Index 5211 Traffic Railing/Sound Barrier (14'-0") (Rev. 07/12)

Design Criteria

NCHRP Report 350 TL-4; ***AASHTO LRFD Bridge Design Specifications***, 5th Edition; ***Structures Design Guidelines (SDG)***, January 2011 Edition

Design Assumptions and Limitations

The Traffic Railing / Sound Barrier (14'-0") is a non-proprietary traffic railing / sound barrier combination that is based on the crash tested Traffic Railing / Sound Barrier (8'-0"). It can only be used for ground mounted applications, usually within the clear zone, and cannot be used on bridges or retaining walls. This railing is first and foremost a traffic railing that also serves as a sound barrier. To preserve the crashworthiness of the design, this railing must be used in accordance with the requirements of ***SDG*** 6.7 for all applications.

Work this Standard Index 5210 - Traffic Railing / Sound Barrier (8'-0") and one or more of the following:

Index 5213 - Traffic Railing / Sound Barrier T-Shaped Spread Footing,
Index 5214 - Traffic Railing / Sound Barrier L-Shaped Spread Footing or
Index 5215 - Traffic Railing / Sound Barrier Trench Footing

Form liners providing a textured finish are permitted on the outside face of the Traffic Railing / Sound Barrier (14'-0") with the following provisions: (1) The maximum amplitude of the form liner on the lower 2'-8" section shall be limited to 1" depth; (2) Any form liner used above 2'-8", must provide a thickened concrete section to maintain 2" cover. Full details of this thickened section and the form liner shall be provided in the plans. Form liners complying with the requirements of ***SDG*** 6.7 are allowed on the upper vertical portion of the inside face of the Traffic Railing / Sound Barrier but are not recommended.

Project specific details are required for the use of 10'-0" and 12'-0" tall Traffic Railing / Sound Barriers on footings. Base these details on Indexes 5210 and 5211.

Plan Content Requirements

In the Roadway Plans when the Traffic Railing / Sound Barrier (14'-0") is used for ground mounted applications:

In the Materials Note on the General Notes Sheet, specify the use of Class II or IV concrete in accordance with the substructure or retaining wall environment classification. See ***SDG*** 1.4.

Show and label the Traffic Railing / Sound Barrier (14'-0") on the Plan and Profile, Cross Section and other sheets as required. Include cross references to ***Design Standards*** Index 5211 and 5212, 5213, 5214 and 5215 as appropriate.

When the approach end of the Traffic Railing / Sound Barrier (14'-0") ends along the roadway within the clear zone, use one of the following treatments:

- Provide a Traffic Railing / Sound Barrier (8'-0") End Taper adjacent to the Traffic Railing / Sound Barrier (14'-0") End Taper. Continue the footing for Traffic Railing/Sound Barrier (14'-0") End Taper as the foundation for the Traffic Railing/Sound Barrier (8'-0") End Taper. Provide an Index 400 Detail J Guardrail Approach Transition, Index 410 Concrete Barrier Wall or crash cushion at the low end of the Traffic Railing / Sound Barrier (8'-0") End Taper.
- Provide a Traffic Railing / Sound Barrier (8'-0") End Taper adjacent to the full height Traffic Railing / Sound Barrier (14'-0"). Continue the footing for Traffic Railing/Sound Barrier (14'-0") as the foundation for the Traffic Railing/Sound Barrier (8'-0") End Taper. Provide an Index 400 Detail J Guardrail Approach Transition, Index 410 Concrete Barrier Wall or crash cushion at the low end of the Traffic Railing / Sound Barrier (8'-0") End Taper.
- Flare the full height Traffic Railing / Sound Barrier (14'-0") out beyond the clear zone. Flare rates vary based on both design speed and highway application (i.e., Interstate, urban or rural installations). See ***Design Standards*** and ***PPM*** for applicable flare rates.
- Terminate the full height Traffic Railing / Sound Barrier (14'-0") within the clear zone and shield the end with a wide crash cushion. Ensure the traffic face of the wide crash cushion is offset at least 24-inches from vertical face of Traffic Railing / Sound Barrier (14'-0").

When the trailing end of the Traffic Railing / Sound Barrier (14'-0") ends along the roadway within the clear zone of adjacent traffic, and the trailing end is not within the clear zone of opposing traffic, the Traffic Railing / Sound Barrier (14'-0") can remain full height all the way to the end or the End Taper can be used. Provide Index 400 Guardrail or Index 410 Concrete Barrier Wall as required to shield hazards beyond the end of the Traffic Railing / Sound Barrier.

Include project specific details for 10'-0" and 12'-0" tall Traffic Railing / Sound Barriers.

Payment

Item number	Item description	Unit Measure
521-72-23	Shoulder Concrete Barrier Wall, F Shaped, With 14' Sound Wall	LF