Accepted Safety Barrier Products

RDN 06-04
November 2023

Purpose:	This document provides a list of road safety devices that Head, Transport for Victoria, has assessed and considers acceptable for use on the declared road network, subject to appropriate design and installation. For roads not on the declared road network (e.g. local roads), the responsible road authority (e.g. Councils) should be contacted to determine if this list is applicable.
Scope:	This document provides a list of road safety devices that have been deemed suitable in accordance with AS/NZS 3845.
Applicability:	This document applies to the declared road network.
Document context:	Designers should use this list of Accepted Safety Barrier Products in conjunction with; • the 'Austroads Guide to Road Design (AGRD) - Part 6', 'DTP Supplement to AGRD - Part 6' and Road Design Notes, which describe the steps involved in designing a safety barrier, • the 'General Conditions of use' and 'Safety Barrier Policies' detailed below, • the 'Austroads Technical Conditions of Use (TCU)' and 'DTP specific conditions or variants' listed below, which detail any product specific limitations identified through assessment, • the individual 'Product Installation and Maintenance Manuals', which are provided by the product owner or supplier to help achieve the desirable installation. Further information on this list, the product assessment process and barrier performance requirements are provided below. Where reference to "VicRoads" approved products is made for the acceptance of Safety Barrier Products, this document shall be deemed to satisfy that requirement. For further clarification, please contact the Engineering Standards team.

Table of Contents

1. General Conditions of Use

Safety barrier products must be used in accordance with the following conditions of use.

1.1 Acceptance Conditions

All products accepted for use by the DTP are listed below and will have a DTP Letter of Acceptance issued to the Proponent (typically the System Supplier). Using a product that is not accepted for use, or using a product outside the parameters for which it has been accepted by DTP, represents an unacceptable risk to road users.

Where a departure from the 'Austroads TCU' or 'DTP Conditions and Variants' is required, users should understand and document the risks and apply engineering judgement.

Acceptance is based on the information supplied by the Proponent at the time of assessment. DTP must be informed of any changes to a product and will determine if a re-assessment is required.

DTP will periodically review all products accepted for use in Victoria based on, but not limited to, the Austroads Safety Barrier Assessment Panel (ASBAP) recommendations, in-service performance, industry use, maintenance and durability requirements and reserves the right to withdraw or modify this acceptance at any time.

Acceptance can be withdrawn at any time if the manufacture, fabrication or quality of the product is deemed inferior or different to the product specified in the drawings and specifications supplied for the assessment.

Suppliers (or proponents) seeking DTP acceptance of a road safety barrier system, product or device which is not included in this document are referred to the ASBAP webpage or to contact the 'Manager – Road Engineering Standards' at StandardsManagementRD@roads.vic.gov.au .

1.2 System Supplier and Procurement

This listing nominates a "System Supplier" for each proprietary product. It is a requirement of DTP that proprietary products are sourced from the nominated System Supplier (or their agent).

1.3 Acceptance Definitions

Acceptance definitions are "Accepted", "Not Accepted", "Legacy", "Phase Out" and "Suspended".

"Legacy" status allows retention of permanent products until the end of service life (refer Section 2.6). "Legacy" status permits use of remaining temporary barrier units. "Phase Out" status applies to temporary products only and means the product will remain in service to a fixed date after which time it will be withdrawn from acceptance.

1.4 Accepted Test Level

While the product may have been tested in accordance with different test levels and/or test protocols, the test level specified represents the accepted test level in Victoria.

The minimum test level required for a site must be determined using engineering judgement and information obtained from a site-specific risk assessment. Refer 'DTP Supplement to AGRD – Part 6' for guidance on Test Level selection.

For the design of bridge barriers and 'Performance Level' barriers, no consideration shall be made of test levels or the implied equivalence of test levels to performance levels that is given in table 14.4 of AS5100.1, as per BTN001. Performance Level barriers must be designed to fully comply with the requirements of AS5100.

1.5 Austroads Technical Conditions of Use (TCU) and DTP Conditions & Variants

To improve national harmonisation, the Austroads Technical Conditions of Use (TCU) will be adopted by DTP when deemed suitable. Where Austroads has issued multiple revisions of a TCU, the revision specified and linked in this document must be adopted.

Where DTP has specific conditions or variants, they will be detailed in the relevant column (below) or in a Detail Sheet. Where DTP does not have additional product conditions or variants, this column will contain 'Nil' and the Austroads TCU must be adopted.

In special circumstances, the DTP may accept a road safety product that has not been assessed by the ASBAP and therefore does not have an Austroads TCU. As such, a DTP Detail Sheet will be provided and referenced.

For guidance on interpreting the information contained in the TCU, refer to SBTA 22-001

1.6 Product Manuals and Marketing Information

Users are advised that information published by the system suppliers on their websites, within product manuals and included in promotional material, may not always reflect the actual products accepted or the conditions by which the products are accepted by DTP. This list and information contained within the TCUs and DTP conditions and variants shall take precedence over information published by the System Supplier. This may include variants to products for which DTP remains silent on.

1.7 Installation

Road safety devices must be installed in accordance with the Product and Installation Manual.

In addition, products must be installed in accordance with 'Standard Section 708 - Steel Beam Guard Fence' and/or 'Standard Section 711 - Wire Rope Safety Barriers' when relevant.

1.8 Repair

Barrier units/components must be traceable in accordance with markings prescribed by Australian/New Zealand Standard “AS/NZS 3845 Road Safety Barrier Systems” and Road Agency specifications.

Damaged components must be replaced or repaired in accordance with the Product and Installation Manual.

1.9 Aesthetic Barriers

At the time of publishing this list, DTP has not assessed or accepted for use any Aesthetic Road Safety Barriers for use on the declared road network. In accordance with Section 6.6 of Austroads Guide to Road Design (AGRD) Part 6, Aesthetic Barriers might be considered in parks, historical communities, scenic areas or private road developments. If a road asset owner is considering the use of such barriers, it is recommended that the responsible road authority undertakes a site-specific risk assessment considering crash test performance, availability of terminals and whole-of-life costs of the system, in order to make an informed engineering decision. As a minimum, it is recommended that such barriers be crash tested to recognised crash test criteria, preferably MASH, and consideration should be given to any 'conditions of use' published by the Federal Highway Administration (FHWA).

1.10 Worksite Safety Barrier Screens

DTP does not maintain a list of accepted worksite barrier screens (also known as anti-debris or anti-gawk screens). As such, it is ultimately the responsibility of the product owner and contract superintendent to review the project specific use, with due consideration of RDN 06-12 – Worksite safety barrier screens.

1.11 Truck Mounted Attenuators

Truck Mounted Attenuators (TMAs) must be deployed and operated in accordance with National and State requirements, specifically where operational best practice is prescribed.

The support vehicle mass is the gross weight with ballasts attached. Vehicle mass limits must be in accordance with any National and/or DTP requirements. While heavier support vehicles are likely to have less roll ahead than the tested configuration, the additional mass will increase the transfer of energy into the vehicle occupants during a crash and increase the likelihood of a fatal or serious injury. The support vehicle mass must be between the minimum and maximum mass limits specified above.

TMAs should be located a minimum distance of 30m before the workers or equipment that it is shielding in accordance with the Road Management Act 2004 Code of Practice, Worksite Safety – Traffic Management.

1.12 Median Gates

All median gate installations must include establishment of an appropriate maintenance plan and operating procedure in collaboration with the System Supplier to ensure reliable use of the product.

1.13 Foundations

Local and Utility Authorities must be notified of any proposed installation prior to the commencement of works, as separate approval may be required.

Footing/foundation details and associated technical requirements are outlined within the supplier's Product and Installation Manual. Prior to installing the product, contact "Dial Before You Dig" or visit the website https://www.1100.com.au"

1.14 Terminals

Approved terminals must be installed where the barrier may be impacted by an errant vehicle. Where a departure terminal cannot be impacted, the barrier must be suitably anchored in accordance with the TCU and product manual.

1.15 Minimum Barrier Lengths

Minimum safety barrier lengths are to be in accordance with the DTP Supplement to AGRD Part 6. While barrier lengths shorter than the tested article length shown in the Austroads TCUs are possible, the designer must consider how this will affect other performance values (e.g. deflection). Designers should consult with the product supplier or mitigate the risk through additional controls, such as reducing the posted speed.

1.16 WRSB Driven Post Sleeve Variants

Due to its behaviour, driven post sleeves are more susceptible to soil strength compared to concreted sleeve foundations. Hence an assessment and soil test must be undertaken prior to the use of a Driven Post Sleeve variant.

At all locations:

- Dynamic Cone Penetration Testing (DCPT) shall be undertaken at 500m intervals. Within 1m below the finished surface, test shall be 10 blows or greater per 100mm penetration. All tests shall be undertaken in accordance with AS1289.6.3.2. Test results shall be provided to the Superintendent for review 7 days prior to installation. The Superintendent may request additional testing if any of the test sites fail the DCPT test at no cost to the Principal.
- Full compliance of Standard Section 711 shall be practiced.

Where new earthworks (greenfield) are required:

- Driven post sleeves must be installed in granular fill constructed in accordance with Standard Section 204 - Type A material. Installation shall not commence until approval from the Superintendent has been obtained.

1.17 Roadside Bollards

DTP has adopted a new methodology for assessing and accepting bollard products based on the four main bollard categories outlined in the table below. The objective, minimum performance requirements and the acceptance process for each bollard type is summarised below. Refer to the Supplement to AGRD Part 6 for additional guidance.

Type	Objective	Performance	Acceptance process
Road Safety Bollard	To protect errant vehicles from hazards and/or other roadside features.	Compliant crash testing to AS/NZS 3845.2:2017. This standard requires bollards to demonstrate an acceptable level of crashworthiness for a specified containment level and are evaluated for structural adequacy, occupant risk and vehicular trajectory.	Product suppliers should submit their product to the ASBAP. Following a favourable recommendation from ASBAP, the Supplier can submit to DTP for acceptance. If accepted, DTP will adopt the ASBAP TCU and publish the product in Section 5, under the 'Road Safety Bollards' category, and list the relevant MASH rating.
Pedestrian Protection Bollard	To protect pedestrians from errant vehicles in low-speed environments, or to shield high-severity hazards.	Compliant or Modified crash testing based on AS/NZS 3845.2:2017, where all departures/ differences are documented and submitted for review. All occupant injury values must be recorded and submitted, but are not required to meet thresholds within AS/NZS 3845.2:2017. Bollards must demonstrate, through crash testing, that they do not penetrate or show potential to penetrate the occupant compartment or present an undue hazard to other traffic, pedestrians or personnel in a work zone. Bollards must establish a maximum impact scenario / containment level via crash testing or engineering analysis (LS-DYNA). Containment level is defined by the maximum vehicle weight and speed to be contained (e.g. 2,270kg at 50km/h). The MASH 2,270kg pick-up truck is recommended for testing as this covers the 90th percentile of passenger vehicles.	Given that this product type would NOT be evaluated by ASBAP, the Supplier may submit directly to DTP where the product will be assessed against the adjacent criteria. Any unvalidated computer simulation, any impact scenarios below 2.27T or 50km/h, and any submissions without occupant injury values, will not be accepted. If accepted, the product will be published in Section 5, under the 'Pedestrian Protection Bollard' category, with the maximum impact scenario listed e.g. 2270kg at 60km/h.
Roadside Furniture	For delineation, physical obstruction or minor asset protection in product suitable locations.	Crash testing, engineering analysis or other, based on the intended objective.	DTP does not assess or accept products within this category. These devices may only be used in situations where there is no requirement for protection from/for errant vehicles. Product selection should be based on merit and the intended objective.
Vehicle Security Barrier	To stop a hostile vehicle attack in accordance with IWA 14-2 and relevant guidelines.	Compliant 'Hostile Vehicle' crash testing in accordance with IWA14–1: Vehicle security barriers. Impact severity to be minimised for errant vehicles through product design.	DTP does not assess or accept products within this category.

2. Safety Barrier Policies

2.1 Speed Limitations - Temporary End Treatments

To improve safety at worksites, DTP requires the following speed limitations on temporary end treatments.

Worksite Posted Speed	Freeways/Highways	Other rural and urban roads (>4000 vehicles)	Other rural and urban roads (<4000 vehicles)	Plastic Terminal Risk Assessment Considerations
100 90	Crash cushion only	Crash cushion only	Crash cushion only	**Terminal performance:** 1. Runout area required 2. Development length required 3. Max operating speed as shown; inc. out of hours **Terminal visibility and impact likelihood:** 1. Visibility (Sightlines) 2. Traffic Separation (Barrier Offset) 3. Road Geometry (Alignment & Width) 4. Road Conditions (Road Quality & Environmental) 5. Traffic Conditions (Road Type & Work Hours) 6. Traffic Control (Signs & Linemarking) 7. Work Activities (Proximity to Terminal) **Plastic terminal risk assessments should be checked by a:** • Road Safety Auditor • OH&S Co-ordinator, Manager or Equivalent
80	Crash cushion only	Crash cushion only	Crash cushion preferred, or **TL-3 Plastic terminal with completed risk assessment**	
70 60	Crash cushion only	Crash cushion preferred, or **Plastic terminal with completed risk assessment**	Crash cushion preferred, or **Plastic terminal with completed risk assessment**	
50 40	Crash cushion only, or As required, for "Short Term" works in accordance with RMA CoP Worksite Safety- Traffic Management	Any accepted safety barrier product	Any accepted safety barrier product	

1. Crash cushion products are listed under "Temporary – Redirective Crash Cushion / Impact Attenuator" sub heading in Section 4.
2. Plastic terminal products are listed under "Temporary – Gating Non-Redirective End Treatments" sub heading in Section 4, where the first column refers to a product name, not a classification.

2.2 Design of Wire Rope Safety Barrier (WRSB)

WRSBs are tested in a single configuration (including post spacing, length of barrier, curvature of barrier, wire rope tension and ambient temperature). For design versatility and assist with broader network maintenance of the barrier system, DTP adopts a harmonised working width for all WRSB products in accordance with the DTP Supplement to AGRD Part 6.

2.3 Conditional Acceptance of NCHRP-350 Wire Rope Safety Barriers

As of January 2020, all NCHRP350 TL-4 WRSB products have been updated in line with a MASH reference point. These products will be conditionally accepted at MASH Test Level 3 with a predicted dynamic deflection and working width of 3.0 metres. New WRSB designs must adopt this dynamic deflection and working width value in order to safeguard the design so that upcoming MASH WRSB products may be substituted at installation.

UPDATE: Given the acceptance of multiple MASH WRSB products, all NCHRP WRSB products will be changed to Legacy (no new installations) on 1st January 2021. DTP recommends the use of MASH WRSB on all projects.

2.4 Motorcyclist Friendly Covers

Guard fence terminals (e.g. G.R.E.A.Ts) must be fitted with a plastic motorcyclist friendly cover, that covers the impact head, when installed:

1. on a Popular Motorcycle Route, as listed in DTP Supplement to AGRD Part 6- Appendix VA,
2. on routes with a history of motorcyclist run-off-road crashes,

3. on the outside of a tight horizontal curve (below minimum radii),
4. at an offset less than 1.0m from the edge of traffic lane.

Plastic motorcycle friendly covers must have a white-on-black retro-reflective hazard marker sticker, which must be applied using an effective epoxy.

2.5 MASH Transition

AS/NZS 3845.1:2015 and AS/NZS 3845.2:2017 specify MASH as the current basis for crash testing, thereby superseding NCHRP350. The changes are in response to the ongoing industry progress, market trends and changes in the average vehicle size, plus an increased availability of MASH tested products becoming available to the Australian market.

On 23 April 2018, the Austroads Safety Barrier Assessment Panel advised industry that all new products being submitted by industry must be in accordance with MASH or an equivalent rating in accordance with the Australian Standard. This decision encouraged progress and increased the number of MASH products available in Australia.

The Department of Transport and Planning is also adopting MASH as the nominal standard required for road safety devices in line with the ASBAP and AS/NZS 3845 requirements in accordance with the following timeframes:

31 December 2018

- Steel rail barriers and permanent concrete barriers.

31 December 2019:

- End Treatments (Guard Fence terminals and Crash Cushions)
- Wire Rope Safety Barriers (WRSB) incl. terminals

31 December 2021:

- Temporary barriers incl. terminals, AS/NZS 3845 Part 2 products (e.g. bollards and TMAs) and Transitions.

All NCHRP350 temporary safety barrier products now have a legacy status.

Temporary safety barriers

For temporary barriers, all contracts with a close of tender after 31 December 2021 must use MASH temporary safety devices. While all contracts signed before 31 December 2021 may continue to use NCHRP350 temporary safety barrier products until Practical Completion.

Temporary Truck Mounted Attenuators (TMAs)

Similar to temporary safety barriers, all contracts with a close of tender after 31 December 2021 must use MASH temporary safety devices. While all contracts signed before 31 December 2021 may continue to use NCHRP350 temporary TMAs until Practical Completion.

Guard Fence to Concrete Barrier Transition:

The Department of Transport and Planning developing a set of MASH transition drawings based on the Austroads recommended MASH transition from guard fence to concrete barrier. When released, this thrie-beam configuration will become the preferred guard fence to concrete barrier transition in all locations, where the longitudinal product has been deemed compatible.

Meanwhile, the transition configuration shown on SD4081, SD4082 and SD4084 will be phased out over 6 months and made legacy (withdrawn) on 31 December 2021.

After this transition date, SD4081, SD4082 and SD4084 shall only be used when retrofitting guard fence to an existing incompatible end post or repairing an existing guard fence transition without upgrading the bridge end post. Where the project is upgrading the bridge barrier, the new MASH transition will be required.

2.6 Replacement and Upgrade of Legacy Products

Safety barrier systems with a legacy status continue to provide the level of service at which they were originally tested. Unless specified below, legacy status products may be maintained and/or repaired until the end of their service life, or when parts are no longer available.

It is recommended that when long lengths of legacy items are damaged or within the limit of works, an assessment be made on whether an approved system may be installed instead as part of reinstatement works. Refer product specific notes within the 'Discontinued and Legacy products' section.

Replacement policies:

Existing MELT, BCTA, BCTB and Flexfence Standard Wire Rope terminals:

- must be replaced with an approved terminal after impact in the field or when replacement is required due to timber durability issues;
- must be replaced with an approved terminal if they exist within the limit of works for new projects.

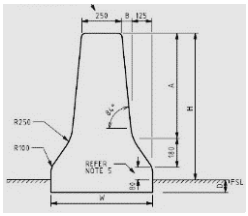
Where a Flexfence Standard Wire Rope terminal is being replaced and the longitudinal NCHRP 350 system continues to provide a suitable level of service and is within its service life, the terminal may be replaced without upgrading the entire system.

Existing Type-B barrier installations, with a mounting height of <686mm to top of rail (lowest height within tolerance using the superseded mounting height of 706mm) must be replaced with an approved barrier system or upgraded using an Abraham Block-out.

3. Accepted Permanent Products

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Wire Rope Safety Barrier					
Brifen MASH	Safe Direction	MASH TL-3	20 Nov 2020		Nil Note: WRSB system includes proprietary terminal
Sentryline-M	Safe Direction	MASH TL-3 MASH TL-4	1 Jun 2023		**Driven Post Sleeve variant**. Refer Section 1.16. A unidirectional hazard marker (based on sign D4-1-2A) shall be placed on the end terminal. The unidirectional marker shall be resized to fit within the available space on the end terminal. Note: WRSB system includes proprietary terminal
MashFlex	Ingal Civil Products	MASH TL-3 MASH TL-4	14 Mar 2022		Nil Note: WRSB system includes proprietary terminal
W-beam Barrier – Flexible and Semi-rigid					
Ezy-Guard Smart **Ezy-Guard 4**	Ingal Civil Products	MASH TL-3 MASH TL-3	15 Sept 2022 1 Jun 2023		**Socketed variant** may be used in locations where there are demonstrated maintenance benefits (e.g. narrow flush medians). Concrete socket foundations must be designed to limit the amount of movement during an impact. The tested foundation (300mm Dia x 1000mm Deep) was installed in 100mm deep lift asphalt on 500mm weak soil (32ϕ / 75kPa) on 400+mm weak soil (25ϕ / 50kPa). The **Surface Mount** variant should be limited to constrained locations, where a driven post cannot be installed, such as across culverts, shallow rock and shallow underground services. The total length of surface mount posts should be minimised where possible.
EZY-GUARD HD (Heavy Duty) Safety Barrier	Ingal Civil Products	MASH TL3	2 Mar 2023		Nil
RAMSHIELD	Safe Direction	MASH TL-3	15 Sept 2022		The **Surface Mount** variant should be limited to constrained locations, where a driven post cannot be installed, such as across culverts, shallow rock and shallow underground services. The total length of surface mount posts should be minimised where possible.

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
SENTRY W-Beam Safety Barrier	Safe Direction	MASH TL-3	1 Jun 2023		The **Surface Mount** variant should be limited to constrained locations, where a driven post cannot be installed, such as across culverts, shallow rock and shallow underground services. The total length of surface mount posts should be minimised where possible.
Type-B Guard Fence	Public Domain System	MASH TL-2	Nil		Refer Type-B Detail Sheet (April 2019)
Thrie-beam Barrier					
Ezy-Guard HC	Ingal Civil Products	MASH TL-3 MASH TL-4	1 Jun 2023		Nil Note: Ezy Guard High Containment Barrier system has no relation and is not the equivalent of the High Containment (Special) performance level stated in AS5100, DTP Bridge Traffic Barrier Performance Levels and Design Loads, and DTP Guidelines for Bridge Approach and Departure Barrier.
EZY-GUARD LDS Safety Barrier	Ingal Civil Products	MASH TL-3 MASH TL-4	15 Dec 2022		Nil
Sentry Thrie-Beam Safety Barrier	Safe Direction	MASH TL-3 MASH TL-4	15 Jun 2023		Nil
RAMSHIELD High Containment Steel Safety Barrier	Safe Direction	MASH TL-3 MASH TL-4	1 Jun 2023		Nil Note: Ramshield High Containment Barrier system has no relation to and is not the equivalent of the High Containment (Special) performance level stated in AS5100, DTP Bridge Traffic Barrier Performance Levels and Design Loads, and DTP Guidelines for Bridge Approach and Departure Barrier. The **Surface Mount** variant should be limited to constrained locations, where a driven post cannot be installed, such as across culverts, shallow rock and shallow underground services. The total length of surface mount posts should be minimised where possible

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Concrete Barrier					
F-Shape Concrete Safety Barrier	Public Domain System	MASH TL-3 MASH TL-4 MASH TL-5	Nil		Refer F-Shape Concrete Barrier Detail Sheet (Dec 2020) Refer SD3901 to SD3907 Refer SD3951 to SD3956
Steel Rigid					
BG800 Permanent	Ingal Civil Products	Standard: MASH TL-3 MASH TL-4	17 Sept 2021		Removable anchors, such as the KelKen anchor, must be used on bridges and other structures. Kelken anchor suitable for asphalt and concrete applications. Hilti wedge bolt anchors to be used for MDS on concrete base. Embedment depth to be 200mm in concrete base, plus full depth asphalt if required. F-shape concrete barrier is the preferred system in permanent applications. All installations of this products must receive prior approval from DTP via the TRP process, whereby the benefit is clearly demonstrated and cannot be resolved with F-Shape concrete.
		MDS: MASH TL-3	1 Sept 2023		
		LDS: MASH TL2 (modified)	2 Sept 2022		
SafeZone Safety Barrier	Jaybro Group	Standard: MASH TL-3 MASH TL-4	20 Nov 2020		Nil. F-shape concrete barrier is the preferred system in permanent applications. All installations of this products must receive prior approval from DTP via the TRP process, whereby the benefit is clearly demonstrated and cannot be resolved with F-Shape concrete.
		LDS: MASH TL-3 MASH TL-4	20 Nov 2020		
		MDS: MASH TL-3	1 Sept 2023		
HighwayGuard Safety Barrier	Highway Care International	Standard: MASH TL-3 MASH TL-4	8 Sept 2022		Nil. F-shape concrete barrier is the preferred system in permanent applications. All installations of this products must receive prior approval from DTP via the TRP process, whereby the benefit is clearly demonstrated and cannot be resolved with F-Shape concrete.
		MDS: MASH TL-3	1 Sept 2023		
		LDS: MASH TL-3 MASH TL-4	30 Sept 2021		
Other					
SAFETY ROLLER Steel Rail Safety Barrier	KSI Global Australia	MASH TL-4	20 Nov 2020		Nil
CrocGuard Permanent Safety Barrier	Safe Direction	MASH TL-3 MASH TL-4	9 June 2022		May only be used on undivided carriageways with volumes < 1,000 AADT. Installations proposed on undivided carriageways with volumes between 1,000 – 4,000 AADT require approval by DTP.

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Quick-Change Concrete Reactive Tension Barrier System	Lindsay Transport Solutions	NCHRP TL-3	March 2017		Refer Quick-Change Barrier Detail Sheet (Feb 2019) **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 DTP traffic engineering guidelines **Temporary or Permanent use on the Road Reserve** Prior to use, the applicant must engage the Engineering department for commentary on the proposed solution. Approval from DTP must be received prior to use.
Permanent – Gating Redirective Energy-Absorbing Terminals (G.R.E.A.T)					
MASH Sequential Kinking Terminal	Safe Direction	MASH TL-2 MASH TL-3	7 June 2021		Nil
ET-SS	Ingal Civil Products	MASH TL-2 MASH TL-3	1 Dec 2022		Nil Note: Base plated post variant should be limited to constrained locations where a driven post cannot be installed
MAX-Tension	Safe Direction	MASH TL-2 MASH TL-3	1 Jun 2023		Nil
X-Tension Median Terminal	Safe Direction	NCHRP TL-3	Nil		Refer *X-Tension Terminal End Detail Sheet* Conditionally accepted at NCHRP TL-3 until a MASH equivalent product is accepted.
Trend Median Terminal	Ingal Civil Products	MASH TL-3	24 March 2023		Nil

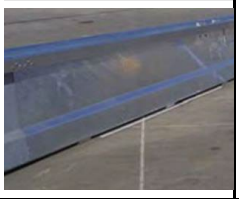
Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Permanent – Gating Non-Energy Absorbing Terminals					
Trailing Terminal	Public Domain System	Departure only	Nil		Refer SD3544 Curved Trailing Terminals should be used as the default, in accordance with SD3544 and SD3562. Straight Trailing Terminals may only be used where space constraints prevent use of a curved trailing terminal (e.g. the presence of an off-road pedestrian and cyclist path). Straight Trailing Terminals must adopt SD3562 componentry, with the exception of a 'Straight End Rail.
Permanent – Redirective Crash Cushions / Impact Attenuators					
QuadGuard M10	Ingal Civil Products	MASH TL-3	20 Nov 2020		Nil
QuadGuard Elite M10	Ingal Civil Products	MASH TL-3	18 Dec 2020		Nil
SMART Steel Crash Cushion	LB Australia	MASH TL-2 MASH TL-3	20 Nov 2020		Nil
Universal TAU-M	Safe Direction	MASH TL-2 MASH TL-3	1 Jun 2023		Nil
Hercules	Safe Direction	MASH TL-2 MASH TL-3	2 Mar 2023		Nil
Permanent – Pole Protector / Single Hazard Protection					
RAPTOR 300 & 600 Single Point Protector Systems	Ingal Civil Products	NCHRP TL-1	11 July 2017		Accepted on a trial basis up to 80km/h. Refer Raptor Detail Sheet (July 2019) Accepted on a trial basis up to 80km/h All installations require prior DTP approval. Refer detail sheet for additional information.

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Permanent – Median Gates					
ArmorGuard Gate System	Safe Direction	NCHRP TL-3	20 Nov 2020		Nil
BG800 Steel Gate	Ingal Civil Products	NCHRP TL-3	20 Nov 2020		Nil
VEVA3 Median Steel Gate	Traffic Tech	NCHRP TL-3 (EN1317)	20 Nov 2020		Accepted at 100km/h
Cado Emergency Gate	Traffic Tech	MASH TL3	2 Sept 2022		All CADO Gate installations require site specific acceptance from the DTP Chief Engineer - Roads. • All applications must demonstrate suitability and whole-of-life value, in consultation with the System Supplier. • Relevant product limitations must be considered and assessed, such as environmental exposure effects, wind speed limitations and vertical height clearances, and • A 'Failure Modes and Effects Analysis' must be completed for all likely use scenarios. All CADO Gate installations also require a site-specific operation plan and maintenance management plan, prior to acceptance. • The CADO Gate opens vertically and can be operated remotely or from a nearby control cabinet. In addition, some CADO Gate components require periodic inspection and maintenance up to 4 times per year. • These considerations must be evaluated and documented within the site-specific operation plan and maintenance plan. • Where the CADO Gate is operated remotely from a Traffic Control Centre, endorsement must be obtained from the DTP Intelligent Transport Systems team and Transport Operations Centre.

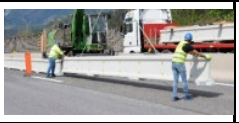
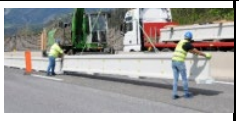
Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Permanent – Motorcycle Safety Products					
Rub Rail	Public Domain System	Conditionally accepted	Nil		Proposed locations require approval by M-RD&SSE prior. Steel rail with bracket installed below W-beam. Can be attached to existing or new Type B guard fence to prevent motorcyclist impacts with the supporting posts. Must be terminated before a G.R.E.A.T
INGAL MPR	Ingal Civil Products	EN1317- 8 Impact Severity Level 1	8 Jan 2017		Accepted on Ezy-Guard Smart/4 Safety Barrier. Conditional acceptance for use on Type B guard fence. Proposed locations require approval by M-RD&SSE prior. Can be attached to existing or new Type B guard fence to prevent motorcyclist impacts with the supporting posts. Must be terminated before a G.R.E.A.T
HighwayGuard Safety Barrier Biker-Shield	Safe Direction	EN1317- 8 Impact Severity Level 2	7June 2021		Accepted on Ramshield Barrier. Notes: Steel rail with bracket installed below W-beam. Must be terminated before a G.R.E.A.T
RiderPro Motorcyclist Protection Device	Safe Direction	EN1317- 8 Impact Severity Level 1	18 Dec 2020		Accepted on SENTRY W-beam Barrier and SENTRY Thrie-beam Barrier. Notes: Steel rail with bracket installed below W-beam or Thrie-beam. Must be terminated before a G.R.E.A.T
PolyBuffer Rail System	DM Plastics & Steel	Conditionally accepted	Nil		Proposed locations require approval by M-RD&SSE prior. Hollow rectangular polyethylene rails that fit under the W-beam to prevent motorcyclist impacts with the steel posts. Suitable on terminals only
Stack Cushion	Ingal Civil Products	Conditionally accepted	Nil		Proposed locations require approval by M-RD&SSE prior. Notes: Polystyrene foam cushion made up of two pieces that attach to existing Flexfence WRSB posts to provide a softer impact for errant motorcyclists. Protection is offered to one side of the post only, therefore suitable for verge applications.

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Barriacel	LB Australia	Conditionally accepted	Nil		Proposed locations require approval by M-RD&SSE prior. Notes: Patented impact absorbing material technology. Wraps around the post. Available in single or double wrap system.
Impact-Protect	LB Australia	Conditionally accepted	Nil		Proposed locations require approval by M- RD&SSE prior. Notes: Fitted inner layer followed by a series of outer layers made from specially designed impact absorbing core. Layers held with high tenacity 'Cavacon' wrap. Made to fit posts and poles

4. Accepted Temporary Products

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Temporary – Steel Longitudinal Barriers					
Mobile Barrier MBT-1	Mobile Barriers LLC	MASH TL-3 (with TL-3 rated TMA)	20 Nov 2020		**Vehicle registration requirements** 1. The operator of the vehicle will need to obtain registration and permits of use through VicRoads Customer Service Centres. 2. Registration will need to cover all configurations of the truck, including all variations of 1-3 units of barrier section/trailer components. **Route Planning/Traffic Management** • Operators must plan routes to avoid over-length or over-weight non-compliance whilst transporting this vehicle. • Operators must comply with VicRoads requirements for Traffic Management Plans must be developed for approval by DTP project team prior to deployment.
BG 800 Suite of products	Ingal Civil Products	Standard: MASH TL-3 MASH TL-4	2 Mar 2023	 	Absorb M Crash Cushion Conditionally recommended until 31 December 2023 To mitigate potential undesirable occupant impact velocities presented by current connections, installations must comply with speed restrictions of 80km/h or less on asphalt foundations and 70km/h or less on concrete foundations. Full acceptance will be provided upon receiving a favourable ASBAP recommendation.
		LDS: MASH TL-2 (modified)	2 Mar 2023		
		MDS: MASH TL-3	1 Sept 2023		
Defender Barrier 70	Safe Barriers	MASH TL-2	5 Dec 2020		Nil
Defender Barrier 100 Suite of products	Safe Barriers	Free Standing: MASH TL-3	5 Dec 2020		Nil
		LDS: MASH TL-3	28 April 2022		Nil
		High Containment: MASH TL-4	28 April 2022		Nil
Highway-Guard Safety Barrier	Highway Care International	Standard: MASH TL-3 MASH TL-4	1 Dec 2022		Nil
		MDS: MASH TL-3	1 Sept 2023		
		LDS: MASH TL-3 MASH TL-4	1 Dec 2022		Nil

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
HV2 Barrier	Saferoads Pty Ltd	MASH TL-3 MASH TL-4	20 Nov 2020		Nil
IronMan Hybrid	Saferoads Pty Ltd	MASH TL-2	25 Sept 2023		Nil
SafeZone Safety Barrier	Jaybro Group	Standard: MASH TL-3 MASH TL-4	23 Oct 2023		Nil
		LDS: MASH TL-3 MASH TL-4	5 Dec 2020		Nil
		MDS: MASH TL-3	1 Sept 2023		Nil
ZONE-GUARD	Hill & Smith - Australia	Standard: MASH TL-3 MASH TL-4	2 Mar 2023		Nil
		MDS: MASH TL-3	1 Sep 2023		Nil

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Temporary – Concrete Longitudinal Barriers					
Rebloc 80SAH_12 Safety Barrier	Hill & Smith - Australia	MASH TL-3 MASH TL-4	2 Sep 2022		Nil - This barrier has 12-meter unit lengths.
Rebloc 80SAH_12_8 B	Hill & Smith - Australia	MASH TL-3	22 Mar 2022		Nil - This barrier has 12-meter unit lengths.
Rebloc 80SAH_4 Safety Barrier	Hill & Smith - Australia	MASH TL-3	01 Dec 2022		Nil - This barrier has 4-meter unit lengths.
JJ Hooks 6m Concrete Safety Barrier	Australian Road Barriers	MASH TL-3	14 Mar 2022		Nil
3.6M JJ Hooks Safety Barrier	Australian Road Barriers	MASH TL-3	14 March 2022		Accepted at 70km/h
T-LOK MASH	Saferoads Pty Ltd	MASH TL-3	1 Jun 2023		Accepted at 100km/h
T-Lok Rubber Safety Barrier	Saferoads Pty Ltd	MASH TL-3	1 Jun 2023		Not permitted for connection to T-Lok MASH Safety Barrier
DB80 K150 (DeltaBloc)	Jaybro	MASH TL-3	20 Jul 2021		Nil- TL3 freestanding barrier with a removable coupling system
DB80 T150S Concrete Safety Barrier	Jaybro	MASH TL-3 MASH TL-4	20 Dec 2021		Nil- TL3/TL4 barrier with fixed connection and lower deflection.
DB80A T150S Concrete Safety Barrier	Jaybro	MASH TL-3	1 Dec 2022		Nil- TL3 lowest deflection in the range with is either pinned in asphalt or chemically anchored in concrete. Pinning and anchoring only on the traffic side not the work zone side

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
PIN and LOOP	Retsel Holdings	Standard: MASH TL-3	20 Nov 2020		Nil
		LDS: MASH TL-3	21 Jan 2021		Nil
Rebloc 120FA_6_SF	Hill & Smith - Australia	MASH TL-3 MASH TL-5	16 June 2022		Nil
Temporary – Plastic Water-Filled Longitudinal Barriers					
ArmorZone MASH	Ingal Civil Products	MASH TL-1 MASH TL-2	20 Nov 2020		Nil
SHIELD 1	National Plastics Group	MASH TL-1	20 Nov 2020		Nil
Ricochet	Advantage Plastics	MASH TL-1	20 Nov 2020		Nil
Lo-Ro Water Cable Barrier	Jaybro Group	MASH TL-1 MASH TL-2	20 Nov 2020		Nil
Temporary – Gating Non-Redirective End Treatments					
Absorb M Crash Cushion	Jaybro Group	MASH TL-2 MASH TL-3	1 Jun 2023		Refer to policy note on speed limitations
ArmorBuffa Plastic Water Filled Crash Cushion	Ingal Civil Products	MASH TL-3	2 Mar 2023		Refer to policy note on speed limitations
SLED Plastic Water Filled End Terminal	Saferoads Pty Ltd	MASH TL-1 MASH TL-2 MASH TL-3	5 Dec 2020		Accepted at 80km/h Refer to policy note on speed limitations

Product Name	System Supplier	Accepted Test Level	Austroads TCU	System Photo	DTP Conditions and Variants
Temporary – Redirective Crash Cushion / Impact Attenuator					
QuadGuard M10 CZ	Ingal Civil Products	MASH TL-2 MASH TL-3	20 Nov 2020		Nil
SMART Steel Crash Cushion	Hill & Smith Queensland	MASH TL-2 MASH TL-3	20 May 2022		Nil
Universal TAU- M	Safe Direction	MASH TL-2 MASH TL-3	1 Jun 2023		Nil
Hercules	Safe Direction	MASH TL-2 MASH TL-3	2 Mar 2023		Nil
Temporary – Truck Mounted Attenuators (TMA)					
Scorpion II MASH Trailer Attenuator	A1 Roadlines	MASH TL-3	20 Nov 2020		Nil
Scorpion II MASH TMA	A1 Roadlines	MASH TL-2	20 Nov 2020		Nil
		MASH TL-3	20 Nov 2020		Nil
SS180M TMA	Ingal Civil Products	MASH TL-3	20 Nov 2020		Nil
Verdegro Blade	Innov8 Equipment	MASH TL-3	5 Dec 2020		Nil
Silke MASH TMA	J1-LED Intelligent Transport Systems	MASH TL-3	22 Mar 2022		Nil

5. Miscellaneous Products

Product Name	System Supplier	Accepted Test Level or Max. Impact Scenario	Austroads TCU	System Photo	DTP Conditions and Variants
Road Safety Bollards – *Used to protect errant vehicles from hazards and/or other roadside features.*					
Energy Absorbing Pole/Tree Buffer	Roadside Services & Solutions	MASH TL-1	Nil		Refer Energy Absorbing Pole/Tree Buffer Detail Sheet (May 2019) Proposed locations require approval by M-RD&SSE prior.
Pedestrian Protection Bollards - *Used to protect pedestrians from errant vehicles in low-speed environments. They should only be considered when a road safety device is not feasible.*					
EAB	Impact Absorbing Systems	1600kg @ 50km/h (Physical)	Nil		**Conditionally accepted at NCHRP TL-0 until a MASH equivalent product is accepted.** Product must be installed on roads with a posted speed of 50 km/h or less. And must be used in accordance with RDN 06-16 Appendix A. All installations require a site specific risk assessment and must be approved prior to installation. DTP should be notified of any incidents involving this product.
Omni-Stop Ultra Bollard	SaferoadsPty Ltd	1600kg @ 50km/h (Physical)	Nil		**Conditionally accepted at NCHRP TL-0 until a MASH equivalent product is accepted.** Product must be installed on roads with a posted speed of 50 km/h or less. And must be used in accordance with RDN 06-16 Appendix A. All installations require a site specific risk assessment and must be approved prior to installation. DTP should be notified of any incidents involving this product.

6. Discontinued and Legacy Products

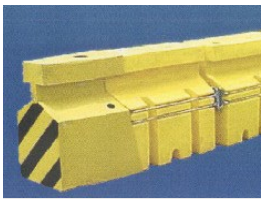
Product Name	System Supplier	Status	Photos	Note
Brifen TL-3 Wire Rope Safety Barrier (3 and 4 rope)	Hill and Smith Queensland	Legacy		Brifen TL-3 configuration discontinued in Victoria.
Brifen Wire Rope Safety Barrier (4 rope) TL4	Hill and Smith Queensland	Legacy		
Flexfence 3 Wire Rope Safety Barrier	Ingal Civil Products	Legacy		Consider upgrading. Additional rope and strengthening plate may be retrofitted.
Sentryline II 3 Wire Rope Safety Barrier	Safe Direction	Legacy		Consider upgrading. Additional rope may be retrofitted.
Gilbraltar 3 Wire Rope Safety Barrier	Tranex Group	Legacy		
Thriebeam G9	Public Domain System	Legacy		Assigned Legacy status in October 2014
T-39 Thriebeam	Ingal Civil Products	Legacy		Assigned Legacy status in April 2018

Product Name	System Supplier	Status	Photos	Note
IronMan Median Gate	Saferoads Pty Ltd	Legacy		
Sentryline II Terminal End	Safe Direction	Legacy		Consider upgrading to Sentryline III (non-release) terminal when the terminal is in close proximity to the traffic lane.
Flexfence Standard Wire Rope Terminal	Ingal Civil Products	Legacy		Must replace with Flexfence TL-3 terminal following major impact or within limit of works
Gilbraltar End Terminal	Tranex Group	Legacy		
Brifen Wire Rope Terminal	Hill and Smith Queensland	Legacy		
BCTA (Approach Breakaway Cable Terminal)	Public Domain System	Legacy		Must replace with “Accepted” G.R.E.A.T following impact or within limit of works
BCTB (Departure Breakaway Cable Terminal)	Public Domain System	Legacy		Must replace with “Accepted” G.R.E.A.T or Trailing Terminal following impact or within limit of works
MELT (Modified Eccentric Loader Terminal)	Public Domain System & proprietary versions	Legacy		Must replace with “Accepted” G.R.E.A.T following impact or within limit of works

Product Name	System Supplier	Status	Photos	Note
SKT350 (Sequential Kinking Terminal)	Safe Direction	Legacy		
FLEAT350 (Flared Energy Absorbing Terminal)	Safe Direction	Legacy		
SKT-SP	Safe Direction	Legacy		
FLEAT-SP	Safe Direction	Legacy		
X-Tension Terminal End	Safe Direction	Legacy		
TREND 350 End Terminal	Ingal Civil Products	Legacy		
ET 2000 Plus	Ingal Civil Products	Legacy		
Fishtail	Public Domain System	Not accepted		This treatment does not anchor the system and must be replaced with an accepted terminal
Bullnose	Public Domain System	Not accepted		This treatment has not been accepted by DTP
BrakeMaster 350A	Ingal Civil Products	Legacy		Replacement parts may be difficult to obtain, replace with “Accepted” crash cushion following major impact

Product Name	System Supplier	Status	Photos	Note
Tau-II	Safe Direction	Legacy		
Tracc	Ingal Civil Products	Legacy		
QuadGuard	Ingal Civil Products	Legacy		
Rubber Crash Cushion	Saferoads Pty Ltd	Legacy		Replacement parts may be difficult to obtain, replace with “Accepted” crash cushion following major impact
OmniStop Terminal	Saferoads Pty Ltd	Legacy		Consider replacing with “Accepted” G.R.E.A.T following major impact
IronMan Suite of Barriers (unballasted)	Saferoads Pty Ltd	Legacy		NCHRP TL-1 NCHRP TL-2 IronMan Suite of Barriers Sheet provided for reference only .
T-LOK 350 F-TYPE	Saferoads Pty Ltd	Legacy		NCHRP TL-2 T-LOK 350 Detail Sheet provided for reference
Energite III Sand Barrel System	Ingal Civil Products	Not Accepted		This treatment has not been accepted by DTP

Product Name	System Supplier	Status	Photos	Note
TRITON Barrier	Ingal Civil Products	Not Accepted		Phased Out - Effective 22 October 2014
Biker Mate Crash Cushion	Highway Care International	Legacy		Product is no longer supported by the System Supplier
Flexfence Wire Rope Safety Barrier (4 rope)	Ingal Civil Products	Legacy		Product was conditionally accepted at MASH TL-3 with a 3.0m working width and deflection, until 31 December 2020. Refer Flexfence Detail Sheet (Jan 2020)
Sentryline II Wire Rope Safety Barrier (4 rope)	Safe Direction	Legacy		Product was conditionally accepted at MASH TL-3 with a 3.0m working width and deflection, until 31 December 2020. Refer Sentryline II Detail Sheet (Mar 2020)
Flexfence TL3 End Terminal	Ingal Civil Products	Legacy		Product was conditionally accepted at MASH TL-3 until 31 December 2020
Sentryline III Terminal End	Safe Direction	Legacy		Product was conditionally accepted at MASH TL-3 until 31 December 2020
JJ Hooks Concrete Safety Barrier	Australian Road Barriers	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-3 (Speed restricted)
ArmorZone	Ingal Civil Products	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-2

Product Name	System Supplier	Status	Photos	Note
Absorb 350 Crash Cushion	Jaybro Group	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 Speed limited as per Section 2.1
Triton CET (Concrete End Terminal)	Ingal Civil Products	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 Speed limited as per Section 2.1
QuadGuard CZ	Ingal Civil Products	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-2 NCHRP TL-3
Universal TAU-II	Safe Direction	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-2 NCHRP TL-3
Vorteq	Ingal Civil Products	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-3
SafeStop (various)	Ingal Civil Products	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-3
MPS-350	Ingal Civil Products	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-3
U-MAD (W.A.S.P)	Safe Direction	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-2 NCHRP TL-3

Product Name	System Supplier	Status	Photos	Note
Scorpion Trailer Attenuator	A1 Roadlines	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-2 NCHRP TL-3
Scorpion Truck Mounted Attenuator	A1 Roadlines	Legacy		NCHRP350 temporary safety barrier products given legacy status since 31 December 2021 NCHRP TL-2 NCHRP TL-3
Stuer-Egghe 'Julietta'	J1-LED Intelligent Transport Systems	Phase out		NCHRP350 temporary safety barrier product given phase out status since 31 December 2021 NCHRP TL-3
Motorcycle Friendly (MCF) Post Cushion	RPS Industries	Conditionally accepted		Nil

7. Register of System Suppliers

This list has been provided to help users contact the System Supplier. This list is not exhaustive and may become outdated.

A1 Roadlines Pty Ltd	89 Rushdale Street, Knoxfield VIC 3180 Ph: (03) 9765 9400 www.a1roadlines.com.au Contact: Janine Bartholomew Email: sales@a1roadlines.com.au
Australian Road Barriers	RMB H535, Old Creswick Rd, Ballarat, VIC 3352 Ph: 1800 003 826 Fax: (03) 5339 9273 www.roadbarriers.com.au Contact: Ben Sexton Email: ben@roadbarriers.com.au
Advantage Plastics	PO Box 410, 254 Easterbrook Road, RD1 Kaiapoi, 7691, NZ Ph: 0800 668 534 https://www.advantageplastics.co.nz/ Contact: David Hickmott Email: david@adplasnz.com
Highway Care International	The Highlands, Detling, Maidstone, Kent, ME14 3HT, United Kingdom Ph: +44 (0) 344 840 0088 Ph: +44 (0) 7736 491571 www.highwaycare.com Contact: ollie.pulling@highwaycare.com Email: info@highwaycare.com
Hill & Smith - Australia	U6 170 Burnside Rd Stapylton, QLD 4208 Ph: 1300 277 683 www.hsroads.com.au Contact: Warwick Weeks Email: sales@hsroads.com.au
Impact Absorbing Systems Pty Ltd	28 Donegal Road, Lonsdale SA 5160 Phone: (08) 8384 7863 https://www.impactabsorbing.com.au/
Ingal Civil Products	35-37 Lakeside Drive, Broadmeadows, VIC 3047 Ph: 03 9358 4100 Fax: 03 9358 4110 www.ingalcivil.com.au Contact: Ilir Thaqi Email: ithaqi@ingalcivil.com.au
Innov8 Equipment Pty Ltd	Email: sales@innov8equipment.com.au Ph: 1300 071 007
J1-LED Intelligent Transport Systems	20 Graham Daff Boulevard Braeside VIC 3195 Ph: (07) 3807 6272 Mob: 0411 422 696 www.j1led.com Contact: Nathaniel Trieger E-mail: Nat@j1led.com
Jaybro Group	Building A, 1-7 Cyanamid Street, Laverton North, VIC 3026 Ph: 1300 885 364 Ph: 0406 638 792 www.jaybro.com.au Contact: Ben Lorne Email: ben.lorne@jaybro.com.au

National Plastic Group	5 Christensen Road, Staplyton, QLD 4207 Ph: 07 3807 0055 Fax: 07 3807 2315 www.nationalplasticsgroup.com.au Contact: Nina Adcock Email nina@nationalplastics.com.au
Roadside Services & Solutions	2A, 841 Mountain Highway, Bayswater VIC 3153 Ph: 1300 022 222 https://www.roadsideservices.net.au
Safe Barriers Pty Ltd	Suite 54, 29 Smith Street, Parramatta, NSW 2150Ph: 1800 169 799 https://www.safebarriers.com/ Contact: David Moule Email: david.moule@safebarriers.com
Saferoads	22 Commercial Drive, Pakenham, VIC 3810 Ph: 1800 060 072 Fax: 1800 060 673 www.saferoads.com.au Contact: Casey McMaster Email: casey.mcmaster@saferoads.com.au
Safe Direction	69 Metrolink Circuit, Campbellfield, Vic, 3061 Ph: 1300 063 220 www.safedirection.com.au Contact: James Foden Email: JamesF@safedirection.com.au Contact: Terry Colquhoun Email: terryc@safedirection.com.au
Traffic Tech	Level 35, International Tower One 100 Barangaroo Ave, Sydney, NSW 2000, Australia Postal Address: PO Box 6485, Rouse Hill, NSW 2155 Contact: Mandar Shivalkar Ph: 02 8114 4453 Ph: 0455 887 323 www.traffictechits.com Email: salesap@traffictechits.com mandar.shivalkar@traffictech.com.au

8. References

- Austroads Guide to Road Design: Part 6 - Roadside Design, Safety and Barriers
- Austroads Technical Conditions of Use (TCU)
- DTP Detail Sheets
- DTP Road Design Notes
- DTP Supplement to AGRD: Part 6 – Section 6.0: Road Safety Barriers
- DTP Technical Drawings and Specification Clauses
- Product Installation and Maintenance Manuals.
- WRSB Maintenance Guidelines (2019) – DTP internal document.

9. Revision History

Version	Date	Clause	Description of Change
23	**May 2023**	**Various**	**See below**

General:

- Permanent Safety Barrier Products have been rearranged into their respective asset sub types.

New products:

- Traffic Tech Pty Ltd- Cado Emergency Gate - Permanent Emergency Gate - Steel – accepted to MASH TL-3
- Hill & Smith Australia Pty Ltd -Rebloc 80SAH_4 Safety Barrier–Temporary Concrete –accepted to MASH TL3
- Jaybro - DB80A T150S Concrete Safety Barrier– Temporary - Concrete – accepted to MASH TL-3
- Ingal Civil Products - EZY-GUARD LDS Safety Barrier - Permanent- Steel - TMA – accepted to MASH TL3 & TL4
- Ingal Civil Products - EZY-GUARD HD (Heavy Duty) Safety Barrier - Permanent- Steel - TMA – accepted to MASH TL3

New variants:

- RAMSHIELD Steel Safety Barrier- Permanent Steel- Wide variant accepted
- HighwayGuard Safety Barrier Temporary Steel- Foundation Pavement Conditions & Connection to Armorbuffa Crash Cushion updated and accepted
- HighwayGuard Safety Barrier – Permanent Steel- F-shape concrete barrier is the preferred system in permanent applications, updated and accepted.
- BG800 Steel Rail Safety Barrier –Temporary Steel- Foundation pavement conditions updated and accepted.
- EZY-GUARD SMART Steel Rail Safety Barrier– Permanent Steel- Wide variant accepted
- ZONEGUARD MDS Steel Safety Barrier – Temporary Steel- Connection to Quadguard M10 CZ Crash Cushion (unidirectional) added to approved connection list and accepted.
- ZONEGUARD Steel Safety Barrier – Temporary Steel- Connection to Quadguard M10 CZ Crash Cushion (unidirectional) added to approved connection list and accepted.
- EZY-GUARD HIGH CONTAINMENT– Permanent Steel- Dynamic Deflection and Working Width updated and accepted
- ET-SS Terminal - Permanent – Permanent Steel- TL3 base plated variant updated and accepted
- HighwayGuard LDS Safety Barrier – Temporary – Steel- Armorbuffa Crash Cushion added to the approved connection list and accepted
- RAMSHIELD High Containment Steel Safety Barrier – Permanent Steel- Connection to Bikershield MPR added and accepted
- Rebloc 80SAH_12 Safety Barrier–Temporary Concrete- TL4 variant accepted
- Highway Care International Pty Ltd- BG800 LDS Steel Safety Barrier - Permanent – Steel- accepted to MASH TL2 (modified)

Editorial

- Rebloc 80SAH-12 (RDN06-04 v22, found in Steel Temporary products, revised and relocated to Concrete Temporary products.)
- ‘Jaybro’ the supplier for DB80A T150S Concrete Safety Barrier has been added to the Register of System Suppliers.
- ‘Traffic Tech’ the supplier for Cado Emergency Gate has been added to the Register of System Suppliers.
- ‘Highway Care International’ has been added to the Register of System Suppliers.
- ‘Hill & Smith’ has been added to the Register of System Suppliers.
- Email address for Manager- Road Engineering Standards updated to: *StandardsManagementRD@roads.vic.gov.au* throughout the RDN and in the last page of the RDN

Version	Date	Clause	Description of Change
24	July 2023	Various	See below

General:

Additional Products added: March TCUs

- Trend Median Terminal- Permanent- Steel Rail – accepted to MASH TL-3
- T-Lok Rubber Safety Barrier- Temporary – Rubber- TL-3: 3.66m & 5.49m T-Lok MASH F-Type Rubber variants accepted to TL3

Additional Products added: June TCUs

- HighwayGuard MDS Safety Barrier- Temporary– Steel - accepted to MASH TL-3
- HighwayGuard MDS Safety Barrier- Permanent– Steel - accepted to MASH TL-3

New variants:

Updated Product Variants : March 2023 TCUs

- ArmorBuffa Crash Cushion- Temporary - New TL2 Variant: Plastic Water Filled accepted
- Ezy-Guard 4 Safety Barrier- Permanent - Steel Rail – TL3 : Connection to Ingal MPR accepted
- EZY-GUARD HD (Heavy Duty) Safety Barrier - Permanent - Steel Rail – TL3: Connection to Ingal MPR accepted
- ZONEGUARD Steel Safety Barrier –Temporary Steel- TL3 & TL4- MASH TL4 Values accepted
- Hercules Crash Cushion– Permanent & Temporary -Steel Rail- TL2 & TL3: Modified Steel Base variant accepted
- BG800 MDS Safety Barrier–Temporary Steel- TL3: Extension to Conditionally Recommended - Connection to Absorb-M Crash Cushion updated and accepted
- BG800 LDS Safety Barrier–Temporary Steel- TL2: Extension to Conditionally Recommended- Connection to Absorb-M Crash Cushion updated and accepted
- BG800 Steel Rail Safety Barrier –Temporary Steel- TL3 & TL4: Extension to Conditionally Recommended- Connection to Absorb-M Crash Cushion updated and accepted
- Sentry W Beam Safety Barrier- Permanent - Steel Rail- TL-3: 1 metre post spacing variant accepted
- EZY-GUARD 4 Steel Rail Safety Barrier- Permanent - Steel Rail- TL3: Connection to Trend Median Terminal accepted

Updated Product Variants: June 2023 TCUs

- Absorb-M Crash Cushion - Temporary - Plastic Water Filled- TL2 & TL3: Proponent Change from ACP to Safe Direction accepted.
- Ezy-Guard 4 Safety Barrier- Permanent - Steel Rail- TL3: Connection to Ingal RBT variant accepted
- Ezy-Guard HC Safety Barrier- Permanent - Steel Rail- TL3 & TL4: Connection to Ingal RBT variant accepted
- MAX-TENSION Guardrail Terminal - Permanent - Terminal -TL2 & TL3: Proponent Change from ACP to Safe Direction accepted.
- RAMSHIELD High Containment Steel Safety Barrier- Permanent - Steel- TL3 & TL4: Baseplate installation- variant accepted.
- Sentry W Beam Safety Barrier -Permanent - Steel Rail -TL3: Proponent Change from ACP to Safe Direction accepted.
- T-Lok MASH F-Type Safety Barrier- Temporary – Concrete- TL3: Connection to Armorbuffa Crash Cushion at 80 km/h – variant accepted.
- T-Lok Rubber Safety Barrier- Temporary – Rubber- TL3: Connection to Armorbuffa Crash Cushion at 80 km/h, Bespoke wedge (for small radii) – both variants accepted.
- UNIVERSAL TAU-M Crash Cushion – Permanent & Temporary- Steel Rail -TL2 & TL3: Proponent Change from ACP to Safe Direction accepted.
- Sentryline-M Wire Rope Barrier – Permanent – Wire Rope -TL3 & TL4: Sentryline Pro M Terminal Update & Redesigned Driven Socket System – variant accepted.
- Sentry Thrie-Beam Safety Barrier – Permanent - Steel Rail -TL3 & TL4: Proponent Change from ACP to Safe Direction accepted.
- Sentry Thrie-Beam Safety Barrier – Permanent - Steel Rail -TL3 & TL4: Back-to-back variant accepted

Version	Date	Clause	Description of Change
24	July 2023	Various	See below

Editorials:

- Organisation name will be changed from 'Department of Transport (DoT)' and will be updated to "Department of Transport and Planning (DTP)" throughout the RDN excluding the legacy and revision section.
- The new DTP standard template for Road Design Notes will be implemented for v24.
- Australian Construction Products (ACP) has merged with Safe Direction as of 1st May 2023.
- Australian Construction Products will be removed from the Register of System Suppliers due to merger with Safe Direction as of 1st May 2023.

MCF (Motorcycle Friendly Post Cushion) will be moved to legacy products since the product is no longer supplied by RPS industries.

Version	Date	Clause	Description of Change
25	November 2023	Various	See below

New products:

- Jaybro Group - Safezone MDS Safety Barrier - Permanent & Temporary - Steel – accepted to MASH TL-3

New variants:

- Zoneguard MDS Safety Barrier – Temporary Steel -Addition of notes in system conditions, accepted.
- HighwayGuard MDS Safety Barrier- Permanent & Temporary- Steel - Addition of notes in system conditions, accepted.
- BG800 MDS Safety Barrier- Permanent & Temporary- Steel - Addition of notes in system conditions, accepted.
- Ironman Hybrid Safety Barrier - Temporary- Steel – Bespoke Wedge – accepted.
- Safezone Safety Barrier - Temporary- Steel – Asphalt Pin A – accepted.

Editorial

- 2.6 Replacement and Upgrade of Legacy Products – Additional information added for clarification Flexfence, updated.
- Traffic Tech contact details update.
- System Supplier update – Cado Emergency Gate
- 1.5 Austroads Technical Conditions of Use (TCU) and DTP Conditions & Variants- For guidance on interpreting the information contained in the TCU.
- Jaybro contact details update.
- System Supplier update Safezone Safety Barrier from Safe Direction to Jaybro Group
- System Supplier update Absorb M Crash Cushion from Safe Direction to Jaybro Group
- System Supplier update Absorb 350 Crash Cushion from Safe Direction to Jaybro Group

10. Contact Details

Engineering Standards
Assets and Engineering, Department of Transport and Planning
Email: StandardsManagementRD@roads.vic.gov.au