

Roads

Master Specification

RD-BF-D1 Design of Roadside Safety Barriers

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1 General

- 1.1 Austroads Guide to Road Design, Part 6 gives direction on the design of roadside safety barriers.
- 1.2 Designs must be developed to align with Safe System principles and good road safety practice.
- 1.3 When a requirement for a safety barrier is established, and investigations to eliminate the hazard by other means have failed or are not feasible, the appropriate type of barrier will need to be determined. As all barriers are a hazard in themselves, end treatments will also require consideration.
- 1.4 All barrier systems must comply with the most current version (including amendments) of AS/NZS 3845.1 Road Safety Barrier Systems, and must also be approved for use in GD 300 Accepted Safety Barrier Products (available from <https://www.dit.sa.gov.au/standards/roads-all>).
- 1.5 The minimum roadside safety barrier performance level is TL3. If the roadside hazard represents a high risk, or when the commercial vehicle traffic content exceeds 15%, TL4 level barriers should be used.
- 1.6 Where the posted speed restriction is less than 60kph, TL2 systems may be considered if appropriate.
- 1.7 There are nominally three types of barrier: rigid, semi-rigid (non-rigid), and flexible.

2 Rigid Barriers

- 2.1 Rigid barriers are required over bridges and overpasses, and suitable transitions to semi-rigid or flexible barriers on the road approaches to the bridge must be installed.
- 2.2 Transitions from semi-rigid barriers to rigid barriers are detailed in the Department's standard drawings (available from <https://www.dit.sa.gov.au/standards/roads-all>). There is no suitable transition available for wire rope safety barriers unless by overlap of two systems.

3 Semi-Rigid (Non-Rigid) Barriers

- 3.1 The steel rail safety barrier (systems similar to w-beam or thrie-beam) is a semi-rigid barrier. These barriers deflect under vehicle impact and will require clear space behind the barrier. Also, the posts in these systems are designed to progressively fail and require embedment to provide the required resistance to meet performance levels. GD 300 provides links to proprietary barrier system products that are approved for use by the Department, and which give deflection and space requirements for barriers and posts.

4 Flexible Barriers

- 4.1 The wire rope safety barrier is a flexible barrier that performs as a pure tension element and deflects significantly under vehicle impact. GD 300 provides links to proprietary flexible barrier system products that are approved for use by the Department, and which give deflection and space requirements for wire rope safety barriers.
- 4.2 Transitions directly from flexible systems to rigid systems are not permitted. Two systems (Flexible and Semi-rigid) may overlap preceding a transition to a rigid barrier.
- 4.3 These barriers may be considered where:
 - a) minimum length at full height is 24 m;

- b) vertical curves are greater than 3000 m radius;
 - c) horizontal curves greater than 200 m radius, depending on the wire rope system used (this may be reduced on consultation with the Manufacturer);
 - d) transitions are not required to rigid or semi-rigid systems;
 - e) adequate room is available for anchorages;
 - f) space is not constrained (allowance for horizontal deflection);
 - g) views / sight distance are important issues.
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