

# **TMR Accepted Road Safety Barrier Systems and Devices**

**December 2025**

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## Amendment Register

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                      | Authorised<br>by | Date       |
|-------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------|
| 1                 | Whole                | <ul style="list-style-type: none"><li>• First Release</li></ul>                                                                                                                                                                                                                                                                                                              | Noel Dwyer       | 27-Aug-13  |
| 2                 | Whole                | <ul style="list-style-type: none"><li>• Introductory Sections amended.</li><li>• Flexfence amended (TL-4).</li><li>• Armourguard removed.</li><li>• Roadliner 2000S removed.</li><li>• Triton TL-0 removed.</li><li>• Barrierguard 800 Gate added.</li><li>• Armorzone and Triton modified.</li><li>• Supplier contacts amended.</li><li>• Other minor amendments.</li></ul> | Owen Arndt       | 1-Jul-2014 |
| 3                 | Whole                | <ul style="list-style-type: none"><li>• Introductory Sections amended.</li><li>• Added: SMART, Ironman Hybrid.</li><li>• Removed: Brakemaster, Quest, Rubber Crash Cushion.</li><li>• Modified: FLEAT, SKT, ET2000-plus, Quadguard, Zoneguard, Barrierguard 800, T-Lok.</li><li>• Other minor amendments.</li></ul>                                                          | Mike Whitehead   | Nov-2014   |

| <b>Issue/<br/>Rev no.</b> | <b>Reference<br/>section</b> | <b>Description of revision</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Authorised<br/>by</b> | <b>Date</b>         |
|---------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------|
| 4                         | Whole                        | <ul style="list-style-type: none"> <li>• Supplier contact details amended.</li> <li>• HIASA, Ingal MPR and TREND350 added.</li> <li>• Quadguard family clarified. Warning added to Quadguard Elite.</li> <li>• Crash cushion sheets updated for consistency.</li> <li>• Absorb 350 option added to Ironman data sheet.</li> <li>• MASH test added to Barrierguard800.</li> <li>• Other minor amendments (Armorzone, Triton, Absorb 350, Triton CET, Sentryline II).</li> <li>• Reference to TRUM note in section on anti-gawk screens updated to MUTCD.</li> </ul> | Owen Arndt               | Aug-15              |
| 4.1.                      | Appendices<br>A & B          | <ul style="list-style-type: none"> <li>• Boylan and RMS supplier details removed.</li> <li>• Highway Care contact details added / updated.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                              | -                        | 13-Aug-2015<br>(V2) |
| April 2016                | Whole                        | <ul style="list-style-type: none"> <li>• Sections 1.6, 2.1, 3.1 and 3.3 modified.</li> <li>• Minor modifications throughout.</li> <li>• RAMSHIELD added</li> <li>• Ingal MPR accepted on Ezy-Guard SMART.</li> <li>• Deflection tables modified (PCB, JJ Hooks, T-Lok, Ironman, ArmorZone, Triton).</li> <li>• End treatment options updated (JJ Hooks, T-Lok).</li> </ul>                                                                                                                                                                                         | Mike<br>Whitehead        | 31-Mar-16           |

| <b>Issue/<br/>Rev no.</b> | <b>Reference<br/>section</b> | <b>Description of revision</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Authorised<br/>by</b> | <b>Date</b> |
|---------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------|
| June 2016                 | Whole                        | <ul style="list-style-type: none"> <li>• Section 3.2 modified.</li> <li>• Valmont supplier details added.</li> <li>• ET2000-plus - MPS variant added.</li> <li>• BG800 LDS - variant added.</li> <li>• Minor amendments throughout.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                            | Mike Whitehead           | 24-Jun-16   |
| November 2016             | Whole                        | <ul style="list-style-type: none"> <li>• Ezy-Guard 4 added.</li> <li>• Sentryline II terminal variant added.</li> <li>• Minor amendments to Ezy-Guard SMART, X-Tension.</li> <li>• W-beam design sheet updated.</li> <li>• Limitations sections in various w-beam end terminal data sheets updated for consistency.</li> </ul>                                                                                                                                                                                                                                                                                            | Mike Whitehead           | 8-Nov-16    |
| April 2017                | Whole                        | <ul style="list-style-type: none"> <li>• Section 3 renumbered. Section 3.4 TL-0 removed. Sections 3.2 Deflection and 3.3 Footings added.</li> <li>• Minor modifications to single-slope, thrie-beam, modified thrie-beam, w-beam.</li> <li>• Ezy-Guard 4, Ezy-Guard SMART and Ramshield modified to “semi-flexible” sub-category.</li> <li>• Ezy-Guard 4, Ezy-Guard SMART and Ramshield, Brifen, Flexfence and Sentryline-II design, limitations and references updated.</li> <li>• DB80 and ArmorGuard Gate modified.</li> <li>• Quadgard CZ added to Zoneguard.</li> <li>• Minor other revisions throughout.</li> </ul> | Mike Whitehead           | 27-Apr-17   |

| <b>Issue/<br/>Rev no.</b> | <b>Reference<br/>section</b> | <b>Description of revision</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Authorised<br/>by</b> | <b>Date</b> |
|---------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------|
| May 2017                  | Product Data<br>Sheets       | <ul style="list-style-type: none"> <li>Minor Amendment – removed data sheet for one product listed as ‘under assessment’.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                   | Daniel Naish             | 26-May-17   |
| September 2017            | Whole                        | <ul style="list-style-type: none"> <li>Ezy-Guard High Containment (HC) added.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                               | Daniel Naish             | 7-Sep-17    |
| January 2018              | Whole                        | <ul style="list-style-type: none"> <li>Sentry W-beam added.</li> <li>Shield I added.</li> <li>Mobile Barriers MBT-1 added.</li> <li>Section 2.3 amended.</li> <li>Section 2.4 added.</li> <li>Ezy-Guard 4 and Ezy-Guard Smart data sheets updated (Surface Mount variant accepted and TL-2 crash test information added).</li> </ul>                                                                                                                                                                   | Daniel Naish             | 31-Jan-18   |
| May 2018                  | Whole                        | <ul style="list-style-type: none"> <li>Defender Barrier added.</li> <li>SMART Cushion – MASH TL-3 crash test information added.</li> <li>Minor amendments throughout.</li> </ul>                                                                                                                                                                                                                                                                                                                       | Daniel Naish             | 18-May-18   |
| September 2018            | Whole                        | <ul style="list-style-type: none"> <li>Section 1 amended.</li> <li>New Section 2.5 <i>Guidelines on specifying Barrier Systems in Contracts and Drawings</i>.</li> <li>Section 5 added for listing of products assessed by ASBAP in accordance with AS/NZS 3845.2:2017.</li> <li>Appendix A updated (Laura Metaal and Innov8 contact details added).</li> <li>Defender Barrier added.</li> <li>Sentry Median barrier information sheet updated (back-to-back variant added for median use).</li> </ul> | Daniel Naish             | 05-Sep-18   |

| Issue/<br>Rev no.                | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                      | Authorised<br>by    | Date      |
|----------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|
|                                  |                      | <ul style="list-style-type: none"> <li>BarrierGuard 800 information sheet updated (Laura Metaal &amp; Boylan group added as an owner and supplier respectively).</li> </ul>                                                                                                                                                                                                                                                                                  |                     |           |
| September<br>2018<br>(Version 2) | Whole                | <ul style="list-style-type: none"> <li>JL-D-0850 Stuer-Egghe added.</li> <li>J1-LED contact details added.</li> </ul>                                                                                                                                                                                                                                                                                                                                        | Daniel Naish        | 07-Sep-18 |
| February<br>2019                 | Whole                | <ul style="list-style-type: none"> <li>MSKT added.</li> <li>Biker-Shield added.</li> <li>EzyGuard HC amended.</li> <li>Defender 100 FS added.</li> <li>Flexfence amended.</li> <li>DB80 amended.</li> </ul>                                                                                                                                                                                                                                                  | Santosh<br>Tripathi | 20-Feb-19 |
| May 2019                         | Whole                | <ul style="list-style-type: none"> <li>Barrierguard800 renamed to BG800.</li> <li>Armorzone MASH added.</li> <li>Ricochet added.</li> <li>Scorpion II added.</li> </ul>                                                                                                                                                                                                                                                                                      | Santosh<br>Tripathi | 01-May-19 |
| May 2019<br>(Version 2)          | Whole                | <ul style="list-style-type: none"> <li>Suppliers contact details amended for Armorzone MASH and Armorzone (NCHRP 350).</li> </ul>                                                                                                                                                                                                                                                                                                                            | Santosh<br>Tripathi | 07-May-19 |
| August<br>2019                   | Whole                | <ul style="list-style-type: none"> <li>New barrier added: <ul style="list-style-type: none"> <li>HV2.</li> </ul> </li> <li>New terminals added: <ul style="list-style-type: none"> <li>SLED.</li> <li>ET-SS (including terminal cover).</li> <li>MAX-Tension.</li> </ul> </li> <li>Existing product datasheet amended (minor): <ul style="list-style-type: none"> <li>Ezy-Guard HC.</li> <li>T-Lok.</li> <li>JJ-Hooks.</li> <li>DB80.</li> </ul> </li> </ul> | Santosh<br>Tripathi | 22-Aug-19 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Authorised<br>by    | Date      |
|-------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|
|                   |                      | <ul style="list-style-type: none"> <li>• Boylan supplier details removed.</li> <li>• TFH Hires Services details added.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |           |
| December<br>2019  | Whole                | <ul style="list-style-type: none"> <li>• New barriers added: <ul style="list-style-type: none"> <li>– SafeZone.</li> <li>– HighwayGuard LDS.</li> <li>– Lo-Ro Water Cable Barrier.</li> </ul> </li> <li>• New terminals added: <ul style="list-style-type: none"> <li>– Universal TAU-M.</li> <li>– Quadguard M10.</li> </ul> </li> <li>• Existing product datasheets amended: <ul style="list-style-type: none"> <li>– PCB.</li> <li>– Sentry W-Beam.</li> <li>– HV2.</li> <li>– BG800.</li> <li>– Armorzone MASH.</li> <li>– SLED.</li> <li>– X-Tension 350.</li> </ul> </li> </ul>                                                                                | Santosh<br>Tripathi | 20-Dec-19 |
| June 2020         | Whole                | <ul style="list-style-type: none"> <li>• New barriers added: <ul style="list-style-type: none"> <li>– Brifen MASH TL3.</li> <li>– Pin and Loop.</li> </ul> </li> <li>• New terminal added: <ul style="list-style-type: none"> <li>– Absorb-M.</li> </ul> </li> <li>• New TMA added: <ul style="list-style-type: none"> <li>– SS180M TMA.</li> </ul> </li> <li>• Existing product datasheets or Section 5 products list amended: <ul style="list-style-type: none"> <li>– Sentry W-Beam.</li> <li>– Ezy-Guard HC.</li> <li>– HighwayGuard.</li> <li>– RAMSHIELD W-Beam.</li> <li>– SafeZone.</li> <li>– Quadguard M10.</li> <li>– MAX-Tension.</li> </ul> </li> </ul> | Santosh<br>Tripathi | 08-Jun-20 |



| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Authorised<br>by | Date        |
|-------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|
|                   |                      | <ul style="list-style-type: none"> <li>– Scorpion II TMA.</li> <li>• Minor amendments throughout.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |             |
| November<br>2020  | Whole                | <ul style="list-style-type: none"> <li>• New barriers added:               <ul style="list-style-type: none"> <li>– Sentryline-M.</li> <li>– MashFlex.</li> <li>– Sentry Thrie-Beam.</li> </ul> </li> <li>• New terminal added:               <ul style="list-style-type: none"> <li>– Quadguard Elite M10.</li> </ul> </li> <li>• Existing product datasheets amended:               <ul style="list-style-type: none"> <li>– RAMSHIELD W-Beam.</li> <li>– Quadguard-M.</li> <li>– ET-SS.</li> <li>– PCB.</li> <li>– HighwayGuard.</li> <li>– Defender Barrier.</li> <li>– Lo-Ro Water Cable Barrier.</li> <li>– Absorb-M.</li> </ul> </li> <li>• Section 2.5 updated.</li> </ul> | Pooya Saba       | 06-Nov-20   |
| April 2021        | Whole                | <ul style="list-style-type: none"> <li>• Updated product acceptance status for public domain steel barrier systems (Section 4).</li> <li>• Removal of public domain steel barrier systems datasheets (Appendix B).</li> <li>• New barrier added:               <ul style="list-style-type: none"> <li>– JJ Hooks MASH.</li> </ul> </li> <li>• New motorcyclist rubrail added:               <ul style="list-style-type: none"> <li>– RiderPro.</li> </ul> </li> <li>• Existing product datasheets amended:               <ul style="list-style-type: none"> <li>– SafeZone.</li> <li>– SLED.</li> <li>– RAMSHIELD W-Beam.</li> <li>– Ezy-Guard SMART.</li> </ul> </li> </ul>       | Pooya Saba       | 12-April-21 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Authorised<br>by | Date      |
|-------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|
|                   |                      | <ul style="list-style-type: none"> <li>– Single Slope Concrete Barrier.</li> <li>– Sentryline-M.</li> <li>– ET-SS.</li> <li>– Absorb-M.</li> <li>– PCB.</li> <li>– Universal TAU-M.</li> <li>– Sentry ThrieBeam.</li> <li>– MashFlex.</li> <li>– BG800.</li> <li>– HighwayGuard.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                               |                  |           |
| September<br>2021 | Whole                | <ul style="list-style-type: none"> <li>• Minor updates to Sections 2.5, 3.2, 3.5 and 4.</li> <li>• Section 3.4 ASSHTO Soil Types added.</li> <li>• Existing product datasheets amended:               <ul style="list-style-type: none"> <li>– Working width data added to all longitudinal barrier product datasheets where available.</li> <li>– Minor updates on EDD on all longitudinal barrier product datasheets where applicable.</li> <li>– SafeZone.</li> <li>– Zoneguard.</li> <li>– MSKT.</li> <li>– Defender Barrier.</li> <li>– RiderPro.</li> <li>– Absorb-M.</li> <li>– HighwayGuard.</li> <li>– Ramshield.</li> <li>– DB80 K150.</li> <li>– ET-SS.</li> </ul> </li> </ul> | Pooya Saba       | 01-Sep-21 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Authorised<br>by | Date      |
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| November<br>2021  | Whole                | <ul style="list-style-type: none"> <li>• Removal of personally identifiable information in Appendix A.</li> <li>• New barriers added: <ul style="list-style-type: none"> <li>– RAMSHIELD HC.</li> <li>– Ironman Hybrid MASH.</li> </ul> </li> <li>• New end treatment added: <ul style="list-style-type: none"> <li>– ArmorBuffa.</li> </ul> </li> <li>• Existing product datasheets amended: <ul style="list-style-type: none"> <li>– T-LOK.</li> <li>– Ezy-Guard SMART.</li> <li>– Ezy-Guard 4.</li> <li>– Ezy-Guard HC.</li> <li>– HighwayGuard.</li> <li>– BG800.</li> <li>– Sentryline-M.</li> <li>– Max-Tension.</li> </ul> </li> </ul> | Pooya Saba       | 26-Nov-21 |
| January<br>2022   | Whole                | <ul style="list-style-type: none"> <li>• Transition to MASH as a default standard.</li> <li>• Harmonisation with Austroads TCU.</li> <li>• New end treatment added: <ul style="list-style-type: none"> <li>– Hercules.</li> </ul> </li> <li>• Variation to existing products: <ul style="list-style-type: none"> <li>– HV2.</li> <li>– ET-SS.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                          | Pooya Saba       | 01-Jan-22 |
| June 2022         | Whole                | <ul style="list-style-type: none"> <li>• Variation to existing products: <ul style="list-style-type: none"> <li>– MashFlex.</li> <li>– Ezy-Guard HC.</li> <li>– Ezy-Guard 4.</li> <li>– Sentry W-Beam.</li> <li>– Sentry Thrie-Beam.</li> <li>– RamShield W-Beam.</li> <li>– RamShield HC.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                             | Pooya Saba       | 06-Jun-22 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Authorised<br>by    | Date      |
|-------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|
|                   |                      | <ul style="list-style-type: none"> <li>• New barriers added: <ul style="list-style-type: none"> <li>– CrocGuard.</li> <li>– Rebloc 80SAH_12_8B.</li> <li>– Rebloc 80SAH_12.</li> <li>– Ezy-Guard LDS.</li> </ul> </li> <li>• New products added: <ul style="list-style-type: none"> <li>– Silke MASH 2016 TL3 TMA.</li> <li>– Signfix.</li> </ul> </li> <li>• Austroads TCU links updated.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |           |
| November<br>2022  | Whole                | <ul style="list-style-type: none"> <li>• Updated Section 2.2 for reference documents.</li> <li>• Updates to Section 2.5 to be consistent with the advice in Drafting and Design Presentation Standards Manual document.</li> <li>• All rubrail product datasheets and TCU links removed to harmonise with Austroads.</li> <li>• New barriers added: <ul style="list-style-type: none"> <li>– Rebloc 120FA_6_SF.</li> <li>– Roller Barrier.</li> <li>– Ezy-Guard HD.</li> </ul> </li> <li>• New sign support structure added: <ul style="list-style-type: none"> <li>– Optimast Sign Support.</li> </ul> </li> <li>• Variation to existing products: <ul style="list-style-type: none"> <li>– JJ Hooks MASH.</li> <li>– HighwayGuard.</li> <li>– T-Lok.</li> </ul> </li> <li>• Minor amendments throughout.</li> </ul> | Santosh<br>Tripathi | 17-Nov-22 |
| March<br>2023     | Whole                | <ul style="list-style-type: none"> <li>• Revised contact email address.</li> <li>• Revised Figure 2.5.</li> <li>• New barrier added: <ul style="list-style-type: none"> <li>– Rebloc 80SAH_4.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Pooya Saba          | 15-Mar-23 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Authorised<br>by | Date        |
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|                   |                      | <ul style="list-style-type: none"> <li>• Variation to existing products: <ul style="list-style-type: none"> <li>– Rebloc 80SAH_12.</li> <li>– Sentry W-Beam.</li> <li>– Ezy-Guard LDS.</li> <li>– Ezy-Guard HC.</li> <li>– Ramshield W-Beam.</li> <li>– Ramshield HC.</li> <li>– ET-SS.</li> <li>– Ingal MPR.</li> <li>– Biker-Shield MPD.</li> </ul> </li> <li>• Minor amendments throughout.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |             |
| August<br>2023    | Whole                | <ul style="list-style-type: none"> <li>• New barriers added: <ul style="list-style-type: none"> <li>– T-Lok Rubber.</li> <li>– HighwayGuard MDS - Temporary &amp; Permanent.</li> </ul> </li> <li>• New end treatment added: <ul style="list-style-type: none"> <li>– Trend Median.</li> </ul> </li> <li>• Variation to existing products: <ul style="list-style-type: none"> <li>– Sentry W-Beam.</li> <li>– T-Lok F-Type.</li> <li>– Ezy-Guard 4.</li> <li>– Ezy-Guard HC.</li> <li>– Ezy-Guard HD.</li> <li>– Ramshield HC.</li> <li>– Ingal Motorcyclist Protection Rail.</li> <li>– Safety Roller Barrier.</li> </ul> </li> <li>• Minor errors rectified on TCU links: <ul style="list-style-type: none"> <li>– SafeZone.</li> <li>– Ezy-Guard SMART.</li> </ul> </li> <li>• Updated registered suppliers.</li> <li>• Minor amendments throughout.</li> </ul> | Kelli Hansen     | 18-Aug-2023 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Authorised<br>by    | Date        |
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| March<br>2024     | Whole                | <ul style="list-style-type: none"> <li>• Updated Section 2.2 for reference documents.</li> <li>• Updated Section 3.3 for anchor removal requirements.</li> <li>• New barriers added: <ul style="list-style-type: none"> <li>– DB80A T150S Safety Barrier.</li> <li>– ROBOS Flexible Safety Barrier.</li> <li>– ROBOS Median Flexible Safety Barrier.</li> </ul> </li> <li>• New TMA product added: <ul style="list-style-type: none"> <li>– TTMA-200 Trailer Mounted Attenuator.</li> </ul> </li> <li>• Variation to existing products: <ul style="list-style-type: none"> <li>– SafeZone MDS.</li> <li>– SafeZone Standard – Temporary.</li> </ul> </li> <li>• Removal of legacy non-MASH tested products: <ul style="list-style-type: none"> <li>– X-Tension 350 Median Variant.</li> <li>– X-Tension 350 Nose Cone.</li> </ul> </li> <li>• Minor typo / error rectified on product information: <ul style="list-style-type: none"> <li>– Rebloc 80SAH_12.</li> <li>– Signfix.</li> </ul> </li> <li>• Updated registered suppliers.</li> <li>• Minor amendments throughout.</li> </ul> | Santosh<br>Tripathi | 22-Mar-2024 |
| November<br>2024  | Whole                | <ul style="list-style-type: none"> <li>• Updated Section 4 for TMR-defined minimum installation length.</li> <li>• New barriers added: <ul style="list-style-type: none"> <li>– Ramshield Low Deflection.</li> <li>– HammerBeam.</li> </ul> </li> <li>• New miscellaneous product added: <ul style="list-style-type: none"> <li>– RocketBloc.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Pooya Saba          | 18-Nov-2024 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Authorised<br>by | Date         |
|-------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|
|                   |                      | <ul style="list-style-type: none"> <li>• Variation to existing products: <ul style="list-style-type: none"> <li>– SafeZone LDS Permanent &amp; Temporary.</li> <li>– Ironman Hybrid Steel Barrier.</li> <li>– Ramshield W-Beam.</li> </ul> </li> <li>• Updated registered suppliers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |              |
| July 2025         | Whole                | <ul style="list-style-type: none"> <li>• Section 3.2 updated: <ul style="list-style-type: none"> <li>– Added guidance on deflection and working width values for transition between W-beam safety barrier and concrete barrier.</li> </ul> </li> <li>• Section 3.3 added: <ul style="list-style-type: none"> <li>– Steel beam barrier connection to Public Domain Single Slope Concrete Barrier.</li> </ul> </li> <li>• Section 5: <ul style="list-style-type: none"> <li>– Minor updates applied.</li> </ul> </li> <li>• New end treatment added: <ul style="list-style-type: none"> <li>– TAU-XR.</li> <li>– Variations to existing products: <ul style="list-style-type: none"> <li>– RocketBloc.</li> <li>– Ramshield Low Deflection.</li> <li>– Public Domain Single Slope Concrete Barrier.</li> <li>– Ezy-Guard 4.</li> <li>– Ezy-Guard HC.</li> </ul> </li> </ul> </li> <li>• Registered suppliers: <ul style="list-style-type: none"> <li>– Updated list.</li> </ul> </li> <li>• General: <ul style="list-style-type: none"> <li>– Minor amendments throughout the document.</li> </ul> </li> </ul> | Pooya Saba       | 18-July-2025 |

| Issue/<br>Rev no. | Reference<br>section | Description of revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Authorised<br>by | Date        |
|-------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|
| December<br>2025  | Whole                | <ul style="list-style-type: none"> <li>• Section 4.3 updated: <ul style="list-style-type: none"> <li>– Added new categories: Motorcyclist Under-run and Transition, in addition to Gates and Miscellaneous.</li> <li>– Sections 4.3.3 and 4.3.4 added.</li> </ul> </li> <li>• New barriers added: <ul style="list-style-type: none"> <li>– TALL42 Movable Concrete Barrier.</li> <li>– Rebloc 80F_8 Safety Barrier.</li> <li>– Ramshield Median.</li> </ul> </li> <li>• New end treatments added: <ul style="list-style-type: none"> <li>– Quash Crash Cushion.</li> <li>– GMET Terminal.</li> </ul> </li> <li>• Variations to existing products: <ul style="list-style-type: none"> <li>– DB80 K150.</li> <li>– DB80 T150S.</li> <li>– DB80A T150S.</li> <li>– Ramshield HC.</li> <li>– RamShield Low Deflection.</li> <li>– Ramshield Transition.</li> </ul> </li> <li>• General: <ul style="list-style-type: none"> <li>– Minor amendments throughout the document.</li> </ul> </li> </ul> | Pooya Saba       | 19-Dec-2025 |



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## 1 Introduction

This is a controlled document which presents a listing of the road safety barrier systems and devices which:

1. The Department of Transport and Main Roads (the department) has assessed and considers acceptable (subject to appropriate design and installation) for use on the state-controlled road network. Refer to Section 4.
2. The Austroads Safety Barrier Assessment Panel (ASBAP) has assessed and considers acceptable in accordance with AS/NZS 3845.2. Refer to Section 5, noting that systems and devices listed in Section 5 may require additional acceptance from the relevant authoritative sections elsewhere in the department or in other external agencies prior to use.

Users of this document should note that road safety barrier selection and design for both temporary and permanent installations is a complex process frequently requiring risk assessment and the application of engineering judgement. In this regard, Designers are directed towards *Road Planning and Design Manual* 2nd Edition Volume 3 Part 6.

The responsibility remains with the Designer / Principal to confirm the currency of this document.

### 1.1 Audience of the document

This is a public document.

### 1.2 Assessment process

The assessment of road safety barrier systems, end treatments and related road safety devices is undertaken by the Austroads Safety Barrier Assessment Panel (ASBAP).

Suppliers (or proponents) seeking acceptance for use on state controlled roads in Queensland of a road safety barrier system, product or device which is not included in this document are referred to the Austroads page ASBAP [Barrier Assessment | Austroads](#) for a digital submission to the ASBAP.

Where an assessment by ASBAP results in a recommendation for acceptance, the recommendation together with any recommended conditions of acceptance is documented by Austroads. This department will be cognisant of the recommendations of the ASBAP process.

Suppliers (or proponents) seeking to use a road safety barrier system, product or device on state-controlled roads in Queensland, which is not included in this document, but which has been assessed by ASBAP should submit an application to this department. It should be noted that whilst this department will be cognisant of the recommendations of the Austroads Panel, this department reserves the option to reject, restrict or condition the use of any road safety barrier system, product or device for use on state-controlled roads in Queensland.

This department may rescind or modify at any time any product acceptance. This is particularly the case should the status of the acceptance be modified by the Austroads Safety Barrier Assessment Panel or should acceptance be modified in any way in other jurisdictions.

### **1.3 Expiry dates**

The department does not currently specify expiry dates for acceptances.

However, the department may at any time review, rescind or otherwise modify the acceptance of a particular road safety barrier system, product or device.

### **1.4 Proprietary products**

This listing nominates a “Registered Supplier” for each proprietary product. It is a requirement of this department that proprietary products installed on state-controlled roads in Queensland are sourced from the nominated recognised supplier (or their agent).

### **1.5 Definitions**

Refer to Australian/New Zealand AS/NZS 3845 and *Road Planning and Design Manual* – 2nd Edition Volume 3.

## **2 Standards**

### **2.1 Governing manuals, specifications or guidelines**

- Australian/New Zealand Standard AS/NZS 3845
- *Manual of Uniform Traffic Control Devices* (MUTCD) (TMR)
- *Road Planning and Design Manual* - 2nd Edition Volume 3 (TMR)
- *Work Health and Safety Act* 2011
- *Work Health and Safety Regulation* 2011
- Technical Specification MRTS14 *Road Furniture* (TMR)
- Technical Specification MRTS02 *Provision for Traffic* (TMR)

- *National Cooperative Highway Research Program Report 350* (NCHRP350) (TRB)
- *Manual for Assessing Safety Hardware* (MASH) (AASHTO)
- *European Standard EN1317* (various parts)

## **2.2 Other reference documents**

- *Roadside Design Guide* 4th Edition (AASHTO)
- *Guide to Road Design Part 6: Roadside Design Safety and Barriers* (Austroads)
- *Safety Barrier Systems and Devices Technical Advice documents* (Austroads) Note: While these technical advice documents are generally accepted by the department, please be aware that departmental manuals and guidelines take precedence over these documents when applied in Queensland.

## **2.3 Testing and impact parameters**

Generally, there are three main crash testing and impact parameter protocols that are adopted. These are (i) the *Manual for Assessing Safety Hardware* (MASH), and/or (ii) the *National Cooperative Highway Research Program Report 350* (NCHRP350), and/or (iii) the *European Normative EN1317* (EN1317).

This document identifies, where relevant, an Accepted Test Level for most products. Where a particular test protocol has been used to assess a product, the test protocol is noted with the Accepted Test Level. This department may rate a product and/or its variants an Accepted Test Level that is different to a product's crash test 'Test Level' rating or similar rating.

AS/NZS 3845.1 and AS/NZS 3845.2 both state that MASH is the current basis for crash testing protocol.

## **2.4 Comparing Performance of Systems**

Results obtained from crash tests (for example, deflection, working width) conducted under different testing protocols (for example, MASH, NCHRP350, EN1317) that help define the predicted performance of a system cannot be easily compared. Comparisons made on the basis of impact energy are possible, but such comparisons do not result in an equal level of predictable performance that crash tests provide. For example, for non-rigid systems, deflection for a TL-3 system tested to NCHRP350 is not expected to be the same as the deflection of the same TL-3 system tested to MASH because of the differences in impact energy. Additionally, for example, a TL-4 system tested to MASH may reportedly have higher deflection or working width than a TL-4 system tested to NCHRP350, but due to the difference in crash test energy, it is very difficult to make system performance comparisons.

The department advises that designs using a specific accepted system should, in general preferential order, be based on:

- Crash tested system performance data, then, if applicable or desired
- Interpolations or extrapolations away from crash tested system performance data or conditions, which can be based upon any of the following:
  - in-service performance data, and/or
  - research and development testing, and/or
  - engineering simulation.

Any interpolations or extrapolations derived by the system owner are the responsibility of the system owner, and caution should be applied with any use.

## ***2.5 Guidelines on specifying Barrier Systems in Contracts and Drawings***

Road safety barrier system drawings are to depict construction details and consider all design elements of the proposed barrier system as determined from a risk evaluation.

The main elements of interest are:

Barrier:

- Containment level
- Length (L)
- Length of need or point(s) of redirection
- Working width or Dynamic deflection (as applicable)
- Motorcyclist Protection Device (MPD).

End treatment:

- Containment level
- Function (gating or non-gating)
- Width (W)
- Length (L)
- Point of redirection (if applicable)
- Taper (if applicable)
- Motorcyclist Protection Device (MPD).

## Minimum requirements for drawings

Specific products shall not to be named in design drawings. The design basis, including specific product references, for the verified performance requirements shall be documented in the design development report.

Designers are to specify barrier systems in design drawings as per the following or similar:

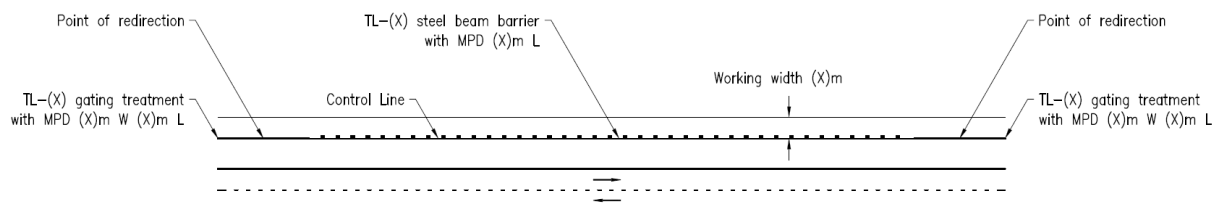
"TL-(X) [steel beam / wire rope / concrete] barrier [with MPD] (X)m L"

"TL-(X) [gating / non-gating] end treatment [with MPD] (X)m W (X)m L"

## Drawing

- Show control line of barrier system
- Show main elements of interest (for more complex projects show a summary table that details the main elements of interest)
- Show road safety barrier system connection locations
- Show variant locations
- Add relevant notes (such as, design foundation pavement conditions)
- Show other detail (as applicable).

**Figure 2.5 – Road safety barrier system – example**



**Notes:**

1. Foundation pavement conditions to be minimum AASHTO standard soil strength. If pavement construction strength is lower or different refer to TMR Accepted Road Safety Barrier System Devices for options or variants.
2. Point of redirection will be product specific. Refer to TMR Accepted Road Safety Barrier System Devices.

**Table 2.5 – Road safety barrier system – Summary table example**

| ID | Description                                        | Control line | Start chainage | End chainage | Point of redirection <sup>1</sup> | Working width (m) | Variant                 |
|----|----------------------------------------------------|--------------|----------------|--------------|-----------------------------------|-------------------|-------------------------|
| 1  | TL-3 gating end treatment with MP 0.5 m W 16.0 m L | MC01         | 0              | 16           | Post #3                           | n/a               | n/a                     |
| 2  | TL-3 steel beam barrier with MP 200 m L            | MC01         | 16             | 216          | n/a                               | 1.65              | n/a                     |
| 3  | TL-3 steel beam barrier with MP 20 m L             | MC01         | 216            | 236          | n/a                               | 1.65              | Base plate installation |
| 4  | TL-3 steel beam barrier with MP 50 m L             | MC01         | 236            | 286          | n/a                               | 1.65              | n/a                     |
| 5  | TL-3 gating end treatment with MP 0.5 m W 16.0 m L | MC01         | 286            | 302          | Post #3                           | n/a               | n/a                     |

Note: <sup>1</sup> Point of redirection will be product specific.

### 3 Other issues

#### 3.1 Safety in Design considerations

The *Work Health and Safety Act 2011* and *Work Health and Safety Regulation 2011* impose requirements on certain duty holders. Road safety barrier hardware (permanent and temporary) present risks to the health or safety of persons who may be required to carry out any construction work. Such risks may be particularly pertinent to temporary devices but may also apply to permanent devices. Such risks may include (but not necessarily be limited to):

- Fragments or debris expelled during impact.
- Excess deflection or failure of a system or device to adequately contain an impacting vehicle.
- Means of access over, through or around a system or device.
- Residual energy stored in devices (especially post-impact).



### 3.2 Deflection and working width

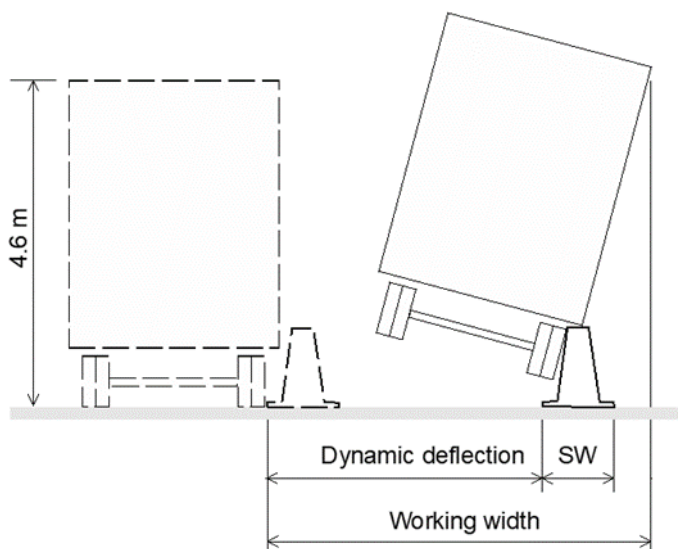
Working width from impacts into barriers should be used to identify the possible intrusion into the area behind a barrier. Working width is measured from the outermost extremity on the traffic side, regardless of shape, to the furthest extremity of any part of the system or vehicle during and after the impact. Designers are recommended to adopt the largest working width value for the nominated containment level based on crash testing as per the department's accepted product datasheet or obtain from product owners.

Deflection values reported in this document are typically those reported during crash testing performed under controlled conditions. Where the hazard is low enough that it does not interfere with the possible vehicle intrusion into the area behind a barrier (for example, batter), dynamic deflection is considered sufficient. Designers should be cognisant of the type of hazard(s) and the risk of vehicle and/or barrier intruding behind the barrier before deciding to use deflection value in lieu of working width. Designers are encouraged to check with product owners that these values are correct before proceeding to select site-specific design deflections. Designers need to be cognisant that the crash test deflection value is a single data point, and that in-service performance may be expected to vary.

For further information, see Section 5.5.2 of Austroads *Guide to Road Design* Part 6.

Typical working width measurements are illustrated in Figure 3.2.

**Figure 3.2 – Working width measurements showing dynamic deflection, system width (SW)**



Legend: SW = System width

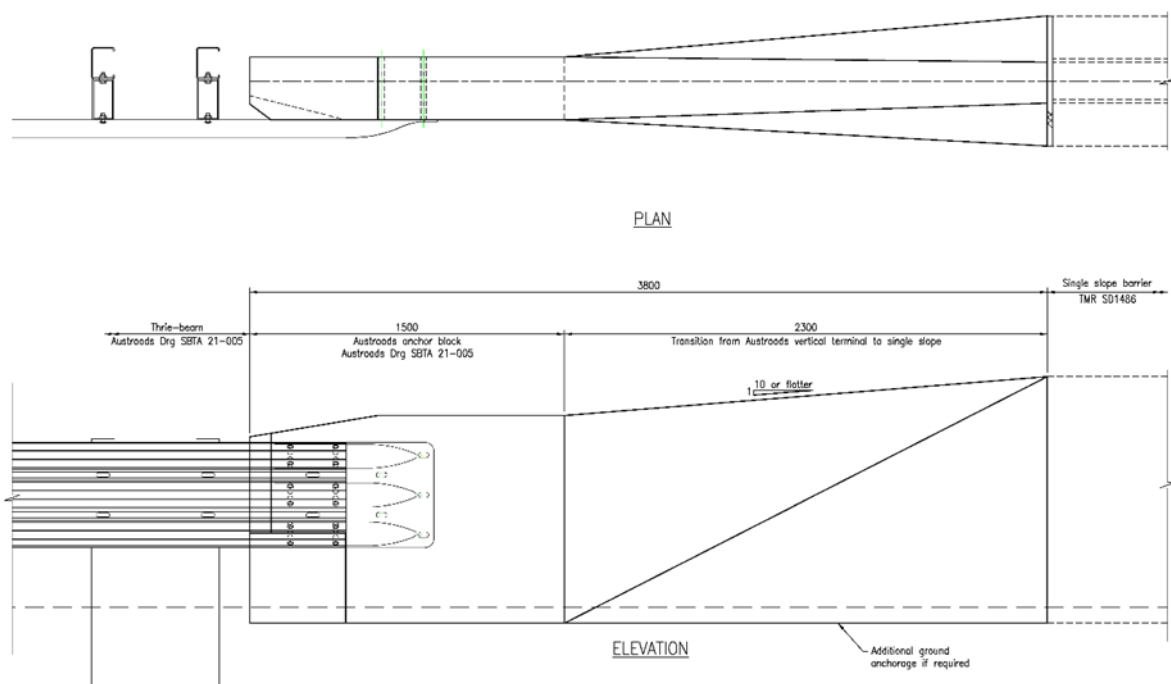
Source: ASBAP (2020a) Technical Advice 20-002

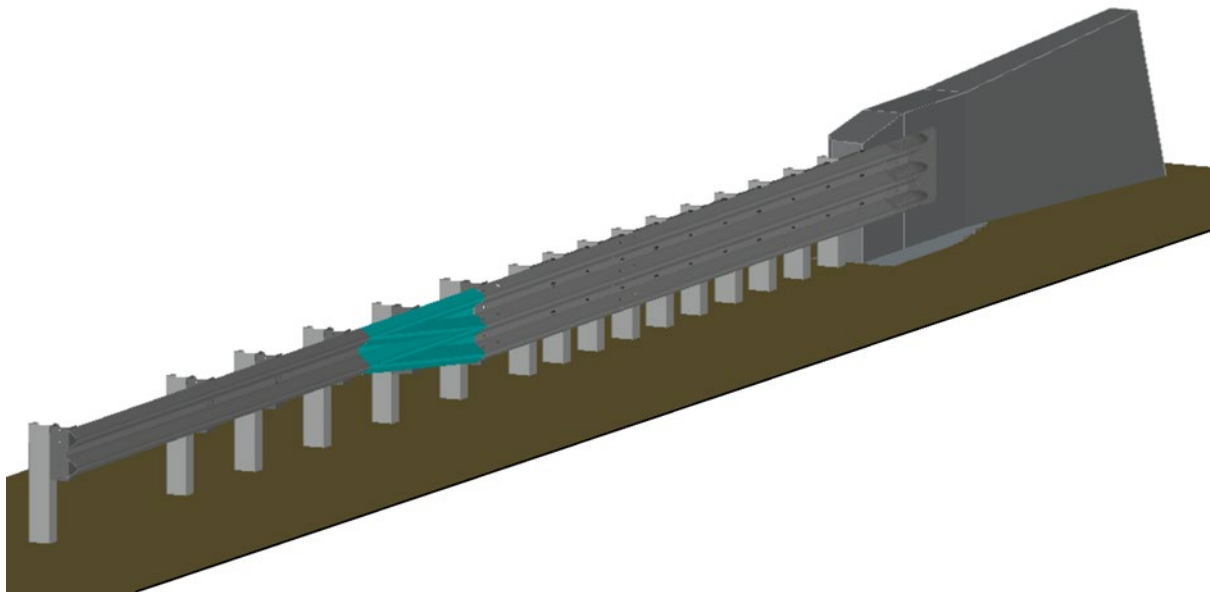
While designers may require deflection and working width values for a transition between a W-beam safety barrier and a concrete barrier, these parameters should be obtained from the product supplier, if available. In the absence of such information, a dynamic deflection of 0.2 m and a working width of 0.6 m may be used as general guidance, based on values observed in crash tests across multiple products.

### 3.3 Steel beam barrier connection to Public Domain Single Slope Concrete Barrier

For proprietary steel beam barriers (W-beam or Thrie-beam) connecting to a TMR Public Domain Single Slope Concrete Barrier, the Austroads SBTA 21-005 Transition should be used where permitted by the proprietary product's Technical Conditions of Use (TCU). This may be achieved by replacing the TMR SD1470 concrete terminal with Austroads SBTA 21-005 Concrete Anchor Block to facilitate connection to compatible proprietary steel beam barriers, unless otherwise specified in the proprietary product's TCU or TMR-specific conditions. The transition arrangement is illustrated in Figure 3.3.

**Figure 3.3 – Permitted proprietary steel beam barrier connection to TMR Public Domain Single Slope Concrete Barrier through Austroads SBTA 21-005 Concrete Anchor Block (not to scale)**





For retrofit projects, proprietary steel beam barriers may be directly connected to TMR Public Domain Single Slope Concrete Barrier terminal under EDD if specified in Section 4 of this document under 'TMR conditions'. Otherwise, a Design Exception will be required.

### **3.4 Footings and anchorages**

The person (the Designer) specifying any system relying on the resistance provided by the ground to function needs to be satisfied that the design is adequate to meet the intended level of performance for the site-specific context and ground conditions. This may necessitate for example demonstration by calculation or otherwise that the proposed footing or anchorage is at least equivalent to that used during the compliance testing in order to adequately resist lateral or longitudinal displacement as well as rotation or pull-out.

The anchors of temporary road safety barriers shall be fully removed from the work site after the designated installation period, and then the pavement surface with anchor holes shall be reinstated as per MRTS02.

### **3.5 AASHTO soil types**

The barrier needs to resist the loads from an impacting vehicle and this action requires the soil strength to be commensurate with the strength of the soil used in testing under the MASH protocol (AASHTO). This is often an AASHTO standard soil, which is a well compacted granular soil with a CBR (California Bearing Ratio) of approximately 60. Some barriers have been tested in a MASH weak soil, which is categorised as the finer aggregate or sand that is used in concrete. The CBR for weak soils is judged to be between 8 and 10.

Refer Austroads *Guide to Road Design* Part 6 for further advice.

### **3.6 Anti-gawk screens**

The department does not maintain a list of accepted anti-gawk (or anti-debris) screens. Guidance pertaining to anti-gawk screens is provided in Section 5.3.3 of the Part 3 of the Austroads *Guide to Temporary Traffic Management*.

The provisions for attachments to barriers is discussed in Australian/New Zealand Standard AS/NZS 3845.1 Clause 2.5.5, which states (among other things):

*"There shall be no attachment to a road safety barrier system unless it can be shown by crash testing or by assessment as a modification ... that it is suitable."*

Anti-gawk screens are considered to be an attachment to a road safety barrier system and as such are subject to the above provisions of the Standard. Wherever full scale crash testing is not provided then assessment (as required by AS/NZS 3845.1) is required. Such an assessment would need as a minimum to address, among other things, the provisions of AS/NZS 3845.1.

Thereafter, a second engineering assessment is required to determine whether any road safety barrier and associated anti-gawk screen is appropriate for use at a site-specific project location.

In any impact event, it is likely that some elements of the screen attachment will be displaced and will enter the workzone. Practitioners prescribing the use of anti-gawk screens should be cognisant of the consequent increase in risk to workers. Refer Section 3.1.

### **3.7 Delineation**

Nose delineation for road safety barrier terminals, including crash cushions should be provided in accordance with the *Manual of Uniform Traffic Control Devices*.

### **3.8 Standing Offer Arrangements**

There are a number of suppliers listed by the department for supply of road safety barrier systems and their components in QLD. Please refer to the department's current [Standing Offer Arrangement](#) (SOA) and [Registered Suppliers List](#) on the department website.

## **4 Accepted road safety barriers and devices**

Non-MASH tested safety barrier systems and devices must not be used on new projects or installations within the departmental road network, unless specified in this document. This change aligns Queensland with other Australian states and territories and complies with AS/NZS 3845. Non-MASH tested products can be used for the purposes of maintaining

existing installations when repairs and replacements can be reasonably and readily undertaken based on remaining service life, or if justified and certified by an RPEQ as an exception for new installations.

If a project was already financially approved, funded or commenced based on non-MASH products that were current at the time prior to 1 January 2022, there is no expectation that proprietary products have to be applied.

If a project is still in design, every effort should be made to provide MASH compliant barriers.

Temporary barrier systems and devices manufactured prior to 1 January 2022 can continue to be used until the end of their useful service life. Temporary barrier systems and devices manufactured after 1 January 2022 shall meet MASH guidelines.

For further information on this change, view the MASH [FAQs](#) and [Decision Tree](#).

Transport and Main Roads product datasheets are replaced by Austroads Technical Conditions of Use (TCU), where appropriate. Where multiple revisions of TCU are issued by Austroads, the version specified and linked in this document shall be considered as a Transport and Main Roads accepted version at the time of publication of this document.

Where the department has explicit conditions, they will be specified in this document, including in the 'Under TMR Condition' section. The department may also decide to accept a product that is not on the ASBAP list and may maintain the datasheet provided in Appendix B.

For the minimum installation length of the barrier, the following options should be considered in order of preference:

1. Tested article length – Use the length tested (measured between end treatments) as specified in the Austroads TCU. This is considered a Normal Design Domain (NDD) solution.
2. Supplier-provided absolute minimum length – Use the supplier's absolute minimum length, provided it has been assessed and accepted by TMR. This is classified as an Extended Design Domain (EDD) solution.
3. Practical minimum length – For TL-3 containment only, use the practical minimum length specified in the Austroads Technical Advice SBTA 21-002 *Minimum length of W-beam barriers*. This is also considered an Extended Design Domain (EDD) solution.
4. Design Exception (DE) – A lesser length may be adopted under a Design Exception, subject to appropriate justification and approval.

## 4.1 Permanent

### 4.1.1 Longitudinal barriers

#### **Single Slope Concrete Barrier**

Type: Concrete (rigid)

Accepted Test Level:

MASH TL-1 TL-2 **TL-3** **TL-4** **TL-5** TL-6

NCHRP350 TL-1 TL-2 TL-3 **TL-4** **TL-5** TL-6

Registered Supplier: Public Domain

Notes: Test Level subject to height and configuration.

Refer to Departmental Standard Drawing 1468.

Austroads TCU: Nil.

TMR Conditions:

Refer to datasheet in Appendix B.

Austroads SBTA 21-005 Concrete Anchor

Block (instead of TMR Standard Drawing 1470)

should be used to connect to compatible proprietary steel beam barriers, unless specified otherwise in the proprietary product's TCU or TMR conditions.



#### **Ezy-Guard 4**

Type: Steel beam

Accepted Test Level:

MASH TL-1 TL-2 **TL-3** TL-4 TL-5 TL-6

Registered Supplier: Ingal Civil Products

Austroads TCU: [1 June 2023](#)

TMR Conditions:

The following variants should be limited to constrained locations under Extended Design Domain:

- Base plate installation
- Ezy-Lift
- Single 6m clear span
- Connection to departmental Public Domain Concrete Barrier (Standard Drawing 1470) using Ingal RBT rigid barrier transition with necessary modification works (refer to the supplier for details).



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b><u>Ezy-Guard SMART</u></b></p> <p><i>Type:</i> Steel beam</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Ingal Civil Products</p> <p><i>Austroads TCU:</i> <a href="#">15 September 2022</a></p> <p><i>TMR Conditions:</i></p> <p>The following variants should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• Base plate installation</li> <li>• Ezy-Lift</li> <li>• 1 metre post spacing</li> </ul>                                                                                                                                                                                                    |    |
| <p><b><u>Ezy-Guard Heavy Duty (HD)</u></b></p> <p><i>Type:</i> Steel beam</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Ingal Civil Products</p> <p><i>Austroads TCU:</i> <a href="#">2 March 2023</a></p> <p><i>TMR Conditions:</i> Nil.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |
| <p><b><u>Ezy-Guard High Containment (HC)</u></b></p> <p><i>Type:</i> Steel beam</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6</p> <p><i>Registered Supplier:</i> Ingal Civil Products</p> <p><i>Austroads TCU:</i> <a href="#">1 June 2023</a></p> <p><i>TMR Conditions:</i></p> <p>The following variants should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• Base plate installation</li> <li>• Single post omission</li> <li>• Connection to departmental Public Domain Concrete Barrier (Standard Drawing 1470) using Ingal RBT rigid barrier transition with necessary modification works (refer to the supplier for details).</li> </ul> |  |



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| <p><b><u>Ezy-Guard Low Deflection System (LDS)</u></b></p> <p><i>Type:</i> Steel beam</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3</b> <b>TL-4</b> TL-5 TL-6</p> <p><i>Registered Supplier:</i> Ingal Civil Products</p> <p><i>Austroads TCU:</i> <a href="#">15 December 2022</a></p> <p><i>TMR Conditions:</i></p> <p>The following variant should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• Installation on 1:1 batter hinge point (TL-3 only)</li> </ul>                                                                                                                                                                                                                                           |    |
| <p><b><u>RAMSHIELD W-Beam</u></b></p> <p><i>Type:</i> Steel beam</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Safe Direction</p> <p><i>Austroads TCU:</i> <a href="#">15 September 2022</a></p> <p><i>TMR Conditions:</i></p> <p>The following variants should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• Single 6 metre clear span</li> <li>• Base plate installation</li> <li>• 1 metre post spacing</li> <li>• Installation on top of a semi-mountable or flatter kerb with system height measured from the top of the kerb. Please contact the supplier to obtain the Austroads acceptance letter as evidence of their assessment.</li> </ul> |   |
| <p><b><u>RAMSHIELD Median</u></b></p> <p><i>Type:</i> Steel beam</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Safe Direction</p> <p><i>Austroads TCU:</i> <a href="#">25 September 2025</a></p> <p><i>TMR Conditions:</i> Nil.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |



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| <p><b><u>RAMSHIELD High Containment (HC)</u></b></p> <p><u>Type:</u> Steel beam</p> <p><u>Accepted Test Level:</u></p> <p>MASH TL-1 TL-2 <b><u>TL-3</u></b> <b><u>TL-4</u></b> TL-5 TL-6</p> <p><u>Registered Supplier:</u> Safe Direction</p> <p><u>Austroads TCU:</u> <a href="#">3 June 2025</a></p> <p><u>TMR Conditions:</u></p> <p>The following variant should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• RAMSHIELD Edge</li> <li>• Base plate installation</li> </ul>                                                    |    |
| <p><b><u>RAMSHIELD Low Deflection</u></b></p> <p><u>Type:</u> Steel beam</p> <p><u>Accepted Test Level:</u></p> <p>MASH TL-1 TL-2 <b><u>TL-3</u></b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier:</u> Safe Direction</p> <p><u>Austroads TCU:</u> <a href="#">16 September 2025</a></p> <p><u>TMR Conditions:</u></p> <p>The following variant should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• Base plate installation</li> <li>• 1 metre post spacing</li> </ul>                                                             |    |
| <p><b><u>Sentry W-Beam</u></b></p> <p><u>Type:</u> Steel beam</p> <p><u>Accepted Test Level:</u></p> <p>MASH TL-1 TL-2 <b><u>TL-3</u></b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier:</u> Safe Direction</p> <p><u>Austroads TCU:</u> <a href="#">20 March 2023</a></p> <p><u>TMR Conditions:</u></p> <p>The following variants should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• Back-to-back installation</li> <li>• Base plate installation</li> <li>• Installation in weak soil</li> <li>• 1 metre post spacing</li> </ul> |  |

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| <p><b><u>Sentry Thrie-Beam</u></b><br/> <u>Type</u>: Steel beam<br/> <u>Accepted Test Level</u>:<br/> MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6<br/> <u>Registered Supplier</u>: Safe Direction<br/> <u>Austroads TCU</u>: <a href="#">14 March 2022</a><br/> <u>TMR Conditions</u>:<br/> The following variant should be limited to constrained locations under Extended Design Domain:<br/> <ul style="list-style-type: none"> <li>Base plate installation</li> </ul> </p> |    |
| <p><b><u>CrocGuard Safety Barrier</u></b><br/> <u>Type</u>: Steel beam<br/> <u>Accepted Test Level</u>:<br/> MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6<br/> <u>Registered Supplier</u>: Safe Direction<br/> <u>Austroads TCU</u>: <a href="#">9 June 2022</a><br/> <u>TMR Conditions</u>: Nil. </p>                                                                                                                                                                          |    |
| <p><b><u>HammerBeam Safety Barrier</u></b><br/> <u>Type</u>: Steel beam<br/> <u>Accepted Test Level</u>:<br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Registered Supplier</u>: Safe Direction<br/> <u>Austroads TCU</u>: <a href="#">13 June 2024</a><br/> <u>TMR Conditions</u>:<br/> HammerBeam should be limited to constrained locations where AS5100 compliance is not required. </p>                                                                         |  |
| <p><b><u>Safety Roller Barrier</u></b><br/> <u>Type</u>: Steel beam<br/> <u>Accepted Test Level</u>:<br/> MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6<br/> <u>Registered Supplier</u>: Ambient Technologies<br/> <u>Austroads TCU</u>: <a href="#">4 April 2023</a><br/> <u>TMR Conditions</u>: Nil. </p>                                                                                                                                                                      |  |

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| <p><b><u>Brifen MASH TL-3</u></b></p> <p><u>Type</u>: Wire Rope</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Safe Direction Pty Ltd</p> <p><u>Notes</u>: Brifen MASH TL3 requires Brifen MASH TL3 End Terminal.</p> <p><u>Austroads TCU</u>: <a href="#">20 November 2020</a></p> <p><u>TMR Conditions</u>: Nil.</p>                                                                                                                                                                              |  |
| <p><b><u>MashFlex</u></b></p> <p><u>Type</u>: Wire Rope</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6</p> <p><u>Registered Supplier</u>: Ingal Civil Products</p> <p><u>Notes</u>: MashFlex requires MashFlex Terminal.</p> <p><u>Austroads TCU</u>: <a href="#">14 March 2022</a></p> <p><u>TMR Conditions</u>:</p> <p>The following variants should be limited to constrained locations under Extended Design Domain:</p> <ul style="list-style-type: none"> <li>• Driven post sleeve</li> <li>• Base plate installation</li> </ul> |  |

### **Sentryline-M**

Type: Wire Rope

Accepted Test Level:

MASH TL-1 TL-2 **TL-3 TL-4** TL-5 TL-6

Registered Supplier: Safe Direction

Notes: Sentryline-M requires Sentryline-M Wire Rope Terminal End TL-3.

Austroads TCU: [3 September 2021](#)

TMR Conditions:

The following variants should be limited to constrained locations under Extended Design Domain:

- Driven post sleeve (TL-3)
- Base plate installation
- Anchor foundation block, dimension: 3.4m L x 1.5m W x 0.74m D
- Anchor foundation block, dimension: 3.4m L x 1.0m W x 1.0m D



### **ROBOS**

Type: Steel Strap (Flexible)

Accepted Test Level:

MASH TL-1 TL-2 **TL-3 TL-4** TL-5 TL-6

Registered Supplier: Hiway Stabilisers Australia

Notes: ROBOS requires ROBOS 4-Strap Terminal.

Austroads TCU: [13 September 2023](#)

TMR Conditions: Nil.



### **ROBOS Median**

Type: Steel Strap (Flexible)

Accepted Test Level:

MASH TL-1 TL-2 **TL-3 TL-4** TL-5 TL-6

Registered Supplier: Hiway Stabilisers Australia

Notes: ROBOS requires ROBOS 8-Strap Terminal.

Austroads TCU: [13 September 2023](#)

TMR Conditions: Nil.



### 4.1.2 End treatments

#### **ET-SS**

**Type:** Gating (TL-2: Redirective from 2<sup>nd</sup> Post; TL-3: Redirective from 3<sup>rd</sup> Post)

**Accepted Test Level:**

MASH TL-1 **TL-2 TL-3** TL-4 TL-5 TL-6

**Registered Supplier:** Ingal Civil Products

**Notes:** Tangential / Flared; Extruder Head.

**Austroads TCU:** [1 December 2022](#)

**TMR Conditions:**

The following variants should be limited to constrained locations under Extended Design Domain:

- Alternative anchor post foundation
- Baseplated post



#### **ET-SS Terminal Cover**

**Type:** Extruder Head Cover

**Accepted Test Level:**

MASH Not rated.

**Registered Supplier:** Ingal Civil Products

**Austroads TCU:** Nil.

**TMR Conditions:** Nil.



#### **MSKT**

**Type:** Gating (Redirective from 3<sup>rd</sup> Post)

**Accepted Test Level:**

MASH TL-1 **TL-2 TL-3** TL-4 TL-5 TL-6

**Registered Supplier:** Safe Direction

**Notes:** Tangential / Flared; Extruder Head. (MSKT = Mash Sequential Kinking Terminal).

**Austroads TCU:** [7 June 2021](#)

**TMR Conditions:** Nil.





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| <p><b><u>MAX-Tension</u></b></p> <p><u>Type</u>: Gating (TL-2: Redirective at 1<sup>st</sup> Post; TL-3: Redirective 2860 mm downstream from 1<sup>st</sup> Post)</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 <b>TL-2 TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Safe Direction</p> <p><u>Notes</u>: Tension / friction based.</p> <p><u>Austrroads TCU</u>: <a href="#">20 November 2020</a></p> <p><u>TMR Conditions</u>: Nil.</p> |    |
| <p><b><u>MAX-Tension Motorcyclist Delineation Cover</u></b></p> <p><u>Type</u>: Extruder Head Cover</p> <p><u>Accepted Test Level</u>:</p> <p>MASH Not rated.</p> <p><u>Registered Supplier</u>: Safe Direction</p> <p><u>Austrroads TCU</u>: Nil.</p> <p><u>TMR Conditions</u>: Nil.</p>                                                                                                                                                                    |    |
| <p><b><u>Trend Median Terminal</u></b></p> <p><u>Type</u>: Gating (Redirective from 3<sup>rd</sup> Post)</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Ingall Civil Products</p> <p><u>Austrroads TCU</u>: <a href="#">24 March 2023</a></p> <p><u>TMR Conditions</u>: Nil.</p>                                                                                                     |   |
| <p><b><u>QUADGUARD M10</u></b></p> <p><u>Type</u>: Redirective Crash Cushion</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 <b>TL-2 TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Ingall Civil Products</p> <p><u>Austrroads TCU</u>:</p> <p>QUADGUARD M10 - Permanent: <a href="#">4 March 2021</a></p> <p>QUADGUARD M10 CZ - Temporary: <a href="#">6 September 2021</a></p> <p><u>TMR Conditions</u>: Nil.</p>                          |  |

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| <p><b><u>QUADGUARD Elite M10</u></b><br/> <i>Type:</i> Redirective Crash Cushion<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Ingal Civil Products<br/> <i>Austrroads TCU:</i> <a href="#">18 December 2020</a><br/> <i>TMR Conditions:</i> Nil.</p> |    |
| <p><b><u>Smart Cushion</u></b><br/> <i>Type:</i> Redirective Crash Cushion<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 <b>TL-2 TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> LB Australia<br/> <i>Austrroads TCU:</i> <a href="#">5 December 2020</a><br/> <i>TMR Conditions:</i> Nil.</p>                |    |
| <p><b><u>Universal TAU-M</u></b><br/> <i>Type:</i> Redirective Crash Cushion<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 <b>TL-2 TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Safe Direction<br/> <i>Austrroads TCU:</i> <a href="#">4 March 2021</a><br/> <i>TMR Conditions:</i> Nil.</p>               |   |
| <p><b><u>TAU-XR</u></b><br/> <i>Type:</i> Redirective Crash Cushion<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Safe Direction<br/> <i>Austrroads TCU:</i> <a href="#">4 September 2024</a><br/> <i>TMR Conditions:</i> Nil.</p>                    |  |
| <p><b><u>Hercules</u></b><br/> <i>Type:</i> Redirective Crash Cushion<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Safe Direction<br/> <i>Austrroads TCU:</i> <a href="#">3 September 2021</a><br/> <i>TMR Conditions:</i> Nil.</p>                  |  |

**GMET Terminal**

Type: Gating (Redirective from 3<sup>rd</sup> Post)

Accepted Test Level:

MASH TL-1 TL-2 **TL-3** TL-4 TL-5 TL-6

Registered Supplier: Safe Direction

Austroads TCU: [16 September 2025](#)

TMR Conditions: Nil.



## 4.2 Temporary

Note that temporary roadside barrier systems and devices manufactured:

- Prior to 1 January 2022 can continue to be used until the end of their service life.
- After 1 January 2022 should meet MASH guidelines.

### 4.2.1 Longitudinal barriers

**Precast Concrete Barrier (PCB)**

Type: Temporary Concrete Barrier – Single Slope

Accepted Test Level:

MASH Not rated.

NCHRP350 TL-1 TL-2 **TL-3** TL-4 TL-5 TL-6

Registered Supplier: Public Domain

Notes: Departmental Standard Drawings 1473 and 1458.

Has a permanent configuration option, refer departmental Standard Drawing 1473. Photo shows example of anti-gawk screen attached.

Austroads TCU: Nil.

TMR Conditions:

Refer to datasheet in Appendix B.

**DB80 K150 Precast Concrete Barrier**

Type: Temporary Concrete Barrier – F Shape

Accepted Test Level:

MASH TL-1 TL-2 **TL-3** TL-4 TL-5 TL-6

Registered Supplier: Jaybro Group Pty Ltd

Austroads TCU: [3 June 2025](#)

TMR Conditions:

This F shape temporary concrete barrier is only acceptable for use on roads with speed limits of 80 km/h or less.





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| <p><b><u>DB80 T150S Precast Concrete Barrier</u></b></p> <p><u>Type:</u> Temporary Concrete Barrier – F Shape</p> <p><u>Accepted Test Level:</u></p> <p>MASH TL-1 TL-2 <b>TL-3</b> <b>TL-4</b> TL-5 TL-6</p> <p><u>Registered Supplier:</u> Jaybro Group Pty Ltd</p> <p><u>Austroads TCU:</u> <a href="#">3 June 2025</a></p> <p><u>TMR Conditions:</u></p> <p>This F shape temporary concrete barrier is only acceptable for use on roads with speed limits of 80 km/h or less.</p>                                                                                             |    |
| <p><b><u>DB80A T150S Precast Concrete Barrier</u></b></p> <p><u>Type:</u> Temporary Concrete Barrier – F Shape</p> <p><u>Accepted Test Level:</u></p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier:</u> Jaybro Group Pty Ltd</p> <p><u>Austroads TCU:</u> <a href="#">3 June 2025</a></p> <p><u>TMR Conditions:</u></p> <p>This F shape temporary concrete barrier is only acceptable for use on roads with speed limits of 80 km/h or less.</p>                                                                                                   |    |
| <p><b><u>JJ Hooks MASH Precast Concrete Barrier</u></b></p> <p><u>Type:</u> Temporary Concrete Barrier – F Shape</p> <p><u>Accepted Test Level:</u></p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier:</u> Australian Road Barriers</p> <p><u>Austroads TCU:</u></p> <p>3.6 Metre Barrier Unit: <a href="#">14 March 2022</a></p> <p>6 Metre Barrier Unit: <a href="#">14 March 2022</a></p> <p><u>TMR Conditions:</u></p> <p>This F shape temporary concrete barrier is acceptable for use only on roads with speed limits of 80 km/h or less.</p> |  |

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| <p><b><u>T-LOK Precast Concrete Barrier</u></b></p> <p><u>Type</u>: Temporary Concrete Barrier – F Shape</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Saferoads</p> <p><u>Austroads TCU</u>: <a href="#">1 June 2023</a></p> <p><u>TMR Conditions</u>:</p> <p>This F shape temporary concrete barrier is acceptable for use only on roads with speed limits of 80 km/h or less.</p> <p>The Bespoke Wedge is accepted for use where the speed limit is restricted to 60 km/h or less.</p>        |    |
| <p><b><u>T-LOK Rubber Precast Concrete Barrier</u></b></p> <p><u>Type</u>: Temporary Concrete Barrier – F Shape</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Saferoads</p> <p><u>Austroads TCU</u>: <a href="#">1 June 2023</a></p> <p><u>TMR Conditions</u>:</p> <p>This F shape temporary concrete barrier is acceptable for use only on roads with speed limits of 80 km/h or less.</p> <p>The Bespoke Wedge is accepted for use where the speed limit is restricted to 60 km/h or less.</p> |   |
| <p><b><u>Pin and Loop Precast Concrete Barrier</u></b></p> <p><u>Type</u>: Temporary Concrete Barrier – F Shape</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Pin and Loop Pty Ltd</p> <p><u>Austroads TCU</u>: <a href="#">1 December 2021</a></p> <p><u>TMR Conditions</u>:</p> <p>This F shape temporary concrete barrier is acceptable for use only on roads with speed limits of 80 km/h or less.</p>                                                                                       |  |

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| <p><b><u>TALL42 Movable Concrete Barrier</u></b><br/> <u>Type:</u> Permanent &amp; Temporary Concrete Barrier<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6<br/> <u>Registered Supplier:</u> Safe Direction<br/> <u>Austrroads TCU:</u> <a href="#">3 June 2025</a><br/> <u>TMR Conditions:</u> Nil.</p>                                                                                                                                                                                                                                                                                                |    |
| <p><b><u>BG800</u></b><br/> <u>Type:</u> Temporary Steel Barrier<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 <b>TL-2 TL-3 TL-4</b> TL-5 TL-6<br/> <u>Registered Supplier:</u> Ingal Civil Products<br/> <u>Austrroads TCU:</u><br/> BG800 Standard - Permanent: <a href="#">1 December 2021</a><br/> BG800 Standard - Temporary: <a href="#">1 December 2021</a><br/> BG800 MDS - Permanent: <a href="#">1 December 2021</a><br/> BG800 MDS - Temporary: <a href="#">1 December 2021</a><br/> BG800 LDS - Temporary: <a href="#">1 December 2021</a><br/> <u>TMR Conditions:</u> Nil.</p>                                             |    |
| <p><b><u>HighwayGuard</u></b><br/> <u>Type:</u> Temporary Steel Barrier<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6<br/> <u>Registered Supplier:</u> Ingal Civil Products<br/> <u>Austrroads TCU:</u><br/> HighwayGuard Standard - Temporary: <a href="#">8 September 2022</a><br/> HighwayGuard LDS - Permanent: <a href="#">1 December 2021</a><br/> HighwayGuard LDS - Temporary: <a href="#">1 December 2021</a><br/> HighwayGuard MDS - Permanent (TL-3): <a href="#">1 June 2023</a><br/> HighwayGuard MDS - Temporary (TL-3): <a href="#">1 June 2023</a><br/> <u>TMR Conditions:</u> Nil.</p> |  |

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| <p><b><u>Defender Barrier</u></b></p> <p><i>Type:</i> Temporary Steel Barrier</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 <b>TL-2 TL-3 TL-4</b> TL-5 TL-6</p> <p><i>Registered Supplier:</i> Safe Barriers Pty. Ltd.</p> <p><i>Austroads TCU:</i></p> <p>Defender Barrier 70: <a href="#">1 December 2021</a></p> <p>Defender Barrier 100 LDS: <a href="#">3 September 2021</a></p> <p>Defender Barrier 100 HC: <a href="#">3 September 2021</a></p> <p>Defender Barrier 100 FS: <a href="#">1 December 2021</a></p> <p><i>TMR Conditions:</i> Nil.</p>                                |   |
| <p><b><u>SafeZone</u></b></p> <p><i>Type:</i> Temporary Steel Barrier</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6</p> <p><i>Registered Supplier:</i> Jaybro Group Pty Ltd</p> <p><i>Austroads TCU:</i></p> <p>SafeZone Standard - Temporary: <a href="#">23 October 2023</a></p> <p>SafeZone Standard - Permanent: <a href="#">21 June 2022</a></p> <p>SafeZone LDS – Permanent &amp; Temporary: <a href="#">7 March 2024</a></p> <p>SafeZone MDS - Permanent &amp; Temporary: <a href="#">1 September 2023</a></p> <p><i>TMR Conditions:</i> Nil.</p> |    |
| <p><b><u>IronMan Hybrid MASH</u></b></p> <p><i>Type:</i> Temporary Steel Barrier</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 <b>TL-2</b> TL-3 TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Saferoads</p> <p><i>Austroads TCU:</i> <a href="#">25 September 2023</a></p> <p><i>TMR Conditions:</i></p> <p>The Bespoke Wedge is accepted for use where the speed limit is restricted to 60 km/h or less.</p>                                                                                                                                                                        |  |

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| <p><b><u>Zoneguard</u></b><br/> <i>Type:</i> Temporary Steel Barrier<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Hill &amp; Smith<br/> <i>Austrroads TCU:</i><br/> Zoneguard Standard: <a href="#">8 December 2021</a><br/> Zoneguard MDS: <a href="#">4 March 2021</a><br/> <i>TMR Conditions:</i> Nil.</p> |   |
| <p><b><u>HV2</u></b><br/> <i>Type:</i> Temporary Steel Barrier<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6<br/> <i>Registered Supplier:</i> Saferoads Pty Ltd<br/> <i>Austrroads TCU:</i> <a href="#">1 December 2021</a><br/> <i>TMR Conditions:</i> Nil.</p>                                                                                |    |
| <p><b><u>ArmorZone MASH</u></b><br/> <i>Type:</i> Temporary Plastic Water Filled Device<br/> <i>Accepted Test Level:</i><br/> MASH <b>TL-1 TL-2</b> TL-3 TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Ingall Civil Products<br/> <i>Austrroads TCU:</i> <a href="#">20 November 2020</a><br/> <i>TMR Conditions:</i> Nil.</p>                                                  |   |
| <p><b><u>Ricochet</u></b><br/> <i>Type:</i> Temporary Plastic Water Filled Device<br/> <i>Accepted Test Level:</i><br/> MASH <b>TL-1</b> TL-2 TL-3 TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> TFH Hire Services<br/> <i>Austrroads TCU:</i> <a href="#">20 November 2020</a><br/> <i>TMR Conditions:</i> Nil.</p>                                                            |  |
| <p><b><u>Lo-Ro Water Cable Barrier</u></b><br/> <i>Type:</i> Temporary Plastic Water Filled Device<br/> <i>Accepted Test Level:</i><br/> MASH <b>TL-1 TL-2</b> TL-3 TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Jaybro Group Pty Ltd<br/> <i>Austrroads TCU:</i> <a href="#">20 November 2020</a><br/> <i>TMR Conditions:</i> Nil.</p>                                        |  |



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| <p><b><u>Shield I</u></b><br/> <i>Type:</i> Temporary Plastic Water Filled Device<br/> <i>Accepted Test Level:</i><br/> MASH <b>TL-1</b> TL-2 TL-3 TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> National Plastic Group<br/> <i>Austrroads TCU:</i> <a href="#">20 November 2020</a><br/> <i>TMR Conditions:</i> Nil.</p>      |    |
| <p><b><u>Mobile Barriers MBT-1</u></b><br/> <i>Type:</i> Temporary Workzone Protection Device<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Mobile Barriers<br/> <i>Austrroads TCU:</i> <a href="#">20 November 2020</a><br/> <i>TMR Conditions:</i> Nil.</p> |    |
| <p><b><u>Rebloc 80SAH 12</u></b><br/> <i>Type:</i> Freestanding Precast Concrete Safety Barrier<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3 TL-4</b> TL-5 TL-6<br/> <i>Registered Supplier:</i> Onsite<br/> <i>Austrroads TCU:</i> <a href="#">2 September 2022</a><br/> <i>TMR Conditions:</i> Nil.</p>        |   |
| <p><b><u>Rebloc 80SAH 12 8B</u></b><br/> <i>Type:</i> Anchored Precast Concrete Safety Barrier<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Onsite<br/> <i>Austrroads TCU:</i> <a href="#">22 March 2022</a><br/> <i>TMR Conditions:</i> Nil.</p>            |  |
| <p><b><u>Rebloc 80SAH 4</u></b><br/> <i>Type:</i> Freestanding Precast Concrete Safety Barriers<br/> <i>Accepted Test Level:</i><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <i>Registered Supplier:</i> Onsite<br/> <i>Austrroads TCU:</i> <a href="#">1 December 2022</a><br/> <i>TMR Conditions:</i> Nil.</p>         |  |

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| <p><b>Rebloc 80F 8 Safety Barrier</b></p> <p><u>Type</u>: Freestanding Precast Concrete Safety Barriers</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> <b>TL-4</b> TL-5 TL-6</p> <p><u>Registered Supplier</u>: Onsite</p> <p><u>Austrroads TCU</u>: <a href="#">3 October 2025</a></p> <p><u>TMR Conditions</u>: Nil.</p>                                                                                                        |  |
| <p><b>Rebloc 120FA 6 SF</b></p> <p><u>Type</u>: Freestanding Precast Concrete Safety Barrier</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 <b>TL-5</b> TL-6</p> <p><u>Registered Supplier</u>: Onsite</p> <p><u>Austrroads TCU</u>: <a href="#">16 June 2022</a></p> <p><u>TMR Conditions</u>:</p> <p>This F shape temporary concrete barrier is acceptable for use only on roads with speed limits of 80 km/h or less.</p> |  |

#### 4.2.2 End treatments

Some permanent crash cushions as listed above may be suitable for connection to temporary barrier systems. Designer should consult system supplier to verify compatibility between systems.

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| <p><b>Absorb-M</b></p> <p><u>Type</u>: Water Filled, Non-Redirective, Gating Plastic Terminal</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 <b>TL-2</b> <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Safe Direction</p> <p><u>Austrroads TCU</u>: <a href="#">7 June 2021</a></p> <p><u>TMR Conditions</u>: Nil.</p> |  |
| <p><b>Quash</b></p> <p><u>Type</u>: Non-Redirective, Gating Plastic Water Filled End Treatment</p> <p><u>Accepted Test Level</u>:</p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><u>Registered Supplier</u>: Safe Direction</p> <p><u>Austrroads TCU</u>: <a href="#">3 June 2025</a></p> <p><u>TMR Conditions</u>: Nil.</p>       |  |

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| <p><b><u>ArmorBuffa</u></b></p> <p><i>Type:</i> Non-Redirective, Gating Plastic Water Filled End Treatment</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Ingal Civil Products</p> <p><i>Austroads TCU:</i> <a href="#">3 September 2021</a></p> <p><i>TMR Conditions:</i> Nil.</p> |  |
| <p><b><u>SLED</u></b></p> <p><i>Type:</i> Non-Redirective, Gating Plastic Water Filled End Treatment</p> <p><i>Accepted Test Level:</i></p> <p>MASH <b>TL-1 TL-2 TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Saferoads Pty Ltd</p> <p><i>Austroads TCU:</i> <a href="#">5 December 2020</a></p> <p><i>TMR Conditions:</i> Nil.</p>           |  |

### 4.3 Other road safety devices

#### 4.3.1 Gates

|                                                                                                                                                                                                                                                                                                                                                                   |                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b><u>ARMORGUARD Gate</u></b></p> <p><i>Type:</i> Gate</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 TL-3 TL-4 TL-5 TL-6</p> <p>NCHRP350 TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Safe Direction</p> <p><i>Austroads TCU:</i> Nil.</p> <p><i>TMR Conditions:</i></p> <p>Refer to datasheet in Appendix B.</p>        |  |
| <p><b><u>BG800 Steel Gate</u></b></p> <p><i>Type:</i> Gate</p> <p><i>Accepted Test Level:</i></p> <p>MASH TL-1 TL-2 TL-3 TL-4 TL-5 TL-6</p> <p>NCHRP350 TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6</p> <p><i>Registered Supplier:</i> Ingal Civil Products</p> <p><i>Austroads TCU:</i> Nil.</p> <p><i>TMR Conditions:</i></p> <p>Refer to datasheet in Appendix B.</p> |  |



### 4.3.2 Motorcyclist Under-Run (Rubrail)

#### **Biker-Shield Motorcyclist Protection Device**

Type: Motorcyclist Rubrail

Accepted Test Level:

MASH **N/A**

Registered Supplier: Safe Direction

Austroads TCU: Nil.

Accepted Compatible Barrier: RAMSHIELD W-Beam,  
RAMSHIELD HC, Public Domain W-Beam

TMR Conditions:

The Biker-Shield may be installed on a semi-mountable or flatter kerb, in accordance with the conditions specified for the RAMSHIELD W-Beam in Section 4.1.1 of this document.



#### **HIASA Rail Motorcyclist Protection Device**

Type: Motorcyclist Rubrail

Accepted Test Level:

MASH **N/A**

Registered Supplier: Safe Direction

Austroads TCU: Nil.

Accepted Compatible Barrier: Public Domain W-Beam

TMR Conditions: Nil.



#### **Ingal Motorcyclist Protection Rail**

Type: Motorcyclist Rubrail

Accepted Test Level:

MASH **N/A**

Registered Supplier: Ingal Civil Products

Austroads TCU: Nil.

Accepted Compatible Barrier: Public Domain W-Beam, Ezy-Guard SMART, Ezy-Guard 4, Ezy-Guard HC, Ezy-Guard LDS, Ezy-Guard HD

TMR Conditions: Nil.



### **RiderPro Motorcyclist Protection Device**

*Type:* Motorcyclist Rubrail

*Accepted Test Level:*

MASH **N/A**

*Registered Supplier:* Safe Direction

*Austroads TCU:* Nil.

*Accepted Compatible Barrier:* Sentry W-Beam, Sentry Thrie-Beam, Public Domain W-Beam (permitted with RiderPro MP variant only)

*TMR Conditions:* Nil.



### **4.3.3 Transition**

#### **RAMSHIELD Transition**

*Type:* Transition

*Accepted Test Level:*

MASH TL-1 TL-2 **TL-3** TL-4 TL-5 TL-6

*Registered Supplier:* Safe Direction

*Austroads TCU:* [16 September 2025](#)

*TMR Conditions:*

The following variant should be limited to constrained locations under Extended Design Domain:

- 200mm Blocking Piece



### **4.3.4 Miscellaneous**

#### **RAPTOR**

*Type:* Pole Cushion

*Accepted Test Level:*

MASH **TL-1** TL-2 TL-3 TL-4 TL-5 TL-6

*Registered Supplier:* Valmont Highway

*Austroads TCU:* [1 December 2021](#)

*TMR Conditions:* Nil.



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                      |
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| <p><b><u>“Safe Direction” Plastic Blockout</u></b></p> <p><u>Type</u>: Blockout</p> <p><u>Accepted Test Level</u>:</p> <p>MASH <b>N/A</b></p> <p><u>Registered Supplier</u>: Safe Direction</p> <p><u>Austroads TCU</u>: Nil.</p> <p><u>TMR Conditions</u>:</p> <p>For use in selected terminals only.</p> <p>Approval for use of plastic blocks on Public Domain W-beam guardrail strong posts was withdrawn in March 2008. Plastic blocks remain accepted for use in respective proprietary terminals. Designer to consult with supplier.</p> | No picture                                                                           |
| <p><b><u>RocketBloc</u></b></p> <p><u>Type</u>: Blockout</p> <p><u>Accepted Test Level</u>:</p> <p>MASH Deemed to meet MASH <b>TL-3</b></p> <p><u>Registered Supplier</u>: Safe Direction</p> <p><u>Austroads TCU</u>: Nil.</p> <p><u>TMR Conditions</u>:</p> <p>Approval for use with Public Domain W-Beam in compliance with the requirements outlined in the withdrawn Standard Drawing 1474.</p>                                                                                                                                            |  |
| <p><b><u>“Ingal” Plastic Blockout</u></b></p> <p><u>Type</u>: Blockout</p> <p><u>Accepted Test Level</u>:</p> <p>MASH <b>N/A</b></p> <p><u>Registered Supplier</u>: Ingal Civil Products</p> <p><u>Austroads TCU</u>: Nil.</p> <p><u>TMR Conditions</u>:</p> <p>For use in selected terminals only.</p> <p>Approval for use of plastic blocks on Public Domain W-beam guardrail strong posts was withdrawn in March 2008. Plastic blocks remain accepted for use in respective proprietary terminals. Designer to consult with supplier.</p>    | No picture                                                                           |

## 5 Assessed by ASBAP in Accordance with AS/NZS 3845.2

The products in this list have been assessed and accepted by ASBAP in accordance with AS/NZS 3845.2. Products listed here have only been assessed in accordance with AS/NZS 3845.2, and there are other approvals that are required elsewhere in the department or in other external agencies prior to use. **In other words, a product listed here is not approved for use, but approved for its assessment in accordance with AS/NZS 3845.2 only.**

In summary, among other things, AS/NZS 3845.2 primarily only assesses a products suitability from a crashworthiness perspective. Any other aspects of a product are not specifically reviewed by ASBAP.

It is not the intention to mandate the use of these products for TMR projects. However, project managers should take this list (i.e., products that have undergone crashworthiness assessment) into consideration during the decision-making process and document any operational reasons for selecting products not included on the list.

### 5.1 Longitudinal Channelizing Devices

Nil.

### 5.2 Truck and Trailer Mounted Attenuators

Note that Truck or Trailer mounted Attenuators (TMAs) manufactured:

- Prior to 1 January 2022 can continue to be used until the end of their service life.
- After 1 January 2022 should meet MASH guidelines.

#### **BLADE**

Type: Truck Mounted Attenuator

Accepted Test Level:

MASH TL-1 TL-2 **TL-3** TL-4 TL-5 TL-6

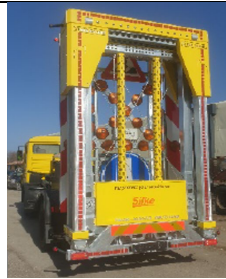
Austroads TCU: [5 December 2020](#)

TMR Conditions: Nil.

Registered Supplier: Innov8 Equipment Pty Ltd



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| <p><b>JL-D-0850 Stuer-Egghe “Julietta”</b><br/> <u>Type:</u> Truck Mounted Attenuator<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 TL-3 TL-4 TL-5 TL-6<br/> NCHRP350 TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">20 November 2020</a><br/> <u>TMR Conditions:</u> Nil.<br/> <u>Registered Supplier:</u> J1-LED</p>                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                           |
| <p><b>Scorpion II</b><br/> <u>Type 1:</u> Truck Mounted Attenuator<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">20 November 2020</a><br/> <u>TMR Conditions:</u> Nil.</p> <p><u>Type 2:</u> Truck Mounted Attenuator<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 <b>TL-2</b> TL-3 TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">20 November 2020</a><br/> <u>TMR Conditions:</u> Nil.</p> <p><u>Type 3:</u> Trailer Mounted Attenuator<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">20 November 2020</a><br/> <u>TMR Conditions:</u> Nil.<br/> <u>Registered Supplier:</u> A1 Roadlines Pty Ltd</p> |    |
| <p><b>SS180M</b><br/> <u>Type:</u> Truck Mounted Attenuator<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">20 November 2020</a><br/> <u>TMR Conditions:</u> Nil.<br/> <u>Registered Supplier:</u> Ingal Civil Products</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                         |

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| <p><b>Silke MASH TMA</b><br/> <u>Type:</u> Truck Mounted Attenuator<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">22 March 2022</a><br/> <u>TMR Conditions:</u> Nil.<br/> <u>Registered Supplier:</u> J1-LED</p>                                     |  |
| <p><b>TTMA-200 Trailer Mounted Attenuator</b><br/> <u>Type:</u> Trailer Mounted Attenuator<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">4 March 2021</a><br/> <u>TMR Conditions:</u> Nil.<br/> <u>Registered Supplier:</u> Ambient Technologies</p> |   |

### 5.3 Rear Underrun Protection Devices

Nil.

### 5.4 Permanent Bollards

Nil.

### 5.5 Sign Support Structures and Poles

|                                                                                                                                                                                                                                                                                                           |                                                                                       |
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| <p><b>Signfix Sign Support</b><br/> <u>Type:</u> Sign Support Structure<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">20 December 2021</a><br/> <u>TMR Conditions:</u> Nil.<br/> <u>Registered Supplier:</u> Delnorth Group</p>  |  |
| <p><b>Optimast Sign Support</b><br/> <u>Type:</u> Sign Support Structure<br/> <u>Accepted Test Level:</u><br/> MASH TL-1 TL-2 <b>TL-3</b> TL-4 TL-5 TL-6<br/> <u>Austroads TCU:</u> <a href="#">20 December 2021</a><br/> <u>TMR Conditions:</u> Nil.<br/> <u>Registered Supplier:</u> Delnorth Group</p> |   |



## Appendix A – Proprietors, suppliers and industry contacts

(Subject to change without notice)

|                                     |                                                                                                                                                                                                                                     |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>A1 Roadlines Pty Ltd</u>         | 89 Rushdale Street, Knoxfield, VIC 3180<br>Ph: 1300 217 623<br><a href="http://www.a1roadlines.com.au">www.a1roadlines.com.au</a><br>Email: <a href="mailto:sales@a1roadlines.com.au">sales@a1roadlines.com.au</a>                  |
| <u>Advantage Plastics</u>           | 254 Easterbrook Road, RD1 Kaiapoi 7691, NZ<br>Ph: +64 33135750 Fax: +64 33106036<br><a href="http://www.advantageplastics.co.nz">www.advantageplastics.co.nz</a><br>Email: <a href="mailto:info@adplasnz.com">info@adplasnz.com</a> |
| <u>Ambient Technologies Pty Ltd</u> | 24 Eakins Cres, Geraldton, WA 6530<br><a href="http://www.ambienttechnologies.com.au">www.ambienttechnologies.com.au</a><br>Email: <a href="mailto:weaties@midwesttraffic.com.au">weaties@midwesttraffic.com.au</a>                 |
| <u>Australian Road Barriers</u>     | 17 Old Creswick Rd, Wendouree, VIC 3355<br>Ph: 1800 003 826<br><a href="http://www.roadbarriers.com.au">www.roadbarriers.com.au</a><br>Email: <a href="mailto:sales@roadbarriers.com.au">sales@roadbarriers.com.au</a>              |
| <u>Delnorth Group</u>               | 63 Bonville Avenue, Thornton NSW 2322<br><a href="http://www.signfix.com.au">www.signfix.com.au</a><br>Email: <a href="mailto:sales@signfix.com.au">sales@signfix.com.au</a>                                                        |
| <u>Highway Care International</u>   | The Highlands, Detling, Maidstone, Kent, ME14 3HT, United Kingdom<br><a href="http://www.highwaycareint.com">www.highwaycareint.com</a>                                                                                             |
| <u>Hiway Stabilisers Australia</u>  | 503 Sandy Creek Road, Josephville, QLD 4214<br>Ph: 07 5541 2074<br>Email: <a href="mailto:info@hiways.com.au">info@hiways.com.au</a>                                                                                                |
| <u>Hill &amp; Smith</u>             | 1/242 New Cleveland Rd, Tingalpa, QLD 4173<br>Ph: 1300 277 683<br><a href="http://www.hsroads.com.au">www.hsroads.com.au</a><br>Email: <a href="mailto:sales@hsroads.com.au">sales@hsroads.com.au</a>                               |



|                                                    |                                                                                                                                                                                                                                                       |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u><i>Ingal Civil Products</i></u>                 | 7 Nestor Drive, Meadowbrook, QLD 4131<br>Ph: 07 3489 9120 Fax: 07 3489 9130<br><a href="http://www.ingalcivil.com.au">www.ingalcivil.com.au</a><br>Email: <a href="mailto:sales@ingalcivil.com.au">sales@ingalcivil.com.au</a>                        |
| <u><i>Innov8 Equipment Pty Ltd</i></u>             | 86 Mulgoa Road Penrith NSW 2750<br>Ph: 1300 071 007<br><a href="http://www.innov8equipmentwent.com.au">www.innov8equipmentwent.com.au</a><br>Email: <a href="mailto:sales@innov8equipment.com.au">sales@innov8equipment.com.au</a>                    |
| <u><i>Jaybro Group Pty Ltd</i></u>                 | 29 Penelope Crescent, Arndell Park, NSW 2148<br>Ph: 1300 885 364<br><a href="http://www.jaybro.com.au">www.jaybro.com.au</a><br>Email: <a href="mailto:sales@Jaybro.com.au">sales@Jaybro.com.au</a>                                                   |
| <u><i>J1-LED</i></u>                               | 10 Production Street, Beenleigh QLD 4207<br>Ph: 07 3807 6272<br><a href="http://www.j1led.com">www.j1led.com</a><br>Email: <a href="mailto:info@j1led.com">info@j1led.com</a>                                                                         |
| <u><i>Laura Metaal Road Safety PTY Limited</i></u> | L11 1 Margaret Street, Sydney, NSW 2000<br>Ph: +31 88 9996400<br><a href="http://www.laurametaal.com">www.laurametaal.com</a><br>Email: <a href="mailto:apac@laurametaal.nl">apac@laurametaal.nl</a>                                                  |
| <u><i>LB Australia</i></u>                         | Unit 6/79, Mandoon Road, Girraween, NSW 2145<br>Ph: 1300 522 878<br><a href="http://www.lbaustralia.com.au">www.lbaustralia.com.au</a><br>Email: <a href="mailto:roadsafety@lbaustralia.com.au">roadsafety@lbaustralia.com.au</a>                     |
| <u><i>Mobile Barriers</i></u>                      | 24918 Genesee Trail Road, Golden, Colorado 80401, USA.<br>Ph: +1 303 526 5995<br><a href="http://int.mobilebarriers.com/">http://int.mobilebarriers.com/</a><br>Email: <a href="mailto:ana.sales@mobilebarriers.com">ana.sales@mobilebarriers.com</a> |
| <u><i>National Plastic Group</i></u>               | 5 Christensen Road, Staplyton QLD 4207<br>Ph: 1800 677 003<br><a href="http://www.nationalplasticsgroup.com.au">www.nationalplasticsgroup.com.au</a><br>Email: <a href="mailto:info@barriersystems.com.au">info@barriersystems.com.au</a>             |

|                             |                                                                                                                                                                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Onsite</u>               | 6/170 Burnside Road, Stapylton QLD 4208<br>Ph: 13 40 40<br><a href="http://www.onsite.com.au">www.onsite.com.au</a>                                                                                                                 |
| <u>Pin and Loop Pty Ltd</u> | 63-69 High Street<br>Queanbeyan NSW 2620<br>Ph: 02 6297 1611<br><a href="http://www.precastconcrete.com.au">www.precastconcrete.com.au</a><br>Email: <a href="mailto:admin@precastconcrete.com.au">admin@precastconcrete.com.au</a> |
| <u>Saferoads</u>            | 22 Commercial Drive, Pakenham, VIC. 3810<br>Ph: 1800 060 072<br><a href="http://www.saferoads.com.au">www.saferoads.com.au</a><br>Email: <a href="mailto:sales@saferoads.com.au">sales@saferoads.com.au</a>                         |
| <u>Safe Direction</u>       | 47 Telford Circuitb, Yatala, QLD 4207<br>Ph. 1300 063 220<br><a href="http://www.safedirection.com.au">www.safedirection.com.au</a><br>Email: <a href="mailto:sales@safedirection.com.au">sales@safedirection.com.au</a>            |
| <u>Safe Barriers</u>        | Suite 54, 29 Smith Street<br>Parramatta, NSW 2150<br><a href="http://www.safebarriers.com">www.safebarriers.com</a><br>Email: <a href="mailto:info@safebarriers.com">info@safebarriers.com</a>                                      |
| <u>TFH Hire Services</u>    | 8-14 Eurora Street, Kingston, QLD 4114<br>Ph: 1300 834 834<br>Email: <a href="mailto:sales@tfh.com.au">sales@tfh.com.au</a>                                                                                                         |
| <u>Valmont Highway</u>      | 57-65 Airds Road, Minto, NSW 2566<br>Ph: +61 400366351<br><a href="http://www.valmonthighway.com">www.valmonthighway.com</a><br>Email: <a href="mailto:info@valmonthighway.com">info@valmonthighway.com</a>                         |

## **Appendix B – Product information sheets**

(Information Only)

- |                                   |                                |
|-----------------------------------|--------------------------------|
| 1. Single Slope Concrete Barrier  | 3. Armorguard Gate             |
| 2. Precast Concrete Barrier (PCB) | 4. BarrierGuard 800 Steel Gate |



## Department of Transport and Main Roads

### Road Safety Barrier Systems and End Treatments: Product Information Sheet

This information sheet shall be, where relevant, read in conjunction with the manufacturer's latest manual.

## Single Slope Concrete Barrier

TMR Standard Drawing 1468

Created: Monday, 26 May 2025

9:37 AM

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Status\*: Accepted

Status Commencement Date: Not Set

Status Expiry Date\*: Not Set

\* TMR reserves the right to alter the Status and Status Expiry Date at any time. Always refer to latest version of TMR's Road Safety Barrier Systems and End Treatments document.

Category: Longitudinal

Sub Category: Rigid

Main Material: Concrete

Ownership:

Public Domain

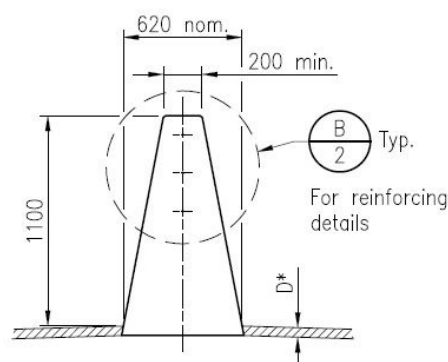
Gating/Non-Gating: Not Applicable

Redirective/Non-Redirective: Redirective

Permanent/Temporary: Permanent

Supplier:

Public Domain



#### Introduction:

The single slope barrier is a rigid extruded reinforced concrete barrier with a 10.8° profile. Heights may vary.

AASHTO Roadside Design Guide (2011) (section 6.4.1.8) states "Concrete barrier shapes that meet the NCHRP Report 350 criteria are the New Jersey and F-shapes, the single-slope barrier (two variations in slope), and the vertical wall. These shapes, when adequately designed and reinforced may all be considered TL-4 designs at the standard height of 813mm and TL-5 designs at heights of 1067mm and higher".

An advantage of the single slope shape is that it can accommodate adjacent overlays without compromising the profile of the barrier. However, designers do need to be cognisant that overlays will reduce the effective height of the barrier and hence reduce its overall containment capacity.

#### Test Level:

##### Extruded Variant

Deemed to meet NCHRP 350 TL-5 (1100mm high, anchored) (based on AASHTO Roadside Design Guide (2011) and FHWA memorandum HMHS-B64 dt. 14-Feb-2000).

Refer to TMR Standard Drawing 1468 for further guidance on containment level.

##### PCB: Pre-cast variant

- Refer to Precast Concrete Barrier (PCB) data sheet
- Permanent configurations for PCB shown on TMR Standard Drawing 1473

#### Recommended End Treatments:

Any accepted permanent crash cushion (refer this document), with appropriate transition/connection. Alternatively, it is acceptable to transition to steel-beam barrier end terminal via transition (see TMR standard drawings).

### **Design:**

Standard configurations of single slope extruded barrier are provided on TMR Standard Drawing 1468.

Whilst TMR Standard Drawing 1468 nominates the single slope barrier as a median barrier, it may be used at other locations. In order to maintain the specified containment capacity, adequate footing restraint must be provided to resist overturning and lateral deflection.

Austrroads SBTA 21-005 Concrete Anchor Block (instead of TMR SD1470 concrete terminal) should be used to connect to compatible proprietary steel beam barriers, unless specified otherwise in the proprietary product's TCU or TMR conditions.

The minimum lengths of barrier nominated on TMR Standard Drawing 1468 apply to lengths between gaps provided for street lighting and/or expansion joints.

Where there is a risk that the end of a concrete barrier can be impacted, the end must be shielded by one of:

- (i) an accepted connection to another barrier system,
- (ii) a suitable method of overlap,
- (iii) an accepted crashworthy crash cushion.

Overlays (or lift or corrector) courses placed after initial construction of the barrier may reduce the relative/residual height of barriers and/or their profile. Designers should make provision for such future treatments when designing a barrier.

### **Deflection:**

Whilst this barrier type is "rigid" and should exhibit zero deflection under impact, designers should be cognisant of the possibility of vehicle roll and working width when locating objects mounted on or situated behind the barrier.

### **Limitations:**

Refer to TMR Standard Drawing 1468.

Designers and project managers should be cognisant that provision of lighting within barriers introduces some additional exposure to risk:

- (i) Street lighting poles are likely to exist within the working width envelope.
- (ii) Steel cover plates shown on standard Drawing 1469 are not expected to provide test level TL-5 containment capability.

Such design decisions should be documented in the design documentation.

---

### **References:**

- AS/NZS 3845
- NCHRP Report 350
- TMR Road Planning and Design Manual
- Standard Drawing 1468
- Roadside Design Guide (AASHTO, 2011)
- FHWA memorandum HMHS-B64 dt. 14-Feb-2000).

## Department of Transport and Main Roads

### Road Safety Barrier Systems and End Treatments: Product Information Sheet

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## Precast Concrete Barrier (PCB)

TMR Standard Drawing 1473

**Created:** Monday, 26 May 2025

9:37 AM

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**Status\*:** Accepted

**Status Commencement Date:** Not Set

**Status Expiry Date\*:** Not Set

\* TMR reserves the right to alter the Status and Status Expiry Date at any time. Always refer to latest version of TMR's Road Safety Barrier Systems and End Treatments document.

**Category:** Longitudinal

**Sub Category:** Semi-Rigid

**Main Material:** Concrete

**Ownership:**

Public Domain

**Gating/Non-Gating:**

**Not Applicable**

**Redirective/Non-Redirective:**

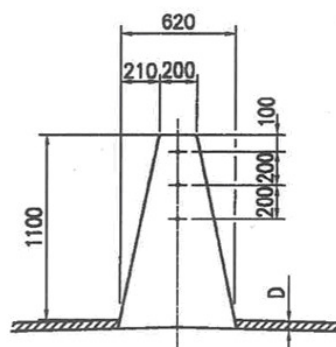
**Redirective**

**Permanent/Temporary:**

**Permanent or Temporary**

**Supplier:**

Various



### Introduction:

The Precast Concrete Barrier (PCB) is a concrete barrier with a single-slope profile.

### Useful Product Data:

|                   |   |        |
|-------------------|---|--------|
| Unit length       | - | 7250mm |
| Unit width (base) | - | 620mm  |
| Unit height       | - | 1050mm |

Note limitations regarding lifting: seek latest advice from TMR Structures Branch

### Test Level:

Deemed to meet the requirements of NCHRP report 350 test level TL-3 when properly connected in accordance with QTMR standard drawing 1473.

### Recommended End Treatments:

Quadguard CZ; TAU II; Triton CET ( $\leq 70$ km/h); SLED ( $\leq 80$ km/h); Absorb 350 ( $\leq 70$ km/h): (requires transition in concrete barrier to maximum height of 812mm); Absorb-M ( $\leq 80$ km/h)



### **Design:**

Minimum Length: 36 m

Recommended Minimum Radius: R150m

#### Interaction with Kerbs

- In unrestrained configurations, the system cannot be placed adjacent to kerbs or other objects within the deflection limits of the barrier that may prevent lateral displacement.

#### End Treatments:

- A proprietary end treatment should be installed wherever any risk exists that the blunt end could be impacted.
- Any proprietary end treatment system must be specifically designed or adapted for use with “single slope” shape barrier and must be installed and maintained strictly in accordance with the manufacturer’s instructions.
- Barrier flare rate should not exceed 1:10.

#### Vehicle Roll:

- Where the hazard being protected by a barrier extends above the height of the barrier the Designer should ensure that adequate separation from the face of the barrier to the hazard is provided to allow for the roll of high vehicles (such as trucks) hitting the hazard.

### **Deflection:**

#### **Deflection (Normal Design Domain):**

Measured (Crash Test) Deflections:

| Nominal Mass (kg) | Nominal Angle (deg) | Nominal Speed (km/h) | Recorded Deflection (m) | Note |
|-------------------|---------------------|----------------------|-------------------------|------|
| 2000              | 15                  | 100                  | 0.18                    | 1    |
| 2000              | 15                  | 100                  | 0.15                    | 2    |

Notes:

1. Beason et al (1989) test ref. 9429C-1, 36.4m installation (4 x 9.1m units)
2. Beason et al (1989) test ref. 9429K-1, 54.6m installation (6 x 9.1m units)

Actual clearance distance to workzone should be determined by risk assessment prior to installation.

Designers are recommended to adopt the largest working width / deflection value for the nominated containment level.

### **Limitations:**

- Refer TMR std. dwg. 1473 [Check for currency of revision].
- Placement of barriers and effects on surface drainage are to be considered.

#### Maintenance:

- Inspect units for damage after impact. Damaged units to be replaced.

---

### **References:**

- Australian Standard AS/NZS 3845
- NCHRP Report 350
- TMR Road Planning and Design Manual
- Main Roads Standard Drawing 1473 (rev. F)
- Beason et al (1989) Development of a Single Slope Concrete Median Barrier, TTI
- Barrier Systems Inc letter dated 23 March 2004
- Email correspondence on SLED transition to PCB (Saferoads, 18 December 2019)

## Department of Transport and Main Roads

### Road Safety Barrier Systems and End Treatments: Product Information Sheet

This information sheet shall be, where relevant, read in conjunction with the manufacturer's latest manual.

## Armorguard Gate

**Created:** Monday, 26 May 2025

9:37 AM

Page 1 of 2

**Status\*:** Accepted

**Status Commencement Date:** Not Set

**Status Expiry Date\*:** Not Set

\* TMR reserves the right to alter the Status and Status Expiry Date at any time. Always refer to latest version of TMR's Road Safety Barrier Systems and End Treatments document.

**Category:** Longitudinal

**Sub Category:** Semi-Rigid

**Main Material:** Steel

**Gating/Non-Gating:**

**Not Applicable**

**Redirective/Non-Redirective:**

**Redirective**

**Permanent/Temporary:**

**Permanent**

#### **Ownership:**

Barrier Systems

3333 Vaca Valley Pkwy, Ste. 800, Vacaville, CA 95688, USA

[www.barriersystemsinc.com](http://www.barriersystemsinc.com)

#### **Supplier:**

Safe Direction

47 Telford Circuit, Yatala, QLD 4207

Ph. 1300 063 220

[www.safedirection.com.au](http://www.safedirection.com.au)



#### **Introduction:**

Armorguard Gate is a hinged steel barrier "gate" to span between permanent openings in concrete barrier.



#### **Test Level:**

NCHRP Report 350 TL-3

#### **Recommended End Treatments:**

No end treatment as the gate is embedded into longitudinal barrier system.

## **Armorguard Gate**

Page 2 of 2

### **Design:**

May only be installed in a maximum total opening of 16m, including hinge sections.

### **Deflection:**

Measured (Crash Test) Deflections:

| Nominal Mass (kg) | Nominal Angle (deg) | Nominal Speed (km/h) | Recorded Deflection (m) | Note |
|-------------------|---------------------|----------------------|-------------------------|------|
| 2,000             | 25                  | 100                  | 0.57                    | 1    |

Note:

1 = NCHRP 350 3-21

### **Limitations:**

May only be installed in a gap in rigid concrete barrier.

---

### **References:**

- Australian Standard AS/NZS 3845
- NCHRP Report 350
- TMR Road Planning and Design Manual
- NSW RMS Acceptance Document dated 03/08/2013
- FHWA letter Ref: HSA-10/B87

## Department of Transport and Main Roads

### Road Safety Barrier Systems and End Treatments: Product Information Sheet

This information sheet shall be, where relevant, read in conjunction with the manufacturer's latest manual.

#### BG800 Steel Gate

**Created:** Monday, 26 May 2025

9:37 AM

Page 1 of 2

**Status\*:** Accepted

**Status Commencement Date:** Jun 2014

**Status Expiry Date\*:** Not Set

\* TMR reserves the right to alter the Status and Status Expiry Date at any time. Always refer to latest version of TMR's Road Safety Barrier Systems and End Treatments document.

**Category:** Longitudinal

**Sub Category:** Semi-Rigid

**Main Material:** Steel

**Gating/Non-Gating:** Not Applicable

**Redirective/Non-Redirective:** Redirective

**Permanent/Temporary:** Permanent

**Ownership:**

Highway Care International

<http://www.highwaycareint.com>

**Supplier:**

Ingal Civil Products

7 Nestor Drive, Meadowbrook QLD 4131

Ph: 3489 9120 Fax: 3489 9130

[www.ingalcivil.com.au](http://www.ingalcivil.com.au)



**Introduction:**

BarrierGuard 800 Steel Gate is a hinged steel barrier "gate" intended primarily to provide openings in permanent concrete barrier and to provide construction access in runs of temporary BarrierGuard 800.

**Test Level:**

NCHRP Report 350 TL-3

**Recommended End Treatments:**

No end treatment as the gate is embedded into longitudinal barrier system.

**Design:**

BarrierGuard 800 Steel Gate is a hinged steel gate comprising 6 metre and 12 metre sections of BarrierGuard 800 steel barrier with "T-Top" attachments.

The system is 540 mm wide, and 915 mm high.

The maximum length of gate is 30 metres (on the basis of operational manageability). The system is tested on longer lengths.

The system should be installed on smooth level ground. The intended sweep of the gate should be free from kerbs or rapid changes in gradient. Designer should check with supplier for site specific foundation requirements.

**Deflection:**

Measured (Crash Test) Deflections:

| Nominal Mass (kg) | Nominal Angle (deg) | Nominal Speed (km/h) | Recorded Deflection (m) | Note |
|-------------------|---------------------|----------------------|-------------------------|------|
| 2,000             | 25                  | 100                  | 1.162                   | 1    |

Note:

1 = NCHRP 350 3-21 test ref. BG807. This test comprised a 60 metre length of "free barrier" between anchors. Shorter lengths between ground anchors are likely to result in lower deflections. Designer should consult with supplier for performance of different configurations.

**Limitations:**

Wheels must be fully retracted when not in use.

Posted speed should be restricted to 40 km/h when gate is open unless exposed barrier ends can be otherwise shielded.

**References:**

- Australian Standard AS/NZS 3845
- NCHRP Report 350
- TMR Road Planning and Design Manual
- Austroads determination letter dated 14 March 2014
- NSW RMS Acceptance Document dated 14 March 2014
- FHWA letter Ref: HSSD/B-159 dated 8 May 2007
- BarrierGuard 800 Installation Manual – Laura Metaal, Version 2.6
- Austroads acceptance documents dated 06-Mar-2018 (Steel Gate)