

TWEED SHIRE COUNCIL

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C264

**NON-RIGID ROAD
SAFETY BARRIER SYSTEMS**
(Public Domain)

VERSION 1.2

**SPECIFICATION C264 – NON-RIGID ROAD SAFETY BARRIER SYSTEMS
(Public Domain)**

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CITATION

This document is named “Tweed Shire Council, Development Construction Specification C264 – Non-Rigid Road Safety Barrier Systems (Public Domain)”.

ORIGIN OF DOCUMENT, COPYRIGHT

This document was originally based on AUS-SPEC - Development Construction Specification C264 – Non-Rigid Road Safety Barrier Systems (Public Domain), May 2000 (Copyright SWR-TM). Substantial parts of the original AUS-SPEC document have been deleted and replaced in the production of this Tweed Shire Council Development Specification. The parts of the AUS-SPEC document that remain are still subject to the original copyright.

VERSIONS, C264 NON-RIGID ROAD SAFETY BARRIER SYSTEMS (Public Domain)

VERSION	AMENDMENT DETAILS	CLAUSES AMENDED	DATE ISSUED (The new version takes effect from this date)	Authorised by the Director of Engineering Services
1.1	Original Version		1 July 2003	
1.2	Replace all references to SWAC with "Certifying Engineer"	Various	5 February 2016	

DEVELOPMENT CONSTRUCTION SPECIFICATION C264

NON-RIGID ROAD SAFETY BARRIER SYSTEMS (Public Domain)

GENERAL

C264.01 SCOPE

1. This Specification is for the setting out, supply of all materials and erection of road safety barriers and terminals.
2. This Specification details the requirements for public domain non-rigid road safety barrier systems. Where a patented non-rigid road safety barrier system is specified and shown on the design plans, all materials shall be in accordance with the manufacturer's specifications and, it shall be constructed strictly in accordance with the manufacturer's instructions.

C264.02 REFERENCE DOCUMENTS

1. Documents referenced in this Specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Documents
Standards Test
Methods**

(a) Council Specifications

- C201 - Control of Traffic
- C271 - Minor Concrete Works

(b) Australian Standards

- AS 1906.2 - Retroreflective devices (non pavement application).
- AS/NZS 3845 - Road safety barrier systems.
- AS/NZS 4680 - Hot-dip galvanised (zinc) coatings on fabricated ferrous articles

(c) Other

- RTA, NSW - Road Design Guide May 1996, Section 6 – Safety Barriers for Roads and Bridges.

(d) Order of Precedence

The setting out, supply of all materials and erection of road safety barriers and terminals shall be in accordance with the above documents. Where reference documents are in conflict, specific provisions of this Specification shall take precedence, followed by the provisions of Section 6 of the RTA Road Design Guide and then AS/NZS 3845.

**Order of
Precedence**

Where the provisions of this Specification do not address a specific condition, the provisions of Section 6 of the RTA Road Design Guide will take precedence, followed by AS/NZS 3845.

MATERIALS

C264.03 COMPONENTS

- | | | |
|----|---|----------------------|
| 1. | All steel components for public domain non-rigid road safety barrier systems, W-beam, Thrie-beam and MELT terminal sections shall be in accordance with Section 6 of the RTA Road Design Guide and shall be of the type as shown on the design plans. | <i>Steel</i> |
| 2. | Timber posts are to be used in W-beam and MELT terminal sections, as detailed on the design plans and shall be of the timber type, grade, size and treatment level in accordance with Section 6 of the RTA Road Design Guide. All surfaces shall be smooth and free from obvious saw marks. | <i>Timber</i> |

C264.04 CERTIFICATION

- | | | |
|----|--|---------------------------------------|
| 1. | Steel and timber road safety barrier components shall not be erected until the Subdivider has produced documentary evidence to the Certifying Engineer that the steel and timber road safety barrier components conform to the requirements of this Specification. | <i>Evidence of Conformance</i> |
|----|--|---------------------------------------|

CONSTRUCTION

C264.05 GENERAL

- | | | |
|----|---|---------------------------------------|
| 1. | The Subdivider shall at all times conform to the requirements of the Specification for CONTROL OF TRAFFIC. | <i>Traffic Control</i> |
| 2. | Construction of non-rigid road safety barrier shall comply with the manufactures recommendations and Section 6 of the RTA Road Design Guide, except where explicit departures are detailed on the design plans. | |
| 3. | Road safety barriers shall be erected after the construction of the base on concrete pavements and after the placing of the initial layer of asphaltic concrete or sprayed seal on a flexible pavement, unless otherwise approved by the Certifying Engineer. | <i>Timing of Construction</i> |
| 4. | The Subdivider shall set out the work to ensure that all road safety barriers and terminal sections are located in accordance with the manufacturer's instructions, the design plans or as directed by the Certifying Engineer. | <i>Set Out</i> |
| 5. | All works shall be erected in accordance with the manufacturers instructions, unless in conflict with the design plans. | <i>Precedence</i> |
| 6. | Underground cables and ducts laid in the road safety barrier area shall be located prior to the erection of posts and all care must be taken not to damage such cables and ducts. | <i>Cables and Ducts</i> |
| 7. | The posts should be set to the full depth as shown on the design plans. If this is not possible due to the presence of an underground obstruction, an alternative method of setting the posts, as approved by the Certifying Engineer, shall be used. | <i>Underground Obstruction</i> |
| 8. | Posts shall stand vertical and the spacing shall be such that when the safety barrier is erected no post movement is necessary in order to align holes or for | <i>Post Accuracy</i> |

NON-RIGID ROAD SAFETY BARRIER SYSTEMS

any other reason.

C264.06 ERECTION OF STEEL POSTS

- | | | |
|----|--|---------------------------------------|
| 1. | The safety barrier posts are to be located as shown on the design plans. The top of the post shall be 710mm, 805mm or 865mm as appropriate for W-beam, MELTS, Thrie-beam or modified blockout Thrie-beam respectively, above the ground level, unless otherwise shown on the design plans. On terminal ends, the level of the posts shall be such as to conform to the extended crossfall of the main pavement unless otherwise shown on the design plans. | <i>Positioning of Posts</i> |
| 2. | When erected in position the posts shall be on a smooth line both horizontally and vertically with the tops of posts within ± 20 mm of the heights specified in paragraph 1 of this Clause. | <i>Smooth Line/ Tolerances</i> |
| 3. | Steel posts shall be erected by driving, or by other means, as directed by the Certifying Engineer, in accordance with the requirements for foundation posts in Section 6 of the RTA Road Design Guide. The open section of the post shall point in the same direction as adjacent traffic. The posts are to be firm in the ground and any movement at ground level shall not exceed 3mm in any direction when force tested in accordance with Section 6 of the RTA Road Design Guide. | <i>Foundation and Testing</i> |
| 4. | The posts shall not have any obvious deformation as a result of driving. Any damage which does occur to the posts is to be repaired within 24 hours using an organic zinc-rich primer in accordance with the repair requirements of Appendix E in AS/NZS 4680. | <i>Damage to Posts</i> |
| 5. | Any post which has been excessively damaged will be rejected by the Certifying Engineer and shall be replaced by the Subdivider at the Subdivider's expense. | <i>Subdivider's Cost</i> |

C264.07 ERECTION OF TIMBER POSTS

- | | | |
|----|--|------------------------------------|
| 1. | The safety barrier posts are to be located as shown on the design plans. The top of the posts shall be 710mm ± 20 mm above the ground level, unless otherwise shown on the design plans. On terminal ends the level of the posts shall be such as to conform to the extended crossfall of the main pavement, unless shown otherwise on the design plans. | <i>Positioning of Posts</i> |
| 2. | When erected in position the posts shall be on a smooth line both horizontally and vertically. | <i>Smooth Line</i> |
| 3. | Unless otherwise directed by the manufacturer, the section of the timber posts to be cast into a reinforced concrete footing shall be wrapped in 12mm thick polystyrene foam sheeting before concrete casting. | <i>Polystyrene Foam</i> |
| 4. | Concrete used in the footings for timber posts shall have a minimum compressive strength of 32MPa at 28 days and shall conform with the requirements of the Specification for MINOR CONCRETE WORKS. | <i>Concrete</i> |
| 5. | Unless otherwise directed by the manufacturer, concrete footings shall be 600mm diameter, and shall have tolerances of minus zero or plus 50mm. Overbreak and excessive depth shall be filled with 32MPa concrete. | <i>Footing Size</i> |
| 6. | Wire fabric reinforcing shall be as detailed on the design plans. | <i>Reinforcing Fabric</i> |
| 7. | The surface area of the posts which will be above ground shall be painted with two (2) coats of grey acrylic paint. | <i>Painting</i> |

C264.08 ERECTION OF ROAD SAFETY BARRIER RAILS

- | | | |
|----|---|---|
| 1. | Steel blockout pieces shall be erected with the open section pointing in the same direction as adjacent traffic. | <i>Blockouts</i> |
| 2. | All rail laps shall be in the same direction as adjacent traffic such that approach rail ends are not exposed to traffic. | <i>Rail Laps</i> |
| 3. | Stiffening pieces, 300mm long, shall be used on intermediate posts. | <i>Stiffening Pieces</i> |
| 4. | Road safety barrier rails and blockout pieces shall be handled and erected in such a manner that no damage occurs to the galvanising. Any minor damage occasioned to the galvanising shall be repaired within 24 hours using an organic zinc-rich primer in accordance with the repair requirements of Appendix E in AS/NZS 4680. | <i>Minor Damage to Galvanising</i> |
| 5. | Any road safety barrier rails or blockout pieces which have been excessively damaged will be rejected by the Certifying Engineer and shall be replaced by the Subdivider at the Subdivider's expense. | <i>Subdivider's Cost</i> |
| 6. | Road safety barrier rail attachment bolts and splice bolts are to be tightened initially such that the barrier can be erected. Adjustments are then to be made to the rails using the slotted holes provided to produce a smooth regular line, free of any kinks or bumps. The overall line of the top of the safety barrier rails is to visually conform with the vertical alignment of the road pavement. | <i>Erection Procedure</i> |
| 7. | When the alignment both vertically and horizontally is obtained the splice bolts are to be fully tightened. The bolt head (not the shoulder) should be in full bearing with the rail. | <i>Splice Bolt Tightening</i> |

C264.09 END TREATMENT OF ROAD SAFETY BARRIERS

- | | | |
|----|--|---|
| 1. | Both approach and departure ends of the road safety barrier shall be constructed with leading and trailing terminal sections at locations shown and as detailed on the design plans. | <i>Leading, Trailing Terminals</i> |
| 2. | Modified Eccentric Loader Terminals (MELT) shall be constructed, as detailed on the design plans and at approach end locations of road safety barriers as shown on the design plans. Where the departure end of a road safety barrier is within the clear zone of opposing traffic, a MELT shall be constructed in place of a trailing terminal section. | <i>MELT</i> |
| 3. | The approach and departure ends of double-sided road safety barriers shall have terminal sections as detailed on the design plans. | <i>Double Sided Safety Barrier</i> |
| 4. | Non-rigid road safety barrier connections to rigid road safety barriers or bridge parapets shall be as detailed on the design plans. | <i>Connections to Rigid Barriers</i> |

C264.10 DELINEATORS

1. Delineators complying with AS 1906.2 shall be fixed with brackets to the road safety barrier, to the details and at the locations shown on the design plans beginning at the first post and then in accordance with the following table:- **Fixing**

Radius of Curve	Spacing of Reflectors on Barrier
M	every
30 – 90	3 rd post
90 – 180	5 th post
180 – 275	8 th post
275 – 365	11 th post
over 365	16 th post
(including straight road)	

2. The delineators shall be so arranged that drivers approaching from either direction will see only red reflectors on their left side, and white reflectors on their right. **Arrangement and Colour**

SPECIAL REQUIREMENTS

C264.11 RESERVED

C264.12 RESERVED

C264.13 RESERVED

C264.14 RESERVED

LIMITS AND TOLERANCES**C264.15 SUMMARY OF LIMITS AND TOLERANCES**

1. The limits and tolerances applicable to the various clauses in this specification are summarised in Table C264.1 below:

Item	Activity	Limits/Tolerances	Spec Clause
1.	Vertical Alignment		
	(a) Tops of steel posts.	± 20mm	C264.06
	(b) Tops of timber posts	± 20mm	C264.07
2.	Post Movement	≤ 3mm	C264.06
3.	Concrete Footings		
	(a) Diameter	-0mm or +50mm	C264.07

Table C264.1 - Summary of Limits and Tolerances