

MASH Sequential Kinking Terminal - Permanent

Product summary

Status	Accepted
Category	Permanent – Steel Rail GREAT End Terminal
Test Level	Test Level 3 (MASH): 100km/h
Supplier	Safe Direction Crash Barrier Solutions
Description	MASH Sequential Kinking Terminal – Permanent is an energy-absorbing, tangential end terminal

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 MASH Sequential Kinking Terminal - Permanent should be designed, installed and maintained in accordance with the following VicRoads conditions for use.



Note: Delineation on head rail to be black and white.

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.

Typical installation arrangement shown above.

Summary Conditions for Use

Accepted configuration	MASH Sequential Kinking Terminal - Permanent
Variants	Nil
Product manual reviewed	PM 022/02
ASBAP issue	10 December 2018

Refer VicRoads conditions for use (below).

VicRoads Conditions for Use

Tested design requirements

Containment level	Speed (km/h)	Vehicle mass (kg)	Point of Redirection (m)		Tested length of barrier (m)	Post/Pin Spacing (m)	Dynamic deflection (m)	Working width (m)	Notes
			Leading	Trailing					
MASH TL3	100	2270	Post #3	Post #3	51.4	1.905	N/A	N/A	Gating terminal – clear runout area required

Approved Terminals and Connections

Crash Cushions or Terminals must be fitted to both ends of a barrier

Public Domain Products

W-Beam Guardrail	Permitted
Thrie-Beam Guardrail	Not permitted
Type F Concrete Safety Barrier	Not permitted

Proprietary Products

Refer to safety barrier Technical Conditions for Use for approved proprietary connections.

Design Guidance

System length	TL3 = 14.29 m
System width	0.51 m
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.
Minimum distance to excavation	Not Applicable
Slope limit	Side slope limit: 10 Horizontal to 1 Vertical (10.0%).
Systems conditions	Installation on top of kerb is not recommended, however if installed on top of a kerb, all system components must be free to operate
Gore area use	Not 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	Permitted
Median use	Permitted where rear impact is not possible

Foundation pavement conditions

Submitted Foundation Pavement Conditions					
Pavement	Use	Accepted Speed (max)	Post/Pin spacing (m)	Pavement construction	Post/pin type
Concrete	Not Permitted	n/a	n/a	n/a	n/a
Deep lift asphaltic concrete	Not Permitted				
Asphaltic concrete over granular pavement	Permitted	100km/h	1.905	Minimum ASHTO standard soil	Refer to drawings
Flush seal over granular pavement	Permitted				
Unsealed compacted formation	Permitted				
Natural surface	Permitted				

Other considerations and comments

Damaged Components

Damaged components must be repaired in accordance with the product manual.

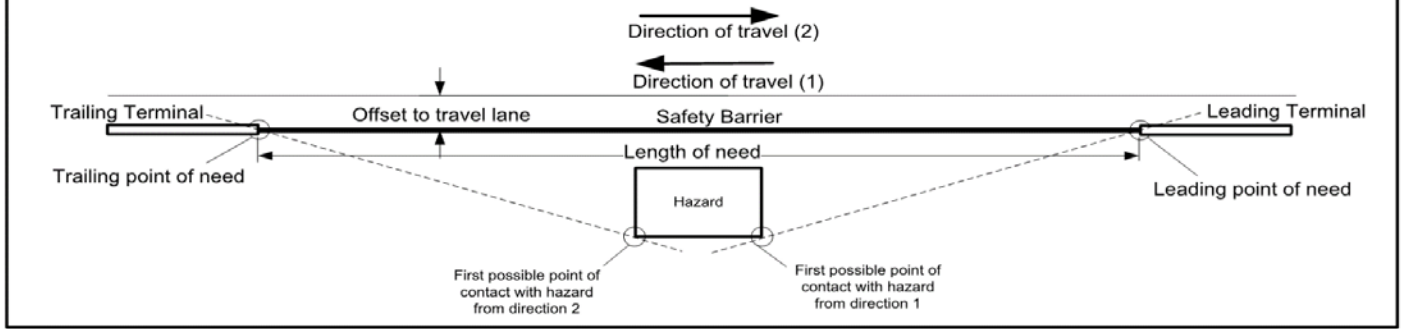
References

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

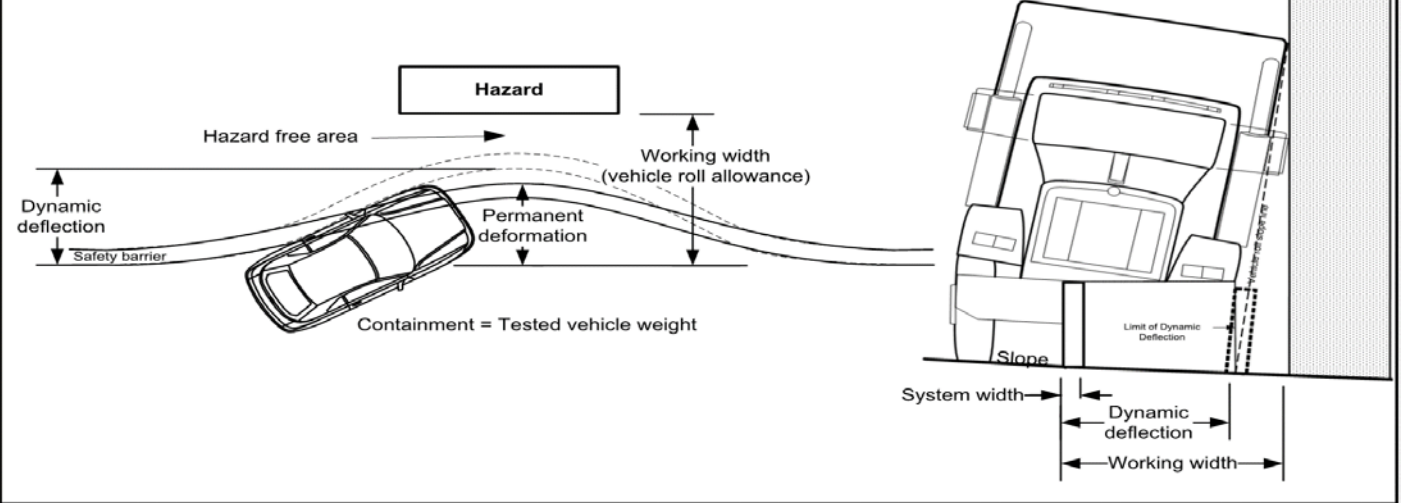
Detail Sheet – Update Summary

Issue	Approved	Amendment
May 2019	M-SSE	First

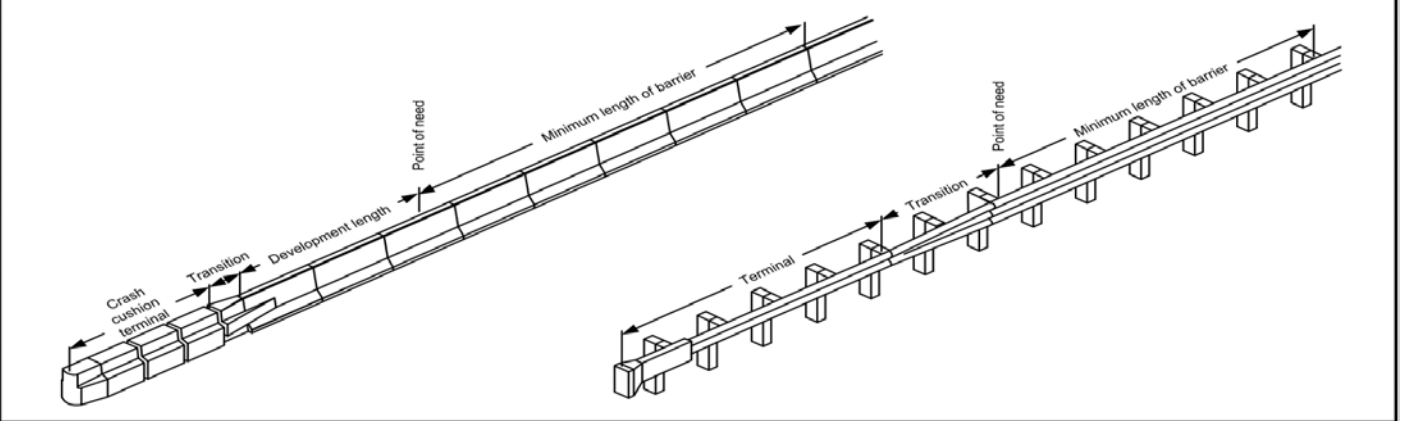
Design Terminology



Deflection Terminology



Terminal Terminology



Flare Terminology

