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SECTION 14 : ROAD SIGNS AND STREET FURNITURE

14.1 SIGN DESIGN AND CONSTRUCTION

All signs are to be constructed and installed in accordance with:

- a) The latest version of the appropriate NZ Transport Agency Specifications covering sign formats, in particular -
 - i) NZTA Manual for Signs & Markings Part I: Traffic Signs (MOTSAM)
 - ii) NZTA C20 "Standard for Manufacture & Maintenance of Traffic Signs, Posts and Fittings"
- b) NZS 5414:1977 "Specification for the Construction of Traffic Signs"
- c) Road Sign Manufacturers Association (RSMA) Compliance Standard for Traffic Signs
- d) Land Transport Rule Traffic Control Devices 2004 and subsequent amendments.

HCC specification or individual requirements will supersede standards set out in the above documents.

All backs of signs are to be coloured "aircraft grey" No. 693 as referred to in BS381C, or similar with a semi-gloss finish, unless otherwise stated. Slate grey (as per NZTA Specifications) is an approved alternative. Any uncertainty should be checked with the Engineer.

All signs except "Rebound" plastic RG17s are to have an aluminum substrate.

All Stop (RG5), Giveaway (RG6), Keep Left (RG17) and street name plates are to be of Class 1 Wide Observation Angle (VIP or similar) reflectorised sheeting.

All other regulatory, warning and information signs are to be Class 1 High Intensity grade reflectorised sheeting.

All parking signs are to be non reflective.

Where the MOTSAM gives the option for square or radiused corners, radiused corners are to be supplied.

Mounting — unless specified otherwise, all signs shall be mounted to posts using 10mm galvanised bolts. A nylon washer is to be used on the front side of the sign to deduce the risk of damage to the reflective sheeting. Likewise the bolts are to be tightened in a manner that will not damage the sheeting.

14.2 TYPICAL SIGN INSTALLATION AND LOCATION

14.2.1 Regulatory and Parking Signs

Regulatory signs are to be located in accordance with the NZTA Manual of Traffic Signs & Markings Part I. The following guidelines are additional to the above document:

- i) Height of Sign (except Keep Left, Bus Stop, Parking) in berm areas:
 - a) 3.0m to top of sign (behind kerb line)
 - b) 2.0m to top of sign (in traffic island)

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- ii) Height of Sign (Keep Left) in islands : 250mm between bottom of sign and top of adjacent kerb. 1.5m from traffic island nose.
- iii) Height of sign (Bus Stop & Parking) : 2.7m to top of sign
- iv) Longitudinal Offset (except Keep Left):
 - a) 5m (\pm 1m)* from tangent to intersecting road kerb line (behind kerb line)
 - b) 3m from island nose (in traffic island)
 - c) Keep Left : 1.5m from traffic island nose.
 - d) Mobility : 1m back from front of park.
- vi) Lateral offset:
 - a) Poles shall not be closer than 500mm from kerb line. Sign shall not be closer than 350mm from kerb face.
 - b) in centre of traffic island with a maximum offset of 1m from island kerb face
- vii) With the exception of Parking Signs which are installed on NB50, all regulatory signs shall be installed on NB65 poles.

Note: * Tolerance to accommodate possible site constraints.

14.2.2 Parking Signs

With the exception of signs in the CBD parking area, as shown on TS 367, parking signs shall be as detailed in NZTA Manual of Traffic Signs & Markings, Part I (RP-4 or RP-4.1). Signs in the CBD shall be as detailed on TS 366.

14.2.3 Warning Signs

Warning signs are to be located in accordance with the NZTA Manual of Traffic Signs & Markings, Part I. The following guidelines are additional to this document:

- i) Height of Sign : 3.0m to top of sign.
(except Diverge Sign and Chevron Boards)
- ii) Height of Sign (Chevron Board) : 750mm to top of sign. Consideration should be given to road vertical alignment when determining sign height
- iii) Height of Sign (Diverge Sign) : 250mm between bottom of sign and top of adjacent kerb
- iv) Offset (Diverge Sign) : 1.5m from traffic island nose
- v) Lateral offset (except chevrons in roundabouts):
 - a) sign to be 500mm from kerb line
 - b) in centre of traffic island
- vi) Lateral offset (chevrons in roundabouts) : 1m from kerb face and perpendicular to sight line of approaching vehicles approximately 50m from intersection.

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14.2.4 Information Signs

Information signs are to be located in accordance with the NZTA Manual for Traffic Signs and Markings, Part I. The following guidelines are additional to this document :

- i) Height of Sign (No Exit) : 3m to top of sign
- ii) Height of Sign (Free Turn) : 250mm between bottom of sign and top of adjacent kerb.
- iii) Height of Sign (Route Sign) : 750mm to top of sign or minimum of 250mm between bottom of sign and top of adjacent kerb; 100mm if the area is not planted.
(in place of chevrons sign in roundabouts)
- iv) Offset (Free Turn) : 1.5m from traffic island nose.
- v) Lateral offset : a) sign to be 500mm from kerb line
(except Route sign) b) in centre of traffic island
- vi) Lateral offset (Route sign) : Sign to be 500mm from kerb face.
If no kerb, sign to be ≥ 1.5 m from the edge of seal.

14.2.5 Signs on Cycleways or Shared Walkway/Cycleways

All signs installed adjacent to cycleways shall have a minimum clearance to the bottom of the sign of 2.2 metres. Mounting heights specified elsewhere shall be increased as needed to achieve this clearance.

14.3 STREET NAME SIGNS

14.3.1 Design

Street name signs are to be designed in accordance with the following specification:

- i) Letter Height : 125mm for secondary streets
(except abbreviations : 150mm for primary streets
- see 14.3.2)
- ii) Letter Styles : NZTA 'Transport' series. Signs to include both upper & lower case letters.
- iii) Letter Spacing : Medium spacing from AS 1744 condensed to 80%. All lettering to have 60mm clearance at both ends of the sign.
- iv) Background Depth : 200mm for secondary streets
225mm for primary streets
250mm for street names with numbers

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- v) Blade Profile : 90° cuts at both ends.
- vi) Colours : White reflectorised lettering on blue reflectorised background - all reflectorisation to be Class 1 wide observation angle reflective sheeting.
- vii) "No Exit" Supplements : Separate plate attached (taped) to the bottom edge of the street name plate. Blade height 75mm.
- viii) Arrows : White reflectorised triangular arrow at the end of name plates as required in TS 327, 328 and 329.
- ix) Attachment to Pole : As detailed in TS 358 and 359.
- x) Poles to be NB50.

14.3.2 Legend

The following are the abbreviations to be used on all street name plates:

- | | |
|---------------------|--------------------|
| i) Avenue - Ave | viii) Place - Pl |
| ii) Close - Cl | ix) Rise - Rise |
| iii) Court - Ct | x) Road - Rd |
| iv) Crescent - Cres | xi) Street - St |
| v) Drive - Dr | xii) Terrace - Tce |
| vi) Lane - Lane | xiii) Way - Way |
| vii) Parade - Pde | |

These abbreviations are to have a letter height of 50mm and 75mm for secondary and primary streets respectively.

14.3.3 Location of Street Name Signs

Street name signs are to be located in accordance with the following specification. If there is a utility pole in the proposed location, then the signs may be attached to it. (See Note 3 TS 358). Street name signs to be located at signalised intersections are to be installed in accordance with TS 359.

- i) Height of Name Sign : 3.0m between footpath & top of upper blade
- ii) Lateral Offset : Minimum 500mm, maximum 1500mm between closest part of name sign and kerb or seal edge. (Refer also a) below).
- iii) Number of Signs : To be in accordance with TS 327, 328 and 329.
- iv) Double-sided Signs : All signs to be double-sided (except those on medians or at the head of "T" intersections).
- v) Repeater signs on Primary Roads : Repeater plates are to be erected at every side road intersecting a primary road.

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- vi) Median Island Low Level Street Name Signs : 750mm to top of sign or minimum of 250mm between bottom of sign and top of adjacent kerb; 100mm if the area is not planted.

The following is in addition to this location specification:

- a) Part of the sign blade should be located within 1500mm of the kerb face but provide at least 500mm clearance to the kerb face or seal edge.
- b) Where it is not possible to locate the pole such that the sign complies with i) above and the footpath is not obstructed, the sign may be reverse mounted.

Poles shall be either NB50 or NB65 steel poles, as appropriate to the type of sign required. All poles shall be galvanised, powder coated white, and capped with powder coated top caps.

14.4 AMENITY SIGNS FOR PUBLIC AMENITIES

14.4.1 Design

Directional signs are to be in accordance with the following specification:

- i) Letter height : 125mm
- ii) Letter styles : as for Street Name signs
- iii) Letter spacing : as for Street Name signs
- iv) Background depth : 175mm
- v) Blade profile : 90° cuts at both ends
- vi) Colours : Blue reflectorised lettering on a white reflectorised background - all reflectorisation to be Engineering Grade.
- vii) Arrows : Blue reflectorised triangular arrow at the end of sign plates. Refer to TS 327, 328 and 329.

14.4.2 Location

Directional signs are to be located in accordance with the following specification:

- i) Height of sign blade : 3.0m between footpath and top of blade
- ii) Lateral offset : As for Street Name signs
- iii) Number of signs : Maximum of two directional signs per facility

Note : In addition to standard mounting requirements (TS 358 & 359), amenity signs are to be attached below existing street name signs.

14.5 ARTERIAL DIRECTION (AD) & INFORMATION SIGNS

14.5.1 General

All signs shall be designed and constructed in accordance with the manuals and standards listed in Clause 14.1, and the following:

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- All backs of signs to be coloured "aircraft grey" no. 693 as referred to in BS381C, or similar with a semi-gloss finish.
- All signs shall have an Aluminium Substrate.
- Signs shall be Class 1 wide observation angle (VIP or equivalent) reflective sheeting.
- Face of sign shall be rivetless.

14.5.2 Attachment

Signs are to be attached to posts or overhead gantries using Signfix or equivalent brackets as approved by the Engineer. The Contractor shall be responsible for determining sign mounting requirements.

14.5.3 Location

- Signs shall have 0.5m offset from kerb or 1.5m from edge of seal.
- Sign locations are to be confirmed on site by the Engineer prior to installation.
- Signs to be angled for oncoming traffic in accordance with the sign reflective sheeting manufacturer's specification. Any discrepancy should be checked with Engineer.

14.5.4 Height

- Signs located above carriageways shall have a minimum clearance of 5.0m.
- Signs located in or above footpaths shall have 2.5m minimum clearance from the bottom of the sign to the footpath.
- Signs on grassed/planted areas shall have 2m minimum clearance to the bottom of the sign.
- Direction signs located in roundabout splitter island shall be 50mm above ground level.

14.6 POLES

Poles are to be either NB50, NB65, NB80 or NB100 Steel Poles as appropriate to the type and size of sign required - see Table 1 following.

Poles are to be powder coated white with the exception of poles to be placed in the CBD area shown in TS 360. Poles in this area are to be powder coated "Brunswick Green" as per HB Fuller Power Coatings colour no. 2425C or similar as approved by Engineer.

All poles are to be capped with power coated top caps to match pole.

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Table 1

Sign Type	Pole Type	Pole Length	Height to Top of Sign
Street Name	NB50	3.7m	3.0m
Tourist Sign	"	"	"
Route Markers	"	"	"
Truck Bylaw	"	"	"
No Stopping	"	3.25	2.7
Bus Stop	"	"	"
Taxi Stand	"	"	"
Loading Zone	"	"	"
Parking	"	"	"
Disabled Parking	NB50	"	"
Keep Left	Quick Fix	750mm	250mm**
Splitter Island	"	"	"
Chevron Arrow	NB50	1.1m	750mm
Route Shield	"	"	"
Low Level Street Name	"	"	250mm**
ADS Sign (on 2 poles): 0 < m ² < 1.20	NB50	To suit	Refer 1.5 ADS signs
1.20 ≤ m ² < 2.00	NB65	"	
2.00 ≤ m ² < 3.00	NB80	"	
3.00 ≤ m ² ≤ 4.00	NB100	"	
Any sizes above 4.00m ² will require a specific design.			

* Installation height in traffic islands is 2.0m

** Dimension is the clearance between the bottom of the sign and the top of the adjacent kerb.

14.7 OVERHEAD GANTRIES

- Overhead gantries shall be fabricated and installed in accordance with the standard drawings TS 353, 354, 355, 356, 357.
- Gantry design will depend on proposed size of sign and hence loading and ground clearance.
- Sign mounting uprights to be at no greater than 900 crs.

Overhead gantries have option of a single piece welded or a bolted outreach arm.

Installation of all overhead gantries shall be carried out in accordance with the standard drawings unless stated otherwise.

Gantries to be galvanised in accordance with standard technical specification for hot dip galvanising after fabrication. All mount bolts shall be galvanised.

14.8 EDGE MARKER POSTS

All edge marker posts are to be constructed in accordance with the NZTA M:14 1993 Specification for Edge Marker Posts and any subsequent NZ Transport Agency

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Specifications covering edge marker post format. They are to be located in accordance with the NZTA Manual for Traffic Signs and Markings, Part I.

Refer Drawing TS 365 for Locations of Edge Marker Posts within the City.

14.9 ARMCO BARRIERS

All armco barriers are to be constructed in accordance with the NZTA M-16P Specification for W-Section Highway Guardrails, NZTA P/15P Fabrication & Assembly of Standard Guardrails and Handrails for Highway Bridges & Bridge Approaches, AS/NZS 3845: 1999, and NZTAM/23 Road Safety Barrier Systems.

14.10 TIMBER BOLLARDS, LOW LEVEL TIMBER BARRIERS AND REMOVABLE BOLLARDS

All bollards and barriers are to be constructed and installed in accordance with Drawings TS 334, 335 or 361 as appropriate.

14.11 PEDESTRIAN BARRIER RAILS & HANDRAILS

Pedestrian barrier rails and handrails are to be constructed and installed in accordance with Drawings TS 336 or 337 as appropriate.

14.12 FLUGAL FLAG POLE

Flugal flag poles are to be constructed and installed in accordance with Drawings TS 339, 340 & 341.

14.13 PARKING METER POLES

All parking meter poles are to be constructed and installed in accordance with Drawing TS 352.

14.14 CYCLE BARRIERS AND RACKS

All cycle barriers and racks are to be constructed and installed in accordance with Drawings TS 336 and 338.

14.15 INSTALLATION DETAILS FOR POSTS/POLES

Installation of quick-fix posts is to be as detailed in Drawing TS 330
 Supply and installation of flexible post sockets. Flexible post shall be Ezidrive PF1 (Poly-Flex) or equivalent approved by Engineer. (Colour: white). Refer to Drawing TS 362.

Installation of 3.7m fitting/system steel tube poles is to be as detailed in Drawing TS 331

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Installation of steel tube poles for chevron and low level street name signs is to be as detailed in Drawing TS 332

Where installation and/or reinstatement work is required within the footpath, the footpath must be sawcut around the perimeter of the excavation, and replacement surfacing placed to tie into and match existing surrounding surfacing. Refer to Code of Practice for Street Openings.

14.16 ATTACHMENT OF SIGNS/POLES

14.16.1 NB50 Steel Poles

All street name signs on NB50 powder coated steel poles are to be attached as detailed in Drawing TS 358. All other signs are to be bolted on to the pole with two 6mm dia. galvanised bolts to sign/sheeting manufacturer's specification. Refer Drawing TS 359 for signal pole mounting specifications.

14.16.2 NB65 Steel Poles

All signs on NB65 powder coated steel poles are to be attached with two 10mm dia galvanised bolts to sign/sheeting manufacturer's specification. Refer Drawing TS 359 for signal pole mounting specifications.

14.17 SCHOOL PATROL SIGNS

Posts are to be Type II bollards painted white, set so tops are 1.00m above ground level, set in concrete base (400 x 400 x 500 deep). Bracket is to be attached using 2 x 120 x 10 galvanised coach bolts. Brackets for lollipop signs are to be manufactured and installed in accordance with Drawing TS 363.

14.18 PAINTING OF BARRIERS

All painting of Armco and timber barriers is to be completed with two finish coats of water based commercial grade paint (colour to be specified by the Engineer). All dirt, grime and loose and flaky paint is to be removed from the surface prior to painting. It may be necessary to spot undercoat as required. All painting is to be carried out according to the manufacturers specifications.

14.19 SEATS

- Seats are to be Street Furniture NZ Ltd "McKillop" seats or similar.
- All steel work to be galvanised and powder-coated. Colour to be confirmed by Engineer.
- Seat posts are to be installed in 20 mpa concrete footing 500 x 500 x 600 deep.
- All surrounding surfaces are to be reinstated to match existing.

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14.20 LITTER BINS

Bins are to be installed in accordance with Drawing TS 364.

14.21 STEEL BOLLARDS

Bollards are to be steel or aluminium tubing to the specified size.

All steel bollards and caps are to be galvanised and power-coated once all fabrication work is complete. Colour to be confirmed by Engineer.

Bollards are to be cast in concrete footing 250 x 250 x 350 deep.

Surrounding surfaces are to be reinstated to match existing. Bollard caps are to be of a dome style, powder coated to match bollard. Cap to be fastened to the bollard with a minimum of 4mm rivets.