Bridge Design Details 12.1 March 2026

Railroads

Structure Design plans are forwarded to the District Design Office and the District Railroad Coordinator for submittal to the railroad. Structure Design plans are required for any Overhead, Underpass, POC Bridges, and any Earth Retaining Systems that retain embankment within 50 feet of Railroad right-of-way. This submittal may be requested during both the Advance Planning, General Plan, Draft SPS&E and Final SPS&E stages of a project.

The following is a list of general railroad requirements applicable to most projects which should be shown on the ADVANCE PLANNING STUDY, GENERAL PLAN, DRAFT SPS&E and FINAL SPS&E submittals. For other applicable notes and details, see Attachments 12A.A.1 through 12A.A.5.

1. Show district-provided alignment or layout line.
2. Show track layout information and limits of railroad right-of-way with respect to centerline of the tracks.
3. Show future tracks and access roadways. Identify the existing tracks such as Main, Siding, or Spur, etc.
4. Show rail elevation and location of minimum vertical clearance over all existing and future tracks, as well as access roads. A table may be used to present information at multiple locations. Top of rail elevation is required for all tracks 1,000 feet before and after the Overhead or Underpass structure. Confirm with the District Railroad Coordinator.
5. Show minimum horizontal clearance, measured perpendicular from the centerline of the nearest existing or future track to the face of obstruction, such as substructure, ERS or below grade foundation.
6. Show horizontal spacing measured perpendicularly between the centerlines of the existing or future tracks.
7. Show depth of bridge foundation and excavations below the bottom of the rail elevation when excavations will encroach on railroad. For “GENERAL RAILROAD EXCAVATION ZONES” and general shoring notes, see Attachment 12A.A.1.
8. Show limits of barrier rail and fence combination over the railroad right-of-way. For examples see Attachments 12A.A.2 through 12A.A.4. Coordinate fence details with Bridge Architecture & Aesthetics Branch as necessary.
9. Show existing or proposed finished grade and roadway profile.

10. Show Railroad identifying information: railroad Name, Sub-Division, MP (Post Mile) and DOT No._. Show direction of increasing Post Mile.
11. Show type of slope paving and any modifications to existing slope paving.
12. Show total width of superstructure, including travel way, shoulders, sidewalk, track width and maintenance walkway.
13. Show top and bottom elevation of the crash wall, if applicable.
14. Show “MINIMUM CONSTRUCTION CLEARANCE ENVELOPE” diagram, see Attachment 12A.A.5.
15. Show all existing and proposed utilities within railroad right-of-way.
16. Show temporary train reroute traffic, including Shoofly alignments as needed.
17. Show stage construction affecting existing tracks.

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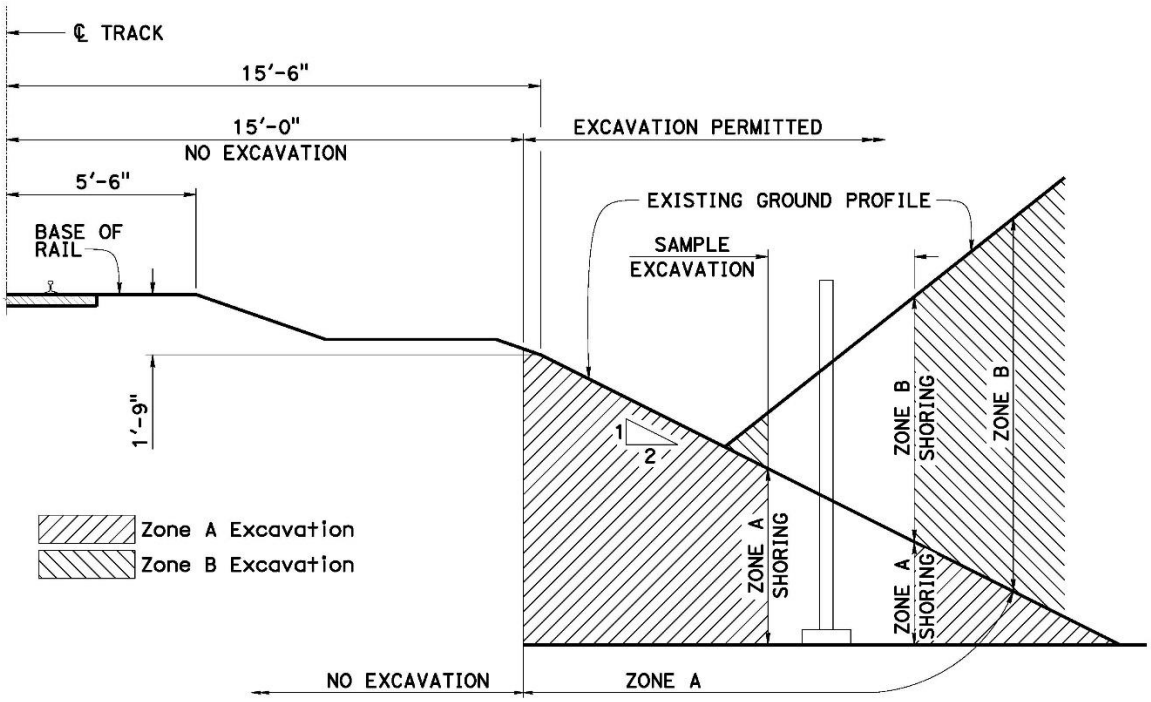

Figure 12A.A.1 General Railroad Excavation Zones

General Railroad Shoring Notes:

1. All dimensions are measured perpendicular to ℄ track.
2. Prior to commencing any work, the Contractor shall submit detailed plans indicating the nature and proposed work for approval by the Railroad. The Contractor shall install the planned temporary shoring system per the submitted plans. Design of the temporary shoring system shall comply with current *RAILROAD GUIDELINES FOR TEMPORARY SHORING*.
3. For excavations which encroach into Zone A or B, shoring plans shall be accompanied by design calculations. Plans and calculations must be signed and stamped by a Professional Engineer registered in the State of California.
4. Shoring must be designed for Railroad Live Load Surcharge in addition to OSHA Standard Loads excavation in Zone A. Applicable Railroad Live Load: Cooper E 80.

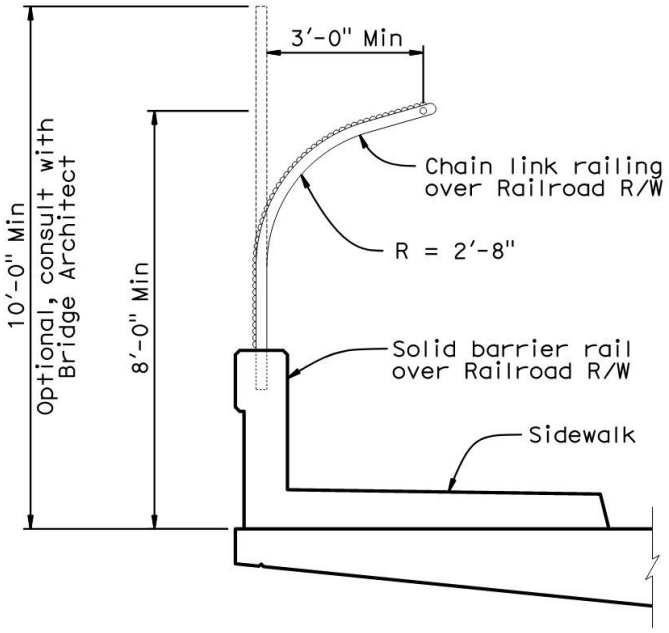

Figure 12A.A.2 Typical Fence on Barrier with Sidewalk Detail

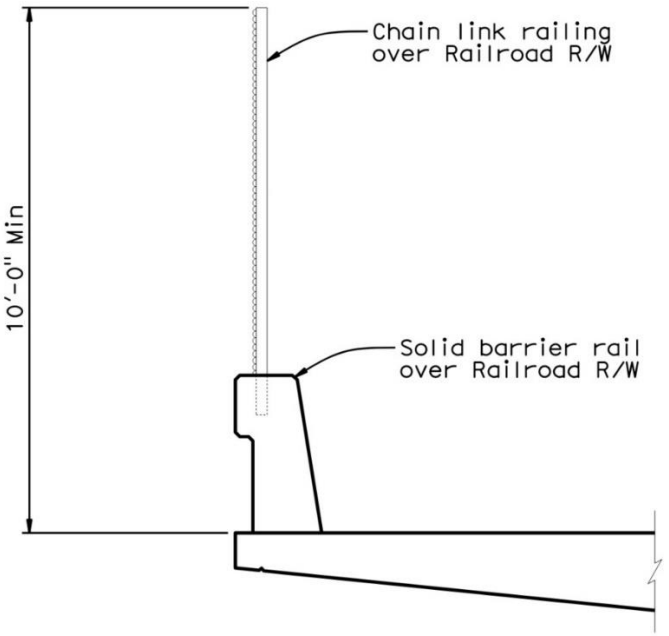

Figure 12A.A.3 Typical Fence on Barrier Detail

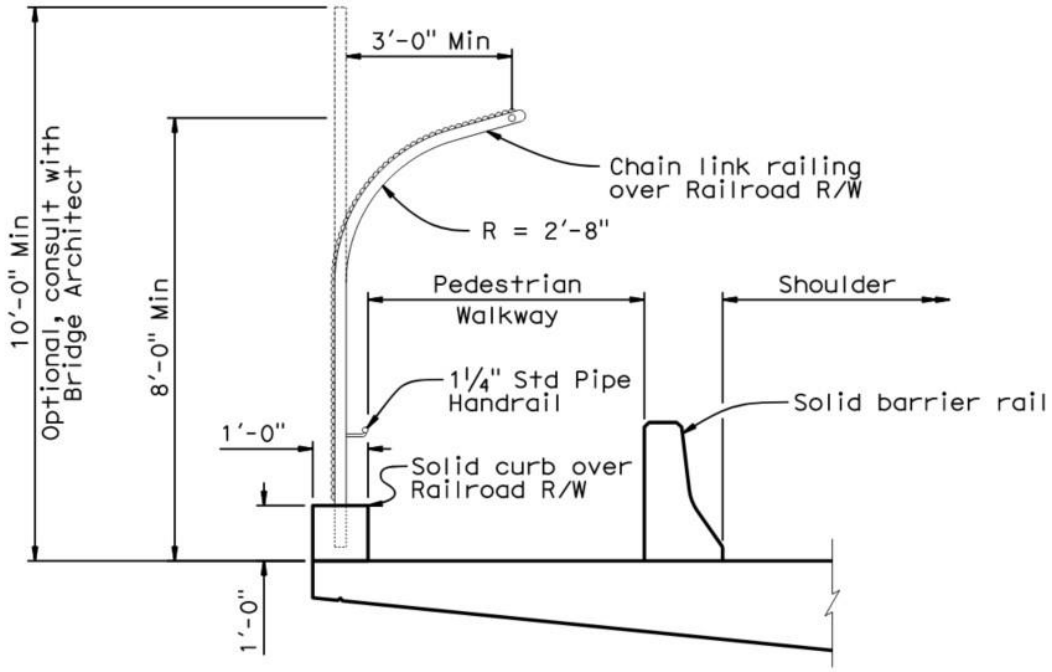

Figure 12A.A.4 Typical Fence on Barrier Detail
Vehicular Separation Barrier Used

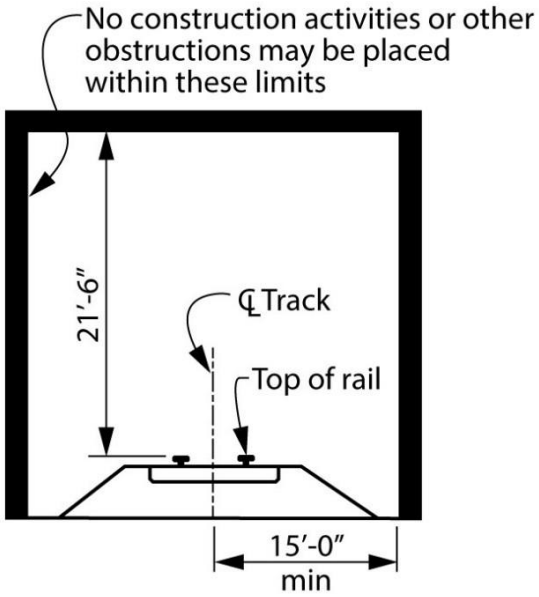

Figure 12A.A.5 Minimum Construction Clearance Envelope
Dimension Measured Perpendicular to ℄ Track

Figure 12A.B.1 Railroad Submittal Detailing Example 1

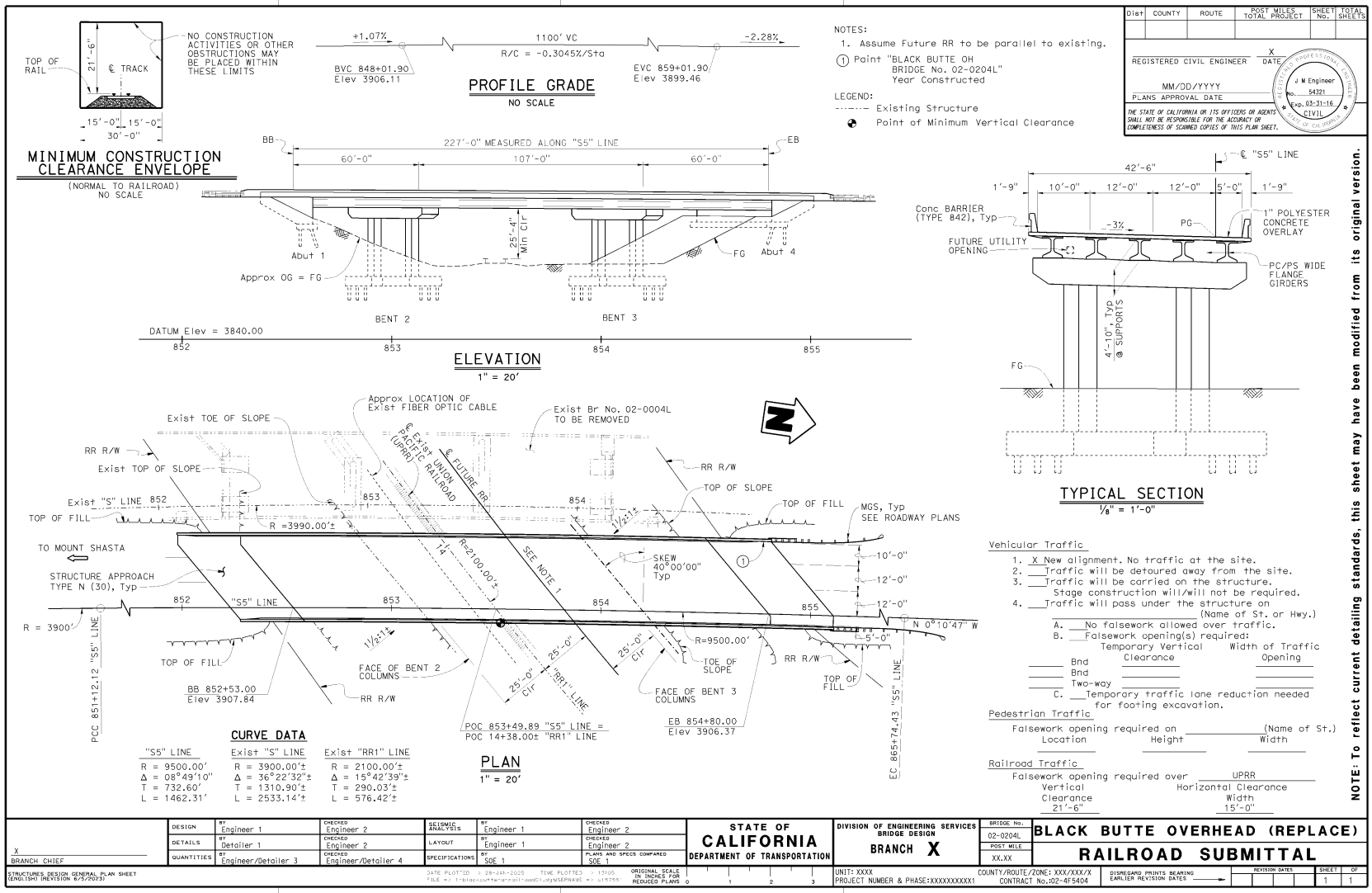

Figure 12A.B.2 Railroad Submittal Detailing Example 2