technical memorandum

road safety hardware series

NZ TRANSPORT AGENCY
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Wire Rope Safety Barrier Transitions

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Purpose

To advise on the recommended practice for the design and installation of the transition from a wire rope safety barrier (WRSB) to a W-Beam (semi-rigid) or Concrete (rigid) barrier in median and side protection situations, such as approaching a bridge structure or sign gantry. This information relates to public domain semi-rigid barrier systems (strong post timber W-Beam and Modified Thrie-Beam). For information relating to specific proprietary system requirements, contact the system supplier.

Background

The difficulties of transitioning between road safety barrier systems, particularly flexible (such as WRSB) and rigid (concrete) barrier systems are well known but are the topic of limited research internationally. The problem is commonly encountered where structural elements, such as bridge parapets/piers or gantry supports, are placed in close proximity to the travelled way, either in a median of shoulder/verge situation.

The following advice should be followed unless approval of any alternative solution has been given by the National Traffic & Safety Manager.

Recommended practice

The drawings below indicate the general arrangements for the following transition types:

Shoulder/Verge:

- Wire Rope Safety Barrier (WRSB) to W-Beam (Drawing RSB-7a)
- Wire Rope Safety Barrier (WRSB) to Concrete (rigid) barrier (Drawing RSB-7b)

Median:

- Wire Rope Safety Barrier to Concrete (Drawing RSB-7c).

The referenced NZTA Standard Drawings may be downloaded from the NZTA website at:

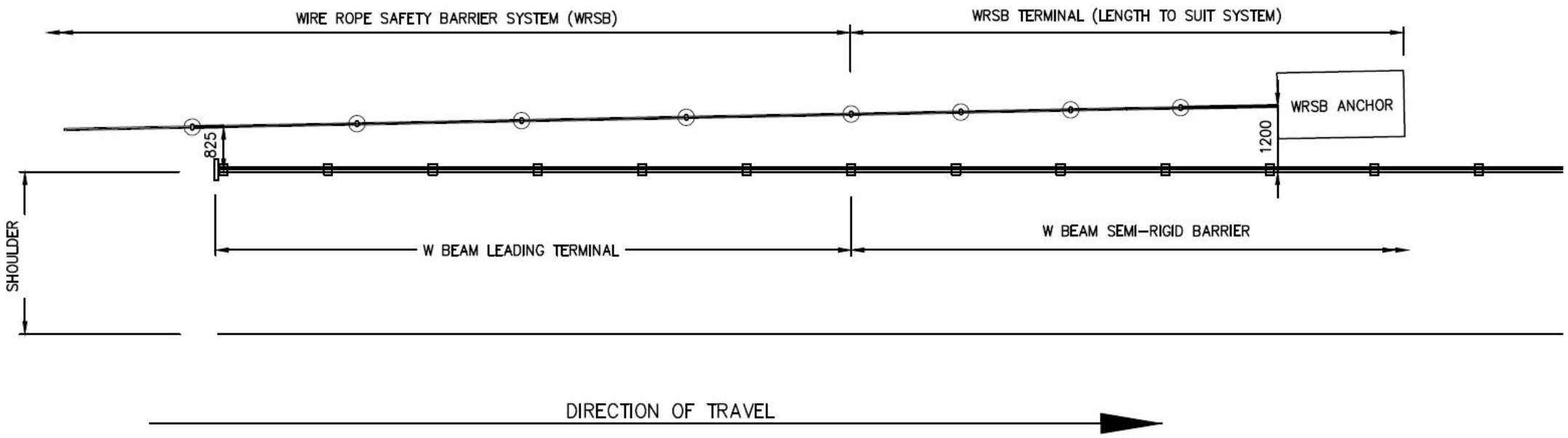
http://www.nzta.govt.nz/network/technical/hardware/drawings.html

Alternative solutions

On State highway projects where the design guidance given above cannot be applied for any particular reason, the proposed solution and supporting rationale should be referred to the local NZTA Principal Safety Engineer for resolution or escalation.

Endorsed by: National Traffic & Safety Manager

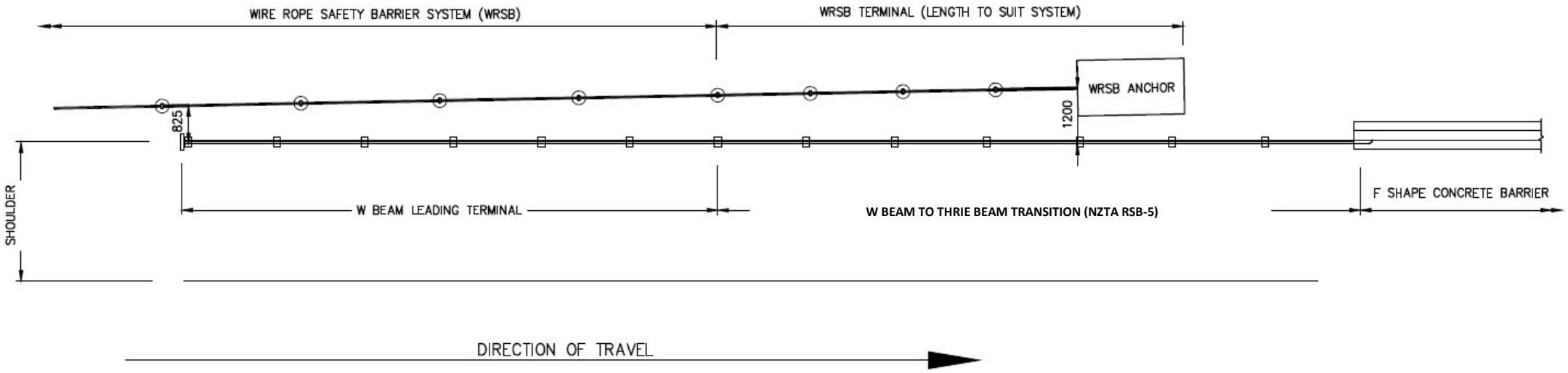
Drawing RSB-7a - Wire Rope Safety Barrier (WRSB) to W-Beam for shoulder/verge



The following points must be noted:

1. All dimensions are in millimetres
2. Offsets shown are measured from the face of semi-rigid barrier (W-Beam or Thrie-Beam) to centreline of WRSB
3. The end point of the W-Beam leading terminal must align with or overlap the point of redirection or the WRSB system
4. The 825mm offset comprises:
    a. 225mm (450mm/2, nominal WRSB footing)
    b. 100mm clearance
    c. 500mm semi-rigid timber or I-section posts and blockout

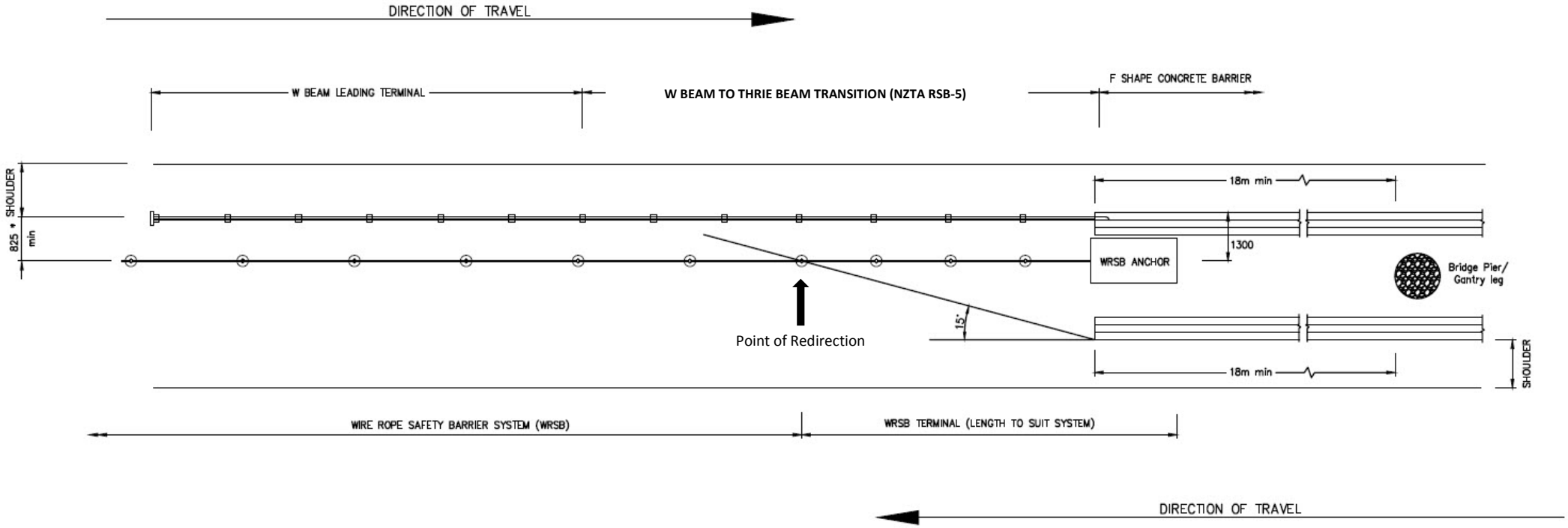
Drawing RSB-7b - Wire Rope Safety Barrier (WRSB) to Concrete (rigid) barrier for shoulder/verge



The following points must be noted:

1. All dimensions are in millimetres
2. Offsets shown are measured from the face of semi-rigid barrier (W-Beam or Thrie-Beam) to centreline of WRSB
3. The end point of the W-Beam leading terminal must align with or overlap the point of redirection of the WRSB system
4. The 1200mm offset comprises:
    a. 600mm (half width of nominal 1200mm wide anchor block)
    b. 100mm clearance
    c. 500mm semi-rigid timber or I-section posts and blockout

Drawing RSB-7c - Wire Rope Safety Barrier (WRSB) to Concrete for a median installation



The following points must be noted:

1. All dimensions are in millimetres
2. Offsets shown are measured from the face of semi-rigid barrier (W-Beam or Thrie-Beam) to centreline of WRSB
3. The rigid barrier must extend beyond the hazard (e.g. bridge pier or gantry leg) by a minimum of 18m in both directions
4. The point of redirection of the WRSB must be positioned to provide protection for an errant vehicle departure angle of 15˚
5. The indicated offsets comprise:

825mm	1300mm
225mm (450mm/2, nominal WRSB footing)	600mm (depth of rigid barrier)
100mm clearance	100mm clearance
500mm semi-rigid timber or I-section posts and blockout	600mm (half width of nominal 1200mm wide anchor block)

6. The actual position of the WRSB may vary depending on the median configuration