

technical memorandum

road safety hardware series



Nesting of Semi-Rigid Guardrail

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Purpose

To advise on the recommended practice for the nesting of **non-proprietary** semi-rigid barrier systems (W-Beam and Thrie-Beam). Refer to manufacturer for nesting details for proprietary semi-rigid guardrail systems.

Background

A Semi-Rigid barrier system comprising either W-Beam or Thrie-Beam steel guardrail on timber or steel posts achieves crash energy containment and redirection through a combination of the longitudinal strength of the guardrail sections and through the rotation of the posts. Posts are required to be embedded approximately 1 metre into the ground to achieve this performance.

On occasion site limitations may require that one or two posts be omitted; for example due to a low-fill situation over a culvert as shown in Figure 1 below. In these situations, “nesting” of the guardrail sections can compensate for the loss in system strength and stiffness due to the missing posts.



Figure 1 Semi-Rigid Barrier Nesting

Recommended practice

In installations where one or two timber posts cannot be installed, the barrier system must be strengthened through nesting one guardrail section behind the other.

For all new nested guardrail installations, and preferably in maintenance situations, the additional lengths of guardrail should be installed behind the main guardrail run to ensure correct lapping is maintained.

The recommended treatment is to nest and splice bolt two layers of guardrail section together. Spans of up to 5.72 metres can be achieved with this method, as shown in Figure 2 below (NZ Transport Agency Standard Drawing RSB-4).

If factory drilled nested guardrail sections are not available, the additional holes required for bolting of the nested guardrail should only be formed by drilling. No holes shall be formed or enlarged using oxy-acetylene equipment (so-called “gas-axe”) or similar flame cutting methods.

Once formed, the holes should be carefully filed to remove any rough edges or drilling swarf and painted with a single pack zinc-rich primer that meets AS/NZS 3750.9.

Nesting (or layering) of the guardrail is designed to increase lateral stiffness to compensate for the missing post(s). The nesting provides system continuity for vehicles that impact the barrier in the vicinity of the missing post(s), thereby minimising pocketing.

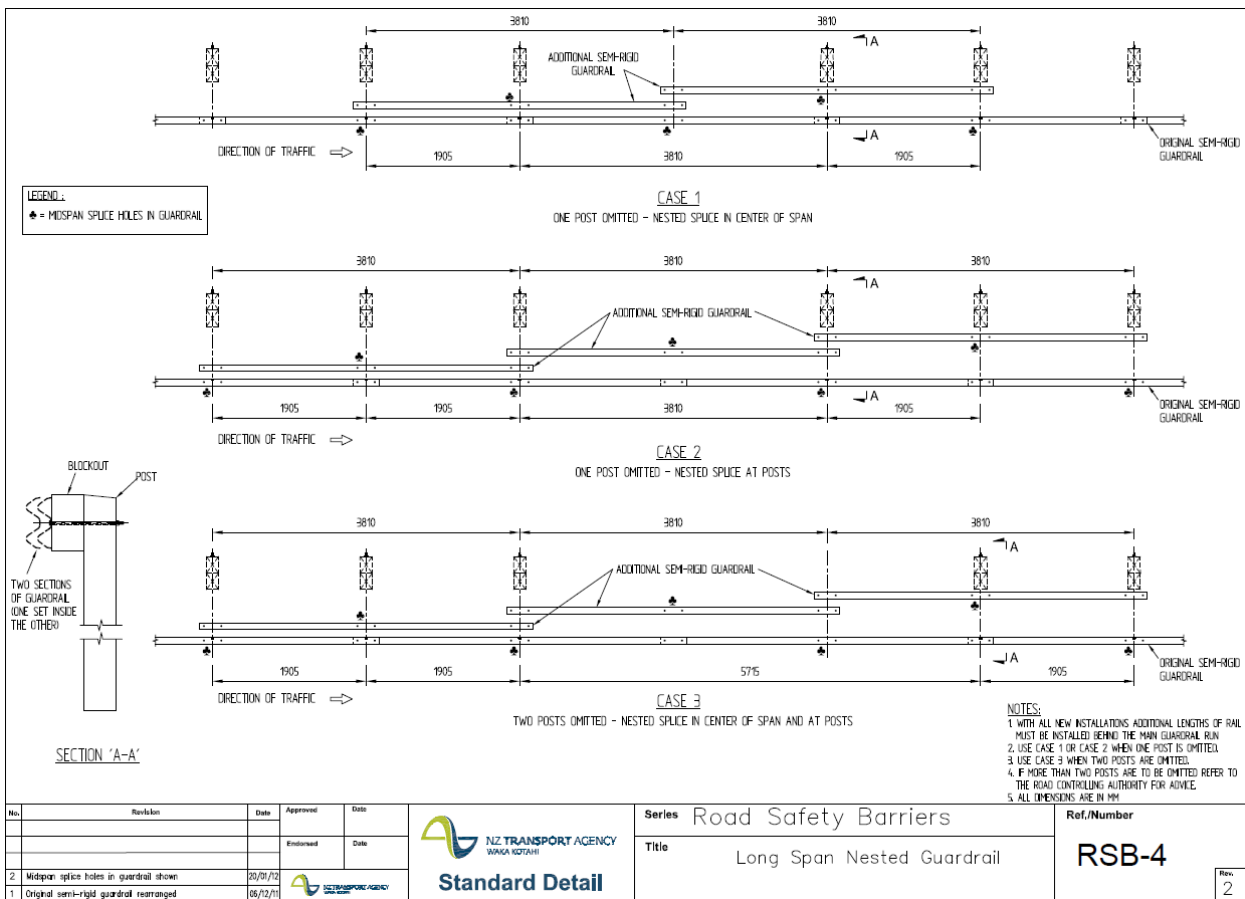


Figure 2 Recommended Semi-Rigid Barrier nesting configurations

Endorsed by: National Manager Traffic & Safety