Detail Sheet

Quick-Change Concrete Reactive Tension Barrier System

Product summary

Status	Accepted for trial
Category	Concrete Barrier
Test Level	NCHRP350 TL3: **100km/h**
Supplier	Lindsay Transport Solutions
Description	Quick-Change Concrete Reactive Tension Barrier System - longitudinal barrier system

Introduction and purpose

This detail sheet is intended to supplement *VicRoads Road Design Note 06-04 - Accepted Safety Barrier Products*. Please refer to RDN 06-04 for the current VicRoads acceptance status, information on the product assessment process and general acceptance conditions.

The technical details within this document have been extracted from information submitted to VicRoads by the Supplier and the recommended 'Conditions for Use' from the Austroads Safety Barrier Assessment Panel (ASBAP).

VicRoads requirements take precedence over the product manual and Austroads conditions. Where a departure from these requirements is required, users should understand the risks and document their engineering decisions.

For more detailed product information, refer to the individual product manual or contact the System Supplier.

Technical information

The Quick-Change Concrete Reactive Tension Barrier System should be designed, installed and maintained in accordance with the following VicRoads conditions for use.

These conditions for use have been based on an Austroads assessment of technical performance against AS/NZS 3845 and contain VicRoads specific requirements when necessary.

Figure 1. Example of Quick-Change Concrete Reactive Tension Barrier System in use.

Summary Conditions for Use

Accepted configuration	Quick-Change Concrete Reactive Tension Barrier System – Permanent or Temporary
Variants	Nil
Deflection	0.7 metre
Product manual reviewed	Lindsay Transport Solutions RTS Barrier Deployment and Maintenance Manual,
ASBAP issue	March 2017

Refer VicRoads conditions & notes for use (below).

VicRoads Conditions for Use

Tested design requirements

Containment level	Speed (km/h)	Vehicle mass (kg)	Point of Redirection (m)		Minimum length of barrier (m)	Anchor/Pin Spacing (m)	Dynamic deflection (m)	Working width (m)	Notes
			Leading	Trailing					
NCHRP350 TL-3	100	2000	80	80	80 plus the protected area	Refer to product manual	0.7	1.16	Working Width is deflection + system width

Approved Terminals and Connections

Crash Cushions or Terminals must be fitted to both ends of a barrier	
Public Domain Products	
W-Beam Guardrail	Not Permitted
Thrie-Beam Guardrail	Not Permitted
Concrete Safety Barrier	Not Permitted
Proprietary Products	
Terminals	<u>For Temporary Use:</u> 1. Absorb 350 Plastic Terminal - Temporary • The installation is restricted to a Speed Limit of 70 km/h or less. • Refer to VicRoads Detail Sheet for conditions of use. • Permitted as a terminal on a flare. <u>For Permanent Use:</u> 2. The system end must be shielded with an approved permanent road safety barrier and overlapped by minimum 80 metres.

Design Guidance

System width (m)	0.46
Installation	This product must be installed and maintained in accordance with the Product Manual and Road Agency specifications. Road Agency specifications and standards shall have precedence.
Slope limit	Side slope limit: 6 Horizontal to 1 Vertical (16.7%)
Systems conditions	1. Must be used on carriageways with a posted speed limit up to 70km/h for temporary applications. 2. Must only be relocated (shifted) using the approved Barrier Transfer Machine. 3. Flaring across the clear zone without an approved terminal is not permitted. 4. Installation on top of a kerb is not recommended, however if installed on top of a kerb, all system components must be free to operate. 5. Prior to use, the applicant proposing to utilise this product, must acquire approval from: a. Manager Safe System Engineering (VicRoads); and b. Then from the Director(s) responsible for Traffic Operations within the relevant road authority, pursuant to the Road Management Act 2004.
Gore area use	Permitted
Pedestrian area use	Permitted – consider potential for snagging and deflection
Cycleway use	Permitted – consider potential for snagging and deflection
Frequent impact likely	Permitted
Remote location	Not Permitted
Median use	Permitted

Foundation pavement conditions

Submitted Foundation Pavement Conditions					
Pavement	**Use**	**Accepted Speed (max)**	**Post/Pin spacing (m)**	**Pavement Construction**	**Post/pin type**
Concrete	Permitted	100 km/h[1]	Refer to product manual	Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product	Refer to product manual
Deep lift asphaltic concrete	Permitted				
Asphaltic concrete over granular pavement	Permitted				
Flush seal over granular pavement	Permitted				
Unsealed compacted formation	Not Permitted	N/A	N/A	N/A	N/A
Natural surface	Not Permitted				

Note 1: Please refer to Design Guidance - System Conditions for use (above)

Other considerations and comments

Damaged Components

Damaged components must be replaced. Repaired components must not be used.

Attachment and Screen

Screens and other attachments are incompatible with the Barrier Transfer Machine.

Refer to VicRoads Road Design Note 06-12 Worksite Safety Barrier Screens and consult with the Supplier and Safe System Engineering, for further advice.

Traffic Management

This system is likely to be used for traffic operation improvements during peak periods and therefore must be designed and approved in accordance all Austroads and VicRoads traffic engineering guidelines

Temporary or Permanent use on the Road Reserve

Prior to use, the applicant must engage the Safe System Engineering (VicRoads) for commentary on the proposed solution. Approval from the Manager - Safe System Engineering must be received prior to use.

Other considerations

Due to the uniqueness of this product, the following design considerations were noted during assessment.

1. The product is not suited for short sections, therefore a continuous length of barrier, mid-block between intersections is desirable.
2. Given the product ‘movability’, the system should be located where there is no existing infrastructure located within the carriageway.

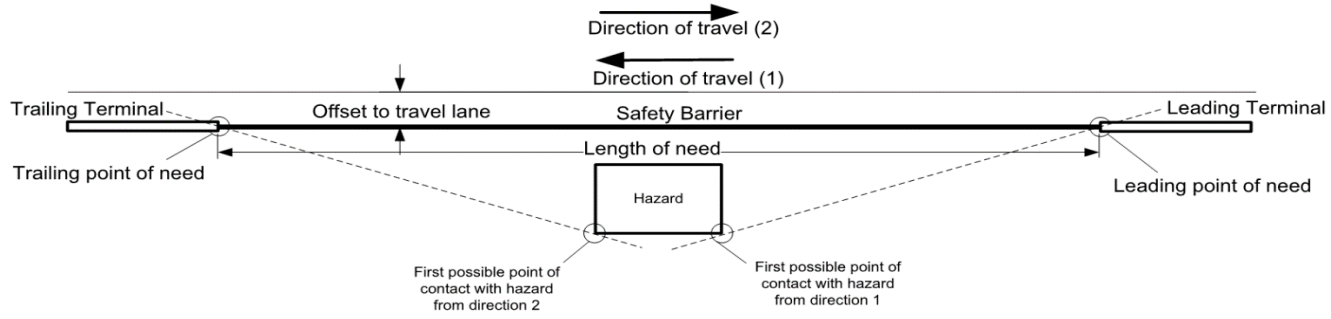
References

- Austroads Guide to Road Design – Part 6.
- Product Installation Manual and Product Operational Manual refer licensed product supplier website.
- VicRoads Road Design Note 06-04 Accepted Safety Barrier Products.
- VicRoads Road Design Note 06-12 Worksite Safety Barrier Screens
- VicRoads Supplement to Austroads Guide to Road Design – Part 6.

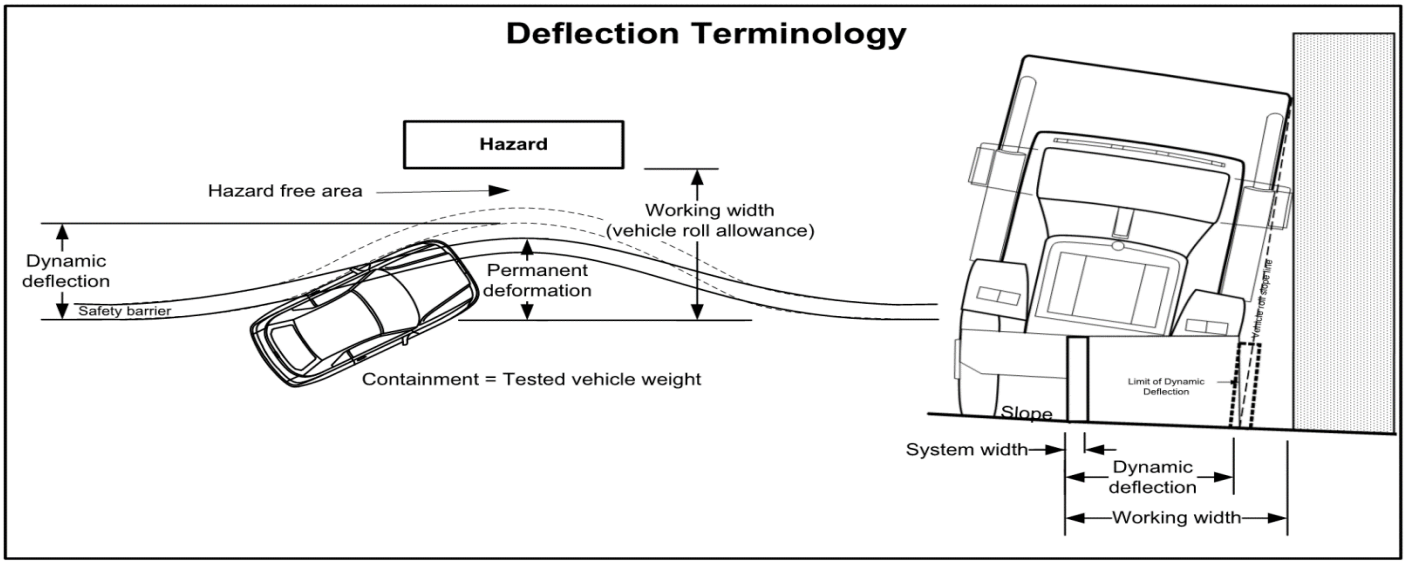
Detail Sheet – Update Summary

Issue	Approved	Amendment
Feb 2019	M-SSE	First edition

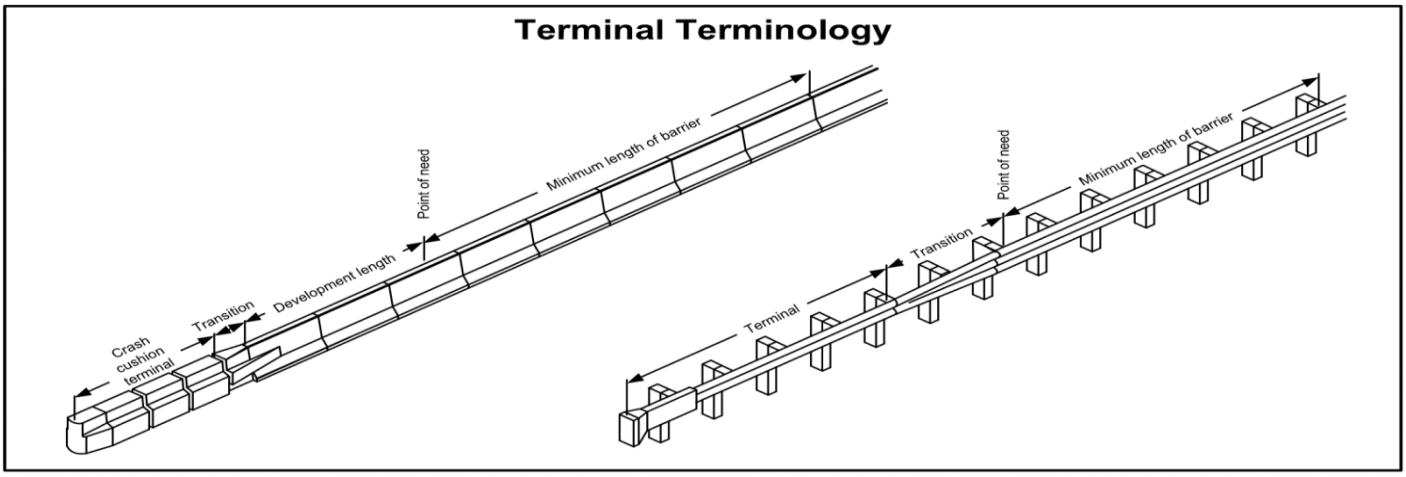
Design Terminology



Deflection Terminology



Terminal Terminology



Flare Terminology