

SENTRY W-BEAM STEEL RAIL BARRIER

REVISION REGISTER

Revision	Description	Date
1	Issued for use.	26/06/2018
1 A	Transition to W-Beam permitted	13/05/2019
1 B	Connection to X-Tension Terminal removed, connection to MAX-Tension terminal added. RiderPro connection added. Product and Installation Manual updated.	4/04/2022
1 C	Supplier updated.	12/01/2024
1 D	1.0 m post spacing variant added.	28/11/2024

Sentry W-Beam is a semi-rigid steel rail barrier system which is accepted for use by Main Roads.

Identification Photographs:

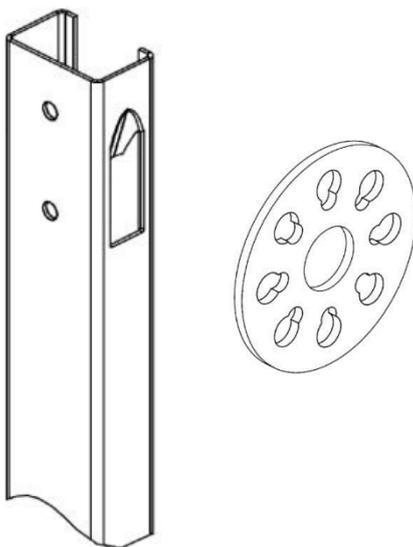


Front View

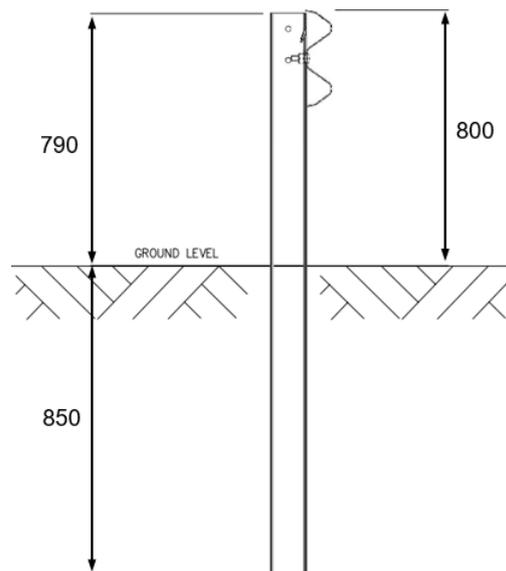


Rear View

Drawings:



**Isometric View of Post & Washer
NTS**



Typical Cross Section

SENTRY W-BEAM STEEL RAIL BARRIER

Ownership: Safe Direction Pty Ltd

Supplier: Safe Direction Pty Ltd
5 Simpson Close, Smeaton Grange, NSW 2567
Ph: (02) 4648 0394
Website - <http://www.safedirection.com.au/>

Test Level:
MASH TL 3 (2270 kg vehicle).

Configuration:

The Sentry W-Beam steel rail barrier consists of W-beam rail, which is attached to C-Section posts at 2000 mm centres. The system does not have blockouts, but a bolt and washer connection to control the release of the rail from the posts during impacts.

The posts are 1640 mm long and driven into the ground so that the height of the top of post is 790 mm above ground. The top of the W-beam rail is at a height 800 mm above ground.

Unless stated in this document the installation shall be in accordance with the Sentry W-Beam Product and Installation Manual v1.8 (July 2020) available on the Safe Direction website.

The RiderPro Continuous Motorcyclist Protection System may be connected to the Sentry W-Beam barrier. Refer to the RiderPro design sheet for conditions.

Design Considerations:

Test Deflection:

1.59 m under MASH TL 3 conditions (2270 kg vehicle at 100 km/hr and 25° impact angle)

Note that this deflection was measured in a crash test performed under controlled conditions. The deflection measured is the horizontal offset between the face of the w-beam rail measured prior to and following vehicle impact. Designers should be aware that the deflection figure published as a test result may not be the deflection value achieved in the field for all impacts by errant vehicles.

Minimum Length:

The minimum length of Sentry W-Beam barrier is 78 m (not including end terminals).

Offset from Kerbing:

As the Sentry W-Beam barrier does not include a blockout, a greater offset than public domain w-beam is required. The face of Sentry W-Beam barrier is to be placed 300 mm from the face of the kerb to minimise nuisance impacts and allow driving of posts to be clear of the kerb.

Locations offset further from the kerb are not preferred because of the possibility of vehicle either vaulting the barrier or not being redirected by the barrier.

Approach to barrier:

The approach to the barrier should be a trafficable running surface at a slope of 1 in 10 or flatter clear of objects and grade changes to allow an errant vehicle to hit the barrier at an appropriate height.

SENTRY W-BEAM STEEL RAIL BARRIER

Height Correction:

If placed less than 3 m from the face of the kerb the mounting height is measured from the pavement surface. At greater offsets the mounting height is measured from the adjacent finished surface levels.

End Treatments:

MAX-Tension Terminal only, refer to drawing GA-TR10 on the Safe Direction website.

Transitions

The transition from Sentry W-Beam to the MRWA public domain W-Beam shall be as per drawing GA-TR01, available in the product manual.

Transitions from Sentry W-Beam to thrie-beam or concrete barrier are not permitted.

Delineation:

Refer to the Safe Direction website.

Limitations:

- The Sentry W-Beam barrier configuration utilising a 1.0 m post spacing for short lengths in constrained situations may be accepted. However, approval is required from MRWA Road & Traffic Engineering Branch prior to specifying this configuration. Other post spacings are not accepted.
- The Sentry W-Beam barrier is a proprietary system that is designed as a “weak” post system, so its installation is restricted to soils equivalent to an AASHTO standard soil or stronger (i.e. CBR \geq 60).
- The Sentry W-Beam barrier configuration using posts on base plates is available. However, approval is required from MRWA Road & Traffic Engineering Branch prior to specifying this configuration.
- The Sentry Median W-Beam barrier configuration of back to back W-beam attached to a single line of posts is approved for use provided it is installed as per the Sentry Median Barrier Product and Installation Manual v1.5 (December 2018) and has a crash cushion as an end terminal.
- The offset from the back of the barrier post to the batter hinge point shall be a minimum of 1.59 m.
- Should not be installed behind kerbs if possible. If kerbing is required then the preferred kerbing is mountable Type A 100 mm. Semi-mountable is acceptable in some situations (speeds < 70 km/hr) but not preferred. Barrier kerbing shall not be used in front of barrier. Refer to Main Roads Standard Drawing 9331-0376 for kerb types.
- Sentry W-Beam barrier is not to be used for repairs of damaged sections of public domain or other proprietary w-beam barrier systems.
- During crash tests debris was expelled up to 6 m behind the barrier. This may be hazardous to vulnerable road users such as pedestrians and cyclists. Designers should take this into consideration when determining appropriate locations for this barrier.

References:

Item	Description
1	Barrier system information for Sentry W-Beam can be found on Main Roads file 16/10094.
2	Barrier system information for Sentry W-Beam median configuration can be found on Main Roads file 19/2850.

SENTRY W-BEAM STEEL RAIL BARRIER

Relevant FHWA Approval Letters:

Not applicable

Drawings:

Refer to the Sentry W-Beam product manual for assembly details.