# Index 5211 Traffic Railing/Noise Wall (14'-0") (Rev. 07/15)

## Design Criteria

***NCHRP Report 350*** TL-4; ***AASHTO LRFD Bridge Design Specifications***; ***Structures Design Guidelines (SDG)***

## Design Assumptions and Limitations

The Traffic Railing / Noise Wall (14'-0") is a non-proprietary traffic railing / noise wall combination that is based on the crash tested Traffic Railing / Noise Wall (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 noise 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 / Noise Wall (8'-0") and one or more of the following:

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

The details as shown for installing for 2" diameter conduits and associated Embedded Junction Boxes (EJBs) in traffic railings have been determined to be crashworthy in accordance with the requirements of ***NCHRP Report 350, AASHTO Manual for Assessing Safety Hardware (MASH)*** and the ***AASHTO LRFD Bridge Design Specifications***. To preserve the crashworthiness of Traffic Railing / Noise Walls, no more than two 2" diameter conduits and associated EJBs, as shown on ***Design Standards*** Index 21210, may be installed within the traffic railing portion (only) of the Traffic Railing / Noise Walls.

Form liners providing a textured finish are permitted on the outside face of the Traffic Railing / Noise Wall (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 / Noise Wall but are not recommended.

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

## Plan Content Requirements

In the Roadway Plans when the Traffic Railing / Noise Wall (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, by name or Index number, the Traffic Railing / Noise Wall (14'-0") on the Plan and Profile, Cross Section and other sheets as required. Include cross references to ***Design Standards*** Index 5212, 5213, 5214 and 5215 as appropriate.

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

- Provide a Traffic Railing / Noise Wall (8'-0") End Taper adjacent to the Traffic Railing / Noise Wall (14'-0") End Taper. Continue the footing for Traffic Railing/Noise Wall (14'-0") End Taper as the foundation for the Traffic Railing/Noise Wall (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 / Noise Wall (8'-0") End Taper.
- Provide a Traffic Railing / Noise Wall (8'-0") End Taper adjacent to the full height Traffic Railing / Noise Wall (14'-0"). Continue the footing for Traffic Railing/Noise Wall (14'-0") as the foundation for the Traffic Railing/Noise Wall (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 / Noise Wall (8'-0") End Taper.
- Flare the full height Traffic Railing / Noise Wall (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 / Noise Wall (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 / Noise Wall (14'-0").

When the trailing end of the Traffic Railing / Noise Wall (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 / Noise Wall (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 / Noise Wall.

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

## Payment

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