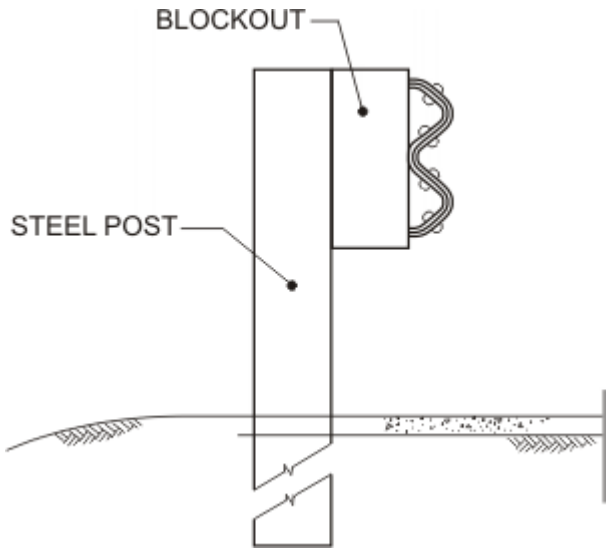
W BEAM DESIGN SHEET

REVISION REGISTER

Revision	Description	Date
1	Issued for use.	23/2/2004
1 A	Clarifications on use of semi-mountable kerb in front of barrier.	03/03/2006
2	Editorial changes, requirements for use of solid blockouts, details of requirements when installed at hinge points added.	11/05/2009
2 A	Test deflection amended. Main Roads Standard Drawing numbers updated.	12/08/2013
2 B	Limitations on verge width amended.	13/05/16
2 C	Reference to AS/NZS 3845:1999 Table 4.5.1 removed. Minimum length updated.	8/07/2022

W-Beam is a semi-rigid barrier system that can be either a public system or a proprietary system. The system described in this sheet was based on the G4 W-beam system and is commonly referred to as the public domain strong post W-Beam system.

Drawing:



Ownership: N/A
Supplier: N/A
Test Level: NCHRP 350 TL3.

Design Considerations:

Test Deflection: 1.2 m under TL 3 conditions.
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 section 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:
24 m measured between the points of redirection of the end treatments. At lengths less than this the barrier has insufficient strength to resist impacts.

W BEAM DESIGN SHEET

Offset from Kerbing:
Barrier is to be placed 200 mm from the face of the kerb to minimise nuisance impacts. 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.

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:
Any of the appropriate approved proprietary end treatments are suitable on the approach side. The trailing terminal may be used on the departure side providing the site meets the restrictions placed on this end treatment. Restrictions on the use of any of the end treatments are contained on the relevant End Treatment Design Sheet.

Limitations:

- New systems shall be installed with approved solid blockouts. Refer to Annexure 603 D of Main Roads Specification 603.
- The cross slope shall be not greater than 10% for the area between the edge of travelled way and the barrier.
- Can be installed in different configurations as shown on standard drawings.
- Normal post lengths require a minimum of 600mm between the back of the post and the batter hinge point (as shown on Main Roads Standard Drawing 201231-0041). The batter slope shall be 2(H):1(V) or flatter and the slope of the area between the barrier and the batter hinge point shall be no greater than 10%.
- Posts installed at the batter hinge point or within 600mm of the batter hinge point require the use of a longer post and the post spacing reduced to 1.0m. This treatment can be used at batter slopes 2(H):1(V) and flatter. Refer to Main Roads Standard Drawing 200931-0002.
- Should not be installed behind kerbs if possible. If kerbing is required then 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.

Parts to be Replaced after Impact
W-Beam, blockout and posts may need to be replaced after impact.

Parts Typically Re-Useable after Impact
Undamaged sections.

References
Crash testing of W-Beam system undertaken by VicRoads in June 2013 - refer Main Roads file 08/3206.

Drawings

Main Roads Standard Drawings	Description
200331-010 to 016 inclusive and 201231-0041	Barrier installed with 600 mm verge behind the post.
200931-0002	Barrier installed at the hinge point with batter slope 2 (H):1 (V) or flatter.