DEVELOPMENT CONSTRUCTION SPECIFICATION

C262

SIGNPOSTING

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
Original	*Northern Rivers - Local Government Version*	*All*	*Original Edition*	*LCC*	*January 1999*
1	Major Revision as per Aus-Spec Bulletin Board Release 10	All	AMO	SPM	10/4/03
2	Revisions as per Aus-Spec Bulletin Board releases 11 & 12	All	AMO	SPM	10/4/03

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SPECIFICATION C262 : SIGNPOSTING

GENERAL

C262.01 SCOPE

1. The work to be executed under this Specification consists of:

   (a) the supply and erection of the Regulatory, Warning, Guide, Information and Direction signs as described in AS 1742, AS 1743 and AS 1744.

   (b) the supply and erection of sign support structures to support the signs, and

   (c) the adjustment of existing signs and sign support structures.

2. Requirements for quality control and testing, including maximum lot sizes and minimum test frequencies, are cited in the Specification Part for Quality Requirements. ***Quality***

C262.02 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 1163	-	Structural steel hollow sections
AS 1214	-	Hot-dip galvanised coatings on threaded fasteners
AS 1250	-	The use of steel in structures (SAA Steel Structures Code)
AS 1379	-	The specification and manufacture of concrete
AS/NZS 1554.1		Welding of steel structures
AS/NZS 1580.602.2		Measurement of specular gloss of non-metallic paint films at 20^{o}, 60^{o} and 85^{o}
AS 1580.108.2	-	Dry film thickness - Paint inspection gauge
AS/NZS4680	-	Hot-dip galvanised (zinc) coatings on fabricated ferrous articles
AS 1734	-	Aluminium and aluminium alloys - flat sheet, coiled sheet and plate
AS 1742	-	Manual of uniform traffic control devices
AS 1743	-	Road Signs - Specifications
AS 1744	-	Forms of letters and numerals for road signs
AS 1866	-	Aluminium and aluminium alloys - extruded rod, bar, solid and hollow shapes
AS 2700	-	Colour standards for general purposes
AS 3678	-	Structural steel - hot-rolled plates, floorplates and slabs
AS 3679.1	-	Structural steel - hot-rolled bars and sections

C262.03 PROVISION FOR TRAFFIC

1. The Contractor shall provide for traffic in accordance with the requirements of the Specification for CONTROL OF TRAFFIC while undertaking the work and shall organise the work to avoid or minimise delays and inconvenience to traffic.

Minimise Inconvenience

2. Where a sign is erected before its intended use by traffic and is visible to traffic, the face of the sign shall be completely and securely wrapped in porous cloth sheeting or other opaque covering material approved by the Superintendent, until the Superintendent directs that the sign shall be uncovered.

Premature Sign Exposure

MATERIALS

C262.04 GENERAL

1. The Contractor shall advise the names of the proposed suppliers of signs and sign support structures for the Superintendent's concurrence. Only suppliers who have previously established or can now establish their competence to carry out the work in accordance with this Specification shall be used.

Approved Supplier

2. The Contractor shall supply documentary evidence, satisfactory to the Superintendent, that all materials and parts proposed for use comply with the requirements of the appropriate Australian Standard(s).

Proof of Quality

3. Details of the signs and sign support structures to be provided under the Contract shall be as shown on the Drawings.

Details

4. The dimensions, legend and background for each sign shall be in accordance with this Specification and the Drawings.

Dimensions Legend and Background

C262.05 SIGN BLANKS

1. Sign blanks shall be 1.6 mm thick aluminium sheet alloy. The aluminium alloy shall be Type 5251 or Type 5052 and Temper H38 or Temper H36 in accordance with AS 1734.

Aluminium Quality

2. Sign blanks shall be free of cracks, tears and other surface blemishes and the edges shall be true and smooth. The dimensions of the sign blank shall be within plus or minus 1.5 mm of the dimensions specified and the finished sign shall be flat within a maximum allowable bow of 0.5 per cent of the maximum dimension of the sign blank in any direction.

Dimension Tolerances

3. Sign blanks shall be one piece except where the sign is of such a size as to require more than one full sheet of aluminium in which case a multipiece sign shall be allowed.

One Piece

4. A multipiece sign shall be made up of the minimum number of pieces practical and sheets of the multipiece sign shall be butted together with a maximum gap of 1 mm at any point along the joint.

Multipiece Sign

5. All joints shall be covered by a backing strip. The backing strip shall be riveted to each sheet with rivets, coloured to match the background material on the face of the sign, at a spacing not exceeding 200 mm. Backing strips shall be of the same material and colour as used for the sign blank and shall have a minimum width of 50 mm over the full length of the joint.

Joint Backing Strips

6. The aluminium extrusion used for mounting may be used as the backing strip for horizontal joints where it complies with the spacing requirements. ***Aluminium Extrusion as Backing Strip***

7. The face of each sign blank shall be chemically cleaned and etched or mechanically abraded. Where the sign blank is to receive a paint background, the face shall be spray painted with a compatible etch primer. ***Face Treatment***

8. The back of each sign blank shall be uncoated and the surface finish shall be rendered dull and non-reflective either by mechanical or chemical means and shall be free of scratches and blemishes. ***Back Treatment***

9. Signs shall be supplied with square holes or aluminium extrusion backing for mounting purposes, at the centre spacings as shown on the Approved Drawings. ***Mounting***

C262.06 ALUMINIUM EXTRUSION BACKING

1. The signs shall include special aluminium extruded sections for mounting purposes. The aluminium shall be Type 6063-T5 in accordance with AS 1866. ***Design Section***

2. The aluminium extrusion shall be fixed at the centre spacings as shown on the Drawings and shall be riveted to the sign blank with correctly coloured rivets at a spacing not exceeding 200mm. ***Fixing***

C262.07 RETRO-REFLECTIVE MATERIAL FOR BACKGROUND AND LEGEND

1. The retro-reflective material shall be approved by Council. The background and legend material shall be compatible both in application and durability. ***Approval***

2. Retro-reflective material shall conform in colour and class to the requirements of AS 1743 for Class 1, Class 2 and Class 2A materials. Unless shown otherwise on the Drawings, the material shall be Class 2. ***Standard***

C262.08 NON-REFLECTIVE BACKGROUND MATERIAL

(a) Background Paint ***Quality***

1. Background paint shall be an approved long life industrial quality, two compound polyurethane paint. The paint shall exhibit high standards of adhesion, abrasion resistance, resistance to weathering and colour fastness under widely varying conditions of exposure. The paint shall be compatible with the etch primer used on the sign blank.

2. The paint shall be applied using conventional air spray application to give a uniform cover free of blemishes. A minimum dry film thickness of 38 microns is required when tested in accordance with AS 1580.108.2. ***Application***

3. Background paint shall be as specified from one of the following colours: ***Colours***

(i) White - Gloss

(ii) 'Dark' Green - Matt Colour No G61 as specified in AS 2700.

(iii) 'Tourist' Brown - Matt Colour No X65, Dark Brown, as specified in AS 2700.

(iv) 'Dark Grey' - Matt Colour No N64, Dark Grey as specified in AS2700.

4. Exact colorimetric values are set out in AS 2700. ***Gloss Levels***

(i) For matt coatings, the gloss level, determined by AS/NZS 1580.602.2, using an 85° head, shall be neither less than 12 per cent of gloss nor more than 15 per cent of gloss.

(ii) For gloss coatings, the gloss level, determined by AS/NZS 1580.602.2 using a 20° head shall be neither less than 85 per cent of gloss nor more than 95 per cent of gloss.

(b) Background Sheet Material ***Quality***

1. Adhesive cast vinyl sheet material or other equivalent material approved by the Superintendent may be used in place of background paint. The material shall be of uniform density and compatible with the material used for the legend both in application and durability.

2. The colours and gloss levels shall be uniform and conform to the requirements of Clause C262.08(a). ***Colours and Gloss***

C262.09 NON-REFLECTIVE MATERIAL FOR LEGEND

(a) Legend Screening Ink

1. Screening ink shall be a high quality, full gloss, non-fade, non-bleed and scratch resistant type of ink compatible with the material to which it is applied. Screening ink shall have durability at least equal to the material to which the screening ink is applied. ***Quality***

(b) Legend Sheet Material

1. Adhesive cast vinyl sheet material such as 'Scotchcal' or other equivalent material approved by the Superintendent may be used in place of screening ink. The material shall be of uniform density and compatible with the material used for the background both in application and durability. ***Quality***

(c) Colours and Finish

1. The requirements of Clause C262.08(a) shall also apply to non-reflective materials for legends but additional colours complying with AS 2700 may be specified. ***Colours and Gloss***

C262.10 RIVETS

1. Each rivet shall consist of a domed head and shank made of aluminium alloy and a steel mandrel which is discarded after securing the rivet. ***Head and Shank***

2. A paint coating shall be applied to the domed head so that when the rivet is in position it will show the same colour as the material to which it is attached. Paint may cover the shank of the rivet, providing the coating thickness does not restrict the insertion of the shank into the standard drilled hole for that rivet. ***Painted Head***

3. The paint shall be an alkyd enamel, which shall be applied after an appropriate treatment of the shank of the rivet to ensure long lasting adhesion. ***Paint Application***

C262.11 REFERENCE MARKINGS

1. All signs shall be clearly and permanently stamped or engraved with an ***Identification***

identification coding. The coding shall appear in ciphers of height neither less than 6 mm nor more than 10 mm on the rear of the sign and shall be carried out in such a manner that the front face of the sign is not damaged. ***Code***

2. For rectangular signs, the coding shall appear as near as practicable to the bottom rear left hand corner. For other shaped signs, the coding shall be positioned on or below the horizontal centre line and as near as practicable to the left hand rear edge. ***Location***

3. Manufacturers shall include coding information in the following format:- ***Information Shown***

Manufacturer's Name
Month and Year of Manufacture
Manufacturer and Class of Retro-Reflective Material

C262.12 SIGN SUPPORT STRUCTURES

(a) General

1. Sign support structures shall be fabricated from steel sections which shall comply with the requirements of AS 1163, AS 3678 and AS 3679.1. ***Standards***

2. Signs support structures shall be standard round galvanised posts of 50, 65 or 80 mm nominal bore or purpose-designed steel structures as shown on the Drawings and manufactured in accordance with the requirements of AS 1250. ***Size***

3. Splices in members shall be restricted to a maximum of one splice per member. Splices shall be full penetration butt welds. ***Splices***

4. All welding shall be as shown on the Drawings and in accordance with the requirements of AS 1554.1, Category GP. ***Welding Standard***

(b) Protective Treatment

1. Except for standard galvanised posts, all steel components including brackets shall be protected by hot-dip galvanising after all fabrication processes are completed. ***Hot-Dip Galvanising***

2. The steel components shall be finished by the hot-dip galvanised process in accordance with AS/NZS4680 to provide an average minimum coating thickness of 85 microns and a bright finished surface free from white rust and stains. ***Finish***

3. Bolts, nuts and washers and brackets shall be galvanised in accordance with AS 1214. ***Bolts, Nuts etc.***

4. Splices in standard galvanised posts shall be painted by using an organic zinc-rich primer, or inorganic zinc silicate paint, in accordance with the repair requirements in Appendix E of AS/NZS4680. ***Splices***

5. Scratched and slightly damaged surfaces of galvanised coatings shall be renovated by using an organic zinc-rich primer, or inorganic zinc silicate paint, in accordance with the repair requirements in Appendix E of AS/NZS4680. This method of renovation shall be restricted to areas not exceeding 2500 square millimetres on any one structure. Any structure with totally-damaged coating areas exceeding 2500 square millimetres shall be regalvanised by the Contractor. ***Damaged Surfaces***

6. The cost of regalvanising such damaged coating areas shall be borne by the Contractor. ***Contractor's Costs***

(c) Attachment of Signs

1. Posts and other components shall be provided with the required sign attachment holes or fittings to suit the typical attachment systems as shown on the Drawings. Sign panels shall be attached to each supporting member at each extrusion section or bolt hole in the sign panel.

Typical Systems

2. The Contractor shall submit details of the proposed attachment systems for the Superintendent's approval.

Contractor's Responsibility

ERECTION OF NEW SIGNS

C262.13 SETTING OUT

1. The location of signs shall be as shown on the Drawings or as directed by the Superintendent. The Contractor shall set out the work to ensure that all signs and support structures are placed in accordance with the Drawings or as directed by the Superintendent.

Location

2. Signs shall be aligned approximately at right angles to the direction of the traffic they are intended to serve. On curved alignments, the angle of placement should be determined by the course of approaching traffic rather than the orientation of the road at the point where the sign is located.

Alignment

3. The Contractor shall submit details of and set out, for the Superintendent's inspection and approval, the proposed location and alignment of each sign support structure.

Contractor's Responsibility

4. Work on the foundations of the sign support structure shall not commence until the Superintendent has approved the location and alignment of the sign support structure.

Approval of Super-intendent

C262.14 CLEARING

1. Any trees and undergrowth within three metres of the sign support structure and along a driver's line of sight to the front of the sign shall be cleared and removed. Such work shall be approved by Council prior to commencement of work.

Extent of Work

C262.15 SIGN STRUCTURE FOOTINGS

1. The footings for a simple pipe support or the footings for each post of a purpose-designed sign support structure shall be constructed in accordance with the Drawings or as directed by the Superintendent.

Details

2. The footings shall be neatly excavated to the depth and width shown on the Drawings. The material from the excavation shall be disposed of in a responsible and legal manner.

Excavation

3. When anchor bolt assemblies are specified they shall be accurately placed and firmly supported. Anchor bolt assemblies shall be provided with levelling nuts under the sign structure baseplates to allow adjustment of the structure after installation.

Anchor Bolt Assemblies

4. Steel reinforcement shall be placed as shown on the Drawings.

Steel Reinforcement

5. Concrete in the footings of sign support structures shall comply with the Specification for MINOR CONCRETE WORKS and have a minimum compressive strength at 28 days of 20MPa for pipe support footings and 32MPa for purpose-designed

Concrete Quality

support footings.

6. If ready mixed concrete is used, the concrete shall be mixed and delivered in accordance with AS 1379. ***Ready Mixed Concrete***

C262.16 ERECTION

1. All components shall be accurately positioned and supported during erection. ***Position and Support***

2. The top of each pipe support post shall extend sufficiently beyond the upper extrusion section or bolt holes on the sign panels to enable attachment of the signs. The top of each post shall be below the top edge of the sign panel. ***Top of Post Level***

3. For pipe support multi-post installations, the tops of the posts shall be at the same level except where sign shape or the arrangement of sign panels dictates otherwise. ***Multi-Post Installation***

4. During erection, sign panels shall be suitably supported and braced and the sign face protected from damage. Signs damaged during erection shall be repaired to a standard equivalent to the original sign or replaced by the Contractor at the Contractor's cost. ***Sign Damage*** ***Contractor's Cost***

5. Galvanised coatings on purpose-designed support structures which are scratched or slightly damaged during erection shall be renovated by using an organic zinc-rich primer, or inorganic zinc silicate paint, in accordance with the repair requirements in Appendix E of AS/NZS4680. This method of renovation shall be restricted to areas not exceeding 2500 square millimetres on any one structure. Any structure with totally-damaged coating areas exceeding 2500 square millimetres shall be regalvanised. ***Treatment of Damaged Areas***

6. The cost of regalvanising such damaged coating areas shall be borne by the Contractor. ***Contractor's Costs***

7. The Contractor shall advise Council of the date, time and location of each regulatory sign to be placed.

ADJUSTMENT OF EXISTING SIGNS AND SUPPORT STRUCTURES

C262.17 GENERAL

1. Where shown on the Drawings and where directed by the Superintendent, the Contractor shall adjust existing sign panels and sign support structures. The work shall include minor adjustments of existing sign panels and/or sign support structures or the work may extend to the dismantling of signs and sign support structures, relocation or replacement of sign support structures including footings and re-erection of signs including all fittings. ***Extent of Work***

SPECIAL REQUIREMENTS

C262.18 RESERVED

C262.19 RESERVED

C262.20 RESERVED

C262.21 RESERVED

LIMITS AND TOLERANCES

C262.22 SUMMARY OF LIMITS AND TOLERANCES

Item	Activity	Tolerances	Spec Clause
1.	**Sign Blanks**		
	(a) Dimensions	± 1.50mm	C262.05
	(b) Bow	< 0.5% of maximum dimension	C262.05
	(c) Butt gap in multipiece sign	< 1mm	C262.05
	(d) Rivet spacing in backing strip	< 200mm	C262.05
	(e) Backing strip width	>50mm	C262.05
2.	**Extrusion Backing**		
	(a) Rivet Spacing	<200mm	C262.06
3.	**Background Paint**		
	(a) For matt coatings, gloss level	>12% and <15%	C262.08
	(b) For gloss coatings, gloss level	>85% and <95%	C262.08
4.	**Reference Marking**		
	(a) Height of Coding	>6mm and <10mm	C262.11
5.	**Sign Support Structures**		
	(a) Protective Treatment thickness	>100 microns	C262.12b
	(b) Paint coating over Splices in standard galvanised posts	>100 microns	C262.12b
	(c) Damaged Surface of galvanised surfaces:		
	(i) Coating with zinc rich paint	Area <2500 sq. mm	C262.12b
	(ii) Regalvanise	Area >2500 sq. mm	C262.12b
6.	**Clearing**		
	(a) Trees and Undergrowth to be cleared	<3 metres from sign support structure	C262.14
7.	**Concrete in Foundations of Sign Support Structures**		
	(a) Strength	>25 MPa at 28 days	C262.15

Table C262.1 - Limits and Tolerances

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SPECIFICATION C262 - SIGNPOSTING