code should be entered for each structure in the field B.RH.02 in BRM. The information published herein is solely a guide to be used with judgment by certified inspectors.

Substantial effort has been made to find all transitions currently installed on bridges in Nebraska used by owners of all different classes. It is likely that some transition types or variations have been overlooked. If a transition is discovered that does not appear to match any of the types shown in this guide please contact the NBIS Program Manager Wayne Patras at wayne.patras@nebraska.gov with the information shown on the next slide. Bridge Division will assist in determining an appropriate test level code for your use.

For structures where there are multiple transition test level codes see Table 6 in of chapter 3 of the BIP Manual (page 163 of pdf). Use the code that first applies going from the bottom (Code 0) of Table 6 to the top (Code N).

Information to record when encountering other installations

- Structure number
- Picture capturing entire transition in question
- Post size, type, number, and spacing within length of transition, if applicable
- Rail type and length of nested sections, if any
- Rail height



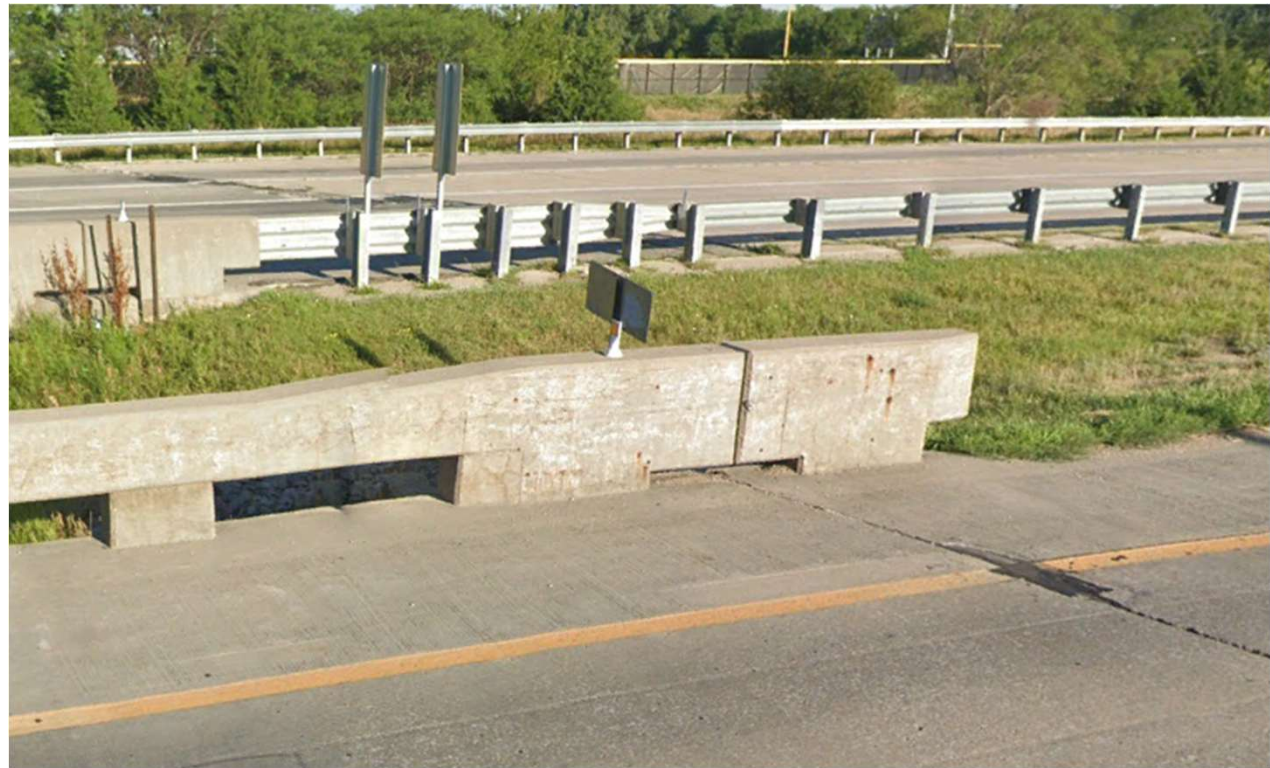
Understanding transitions

- Transitions begin at the bridge end joint location
- Concrete barriers will be rigid while W- and Thrie-beam will be semi-rigid
- Where two different segments of transition exist, code for the lowest rated segment (see introduction for further details on process).
- For coding rigid transitions, use the rating code of the rail on the bridge



Exiting traffic on downstream ends of bridges on separated highways

- On separated roadways where the character of the roadside is forgiving, transitions may not be required for traffic exiting the downstream side of the bridge. In these circumstances, code for the corners where transitions are present. If you are unsure of whether transitions are required in such a situation, consult with the bridge owner's roadway designers.



Examples of transition types



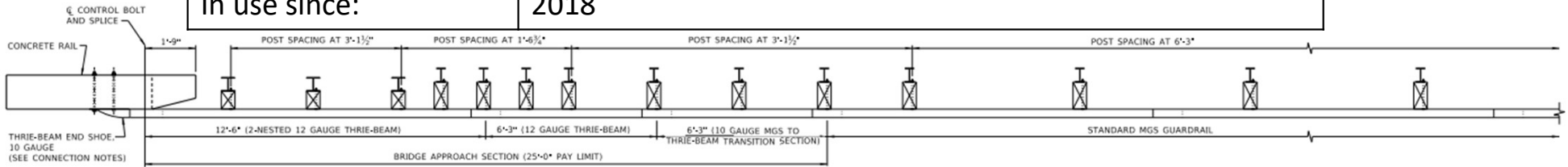
Examples of N-Code Installations

- Crash cushions/attenuators
 - Crash cushions do not require a transition to function
 - May be a code 0 if it requires attachment to parapet and is unattached
- Rail continuous over bridge
 - Also applies for concrete barriers

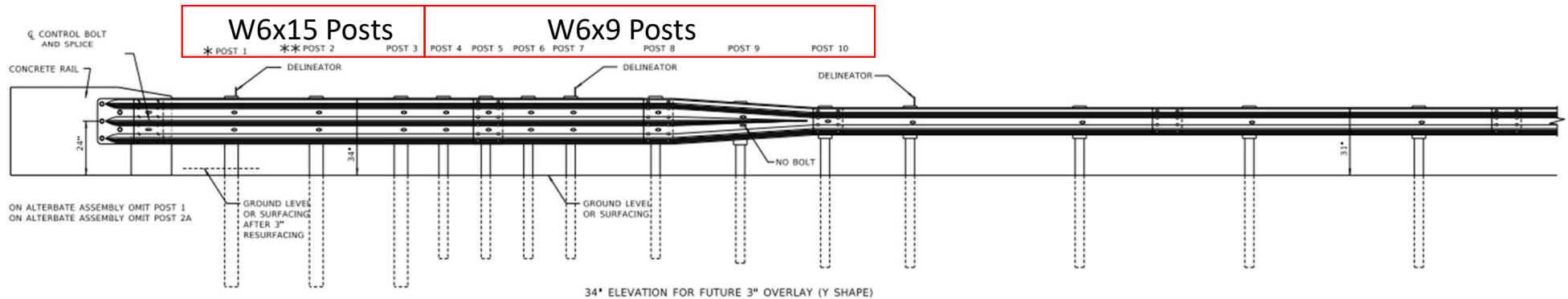


Midwest Guardrail System Bridge Approach Section

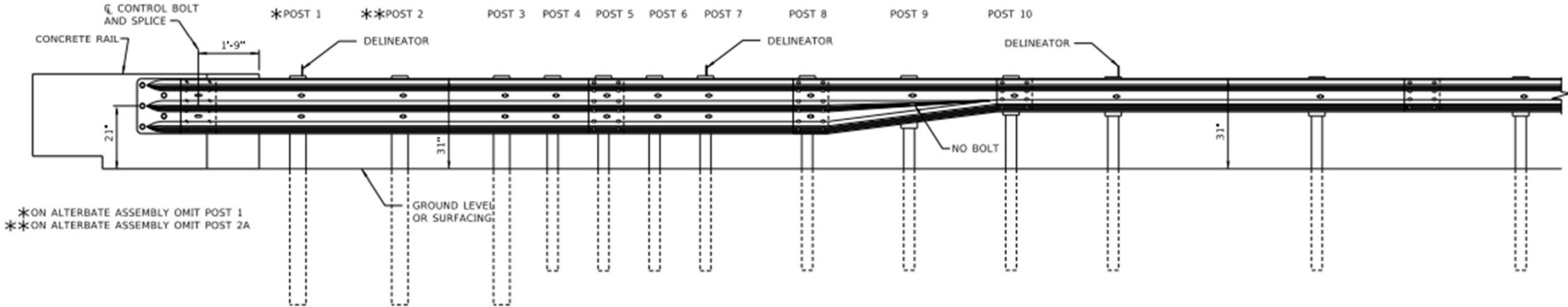
Standard Plan	740-R1
Code	M163
Report	TRP-03-367-19-R1
In use since:	2018



PLAN VIEW



Midwest Guardrail System Bridge Approach Section (con't)



31" ELEVATION STANDARD INSTALLATION (ASYMMETRICAL SHAPE)

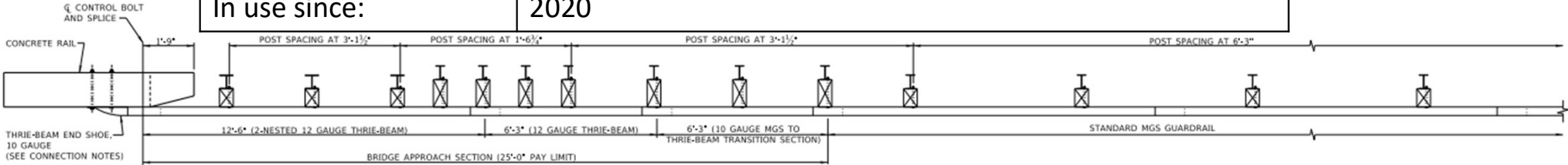
Midwest Guardrail System Bridge Approach Section (con't)

- If first post is omitted in lieu of a backer beam as shown, code is S18
 - Crash testing is planned so this code may change in the future

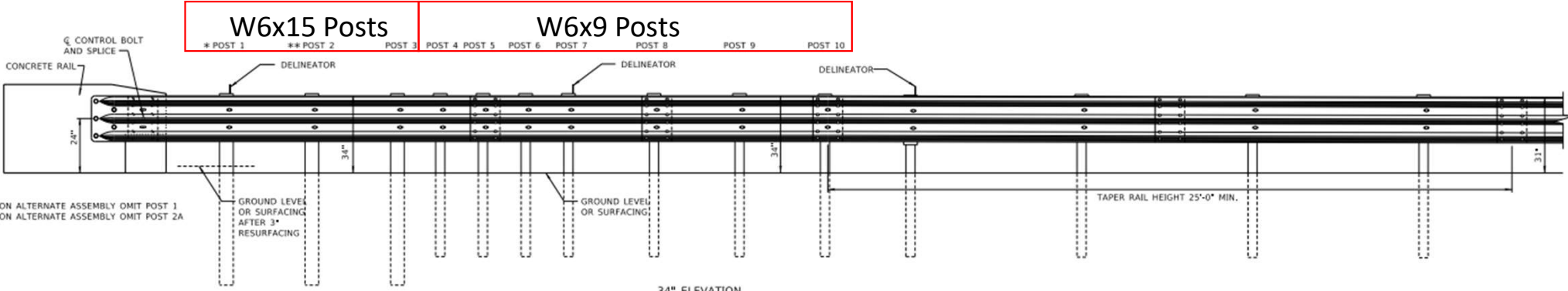


Thrie-Beam Bridge Approach Section

Standard Plan	741-R2
Code	M163
Report	TRP-03-367-19-R1
In use since:	2020

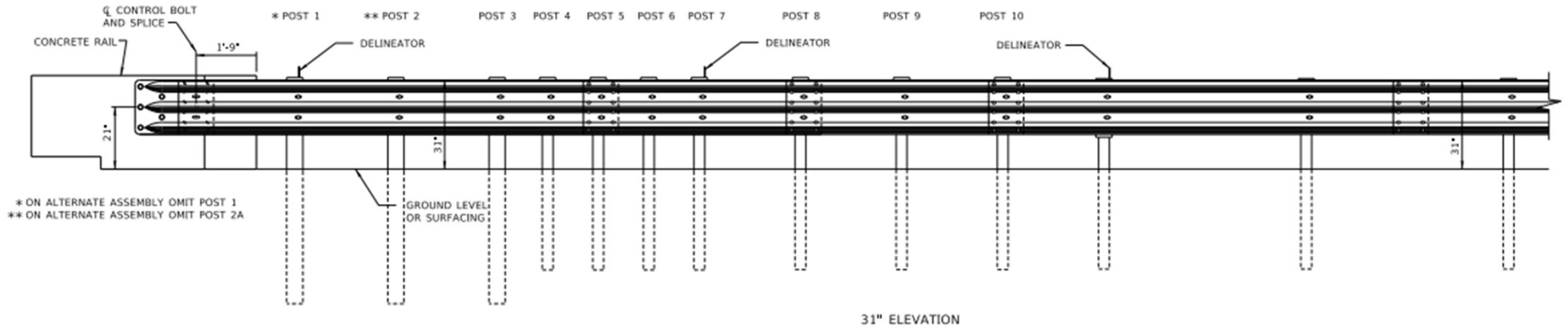


PLAN VIEW



34" ELEVATION

Thrie-Beam Bridge Approach Section (con't)



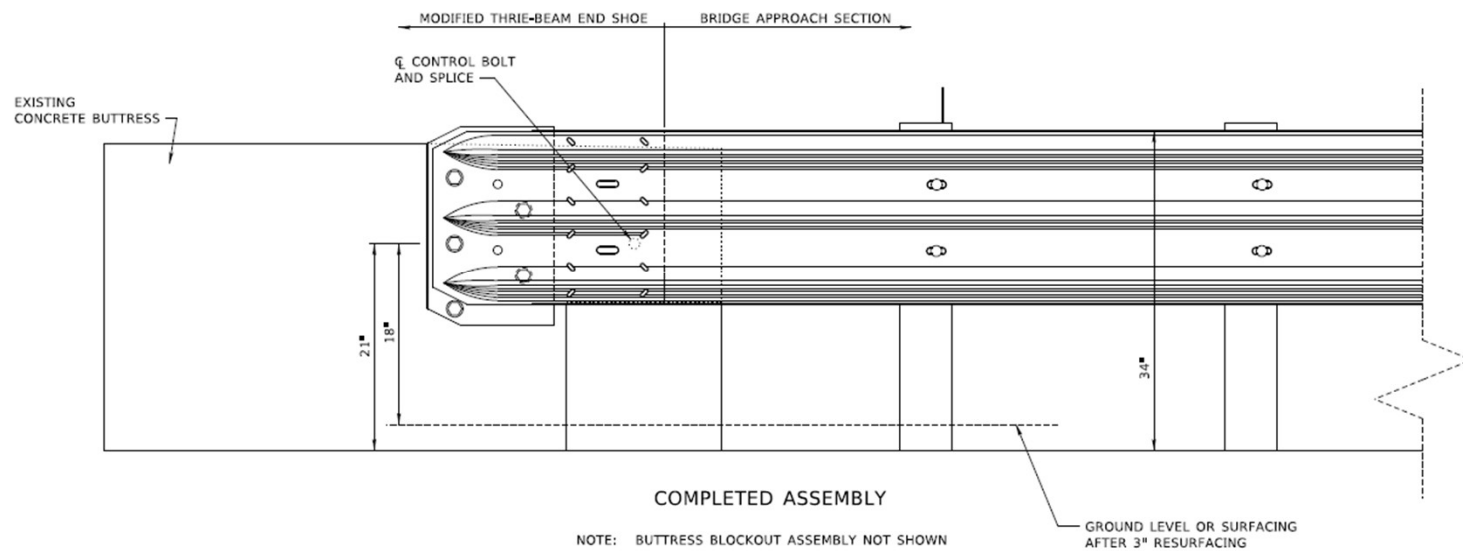
Thrie-Beam Bridge Approach Section (con't)

- If first post is omitted in lieu of a backer beam as shown, code is S18
 - Crash testing is planned so this code may change in the future



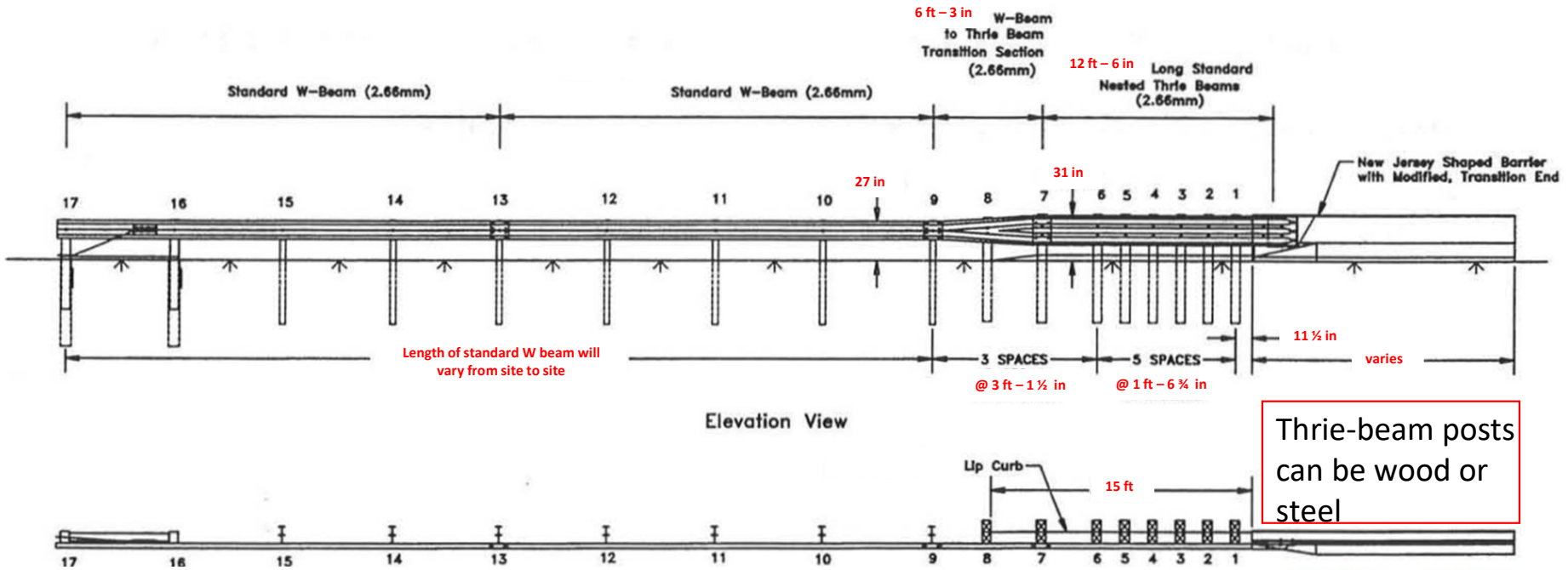
Thrie-Beam End-Shoe Retrofit

- The end shoe retrofit is allowable and will not change the coding of a thrie-beam approach guardrail transition



NCHRP350 Thrie-Beam approach section

Code	3503
Report	TRP-03-069-98, TRP-03-175-06
In use since:	1998



NCHRP350 Thrie-Beam approach section (con't)

- An omitted post with backer beam will result in an “I” classification for this configuration

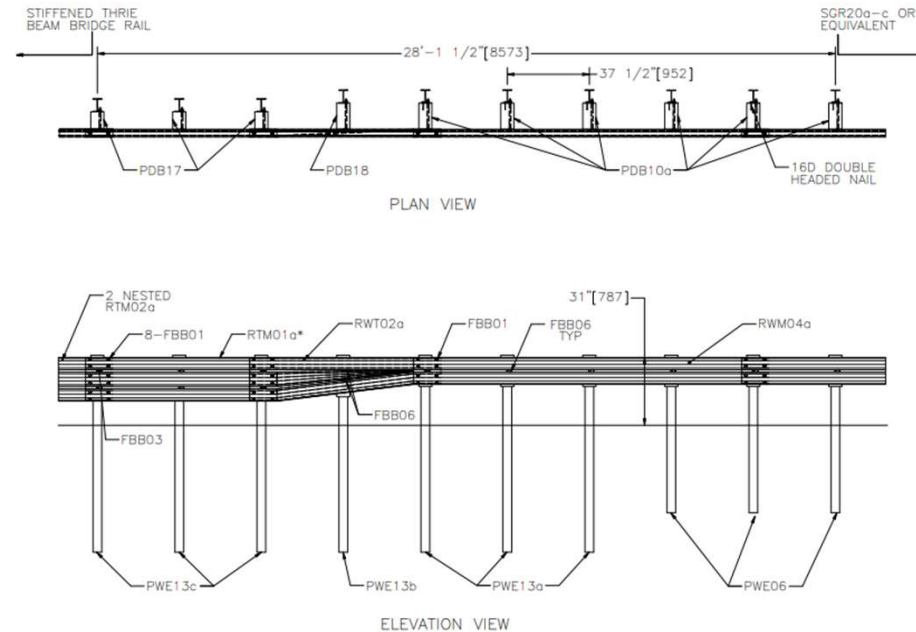


MGS W-BEAM TO THRIE BEAM TRANSITION – Alternate post arrangement

Code	3503
Report	TRP-03-167-07, TRP-03-94-00
In use since:	2000

- Designated STG02

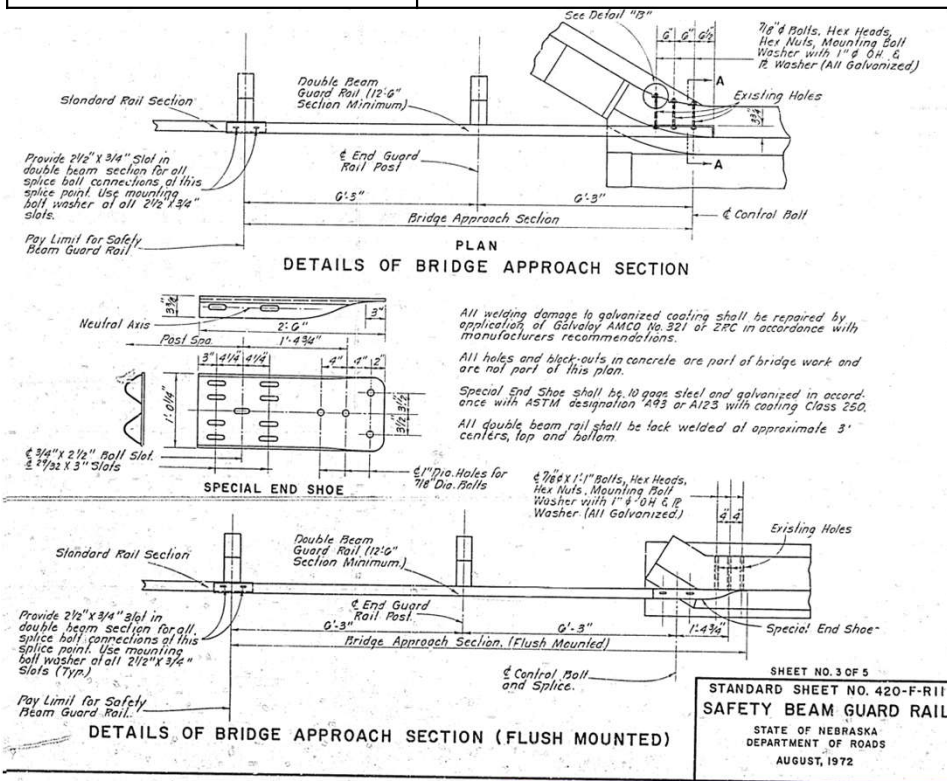
DESIGNATOR	COMPONENT
-----	Stiffened Thrie Beam Bridge Rail System
RWM04a	4-Space W-Beam Guardrail
PDB18	6x12x19" [152x305x483] SYP Blockout
RTM02a	12'-6" [3810] Thrie Beam Section Half Post Spacing
RTM01a	6'-3" [1905] Thrie Beam Section Half Post Spacing
PDB17	6x8x19" [152x203x483] SYP Blockout
PWE13a-c	W6x12 90" [2286] long Posts
PDB10a	6x12x14.25" [152x305x362] SYP Blockout
RWT02a*	Asymmetrical W to Thrie Beam Transition
FBB06	14" [356] Guardrail Bolt and Recessed Nut
FBB03	10" [254] Guardrail Bolt and Recessed Nut
-----	16D Double Headed Nail
FBB01	1.5" [38] Guardrail Bolt and Recessed Nut
PWE06	Wide-Flange Guardrail Post



*NOTE: RWT02b FOR OPPOSITE DIRECTION

Historical Bridge Approach Section

Standard Plan	420-F-R11 (Archived)
Code	S72



- Requires nested guardrail section adjacent to parapet
 - If no nested guardrail, code as an "1"
- Flush or recessed mount to parapet
- May be limited installations remaining in the state

Examples of I-Code installations

- Use code “I” when hardware is present but it can’t be matched to any standard or crash-tested configuration
- These examples are not exhaustive and other code “I” installations may exist in the state



Examples of I-Code installations (con't)

- Pay careful attention to post arrangements in transitions
 - If posts are omitted in a way that doesn't match with the presented standards, such as in the image to the right, code the installation as an "I"



Examples of 0-code installations

- Discontinuous rails or barriers
 - Code 0
- Bridge rail terminates without a transition



Questions?

Contact Wayne Patras at wayne.patras@nebraska.gov

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