EZY-GUARD High Containment Barrier - Permanent

Product summary

<table>
<thead>
<tr>
<th>Status</th>
<th>Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Permanent – Semi Rigid Longitudinal Barriers</td>
</tr>
</tbody>
</table>
| Test Level   | MASH TL4: 100km/h  
               MASH TL3: 100km/h  
               (refer to design requirements) |
| Supplier     | Ingal Civil Products |
| Description  | Ezy Guard High Containment Barrier is a permanent longitudinal barrier. |

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 Ezy Guard High Containment (HC) Barrier 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.

Summary Conditions for Use

<table>
<thead>
<tr>
<th>Accepted configuration</th>
<th>Ezy Guard High Containment Barrier – Permanent</th>
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</thead>
</table>
| Variants                     | Standard Installation  
                              Back to Back Installation  
                              Base plate installation  
                              Single post omissions |
| Deflection                   | 1.77m metres |
| Product manual reviewed      | March 2017 Release |
| ASBAP issue                  | 5 December 2018 |

Refer VicRoads conditions for use (below).
VicRoads Conditions for Use

Tested design requirements

<table>
<thead>
<tr>
<th>Containment level</th>
<th>Speed (km/h)</th>
<th>Vehicle mass (kg)</th>
<th>Point of Redirection (m)*</th>
<th>Minimum length of barrier (m)</th>
<th>Post/ Pin Spacing (m)</th>
<th>Dynamic deflection (m)</th>
<th>Working width (m)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASH TL-4</td>
<td>90</td>
<td>10,000</td>
<td>43.8</td>
<td>55.8</td>
<td>2.0 (max)</td>
<td>1.77</td>
<td>2.46</td>
<td>Performance values imposed on all variant(s)</td>
</tr>
<tr>
<td>MASH TL-3</td>
<td>100</td>
<td>2270</td>
<td>43.8</td>
<td>55.8</td>
<td>2.0 (max)</td>
<td>1.16</td>
<td>1.16</td>
<td></td>
</tr>
</tbody>
</table>

Approved Terminals and Connections

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

Public Domain Products
- W-Beam Guardrail Permitied
- Thrie-Beam Guardrail Not permitted

Proprietary Products
- ET 2000 Plus Terminal Refer to ET 2000 Plus Terminal Detail Sheet conditions of approved use
- Trend 350 Steel Rail Terminal Refer to Trend 350 Terminal Detail Sheet conditions of approved use

Design Guidance

System width (m) 0.24

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 The minimum distance between the edge of the barrier and the edge of an excavation must be the greater of:
- The dynamic deflection
- 1.5 times the embedment depth of the post
- The minimum distance between the back of post and the edge of an excavation (see AustRoads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Appendix H3.1, Figure H2).

Slope limit
1. Side slope limit: 10 Horizontal to 1 Vertical (10%)
2. Side slopes must be considered to minimise manual handling risks and site conditions.

Systems conditions
1. Anchor spacing greater than 2 metres is not permitted
2. Flaring across the clear zone without a terminal listed above is not permitted.
3. 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.
4. Permanent Installations may be used in 110km/h speed zones

Minimum installation distance from batter hinge point of the slope (m) 0.5 - The proposed distance supersedes the one stated within the product & installation manual.

Gore area use Refer to appropriate approved terminal conditions

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
Foundation pavement conditions

<table>
<thead>
<tr>
<th>Pavement</th>
<th>Use</th>
<th>Accepted Speed (max)</th>
<th>Post/Pin spacing (m)</th>
<th>Pavement construction</th>
<th>Post/pin type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>Permitted</td>
<td>100 km/h</td>
<td>2.0m</td>
<td>Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product</td>
<td>Refer to the Product Manual</td>
</tr>
<tr>
<td>Deep lift asphaltic concrete</td>
<td>Permitted</td>
<td>100 km/h</td>
<td>2.0m</td>
<td>Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product</td>
<td>Refer to the Product Manual</td>
</tr>
<tr>
<td>Asphalitic concrete over granular pavement</td>
<td>Permitted</td>
<td>100 km/h</td>
<td>2.0m</td>
<td>Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product</td>
<td>Refer to the Product Manual</td>
</tr>
<tr>
<td>Flush seal over granular pavement</td>
<td>Permitted</td>
<td>100 km/h</td>
<td>2.0m</td>
<td>Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product</td>
<td>Refer to the Product Manual</td>
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<tr>
<td>Unsealed compacted formation</td>
<td>Permitted</td>
<td>100 km/h</td>
<td>2.0m</td>
<td>Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product</td>
<td>Refer to the Product Manual</td>
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<td>Natural surface</td>
<td>Permitted</td>
<td>100 km/h</td>
<td>2.0m</td>
<td>Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product</td>
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Other considerations and comments

**Design & Installation**

Ezy Guard High Containment Barrier system has no relation and is not the equivalent of the High Containment performance level stated in AS5100, VicRoads Bridge Traffic Barrier Performance Levels and Design Loads, and VicRoads Guidelines for Bridge Approach and Departure Barrier.

Must conform to the requirement listed in references below, including full compliance of Specification 708.

**Damaged Components**

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

**References**

- VicRoads Road Design Note 06-04 Accepted Safety Barrier Products.
- VicRoads Road Design Note 06-08 The Use of Guard Fence.
- VicRoads Standard Drawing SD2001 – Kerb types
- VicRoads Standard Drawing SD3573 – Guidance on the verge and permissible slopes
- VicRoads Standard Section 204 – Earthworks
- VicRoads Standard Section 708 – Steel Beam Guard Fence

Detail Sheet – Update Summary

<table>
<thead>
<tr>
<th>Issue</th>
<th>Approved</th>
<th>Amendment</th>
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<tbody>
<tr>
<td>Aug 2017</td>
<td>M-SSD</td>
<td>First Edition</td>
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<tr>
<td>Jan 2019</td>
<td>M-SSE</td>
<td>Post Variants Inclusion &amp; Omission MASH Update</td>
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