

CAPRICORN MUNICIPAL DEVELOPMENT GUIDELINES

GUIDE POSTS

C263

CONSTRUCTION SPECIFICATION

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Keeping the Capricorn Municipal Development Guidelines up-to-date

The Capricorn Municipal Development Guidelines are living documents which reflect progress of municipal works in the Capricorn Region. To maintain a high level of currency that reflects the current municipal environment, all guidelines are periodically reviewed with new editions published and the possibility of some editions to be removed. Between the publishing of these editions, amendments may be issued. It is important that readers assure themselves they are using current guideline, which should include any amendments which may have been published since the guideline was printed. A guideline will be deemed current at the date of development approval for construction works.

GENERAL

C263.01 SCOPE

C263.01.01 The work to be executed under this Specification consists of the setting out, supply of all materials and erection of guide posts at the locations shown on the Drawings in areas where street lighting is not provided.

C263.02 REFERENCE DOCUMENTS

C263.02.01 Documents referenced in this Specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

(a) Council Specifications

C201 - Control of Traffic

(b) Australian Standards

AS 1163 - Cold-formed structural steel hollow sections
 AS 1580 - Paints and related materials - Methods of test.
 AS 1580.101.1 - Air drying conditions. Temperature, humidity and airflow control
 AS 1580.481.1.11 Exposed to weathering - Degree of chalking.
 AS 1580.481.1.12 Exposed to weathering - Degree of colour change.
 AS/NZS 1580.602.2 Measurement of specular gloss of non-metallic paint films at 20°, 60° and 85°.
 AS 1604.1 - Specification for preservative treatment - Sawn and round timber
 AS 1906.2 - Retro-reflective devices (non-pavement application).
 AS 2082 - Visually stress-graded hardwood for structural purposes.
 AS 4680 - Hot-dip galvanized (zinc) coatings on ferrous hollow sections
 AS 5604 - Timber - Natural durability ratings

**Documents
Standards
Test Methods**

C263.03 DEFINITIONS

C263.03.01 Delineator are small retroreflectors or panels of retroreflective sheeting attached to guide posts to provide a coherent pattern of delineation of carriageway edges as an aid to night driving.

Delineator

C263.03.02 Flexible guide post is a guide post that when impacted by a vehicle, deflects and returns to the vertical position without maintenance intervention.

Flexible guide post

C263.03.03 Post used to mark the edge of the road carriageway. They assist the road user by indicating the alignment of the road ahead, especially at horizontal and vertical curves, and in some cases, provide a gauge with which to assess available sight distance

Guide post

C263.03.04 Rigid guide post is a guide post which when impacted by a vehicle, fails by fracturing or remains intact and straight, but not vertical.

Rigid guide post

C263.03.05 Semi-flexible guide is a guide post which when impacted by a vehicle, fails by bending but can be straightened with maintenance intervention. **Semi-flexible guide post**

C263.04 MATERIALS

(a) General

C263.04.01 Flexible guide posts: *Plastic, rubber or similar.* **Posts**

Semi-flexible guide posts: *Plastic, metal or other.*

Rigid guide posts: *Metal, timber or other non-timber material.*

C263.04.01 Guide Post Selection Table

Post type	Traffic and road condition
Flexible guide posts	- Posts are likely to be struck by vehicles, e.g. tight curves and narrow shoulders. - Roads with high volumes of motor cycles or bicycles.
Guide posts hinged at ground level	
Timber or semi-flexible guide posts	- Posts unlikely to be struck by vehicles.

C263.04.02 Guide Posts shall be of metal, plastic, rubber or similar, as an alternative, a flexible (driveable or non-driveable) post conforming to the requirements of this specification. The Contractor shall supply details of the proposed flexible guidepost including the manufacturer's recommended installation procedure, technical specifications and test certificates for consideration by the Superintendent.

(b) Timber Posts

C263.04.03 Timber posts shall be cut from Select Grade No.4 hardwood and conform with AS 2082. All surfaces shall be smooth and free from obvious saw marks. The natural durability class of the species supplied shall be that to AS 5604 and provided with preservative treatment to that of AS 1604.1 Table H4. **Quality**

C263.04.04 The posts shall be of rectangular cross-section having dimensions of 100mm x 50mm and shall be 1400mm in length. The tops of the guide posts shall be sloped so that one 90mm edge is 10mm lower than the opposite edge. **Dimensions**

(c) Metallic Posts

C263.04.05 Metal posts shall be cut from Select Grade Steel and conform with AS 1163. All surfaces shall be smooth and free from obvious sharp edges. **Posts**

C263.04.06 All guide post components are to be hot-dip galvanised after fabrication in accordance with AS/NZS 4680 to Class Z 600. Prior to galvanising, the surfaces shall be treated in accordance with AS 1627.1 and AS 1627.4. **Protection**

C263.04.07 The posts shall be of rectangular cross-section having dimensions of 100mm x 50mm and shall be 1000mm above ground surface. **Dimensions**

(c) Flexible Posts

C263.04.08 Flexible guide posts shall be made to a design, and from a material, which provides the properties of strength, flexibility, impact resistance and durability. The material shall be mould resistant, solvent resistant, heat resistant and fire retardant. **Properties**

- C263.04.09 The surface of the posts shall have a durable gloss or semi-gloss opaque white finish. The surface shall be smooth and easily cleaned. **Surface Finish**
Colour: Whiter than Y35 Off White of AS 2700
- C263.04.10 The flexible posts shall be 1000mm above ground surface and shall have one face of 100mm width with a thickness of 50mm. **Dimensions**
- C263.04.11 Flexible posts shall have certification of compliance with the following physical properties and performance characteristics when subjected to the referenced tests:
- a. the composition of the posts shall not vary beyond commercially accepted limits from the composition stated by the manufacturer at the time of tendering. Testing, in accordance with AS 1580.101.1, shall be carried out under standard ambient conditions of temperature $23 \pm 2^{\circ}\text{C}$ and relative humidity 45 per cent to 75 per cent.
 - b. the mass of any individual post shall not vary more than ± 3 per cent from the mass of 20 sample posts.
 - c. resistance to accelerated weathering - when tested in accordance with AS 1580.483.1, shall be free from crazing and blistering. The degree of chalking and colour change shall not fall below a rating of 6 when tested in accordance with AS 1580.481.1.11 and 12, and the loss of gloss shall not exceed 20 gloss units (egg shell gloss) when evaluated in accordance with AS/NZS 1580.602.2.
 - d. resistance to heat - the post shall be conditioned at $60^{\circ}\text{C} \pm 1\text{C}$ for 2 hours in an oven. The conditioned post shall be bent 180° at the midpoint four times within 2 minutes of removal from oven. The deflection of the top of the post shall be no greater than 50mm, 30 seconds after the fourth bend.
 - e. resistance to impacts after accelerated ageing - the test post shall be kept in an oven for 28 days at 50°C , then removed and allowed to cool. The test post shall then be conditioned in a cold box for 2 hours at 10°C , then removed and placed in a suitable holder and supported horizontally by both ends. Using a guide tube, a steel ball of mass 1.03kg is allowed to fall on the test post in 5 successive impacts on the same spot within one minute of removal from the cold box. The post shall show no evidence of fracture, cracking or splitting.
 - f. resistance to vehicle impacts - the posts shall be manufactured from an impact resistant material and be so designed that an installed post is capable of returning to its original shape and remaining serviceable after being subjected to the following series of direct impacts by a typical passenger sedan at temperatures between 15°C and 30°C .
 - g. Posts shall be capable of withstanding a series of 10 bumper bar impacts at 60km/h and 5 bumper bar impacts at 100km/h directed at 90° to the front face of the guidepost. The impacting vehicle shall suffer little or no damage during the impact test series.
 - h. The posts to be tested shall be installed in accordance with the recommendations of the manufacturer, and shall be furnished complete with attached delineators.

(d) Delineators

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| C263.04.12 | Fix the delineators to the post so that they are weatherproof and vandal resistant and can be replaced without damaging the post. | <i>Fixing</i> |
| C263.04.13 | Corner-cubed delineators, conforming to AS 1906.2 shall be attached to each post with a one-way, anti-theft screws. Do not use corner-cubed delineators on flexible or semi-flexible guide posts. | |
| C263.04.14 | For proprietary posts delineators the fixing method shall be either glued or fasten so that it cannot be dislodged by vehicular impact. | |
| C263.04.15 | The delineators shall be neither less than 80mm nor more than 85mm diameter with Class 1A retroreflective sheeting. | <i>Diameter</i> |
| C263.04.16 | Centrally locate delineators between the edges of the post, with the top of each delineator finishing 50 to 100 mm below the top of the post. | <i>Positioning</i> |

CONSTRUCTION**C263.05 GENERAL**

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| C263.05.01 | The Contractor shall at all times conform to the requirements of the Specification for CONTROL OF TRAFFIC C201. | <i>Traffic Control</i> |
| C263.05.02 | Where the shoulder is in embankment or at natural surface level, the guide posts shall be placed near the outer edge of the shoulder and at a uniform distance, minimum 1m, from the pavement edge line. Where the shoulder is located in a cutting, the guide posts shall be placed on the road pavement side of the table drain, and minimum 1m from the pavement edge line, in such a manner as not to impede the flow of water in the drain. | <i>Positioning</i> |
| C263.05.03 | Guide posts shall be erected at the locations shown on the Drawings. | <i>Location</i> |
| C263.05.04 | Underground services laid in proximity to the guide posts shall be located prior to erection of posts, all care shall be taken not to damage such services. | |

C263.06 PROTECTIVE TREATMENT OF TIMBER GUIDE POSTS

- C263.06.01 The portion of the guide post below ground level shall be dipped in creosote, and heated to 90°C for a minimum period of one hour. **Creosote**
- C263.06.02 All timber above ground level shall be painted with pink primer and any holes, cracks, or other surface imperfections in the timber, shall be stopped with white putty. This work shall be followed by painting with a white undercoat and a white enamel finishing coat. **Painting**
- C263.06.03 Painted surfaces shall be thoroughly dry before the second coat is applied. Paints shall be handled and applied in accordance with the manufacturer's directions. **Dry Surfaces**
- C263.06.04 All paints shall be of the best quality, durable and suitable for exterior application on timber surfaces. **Paint Quality**

C263.07 ERECTION OF GUIDE POSTS

- C263.07.01 Guide posts shall be set vertically in the ground to a depth of approximately 500mm for rigid/timber guide posts and 350mm for flexible/semi-flexible guide posts. In order to offset shoulder irregularities this depth shall be varied so as to give uniform display of guide posts to a height of approximately 1000mm above ground level, with the tops evenly graded. Each guide post shall be erected with the 100mm axis at right angles to the centre line of the road. **Details**
- C263.07.02 Allowance shall be made in the height of guide posts above the ground for the effects of superelevation and other road geometry in order to keep the guide posts within the range of the beam of vehicle headlights. **Vertical Alignment**
- C263.07.03 Backfilling shall be compacted in layers of depth not more than 150mm for the full depth of the guide posts up to ground level. The density of the compacted backfilling shall not be less than that of the adjacent undisturbed ground. Guide posts shall be firm in the ground to the satisfaction of the Superintendent. **Backfilling**
- C263.07.04 Flexible guideposts, when installed in the ground in accordance with the recommendations of the manufacturer, shall resist overturning, twisting and displacement from wind, impact forces and removal by persons other than personnel using recommended removal tools. **Flexible Guideposts**

C263.08 DELINEATORS

- C263.08.01 'Corner Cubed' delineators, complying with AS 1906.2, shall be attached to each guide post using one way, anti-theft screws. In the case of Flexible posts, the delineators shall be glued or otherwise fastened to the post in such a manner that they are not dislodged or rendered inactive under vehicular impact. **Fixing**
- C263.08.02 The delineators shall be mounted so that the top of the reflector is 50mm below the top of the guide post. **Position**
- C263.08.03 The delineators shall be so arranged that drivers approaching from either direction will see only red delineators on their left side and white delineators on their right side. **Arrangement**

LIMITS AND TOLERANCES**C263.09 SUMMARY OF LIMITS AND TOLERANCES**

- C263.09.01 The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C263. 07.1 below:

Table C263. 07.1 - Summary of Limits and Tolerances

Item	Activity	Limits/Tolerances	Spec Clause
1.	Guide Post Installation Tolerances		
	(a) Verticality	3° from true vertical	
	(b) Height	25mm of the uniform profile height	
	(c) Location:		
	• Longitudinally of the documented spacing	200mm	
	• Transversely of the documented position	100mm	