INGAL CIVIL PRODUCTS
A valmont COMPANY

Ingal Elevated Barrier

Deck and Side Mounted Bridge Barrier

www.ingalcivil.com.au

TL2 & TL3 OPTIONS

AS/NZS 3845.1 COMPLIANT

Ingal Elevated Barrier

INTRODUCTION

The new addition to the Ingal guardrail family is the Ingal Elevated Barrier System. Using many components from the MASH Test Level 4 Ezy-Guard High Containment system, the bridge barrier configuration is designed for bridges and structures requiring AS5100 compliant edge protection. The Ingal Elevated Barrier can be deck or side mounted to the bridge structure, saving valuable lane width.

It is compliant to AS 5100.2 - Low Performance Level, AS/NZS 3845.1, and MASH Compliant. The baseplated post arrangement has been evaluated and approved by ASBAP and all state road agencies. When integrated with the MASH TL3, Ezy-Guard 4 system, it provides a high level of roadside safety.

AS5100.2 Low Performance Level is comparable to the MASH Test Level 2 containment level, this is a 2270kg vehicle impacting the barrier at 70km/h and 25˚. However, many structures requiring Low Performance Level barriers have posted speeds of 100km/h and are rarely wide enough to achieve a 25˚ impact angle.

A method for calculating the encroachment angle of an errant vehicle is suggested in the Austroads Guide to Road Design – Part 6 (AGRD-6), Figure 5.8. For a two lane roadway with a 2m shoulder, an encroachment angle of 14.8˚ is suggested. To more represent real world conditions, the Ingal Elevated Barrier has been successfully evaluated for a 100km/h speed with the 2270kg vehicle impacting at 15˚.

For locations with a posted speed higher than 70km/h, a reduced post spacing configuration of the system is available for the MASH TL3 compliant version of the system.

An Ezy-HC-Carriage is used to secure the Thrie-beam rails to the posts eliminating the requirement for blocking pieces, saving valuable lane width.

ROAD SAFETY AND STRUCTURE PRESERVATION

Ingal Elevated Barrier is designed for minimal load transfer into the structure, reducing potential concrete damage in a crash. This means less road closures or need to repair concrete after impact damage.

There is also a lower impact risk to the vehicle occupants through the controlled yielding of the barrier posts.

An easy transition into Ezy-Guard 4 is achieved with a short 6m transition length. The shorter transition length results in returning to the higher MASH level crash rating when re-connecting to the Ezy-Guard 4 system.

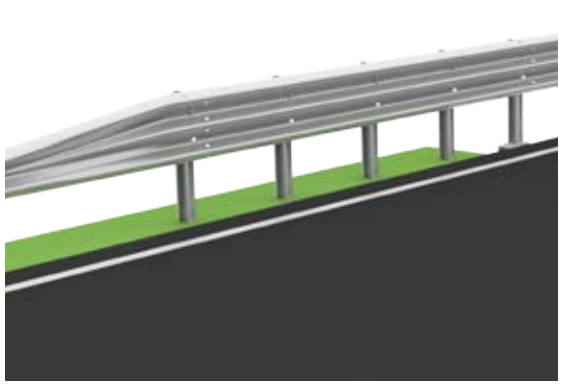
ADAPTABLE TO THE SITE

The Ezy-Guard Bridge Barrer can be easily retrofitted to existing structures, with deck or side mounted options available. It also utilises the Ezy-Guard's narrow 250mm footprint, saving valuable lane width.

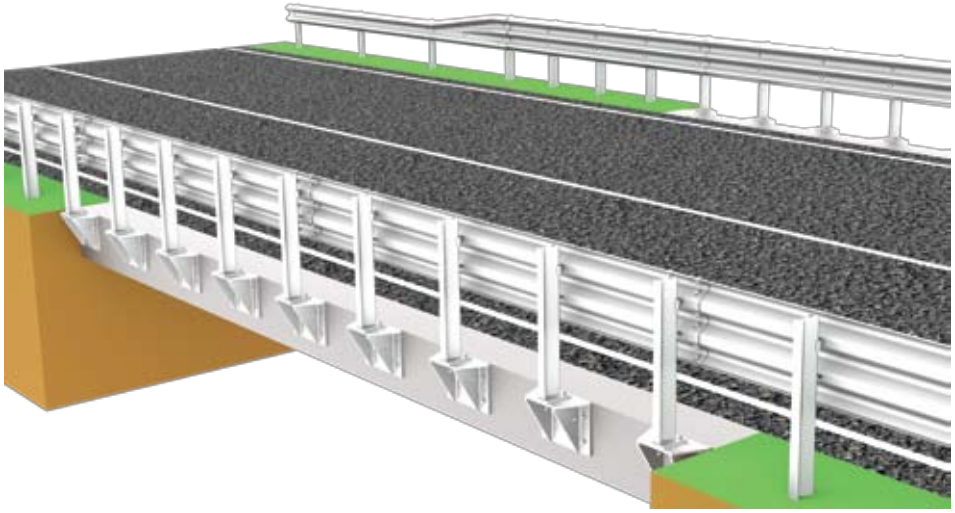
The Ingal Elevated Barrier system uses all off-the shelf components, with all stock readily available, minimising repair time in the event of a vehicle impact.

Specifications

Thrie-Beam Length:	4,000mm
Ezy-Guard BB Z-Post Mass:	13.5kg
Corrosive Protection:	HDG to AS4680
Rail Height Above Ground:	980mm
Z-Post Height Above Ground:	970mm
Post Spacing:	1m or 2m
Ezy-Guard BB System Width:	245mm



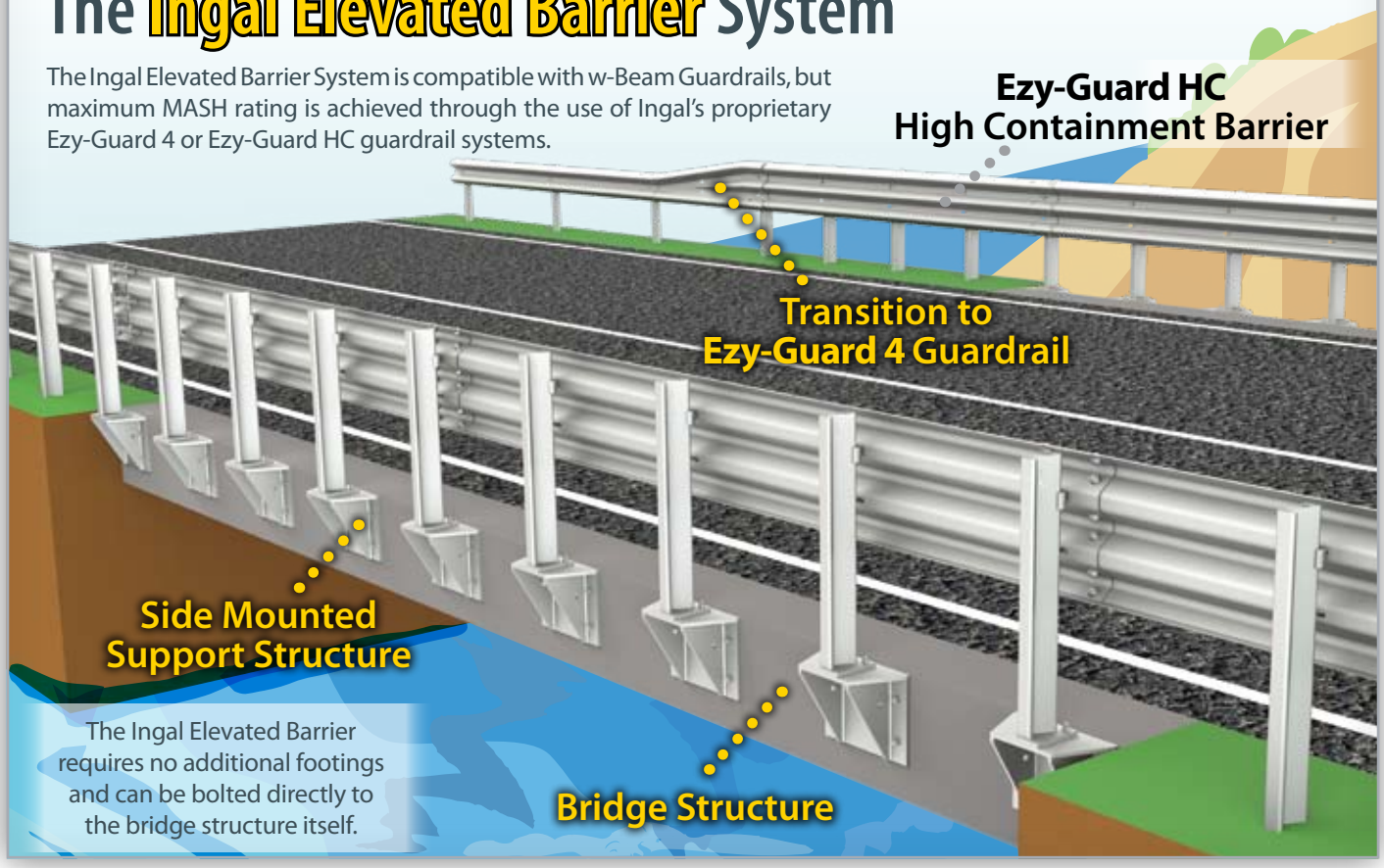
Ingal Elevated Barrier



Innovative Engineering

The Ingal Elevated Barrier System

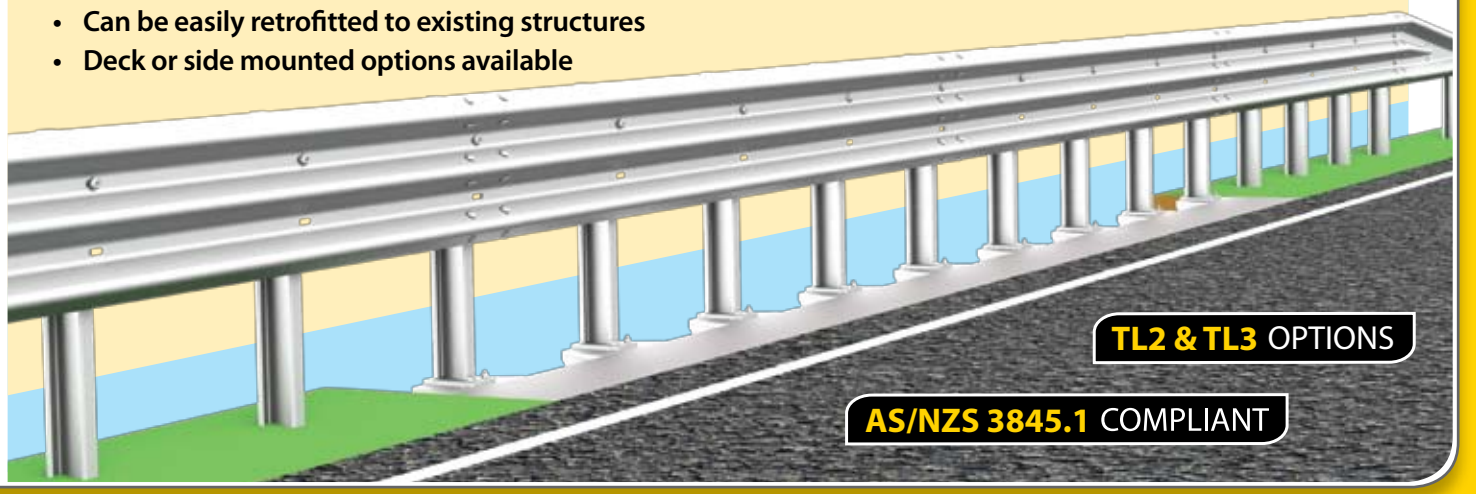
The Ingal Elevated Barrier System is compatible with w-Beam Guardrails, but maximum MASH rating is achieved through the use of Ingal's proprietary Ezy-Guard 4 or Ezy-Guard HC guardrail systems.



The Ingal Elevated Barrier requires no additional footings and can be bolted directly to the bridge structure itself.

ADVANTAGES

- Lower impact risk to vehicle occupants through controlled yielding of barrier posts
- Low load transfer into the structure, minimising concrete damage in a crash
- MASH TL2 and TL3 options available to suit your needs.
- Off the shelf components with stock readily available
- Narrow 250mm footprint, saving valuable lane width
- Can be easily retrofitted to existing structures
- Deck or side mounted options available



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