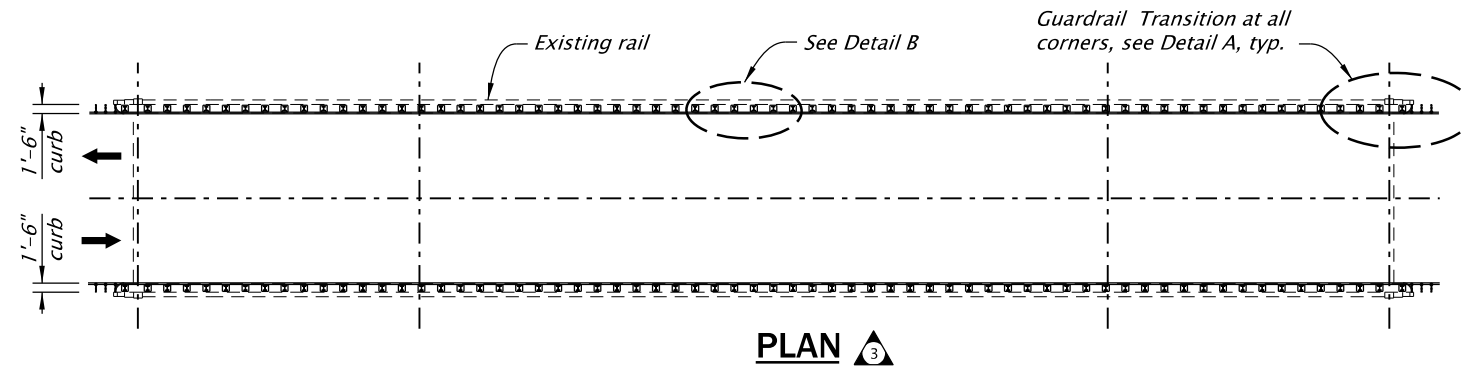




3 **GENERAL NOTES:**
 Rail designed and crash tested to meet MASH TL-3 requirements.
 Transition designed to meet MASH TL-3.

Furnish non-epoxy grout for the 1½" nominal grout pads in Section 02080.

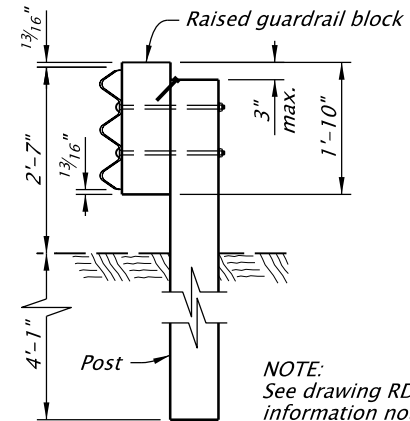
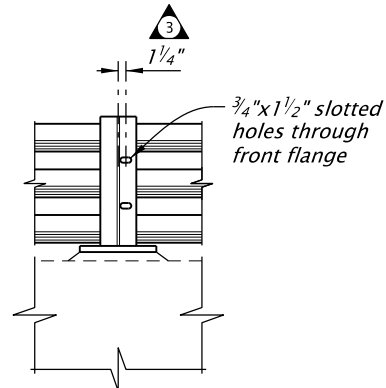
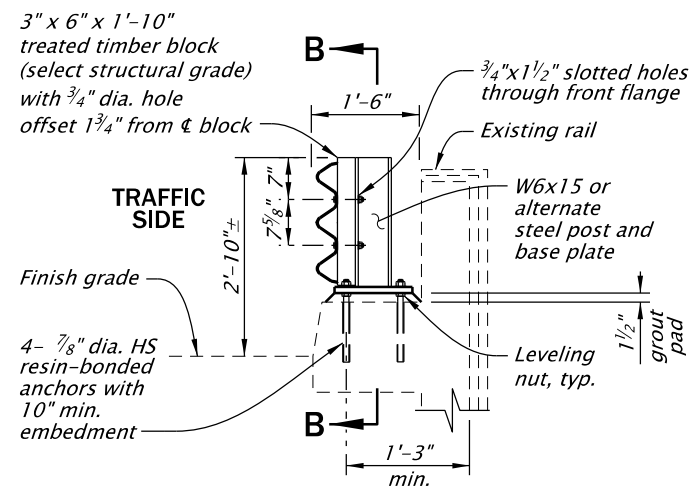
Furnish structural steel posts and plates according to Oregon Standard Specification 2810.20. Provide steel posts and plates conforming to ASTM A572 Grade 50.

Hot-dip galvanize all posts, anchor rods, washers, and nuts after fabrication.

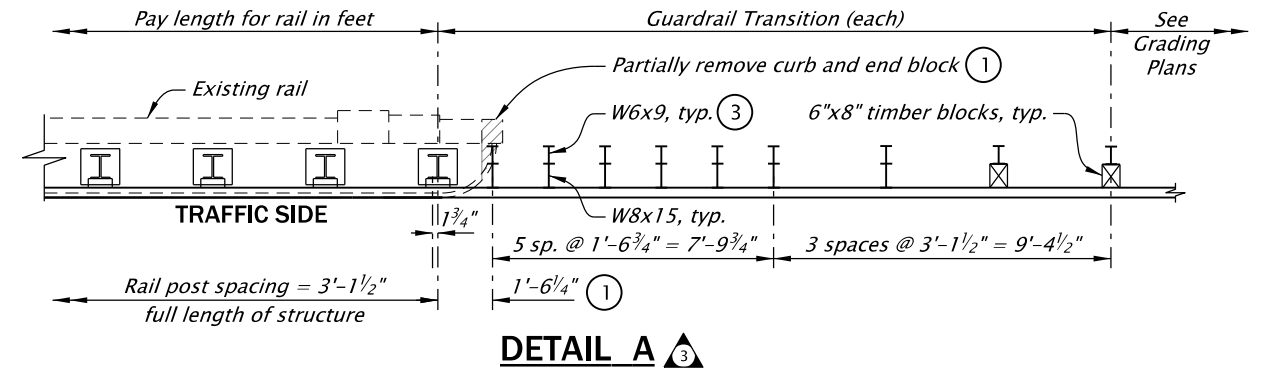
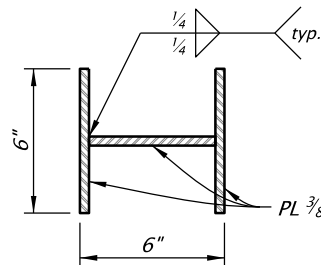
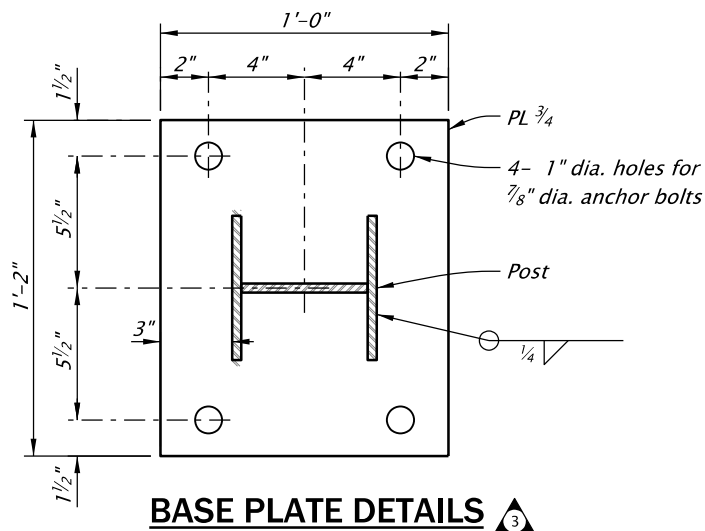
Construct railing conforming to the horizontal and vertical alignment of the structure. Install posts normal to grade in longitudinal direction and vertical in transverse direction.

Furnish and install 7/8" diameter F1554 grade 105 resin-bonded anchors with epoxy resin from the QPL. The characteristic bond stress used in design is 1200 psi. Minimum pullout strength is 233 kips with a minimum embedment (hef) of 10 inches. 4
 Install anchors according to the manufacturer's recommendations.

Field verify dimensions before fabrication.

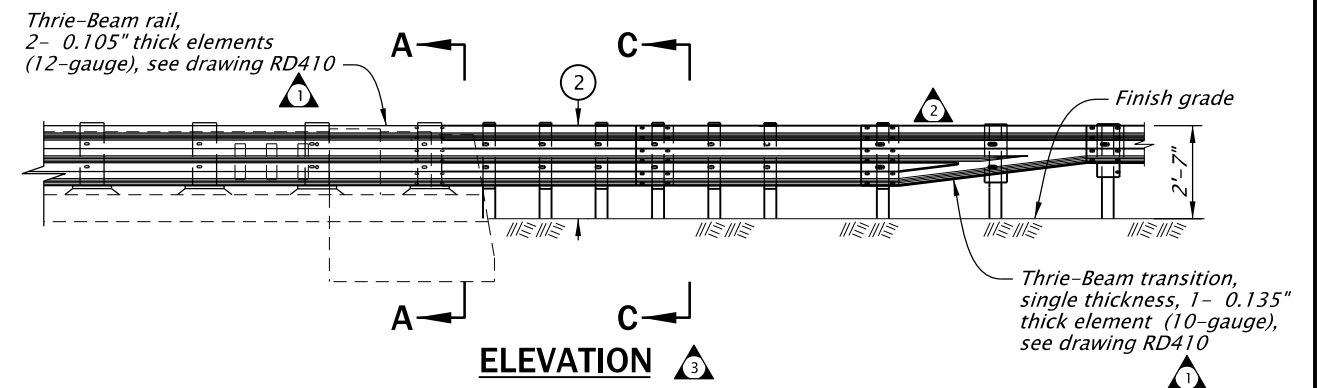


NOTE:
See drawing RD409 for information not shown.



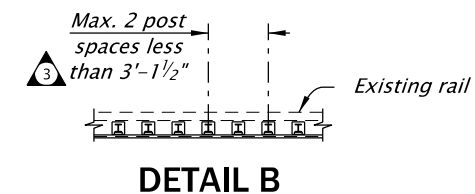
1 Partially remove curb and end block to maintain first post spacing as shown. When removal is not feasible, consider alternative attachment details (i.e. addition of a new end block).

2 Transition top of rail height to match 2'-7" approach rail.
3 Transition posts may be steel W6x9 or timber 8"x8". All posts to be of same material.



NOTES:
 Maintain post spacing at 3'-1½" full length of structure.

A maximum of 2 non-standard post spaces may be used to adjust the rail installation to match structure length.



Accompanied by drawings RD405, RD409, RD410.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
THRIE-BEAM RAIL RETROFIT FOR CURB AND PARAPET RAIL CONNECTION DETAILS 3

2024

DATE	REVISION	DESCRIPTION
07-2024	General text revisions.	
01-2025	Thrie-beam transition revised; CAD standards updates.	
07-2025	Redrawn to reflect TR# 615131-01.	
01-2026	Correction to pullout strength	
CALC. BOOK NO.	N/A	SDR DATE

13-JAN-2026

BR273

Effective Date: June 1, 2026 – November 30, 2026