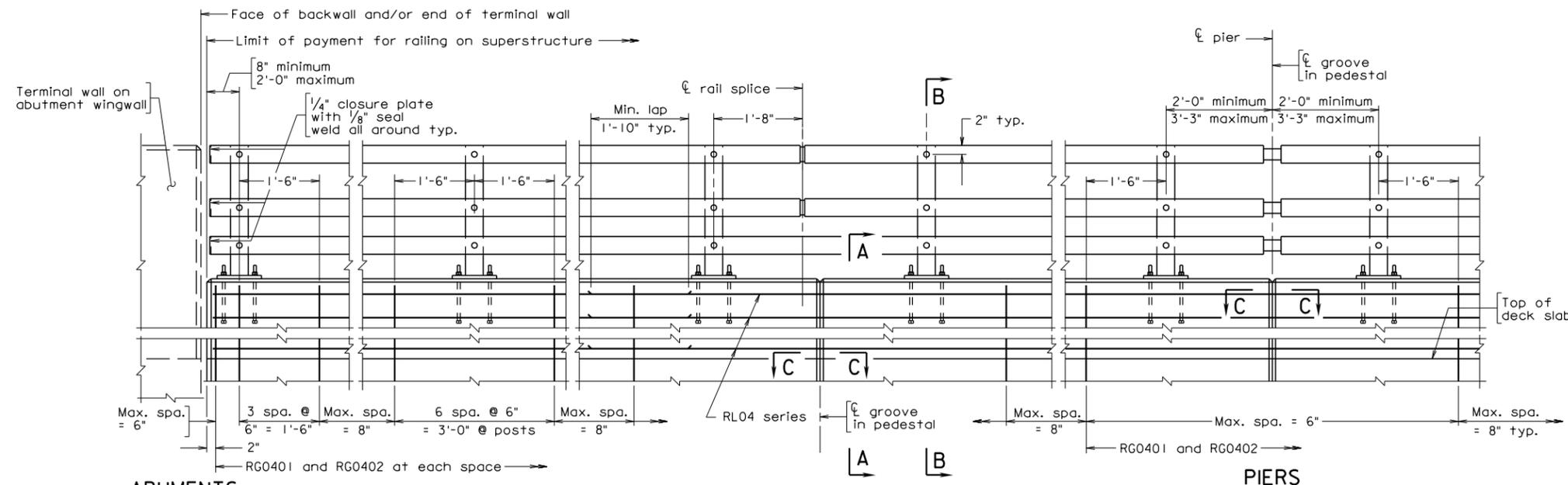


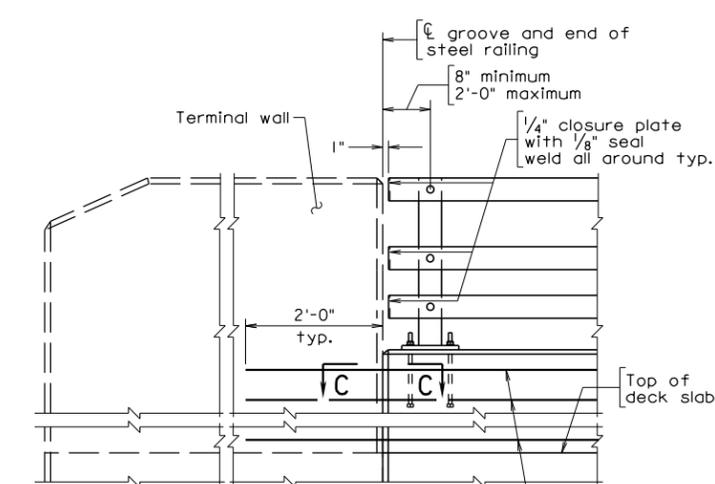
STATE	FEDERAL AID	STATE	SHEET
ROUTE	PROJECT	ROUTE	NO.
VA.			



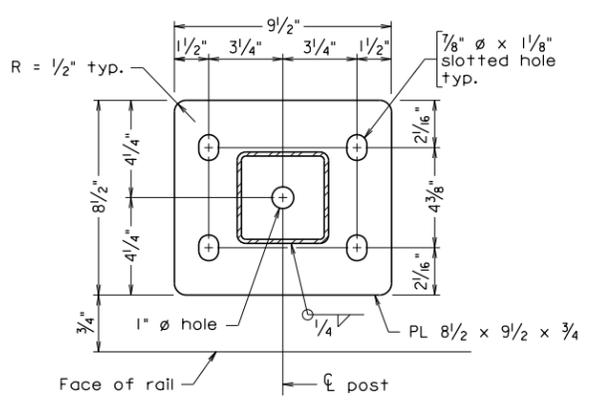
ELEVATION

ABUTMENTS
Terminal Wall on Wingwall

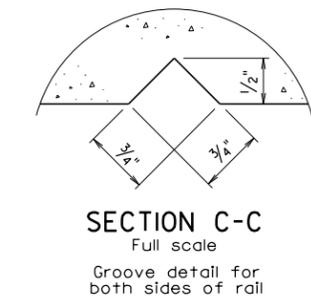
PIERS



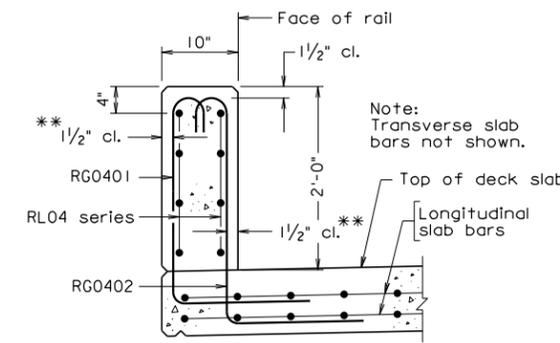
PART ELEVATION
Terminal Wall on Superstructure



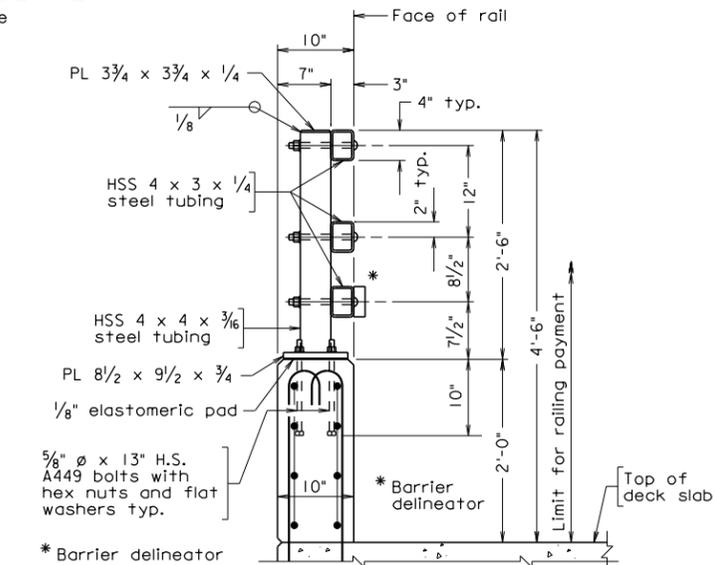
BASE PLATE DETAIL
Not to scale



SECTION C-C
Full scale
Groove detail for both sides of rail



SECTION A-A
Scale: 1" = 1'-0"



SECTION B-B
Scale: 1" = 1'-0"
Bolts through base plate shall be contained inside rebar cage

Notes:

- Plan dimensions shown are measured in the respective horizontal and vertical planes.
- The Contractor shall determine all dimensions and details necessary for installation.
- All concrete shall be Low Shrinkage Class A4 Modified.
- All bevels for concrete shall be 3/4".
- The reinforcing steel shown has been detailed based on a standard 1/4" per foot cross slope and for an 8 1/2" slab depth. The Contractor shall adjust the reinforcing steel as required for other cross slopes and slab depths.
- All reinforcing steel shall be Corrosion Resistant Reinforcing Steel, Class ...
- For details and reinforcing steel schedule of terminal wall, see sheet
- Posts and rail members shall be ASTM A500 Grade B steel. Plates shall be ASTM A36 steel. Steel pipe sleeves shall be ASTM A53.
- Bolts for attaching rails to post are 3/4" diameter round head (with slot in head), ASTM A449. All other bolts shall be ASTM A325 unless otherwise indicated in the details. Nuts shall be ASTM A563 Grade DH or ASTM A194 Grade 2H. Washers shall be ASTM F436.
- For bolts attaching rails to posts, bolt extensions beyond nut shall be limited to the smaller of one and a half finishing turns or 1/4". If the extension is longer, excess shall be cut off and the edges of the bolt end ground so that no sharp edges remain. Cold galvanizing shall be applied to damaged galvanized areas.
- All steel shall be hot dip galvanized.
- Posts shall be equally spaced within a span. Maximum spacing is 7'-0". Minimum spacing is 6'-6".
- Posts shall be seated on neoprene pads 1/8" minimum thickness, having a nominal durometer hardness of 60. Pads shall conform to post base dimensions.
- Cut bottom of posts to match cross slope before welding so that posts will be vertical. Steel shims may be used to adjust post alignment, maximum thickness of shim build-up not to exceed 1/8". Where more tilting of the post is required, the concrete shall be ground down.
- Rails to be continuous over a minimum of 3 posts before splicing.
- For additional notes, see sheet...

** The cover tolerance referenced in the VDOT Road and Bridge Specifications as -0" to +1/2" is shifted to -1/4" to +1/4" for placement of the RG04 series bars.

REINFORCING STEEL SCHEDULE					
Mark	Size	No.	Length	Pin ϕ	Location
RG0401	#4			3"	Parapet
RG0402	#4			3"	Parapet
RL04	#4				Parapet

Dimensions in bending diagram are out-to-out of bars.

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION STRUCTURE AND BRIDGE DIVISION					
54"-BR27C STEEL RAILING					
No.	Description	Date	Designed: S&B...DIV	Date	Plan No.
			Drawn: ...S&B...DIV		Sheet No.
			Checked: S&B...DIV		
BR27C-14					

BR27C-14
05-18-2016
br27c14.dgn

Sealed and Signed by:
Prasad L. Nallapaneni
Lic. No. 033003
On the date of
May 18, 2016

A copy of the original
sealed and signed
standard drawing
is on file in the
Central Office.

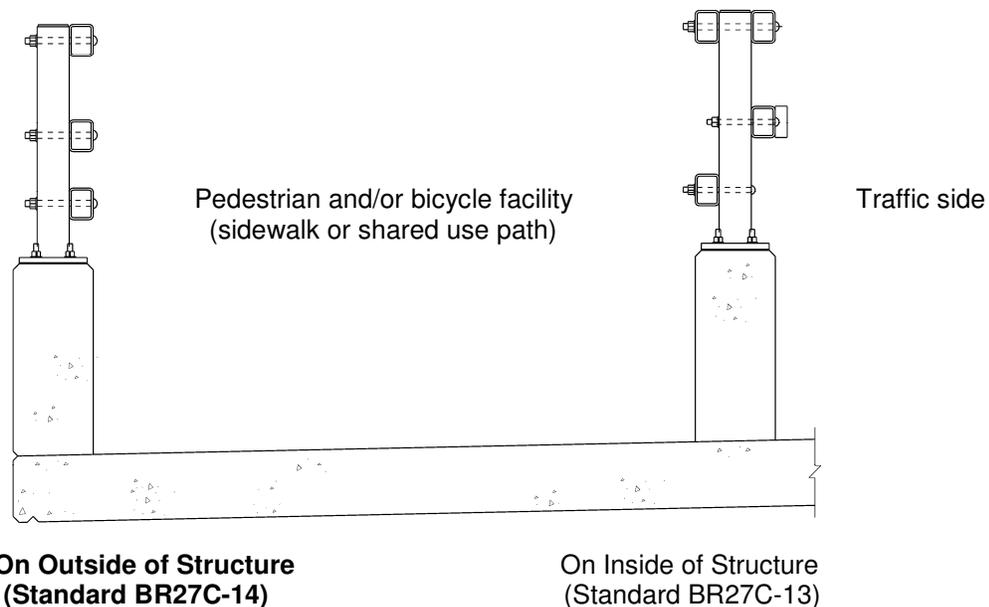
VDOT S&B DIVISION
RICHMOND, VA
STRUCTURAL ENGINEER

54" STEEL RAILING

BR27C-SERIES

NOTES TO DESIGNER:

This railing is detailed for a pedestrian and/or bicycle facility and used on the outside of a structure provided that there is a traffic barrier separating the pedestrian and/or bicycle access from traffic (i.e., standard BR27C-13). For railing mounted on a sidewalk utilizing pedestrian and/or bicycle access without a traffic barrier, see Standard BR27C-15. The steel railing has a height of 4'-6" and is used for Adjusted Test Level TL-3 for MASH criteria. The crash tested rail has been modified to meet the rail opening requirements of the AASHTO *Standard Specifications for Highway Bridges* as well as the AASHTO *LRFD Bridge Design Specifications*. A design exception has been approved by the FHWA. The standard may be used when an open railing is required. If architectural treatment is required, use standard BR27C-14-AT.



For geometrics of pedestrian and/or bicycle facilities, see Part 2, Chapter 6, of this manual.

Do not use the non-standard bid item for this rail. The bid item for this rail is RAILING BR27C 3 RAILS. See Part 2, Chapter 3, of this manual.

The rail connections and notes (standard BR27C-16) is to be included in the plans when using this standard. The appropriate terminal wall standard (BR27T-5 thru BR27T-8) is added if the terminal wall is to be on the superstructure. The guard rail transitioning from the roadway will not be attached to the terminal wall on the outside of structure, but on the inside of structure. Therefore, the terminal wall standard selected would have to be modified by removing details and notes that pertain to guard rail attachment.

54" STEEL RAILING

BR27C-SERIES

NOTES TO DESIGNER: (cont'd)

If an initial bituminous overlay is used on the bridge at the time of construction, vertical dimensions and dimensions for reinforcing steel need to be adjusted. The dimensions shown are established from the top of the roadway surface. Therefore, for example if 1" overlay at the roadway surface is set, the 2'-0" dimension and overall 4'-6" height of the rail would need to be adjusted to 2'-1" and 4'-7" respectively (Section B-B) and the 2'-0" dimension in Section A-A would have to be adjusted to 2'-1".

It is the Contractor's responsibility to determine the number of reinforcing bars required as well as any details or dimensions. Therefore, these items are to be left blank in the Reinforcing Steel Schedule.

ADD THE FOLLOWING NOTES, DIMENSIONS, DETAILS, ETC. TO STANDARD:

SECTION A-A:

Modify vertical dimension (2'-0") as noted above if an initial overlay is used on bridge.

SECTION B-B:

Modify vertical dimensions (2'-0" and 4'-6" railing height) as noted above if an initial overlay is used on bridge.

NOTES:

Complete corrosion resistant reinforcing steel note by adding Class I, II or III. For additional information on corrosion resistant reinforcing steel (CRR), see Structure and Bridge Division Instructional and Informational Memorandum (current IIM-S&B-81).

Complete sheet no. for terminal wall if used.

Complete sheet no. for additional notes.

REINFORCING STEEL SCHEDULE:

Add dimensions and length for rebar RG0401 and RG0402.

TITLE BLOCK:

Replace standard designation with plan number.