SOUTHERN

AFRICAN

DEVELOPMENT

COMMUNITY

ROAD MARKINGS

SECTIONS

MAY 2012

CHAPTER 12

CHAPTER 12:
ROAD MARKINGS

12.0 CONTENTS

This contents listing illustrates each oficially approved road marking in the regulatory, warning and guidamce classes with the marking number and name. A page reference is given within this chapter where details of the function and basic dimensions of each road marking can be found. Where appropriate a cross reference is given to Volume 1, Chapter 7, where full dimensional details and other data is given.

Section 12.5: LETTERS AND NUMBERS

Section 12.6: DELINEATION DEVICES

ILLUSTRATION OF ROAD MARKINGS BY CLASS:

REGULATORY – Transverse Road Markings

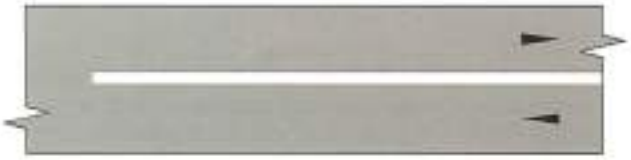
RTM1 - STOP LINE
Ref. Vol 1-7.2.1

RTM2 - YIELD LINE
Ref. Vol 1-7.2.2

RTM3 - PEDESTRIAN CROSSING LINES
Ref. Vol 1-7.2.3

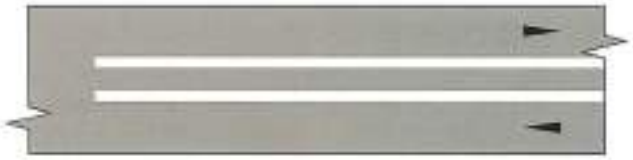
RTM4 - BLOCK PEDESTRIAN CROSSING MARKINGS
Ref. Vol 1-7.2.4

REGULATORY MARKINGS



RM1 - NO OVERTAKING LINE

Ref. Vol 1-7.2.5

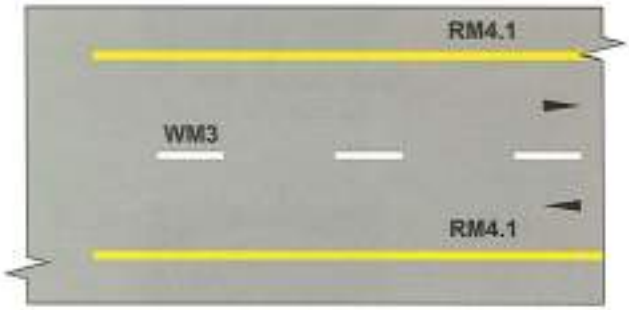


RM2 - NO CROSSING LINES

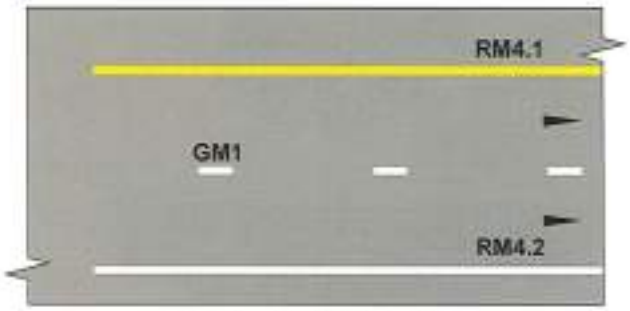
Ref. Vol 1-7.2.10

RM3 - CHANNELIZING LINE

Ref. Vol 1-7.2.11

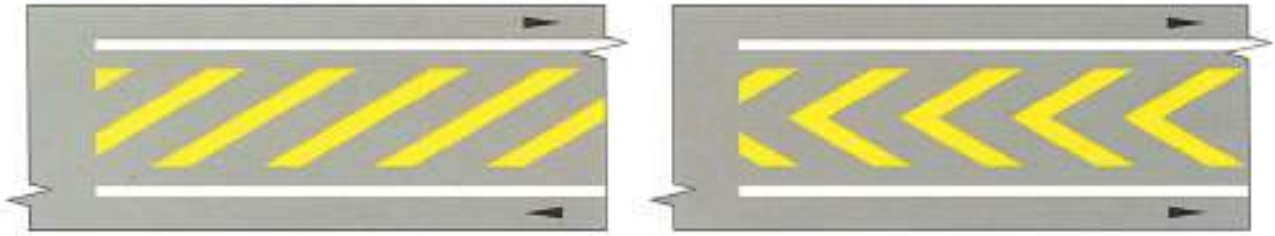


RM4.1 - LEFT EDGE LINE



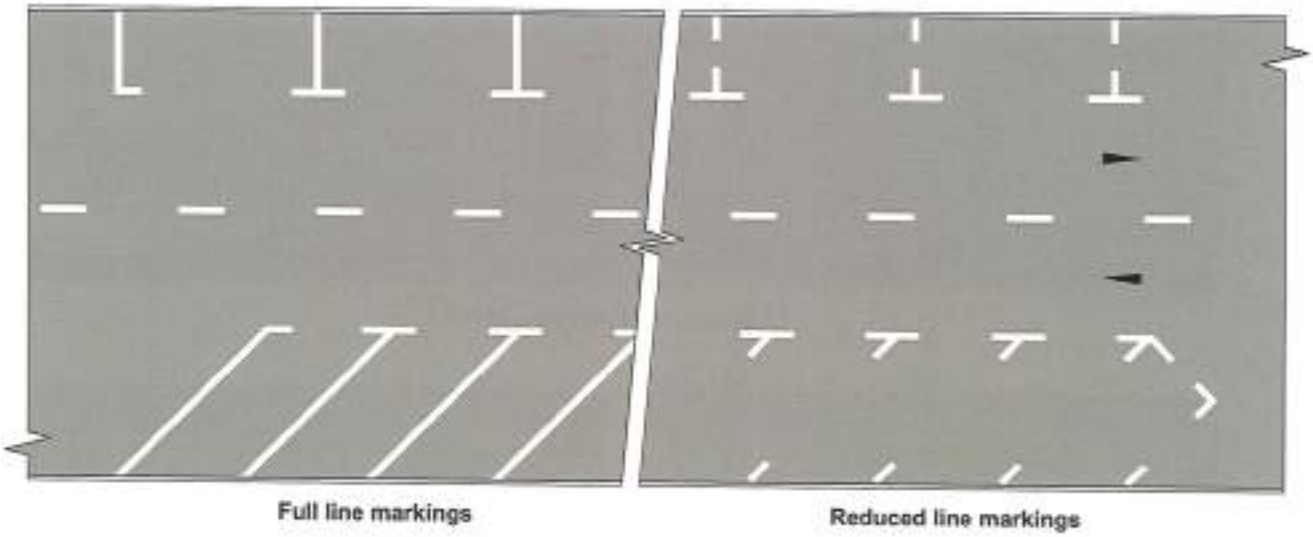
RM4.2 - RIGHT EDGE LINE

Ref. Vol 1-7.2.13



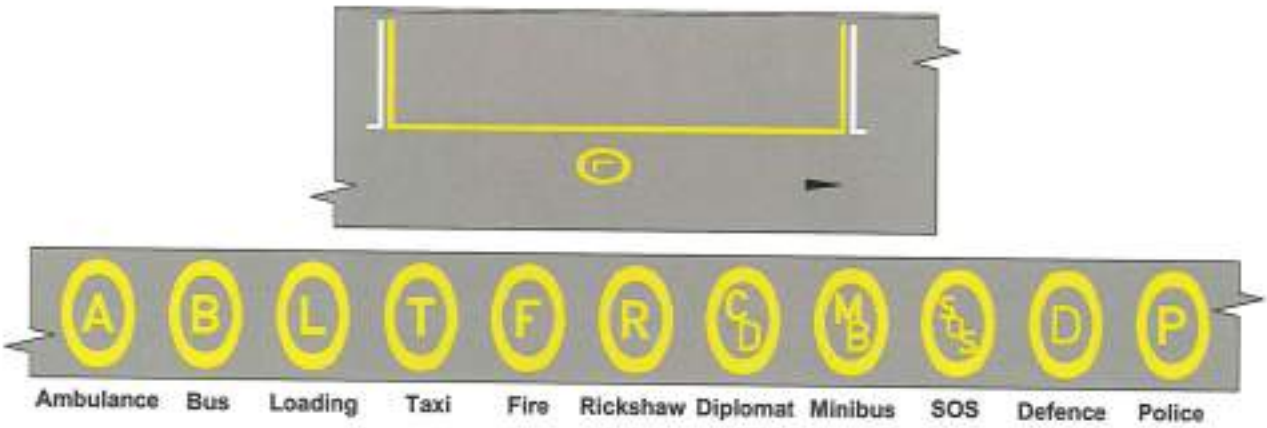
RM5 - PAINTED ISLANDS

Ref. Vol 1-7.2.15 Vol 4-12.2.3/11



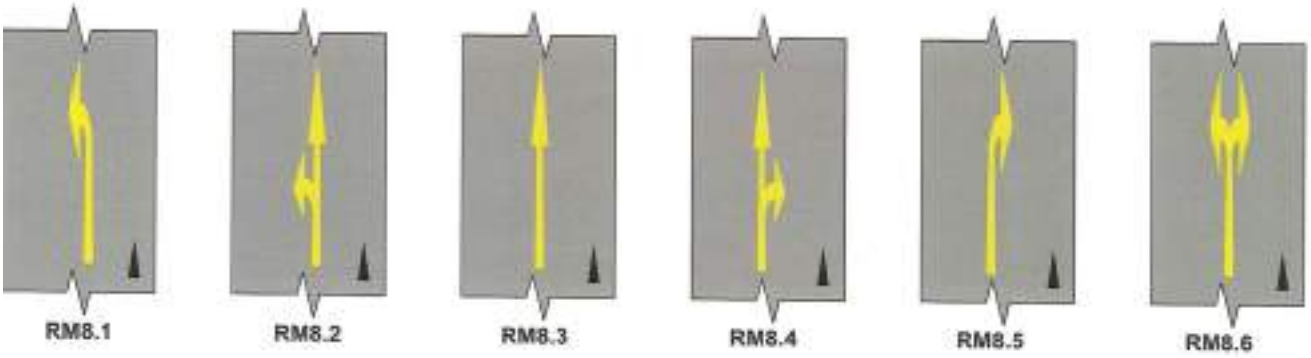
RM6 - PARKING BAYS

Ref. Vol 1-7.2.17



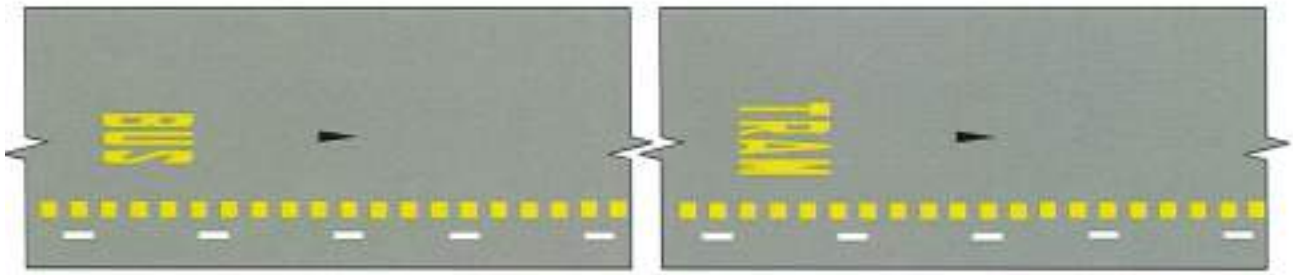
RM7 and RM7.1 - EXCLUSIVE PARKING BAY

Ref. Vol 1-7.2.19 Vol 4-12.1.3 and 12.4.7 to 12.4.13

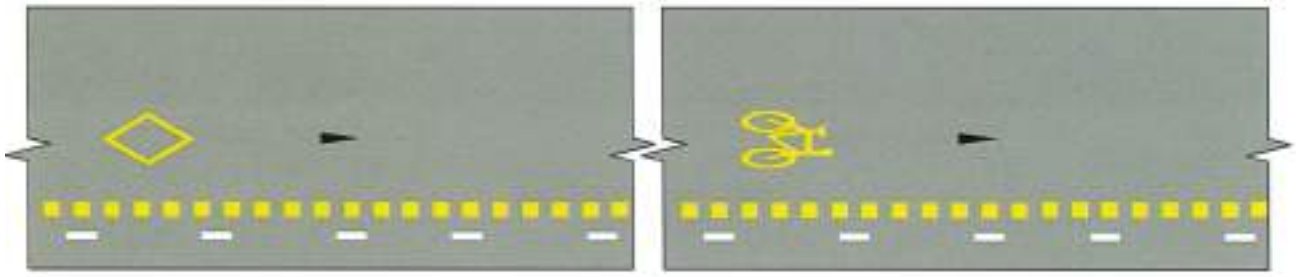


RM8 - MANDATORY DIRECTION ARROWS

Ref. Vol 1-7.2.20 Vol 4-12.3.2 to 12.3.4



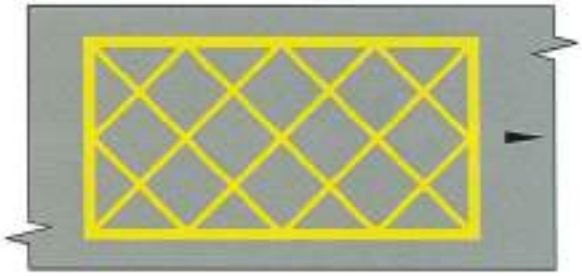
RM9 plus Word Marking RM17



RM9 plus Symbol Marking RM17

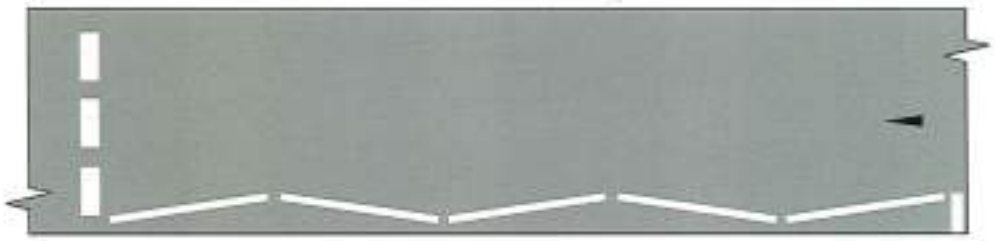
RM9 - EXCLUSIVE USE LANE LINE

Ref. Vol 1-7.2.21 and 7.2.31 Vol 4-12.1.3, 12.4.3, 12.4.6 and 12.5.1 to 12.5.7



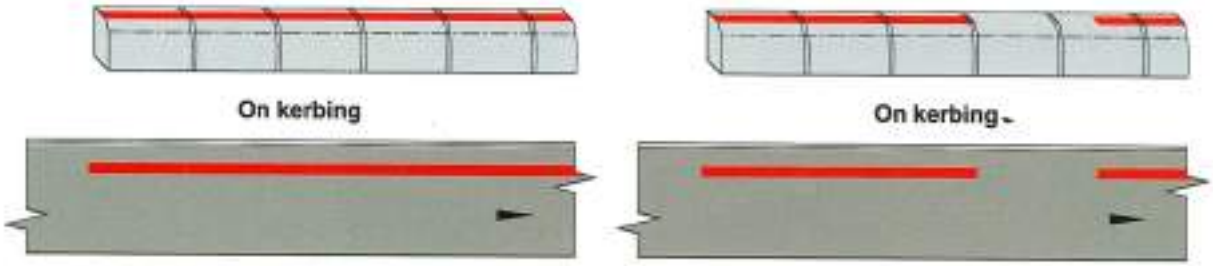
RM10 - BOX JUNCTION

Ref. Vol 1-7.2.23 Vol 4-12.2.12



RM11 - ZIG ZAG ZONE LINES

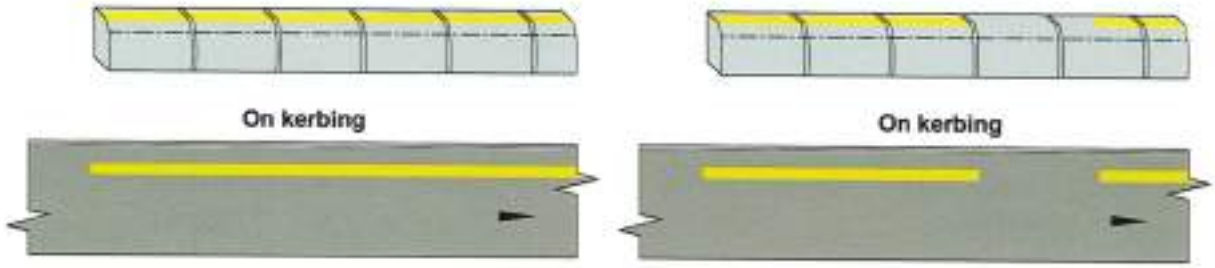
Ref. Vol 1-7.2.25 Vol 4-12.2.13



RM12 - NO STOPPING LINE (24 hour)
On road surface

RM12 - NO STOPPING LINE (Selective times)
On road surface

Ref. Vol 1-7.2.26



RM13 - NO PARKING LINE (24 hour)
On road surface

RM13 - NO PARKING LINE (Selective times)
On road surface

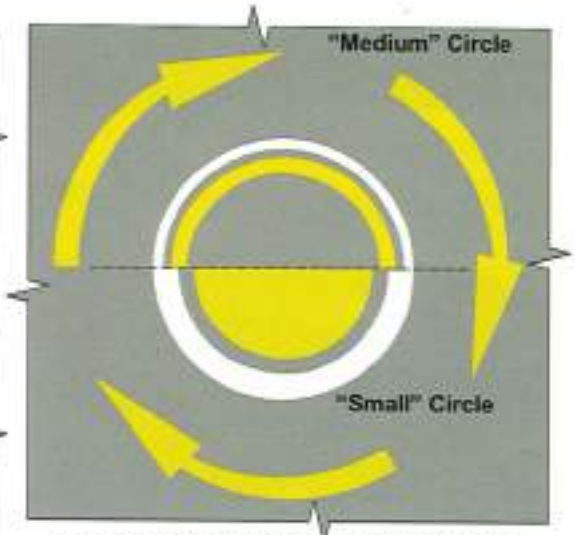
Ref. Vol 1-7.2.27

RM14 - NO MOTOR CYCLES MARKING

Ref. Vol 1-7.2.28 Vol 4-12.4.2

RM16 - DISABLED PERSONS PARKING BAY

Ref. Vol 1-7.2.30 Vol 4-12.1.2 and 12.4.5



RM15 - TRAFFIC CIRCLE MANDATORY DIRECTION ARROWS

Ref. Vol 1-7.2.29 Vol 4-12.3.5/6

RM17.1
Cycle Lane

RM17.2
Bus/Tram Lane

RM17.3
Disabled Person
Parking Bay

RM17.4
High Occupancy
Vehicle Lane

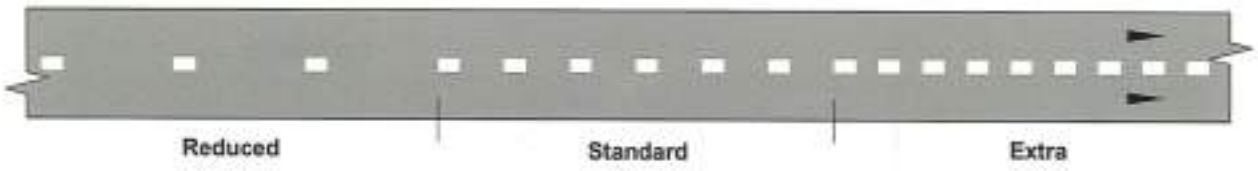
RM17 - EXCLUSIVE USE/LANE/PARKING SYMBOLS

Ref. Vol 1-7.2.31 Vol 4-12.4.3/12.4.5/12.5.2

WARNING MARKINGS

WM1 - RAILWAY CROSSING AHEAD

Ref. Vol 1-7.3.1 Vol 4-12.4.14

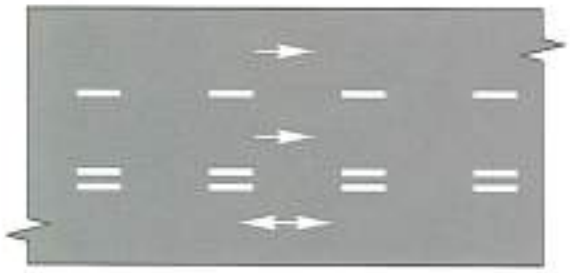


WM2 - CONTINUITY LINE

Ref. Vol 1-7.3.2

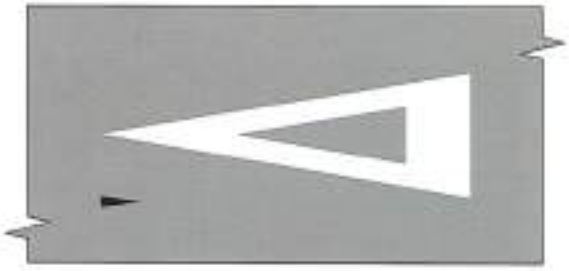
WM3 - DIVIDING LINE

Ref. Vol 1-7.3.3



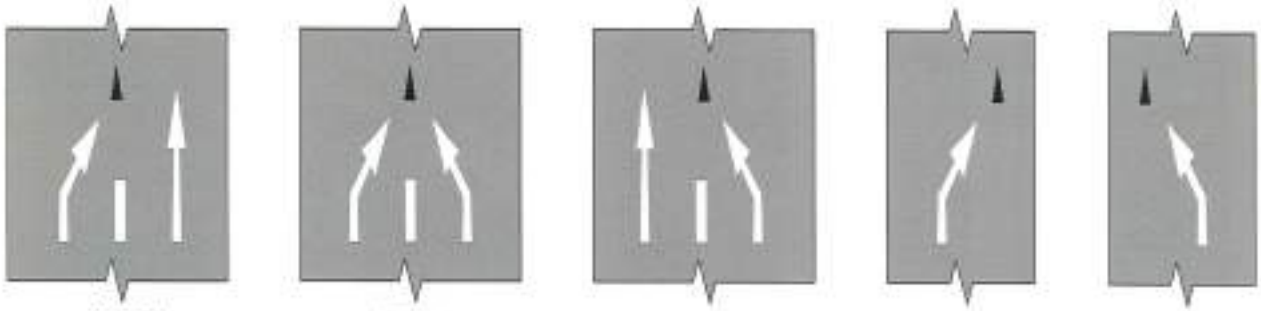
WM4 - REVERSIBLE LANE LINES

Ref. Vol 1-7.3.4



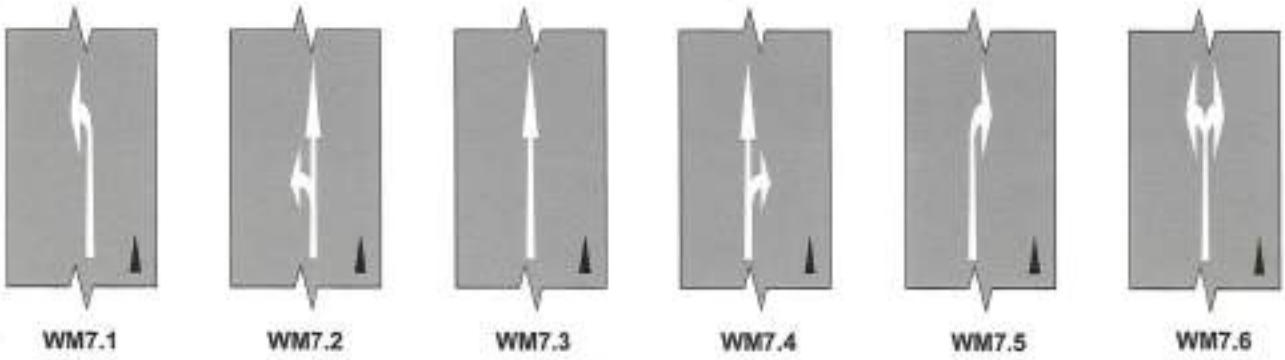
WM5 - YIELD CONTROL AHEAD

Ref. Vol 1-7.3.4 Vol 4-12.4.15



WM6 - LANE REDUCTION ARROWS

Ref. Vol 1-7.3.5 Vol 4-12.3.7/8



WM7.1 WM7.2 WM7.3 WM7.4 WM7.5 WM7.6

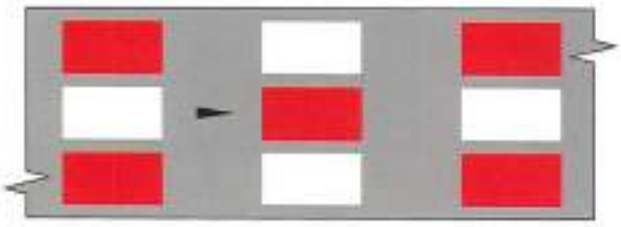
WM7 - MANDATORY DIRECTION ARROW AHEAD

Ref. Vol 1-7.3.7 Vol 4-12.3.2 to 12.3.4

WM8.1 WM8.2 WM8.3

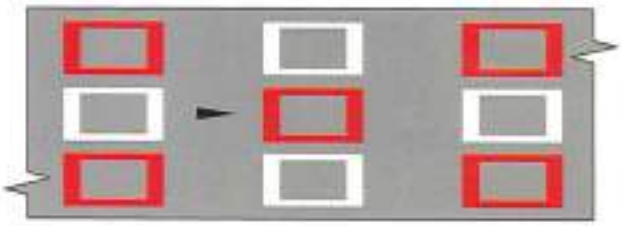
WM8 - NO OVERTAKING LINE OR NO CROSSING LINE AHEAD

Ref. Vol 1-7.3.8 Vol 4-12.3.8/9



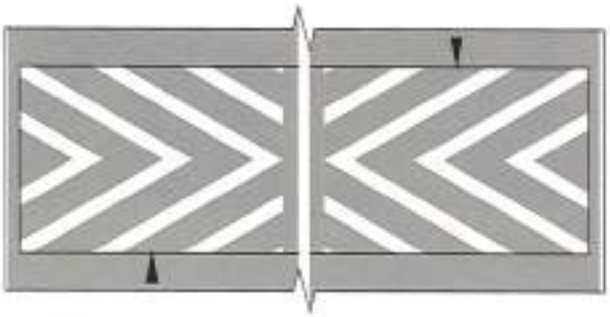
WM9.1 - ARRESTOR BED AHEAD

Ref. Vol 1-7.3.8 Vol 4-12.2.14



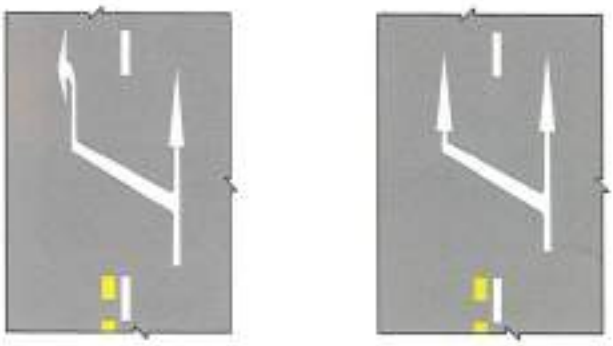
WM9.2 - ESCAPE ROAD AHEAD

Ref. Vol 1-7.3.8 Vol 4-12.2.15



WM10 - SPEED HUMP

Ref. Vol 1-7.3.9 Vol 4-12.2.16

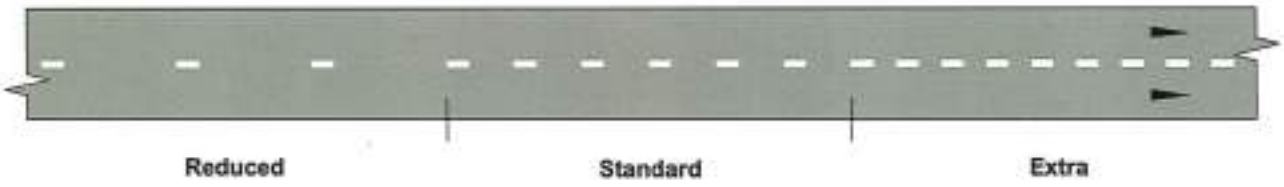


WM11.1 WM11.2

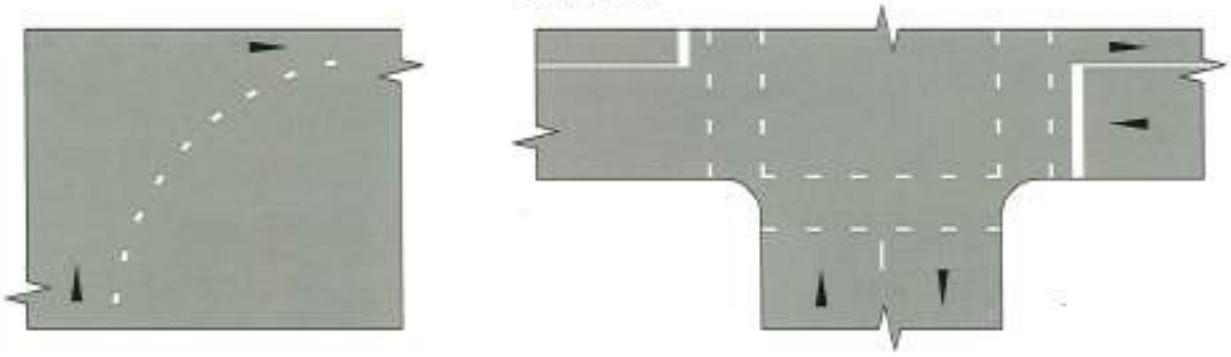
WM11 - END OF EXCLUSIVE USE LANE ARROWS

Ref. Vol 1-7.3.9 Vol 4-12.3.11/12

GUIDANCE MARKINGS

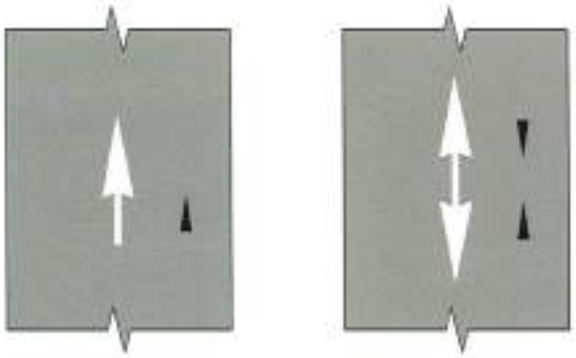


GM1 - LANE LINE
Ref. Vol 1-7.4.1

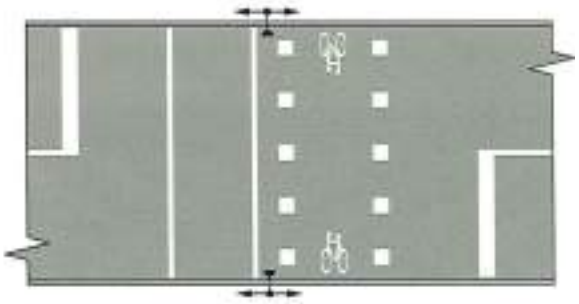


GM2 - GUIDE LINES
Ref. Vol 1-7.4.2

GM3 - BIFURCATION ARROWS
Ref. Vol 1-7.4.3 Vol 4-12.3.13/14



GM4 - INFORMATION ARROWS
Ref. Vol 1-7.4.3 Vol 4-12.3.15



GM5 - BICYCLE GUIDE LINES
Ref. Vol 1-7.4.4

GM6.1
Cycle Facility

GM6.2
Airport

GM6.3
Disabled Person Facility

GM6.4
High Occupancy Vehicle

GM6 - ROAD MARKINGS SYMBOLS

Ref. Vol 1-7.4.5 Vol 4-12.4.3 to 12.4.6

GM7 - WORD MARKINGS

Ref. Vol 1-7.4.6 Vol 4-12.5.1 to 12.5.9

GM8 - KERBFACE MARKINGS

Ref. Vol 1-7.4.6

CHAPTER 12: ROAD MARKINGS

12.1 INTRODUCTION

12.1.1 General

1 In the context of the general layout of the Manual road markings have been treated rather differently to the manner in which road signs and traffic signals have been dealt with. The basic functions of Volumes 1 and 4 are to provide, in the case of Volume 1, details of the policy and design principles with specific information on the meaning and individual application of each traffic control device, and in the case of Volume 4, dimensional details of each standard traffic control device. In Volume 1, Chapter 7, however, dimensional details of standard transverse and longitudinal line markings are given since this is often the only way of telling one line type from another.

2 In Volume 1 the different regulatory, warning and guidance road markings are also individually dealt with from policy, meaning and use aspects. In this respect they comprise the road marking "tools" road designers have at their disposal. However, in practice the road designer will wish to use a wide range of these "tools" when detailing any one portion of roadway, whether it be a junction or a connecting section between junctions. Such applications of several types of marking require dimensional detailing of the positions of markings in relation to each other in addition to their own individual dimensions. This is a very important part of road design covered in Volume 2, Chapter 2: Road Marking. For completeness of coverage much of the material in this chapter is repeated in Volume 2, Chapter 2, Section 2.7. Volume 2, in addition, covers recommendations and guidelines on the co-ordinated application of road signs, traffic signals and road markings in conjunction with each other for specific purposes.

3 The coverage of this chapter includes a tabular summary of the dimensions given in the individual subsections of Volume 1, Chapter 7, and detailed dimensions for various types of painted islands and all road marking arrows, symbols and letters.

4 The width and length of many types of road marking may be varied. However, the majority have recommended and/or mandatory minimum dimensions. The mandatory minimum dimensional values are contained in Road Traffic Legislation. These dimensions are summarised in Table 12.1 together with an indication of representative surface areas of all arrows, symbols and letters in their various standard sizes. In addition specimen areas of line marking are given as a length of "run" of the marking i.e. m^2/100 m or m^2/10 m, as appropriate. This information may be used to assist in estimating quantities for design or contract purposes.

5 The following tables in Volume 1, Chapter 7, contain guidelines on various dimensional aspects of road markings:

(a) Table 7.1: Recommended Symbol Lengths;
(b) Table 7.3: Nominal Taper Rates for Longitudinal Lines;
(c) Table 7.5: Minimum No Overtaking Line Length;
(d) Table 7.6: Continuity Line - Line/Gap Alternatives;
(e) Table 7.7: Lane Reduction Markings Spacing;
(f) Table 7.8: Recommended Longitudinal Roadstud Spacing.

12.1.2 Longitudinal Markings

1 Longitudinal broken line markings are also available in a range of LINE-TO-GAP RATIOS and setting out methods. These are illustrated in Volume 1, Chapter 7 in Figures 7.1 and 7.2.

12.1.3 Painted Islands

1 There are very many possible variations of the application of the basic PAINTED ISLAND road marking RM5. A variety of typical examples are covered in Volume 2. An introduction to the dimensioning of painted islands is given in Section 12.2.

12.1.4 Symbols and Letters

1 The details given for the majority of symbols and for letters allow for the following range of standard sizes (lengths) : 1.25 m : 2.5 m : 4.0 m : 5.0 m : 7.5 m.

2 A letter size of 5.5 m has been long established and many organisations have this size of letter stencil. 5.5m has therefore been retained for letters in preference to a 5.0 m size.

3 If it is required to mark on the road surface a symbol used elsewhere in the road traffic sign system, to be effective it is recommended that the symbol be elongated by a factor of three times whilst retaining its original width.

TABLE 12.1 SUMMARY OF ROAD MARKING DIMENSIONS TABLE 12.1

NOTE:
The width and length of many road markings may be varied. Arrows, letters and symbols are available in several standard lengths. **Many markings, however, have certain mandatory minimum dimensions prescribed in Road Traffic Legislation.** These dimensions are indicated thus • . The areas of different markings are given as a guide for quantity estimation and control.

Marking Number (Colour)	Descriptions	Dimensions (mm)		Area (m^2) or (m^2/distance)	
		Rural	Urban	Rural	Urban
Regulatory Transverse Markings:					
RTM1 (White)	STOP Line	Width 500 •	Width 300 •	3 m^2/6 m	1,8 m^2/6 m
RTM2 (White)	YIELD Line	Width 300 • Line-Gap 600-300	Width 200 • Line-Gap 600-300	1,17 m^2/6 m	0,78 m^2/6 m
RTM3 (White)	Pedestrian Crossing Lines	Width 100 •	Width 100 •	2 lines 1,2 m^2/6 m	2 lines 1,2 m^2/6 m
RTM4 (White)	Block Pedestrian Crossing Marking	Width 2400 • 3000 Line-Gap 600-600	Width 2400 • 3000 Line-Gap 600-600	7,2 m^2/6 m 9 m^2/6 m	7,2 m^2/6 m 9 m^2/6 m
Regulatory Markings:					
RM1 (White)	No Overtaking Line	Width 100 • Continuous	Width 100 • Continuous	100 m^2/km	100 m^2/km
	("Stacking Length")	12000 •	9000 •	1,2 m^2	0,9 m^2/
RM2 (White)	No Crossing Lines	Width 2 x 100 •	Width 2 x 100 •	200 m^2/km	200 m^2/km
RM3 (White)	Channelising	Width 100 • 150 200 300 Continuous	Width 100 • 150 200 Continuous	10 m^2/100 m 15 m^2/100 m 20 m^2/100 m 30 m^2/100 m 200 mm	10 m^2/100 m 15 m^2/100 m 20 m^2/100 m 150 mm
	("Stacking Length")	12000 •	9000 •	2,4 m^2 m	1,35 m^2 m
RM4.1 (Yellow)	Left Edge Line	Width 100 • Continuous	Width 100 • Continuous	100 m^2/km	100 m^2/km
RM4.2 (White)	Right Edge Line	Width 100 • Continuous	Width 100 • Continuous	100 m^2/km	100 m^2/km
RM5 (White and Yellow)	Painted Islands	Edge Line Width 100 • Bar 200	Edge Line Width 100 • Bar 150	Variable - subject to site	Variable - subject to site
RM6 (White)	Parking Bays	Width 100 •	Width 100 •	Variable	Variable

(Continued on p. 12.1.3)

TABLE 12.1 SUMMARY OF ROAD MARKING DIMENSIONS TABLE 12.1

Marking Number (Colour)	Descriptions	Dimensions (mm) Rural	Dimensions (mm) Urban	Area (m^2) or (m^2/distance) Rural	Area (m^2) or (m^2/distance) Urban
Regulatory Markings (continued):					
RM7 (Yellow)	Exclusive Parking Bay	Width 100 •	Width 100 •	Variable	Variable
RM7.1 (Yellow)	Exclusive Parking Bay Symbol	Length 1000 Width 680	Length 1000 Width 680	0.25 m^2	0.25 m^2
RM8 (Yellow)	Mandatory Direction Arrows	Length	Length		
	RM8.1/RM8.5				
	CBD		2500		0,67 m^2
	50-90 km/h	4000	4000	1,14 m^2	1,14 m^2
	100-120 km/h	5000	5000	1,45 m^2	1,45 m^2
	Special	7500	7500	2,23 m^2	2,23 m^2
	RM8.2/RM8.4				
	CBD		2500		0,89 m^2
	50-90 km/h	4000	4000	1,43 m^2	1,43 m^2
	100-120 km/h	5000	5000	1,78 m^2	1,78 m^2
	Special	7500	7500	2,66 m^2	2,66 m^2
	RM8.3				
	CBD		2500		0,66 m^2
	50-90 km/h	4000	4000	1,06 m^2	1,06 m^2
	100-120 km/h	5000	5000	1,32 m^2	1,32 m^2
	Special	7500	7500	1,98 m^2	1,98 m^2
	RM8.6				
	CBD		2500		1,03 m^2
	50-90 km/h	4000	4000	1,68 m^2	1,68 m^2
	100-120 km/h	5000	5000	2,12 m^2	2,12 m^2
	Special	7500	7500	3,20 m^2	3,20 m^2
RM9 (Yellow)	Exclusive Use Lane Line	Width 150 • Line-Gap 750-750	Width 150 • Line-Gap 750-750	7,5 m^2/100 m	7,5 m^2/100 m
RM10 (Yellow)	Box Junction 10 m x 10 m	N/A	Line Width 100 •	N/A	150 mm border 100 mm diags 15,72 m^2
RM11 (White)	Zig-Zag Zone Lines	Width 100 • Line-Gap 2000-150	Width 100 • Line-Gap 2000-150	2 lines 9,2 m^2/50 m	2 lines 9,2 m^2/50 m
RM12 (Red)	No Stopping Line	Width 100 •	Width 100 •	10 m^2/100 m	10 m^2/100 m
	24 hr	150	150	15 m^2/100 m	15 m^2/100 m
RM13 (Yellow)	No Parking Line	Width 100 •	Width 100 •	10 m^2/100 m	10 m^2/100 m
	24 hr	150	150	15 m^2/100 m	15 m^2/100 m
RM14 (Yellow)	No Motorcycles	Length	Length 2000		0.48 m^2
		4000	4000	1,92 m^2	1,92 m^2

(Continued on p. 12.1.4)

TABLE 12.1 SUMMARY OF ROAD MARKING DIMENSIONS TABLE 12.1

Marking Number (Colour)	Descriptions		Dimensions (mm) Rural	Dimensions (mm) Urban	Area (m^2) or (m^2/distance) Rural	Area (m^2) or (m^2/distance) Urban
Regulatory Markings (continued):						
RM15 (Yellow and white)	Traffic Circle Mandatory Direction Arrows		N/A	Length 4000 5000 7500	N/A N/A N/A N/A	 1,10 m^2 x 3 1,53 m^2 x 3 2,09 m^2 x 3
	Circle Diameter 2000		N/A	Border 300 Center	 N/A N/A	 1,60 m^2 0,78 m^2
	Circle Diameter 6000		N/A	Border 300 Inner Circle 500	 N/A N/A	 5,37 m^2 5,06 m^2
RM16 (Yellow)	Disabled Persons Parking Bay		N/A	Width 100 • Symbol 1200	N/A N/A	1,60 m^2 approx. 0,31 m^2
RM17 (Yellow)	Exclusive Use Lane/ Bay Symbols			Length		
	Cycle Lane	RM17.1	N/A	1600	N/A	0,54 m^2
	Bus Lane (Word)	RM17.2	N/A	4000	N/A	4,62 m^2
	Disabled Persons Parking Bay	RM17.3	N/A	1000	N/A	0,22 m^2
	High Occupancy Vehicle Lane	RM17.4	N/A	4000 8000	N/A N/A	4,26 m^2 8,24 m^2
Warning Markings:						
WM1 (White)	Railway Crossing Ahead		Line Width 400 • Length 7500	Line Width 200 • Length 4000	 6,00 m^2	 1,84 m^2
WM2 (White)	Continuity Line		Width 100 •	Width 100 •		
	Recommended		300 Module 12000	200 Module 9000		
		Reduced	Line/Gap 2 m/10 m	Line/Gap 1,5 m/7,5 m	Using recomm. 5 m^2/100 m	Using recomm. 3,33 m^2/100 m
		Srandard	Line/Gap 2 m/4 m	Line/Gap 1,5 m/3 m	 10 m^2/100 m	 6,67 m^2/100 m
		Extra	Line/Gap 2 m/2 m	Line/Gap 1,5 m/1,5 m	 15 m^2/100 m	 10 m^2/100 m
WM3 (White)	Dividing Line		Width 100 •	Width 100 •		
	Recommended		150 Module 12000	150 Module 9000		
		Standard	Line/Gap 4 m/8 m	Line/Gap 3 m/6 m	Using recomm. 50 m^2/km	Using recomm. 50 m^2/km
		Extra	Line/Gap 6 m/6 m	Line/Gap 4,5 m/4,5 m	 75 m^2/km	 m^2/km

(Continued on p. 12.1.5)

TABLE 12.1 SUMMARY OF ROAD MARKING DIMENSIONS TABLE 12.1

Marking Number (Colour)	Descriptions	Dimensions (mm) Rural	Dimensions (mm) Urban	Area (m^2) or (m^2/distance) Rural	Area (m^2) or (m^2/distance) Urban
Warning Markings (continued):					
WM4 (White)	Reversible Lane Lines	N/A	Width 2 x 100 Module 9000 Line/Gap		
	Standard		1,5 m/3 m	N/A	6,67 m^2/100 m
WM5 (White)	Yield Control Ahead	Length	Length		
	CBD		1250		0,2 m^2
	50-60 km/h		2500		0,83 m^2
	70-120 km/h	4000	4000	2,15 m^2	2,15 m^2
WM6 (White)	Lane Reduction Arrows	Length	Length		
	WM6.1/WM6.3				
	CBD		4000		2,08 m^2
	50-60 km/h		5000		2,61 m^2
	70-90 km/h	7500	7500	3,92 m^2	3,92 m^2
	100-120 km/h	12000		6,56 m^2	
	WM6.2/WM6.4/WM6.5				
	CBD		3200		2,06 m^2/1,03 m^2
	50-60 km/h		4000		2,58 m^2/1,29 m^2
	70-90 km/h	6000	6000	3,88 m^2/1,94 m^2	3, m^2/1,94 m^2
	100-120 km/h	9600		2,15 m^2/3,10 m^2	
WM7 (White)	Mandatory Direction Arrow Ahead	Length	Length		
	WM7.1/WM7.3				
	CBD		2500		0,67 m^2
	50-90 km/h	4000	4000	1,14 m^2	1,14 m^2
	100-120 km/h	5000	5000	1,45 m^2	1,45 m^2
	Special	7500	7500	2,23 m^2	2,23 m^2
	WM7.2/WM7.4				
	CBD		2500		0,89 m^2
	50-90 km/h	4000	4000	1,43 m^2	1,43 m^2
	100-120 km/h	5000	5000	1,78 m^2	1,78 m^2
	Special	7500	7500	2,66 m^2	2,66 m^2
	WM7.3				
	CBD		2500		0,66 m^2
	50-90 km/h	4000	4000	1,06 m^2	1,06 m^2
	100-120 km/h	5000	5000	1,32 m^2	1,32 m^2
	Special	7500	7500	1,98 m^2	1,98 m^2
	WM7.6				
	CBD		2500		1,03 m^2
	50-90 km/h	4000	4000	1,68 m^2	1,68 m^2
	100-120 km/h	5000	5000	2,12 m^2	2,12 m^2
	Special	7500	7500	3,20 m^2	3,20 m^2
WM8 (White)	No Overtaking Line Ahead				
	WM8.1	4000	3000	0,82 m^2	0,62 m^2
	WM8.2	4000	3000	1,42 m^2	1,07 m^2
	WM8.3	4000	3000	2,24 m^2	1,69 m^2
WM9 (Red and White)	Arrestor Bed Ahead	Width	Width		
	WM9.1	1000 Length 3000	1000 Length 3000	3 m^2 per block	3 m^2 per block

(Continued on p. 12.1.6)

TABLE 12.1 SUMMARY OF ROAD MARKING DIMENSIONS TABLE 12.1

Marking Number (Colour)	Descriptions	Dimensions (mm) Rural	Dimensions (mm) Urban	Area (m^2) or (m^2/distance) Rural	Area (m^2) or (m^2/distance) Urban
Warning Markings (continued):					
WM9 (Red and White)	Escape Road Ahead WM9.2	Width 1000 Length 3000 Line width 500-200	Width 1000 Length 3000 Line width 500-200	1,8 m^2 per block	1,8 m^2 per block
WM10 (White)	Speed Hump 30° to cross section on width of line	N/A	Width 200 Line/Gap 200/400	N/A	10 m^2 approx.
WM11 (White)	End of Exclusive Use Lane Arrows	N/A	Length	N/A	
	WM11.1		7200		3,35 m^2
	WM11.2		6000		3,33 m^2
Guidance Markings:					
GM1 (White)	Lane Line	Width 100 • Module 12000	Width 100 • Module 9000		
	Reduced	Line/Gap 2 m/10m	Line/Gap 1,5 m/7,5 m	1,67 m^2/100 m	1,67 m^2/100 m
	Standard	Line/Gap 2 m/4 m	Line/Gap 1,5 m3 m	3,33 m^2/100 m	3,33 m^2/100 m
	Extra	Line/Gap 2 m/2 m	Line/Gap 1,5 m/1,5 m	5 m^2/100 m	5 m^2/100 m
GM2 (White)	Guide Line	Width 100 • Line/Gap 500/1500	Width 100 • Line/Gap 500/1500	0,25 m^2/10 m	0,25 m^2/10 m
GM3 (White)	Bifurcation Arrows GM3.1/GM3.3	Length	Length		
	CBD	N/A	2500	N/A	1,30 m^2
	50-60 km/h	N/A	4000	N/A	2,07 m^2
	70-90 km/h	5000	5000	2,59 m^2	2,59 m^2
	100-120 km/h	7500	7500	3,82 m^2	3,89 m^2
	GM3.2				
	CBD	N/A	2170	N/A	1,27 m^2
	50-60 km/h	N/A	3472	N/A	2,04 m^2
	70-90 km/h	4340	4340	2,55 m^2	2,55 m^2
	100-120 km/h	6510	6510	3,82 m^2	3,82 m^2
GM4 (White)	Information Arrows GM4.1	Length	Length		
	CBD	N/A	1250	N/A	0,59 m^2
	50-60 km/h	N/A	2500	N/A	1,17 m^2
	70-90 km/h	4000	4000	1,88 m^2	1,88 m^2
	100-120 km/h	5000	5000	2,35 m^2	2,35 m^2
	GM4.2				
	CBD	N/A	2000	N/A	1,05 m^2
	50-60 km/h	N/A	4000	N/A	2,10 m^2
	70-90 km/h	6400	6400	3,36 m^2	3,36 m^2

(Continued on p. 12.1.7)

TABLE 12.1 SUMMARY OF ROAD MARKING DIMENSIONS TABLE 12.1

Marking Number (Colour)	Descriptions	Dimensions (mm)		Area (m^2) or (m^2/distance)	
		Rural	Urban	Rural	Urban
Guidance Markings (continued):					
GM5 (White)	Pedal Cycle Guidelines	N/A	Width 300 Line/Gap 300/900		 2 lines 0,9 m^2/6 m
GM6 (White or Yellow)	Symbols	Length	Length		
	Pedal Cycle Facility GM6.1	N/A	1600	N/A	0,54 m^2
	Airport GM6.2	N/A	5000	N/A	3,00 m^2
		7500	7500	4,77 m^2	4,77 m^2
		12000		7,83 m^2	
	Diasabled Persons GM6.3	N/A	600	N/A	0,08 m^2
			1000	N/A	0,22 m^2
			1200	N/A	0,31 m^2
			1800	N/A	0,70 m^2
	High Occupancy GM6.4	N/A	4000	N/A	1,48 m^2
GM7 (White or Yellow)	Word Markings	Length	Length	Average per letter	Average per letter
		4000	4000	1,40 m^2	1,40 m^2
		5500	5500	1,95 m^2	1,95 m^2
	Word “STOP”	4000	4000	4,95 m^2	4,95 m^2
		5500	5500	6,88 m^2	6,88 m^2
	Word “BUS”	N/A	4000	N/A	4,62 m^2
GM8 (Black and White)	Kerbface Marking	Black/White	Black/White	Assumed 180 mm kebface	
		600/600	600/600	1,80 m^2/10 m	1,80 m^2/10 m
		1000/1000	1000/1000	1,80 m^2/10 m	1,80 m^2/10 m
		1200/1200	1200/1200	1,80 m^2/10 m	1,80 m^2/10 m

12.2 GENERAL DETAILS

12.2.1 General

1 This section covers the dimensional details of a range of road marking types which comprise the application of a selection of line markings in a prescribed manner to create a pattern of markings. These road markings do not therefore include the use of arrows, symbols or letters which are covered in following sections, although they may be used with such marking types in road marking applications (see Volume 2, Chapter 2: Road Markings).

2 Road markings covered in this section therefore include:

(a) PAINTED ISLAND marking RM5;
(b) BOX JUNCTION marking RM10;
(c) ZIG-ZAG ZONE LINE marking RM11;
(d) SPEED HUMP marking WM10.

3 The objective behind including the level of detail given in this section is to assist practitioners in designing and setting out the above types of marking with a consistent degree of uniformity and conformity of the design principles involved. The coverage, particularly of PAINTED ISLAND marking RM5, is also designed to illustrate the scope of options available within the general constraints of the line types available.

12.2.2 Painted Islands

1 PAINTED ISLAND marking RM5 has a multitude of applications all of which it is not practical to detail individually. Figures 12.1 to 12.9 provide basic details of the elements of various types of painted island. The use of these elements is developed through a range of examples, generally increasing in complexity, to illustrate the potential of marking RM5. These examples also illustrate the effects of varying the different parameters which more commonly affect painted island geometry. It should be possible to adapt and / or build on the examples given to provide solutions to most problems.

2 Figures 12.1 and 12.2 illustrate the three basic forms of PAINTED ISLAND, namely:

(a) diagonal bars;
(b) chevron bars; and
(c) dividing line.

These figures also cover the basic setting out and dimensional criteria for the three types of bar. Diagonal and chevron bars may be painted solid, or, when the bar width is 600 mm or more a hollow pattern may be used. Details of variations in setting out and dimensional criteria are given in Figures 12.4 to 12.9.

3 Figure 12.3 expands on the basic forms of PAINTED ISLAND to illustrate the ways in which these may be applied to specific geometric or traffic control needs.

4 Figures 12.4 and 12.5 show a range of applications of the three forms of PAINTED ISLAND in relation to:

(a) direction of travel of traffic, either:
  (i) traffic travelling in opposite directions; or
  (ii) traffic travelling in the same direction on both sides of the island;
  (iii) increasing traffic speed; and
  (iv) increasing island size.

5 Figures 12.6 to 12.9 attempt to highlight the options available for PAINTED ISLAND applications in conjunction with "triangular" kerbed channelizing islands. Figure 12.6 gives a range of basic examples which illustrate the application of different widths of painted island marking, singly, to each side of a triangular channelizing island. Detail 12.7.2 shows a progressive build-up of PAINTED ISLAND surrounding a triangular central island. The details in this figure represent small islands of the type. As such they should only be considered as illustrative. For more complete details refer to Figures 12.8 and 12.9.

6 Figures 12.8 and 12.9 uses a large channelizing island to cover setting out and dimensional details. This type of island is typically rural, but the principles are also appropriate to urban applications. The following aspects have a significant effect on the aesthetic appearance of such a PAINTED ISLAND:

(a) width of island segment;
(b) bar width and spacing (ratio always 1 to 2 with limited exceptions - see paragraph 12.2.2.8);
(c) turning roadway radius, and therefore the intersecting segments, if a fully surrounding PAINTED ISLAND is used;
(d) island kerb radius;
(e) use of a "flare" on one or both sides of an end radius (not illustrated);
(f) the presence of STOP LINE marking RTM1 or PEDESTRIAN CROSSING LINES marking RTM3.

7 An acceptable visual or aesthetic effect is likely to be most difficult to achieve, subject to the above factors, in the following areas:

(a) in the intersecting 90^0 corner (a skew junction will vary this angle);
(b) around the turning roadway.

8 The following techniques should be considered, singly or collectively, in order to achieve an acceptable marking pattern:

(a) the angle of bars on the straight sides should be 30^0 to the direction of travel;
(b) the first "bar" may be increased in area for better visual impact - this will also have the effect of moving the subsequent bar pattern towards the kerbed nose - it is recommended that the effective length of the first bar be increased by an order of 3 to 5 times on the leading approach and 2 to 3 times on the trailing approach;
(c) the bar angle on the leading approach to the turning roadway should be 45^0 for the first two or three bars;
(d) the bar angle of the last two or three bars on the trailing approach should be 30^0 or less - 10^0 is commonly an effective angle to use;
(e) once the two extremes of the turning roadway have been designed / marked the remaining distance round the curve should be measured on the inside and outside guidelines from centre to centre of already determined bars (see Detail 12.8.2) - these lengths should then be divided into equal parts approximating the standard "bar plus space" dimension (the inner dimension should be less than this and the outer dimension greater) - this will establish the

centres of the bars on the curve (these will in fact "rotate" through an angle from leading approach to trailing approach);

(f) use one of the details covered by Details 12.9.1 to 12.9.3 if an awkward combination of bars occurs in the 90^0 corner.

9 Detail 12.8.1 indicates the above factors in a sequence of design or setting out steps.

12.2.3 Other Dimensional Details

1 BOX JUNCTION marking RM10 is a regulatory marking which requires certain actions of drivers. Its use should therefore be undertaken with care since it will have traffic enforcement implications (see Volume 2, Chapter 2 for examples of the application of marking RM10).

2 PEDESTRIAN CROSSING AHEAD LINE marking RM11 is also a regulatory marking which requires certain actions of drivers (see Volume 2, Chapters 2 and 14 for examples of the application of marking RM11).

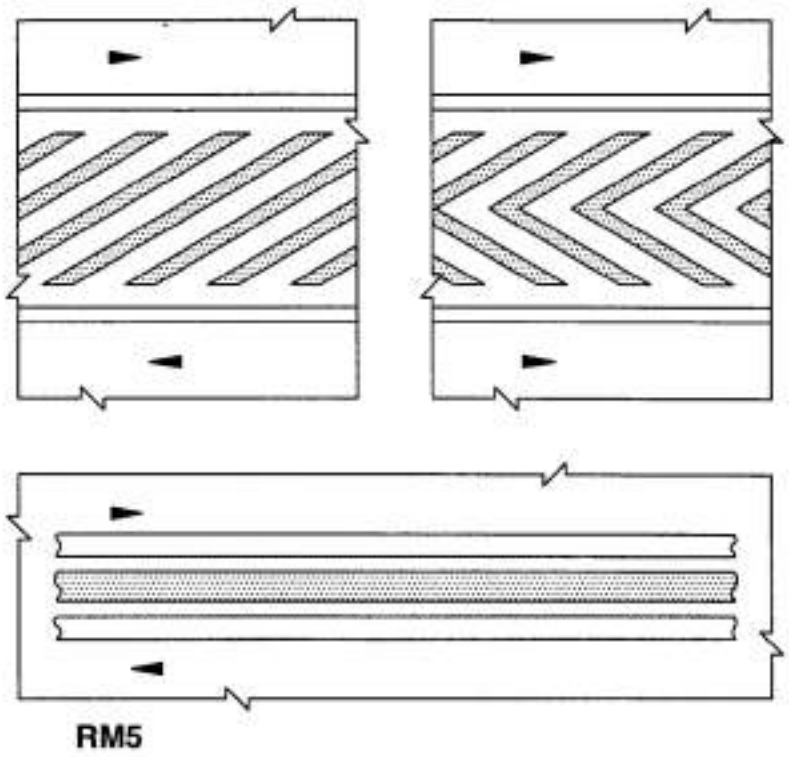
3 SPEED HUMP marking WM10 is a warning marking the use of which is appropriate in speed controlled environments (see Volume 2, Chapter 12 for examples of the application of marking WM10).

COLOURS:

Border:	*White or yellow*
Bars:	*Yellow*

NOTES:

1 For details of the use of road marking RM5 refer to SADC-RTSM VOL 1, Chapter 7, page 7.2.15 and to Volume 2.
2 The detail below shows the minimum bar spacing dimensions for a bar or chevron painted island. The bar width may be increased to a maximum of 1000 mm. Ratio of bar width to space is 1 to 2.
3 For further painted island details see Figures 12.2 to 12.9.
4 In Figure 12.2 Detail 12.2.1 illustrates a "dividing line" painted island treatment and the range of dimensions for such treatment. When the central element reaches 600 mm in width, or greater, a bar marking should be used.
5 In Figure 12.2, Detail 12.2.2 shows basic setting out details for a chevron bar based painted island (traffic travels in the same direction on both sides of the island). Many variations of this type of island are possible.
6 Detail 12.2.3 shows the principles of hollow bar painted island markings. Such bars may varied in dimension (see Figure 12.3) but no single element should be less than 150 mm in width.



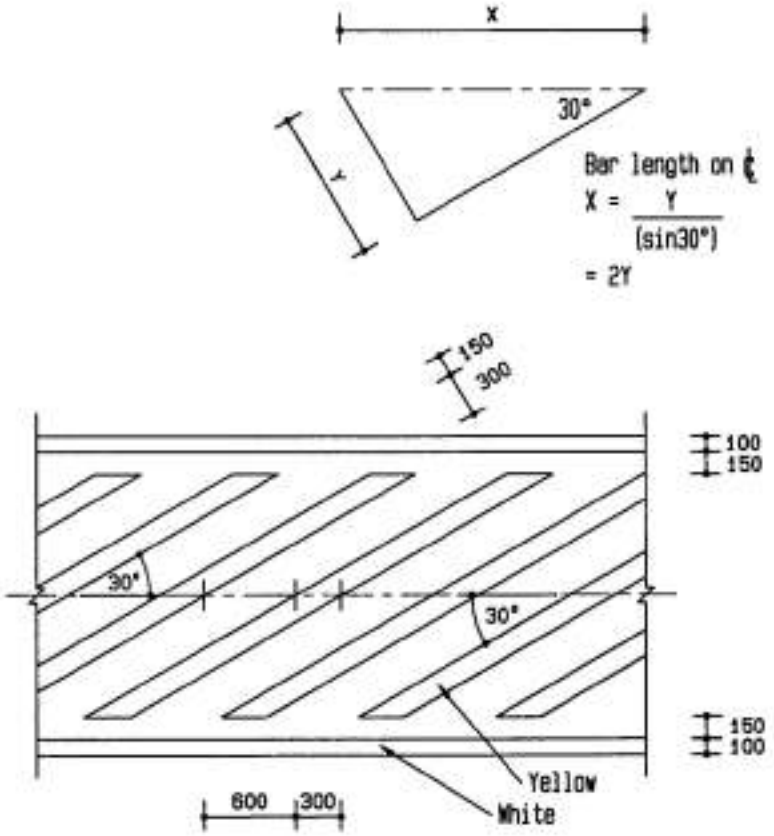
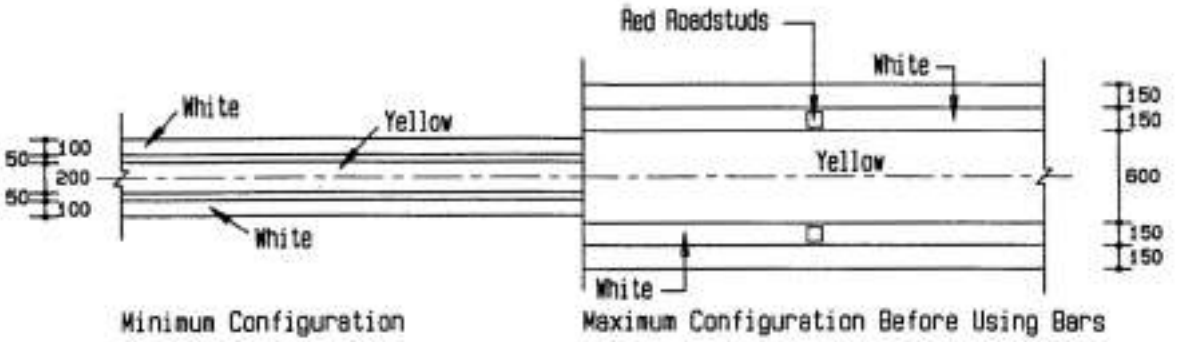
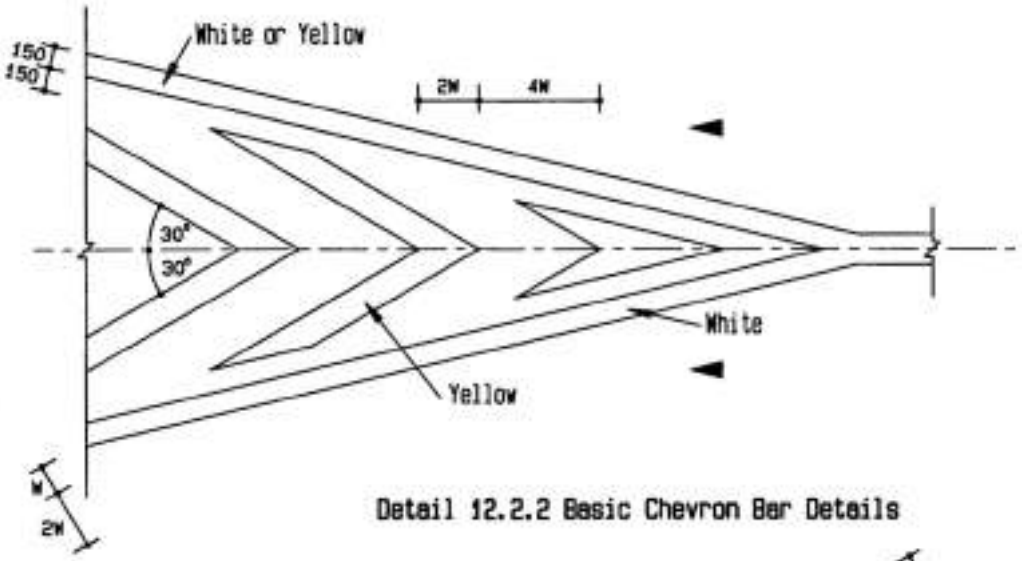


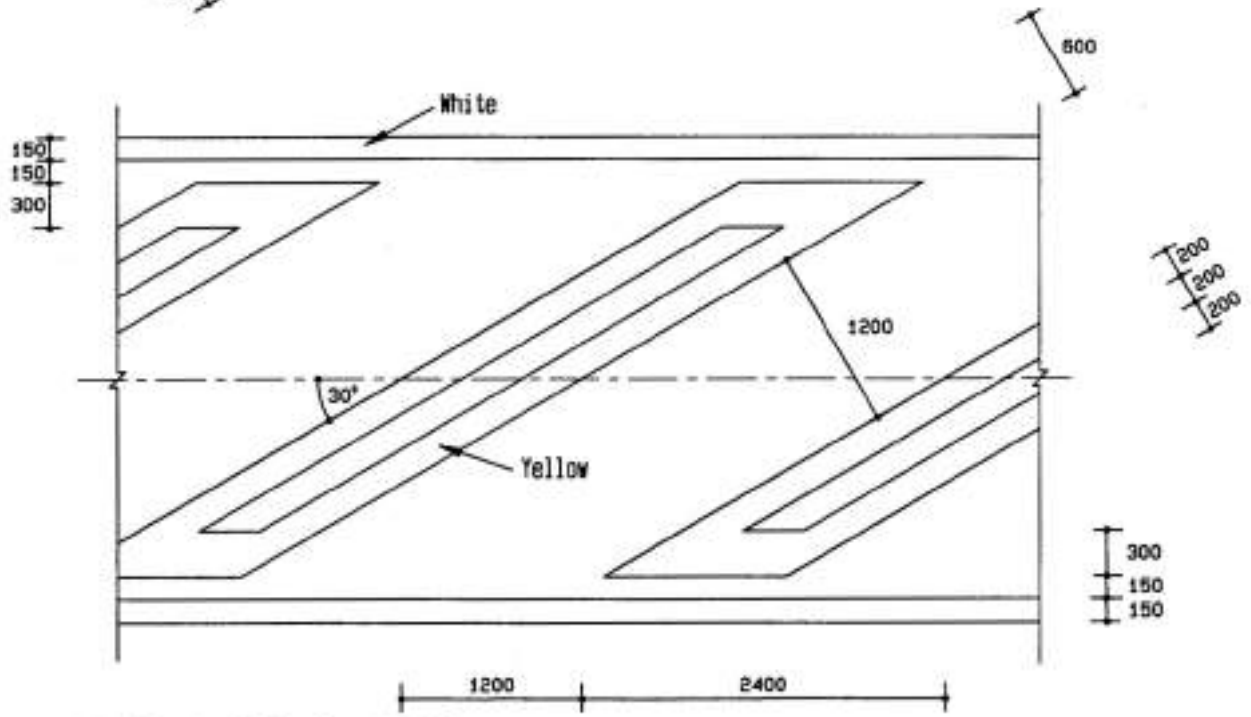
Fig.12.1 RM5 – Painted Islands – 1 – Basic Bar Details



Detail 12.2.1 "Dividing Line" Painted Island Treatment

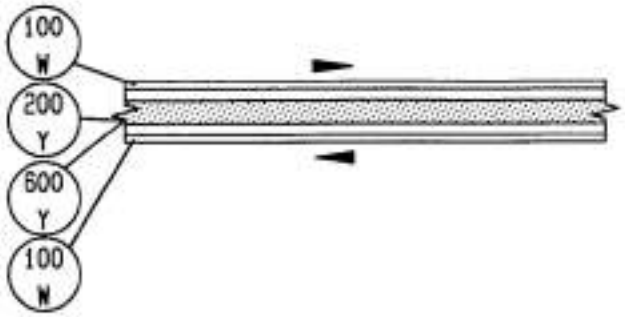


Detail 12.2.2 Basic Chevron Bar Details

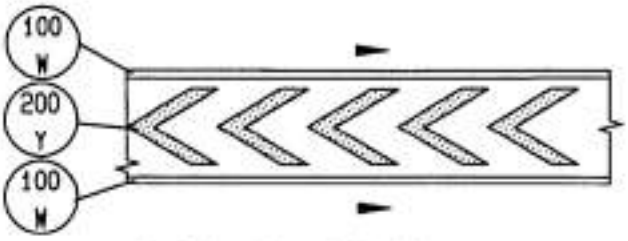


Detail 12.2.3 Basic Hollow Bar Details

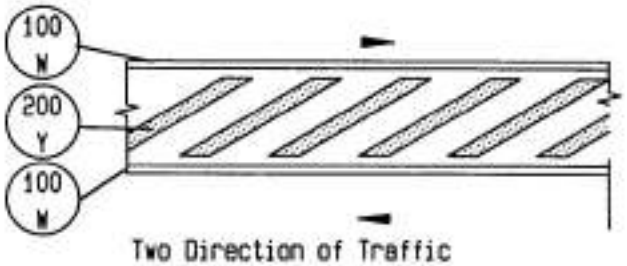
Fig.12.2 RM5 – Painted Islands – 2 – Basic "Dividing" Island/Chevron Bar and Hollow Bar Details



Detail 12.3.1
Narrow 'Dividing Line' Painted Island

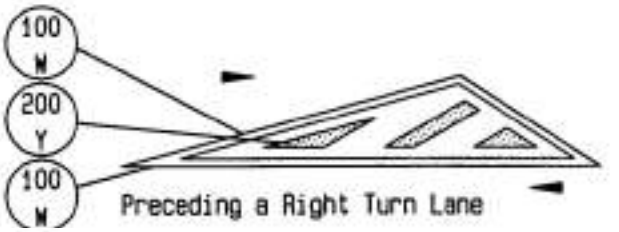


One Direction of Traffic

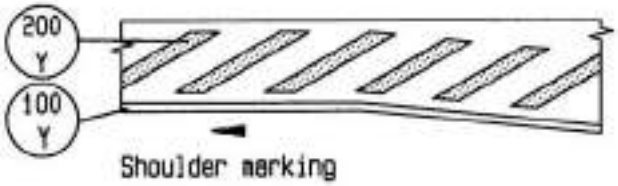


Two Direction of Traffic

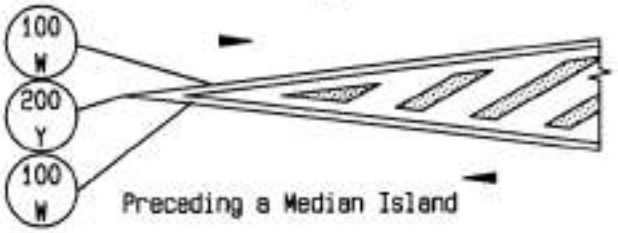
Detail 12.3.2
Separator / Refuge Painted Islands



Preceding a Right Turn Lane



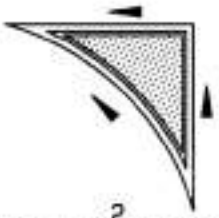
Shoulder marking



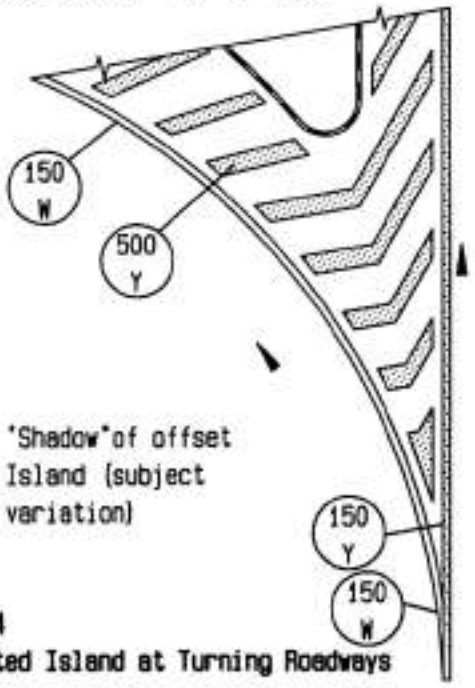
Preceding a Median Island

Detail 12.3.3
Hazard Marking Painted Islands

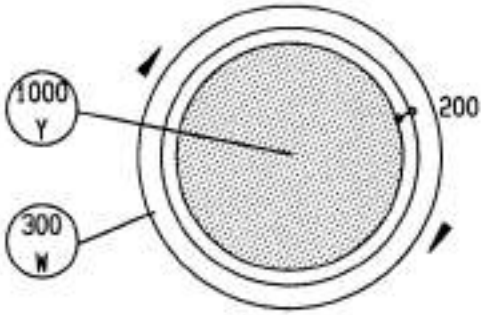
NOTE:
(1) Marking widths shown here MINIMUM for all applications.



Small Island - 8m^2 or less



Typical 'Shadow' of offset Painted Island (subject to wide variation)



Detail 12.3.5
Painted Island Traffic Circle (part RM15)

Detail 12.3.4
Typical Painted Island at Turning Roadways

Fig.12.3 RM5 – Painted Islands – 3 – Types/Applications Of Painted Island Markings

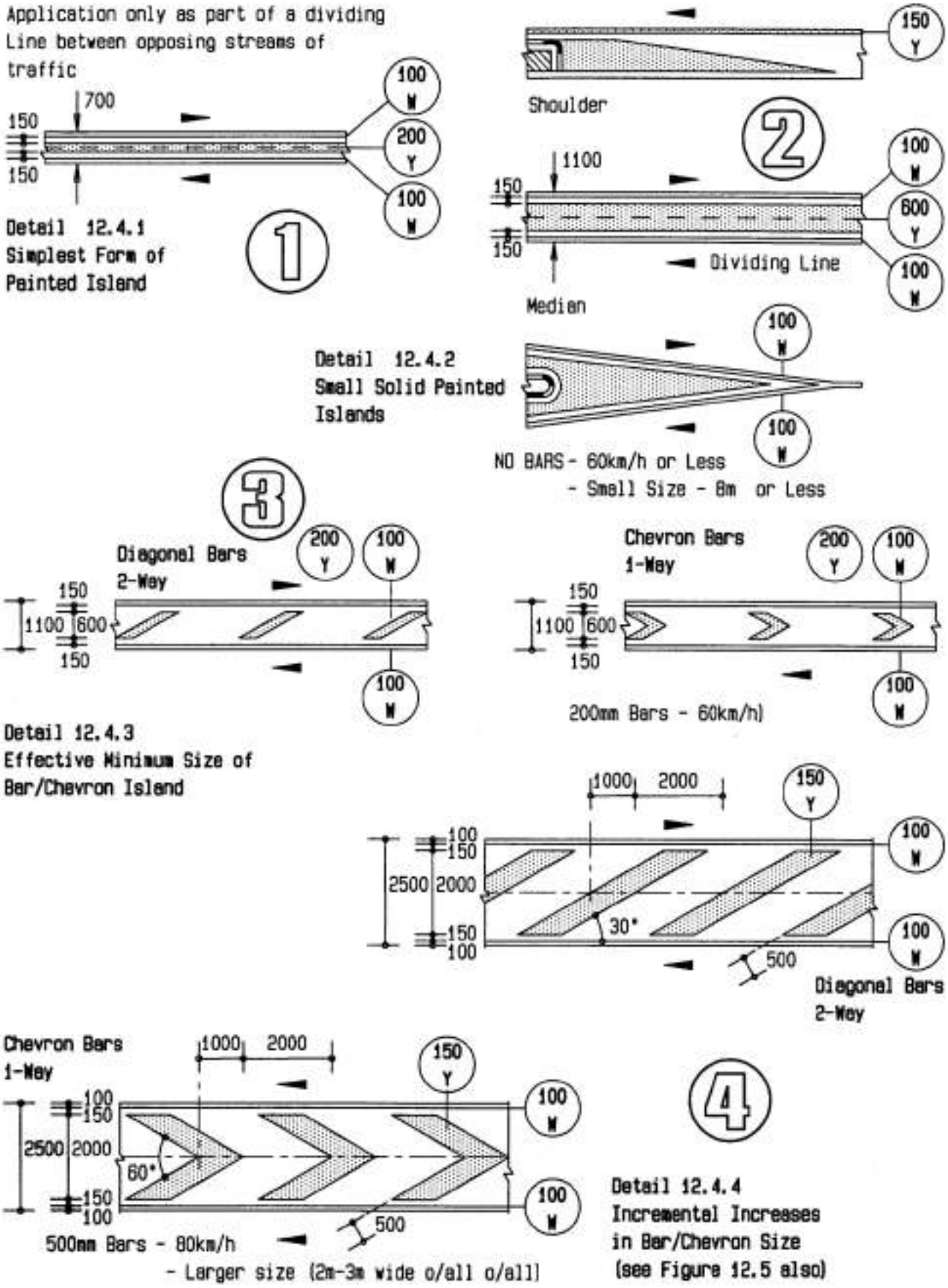


Fig.12.4 Progressive Increase in Island Size – Steps 1 to 4

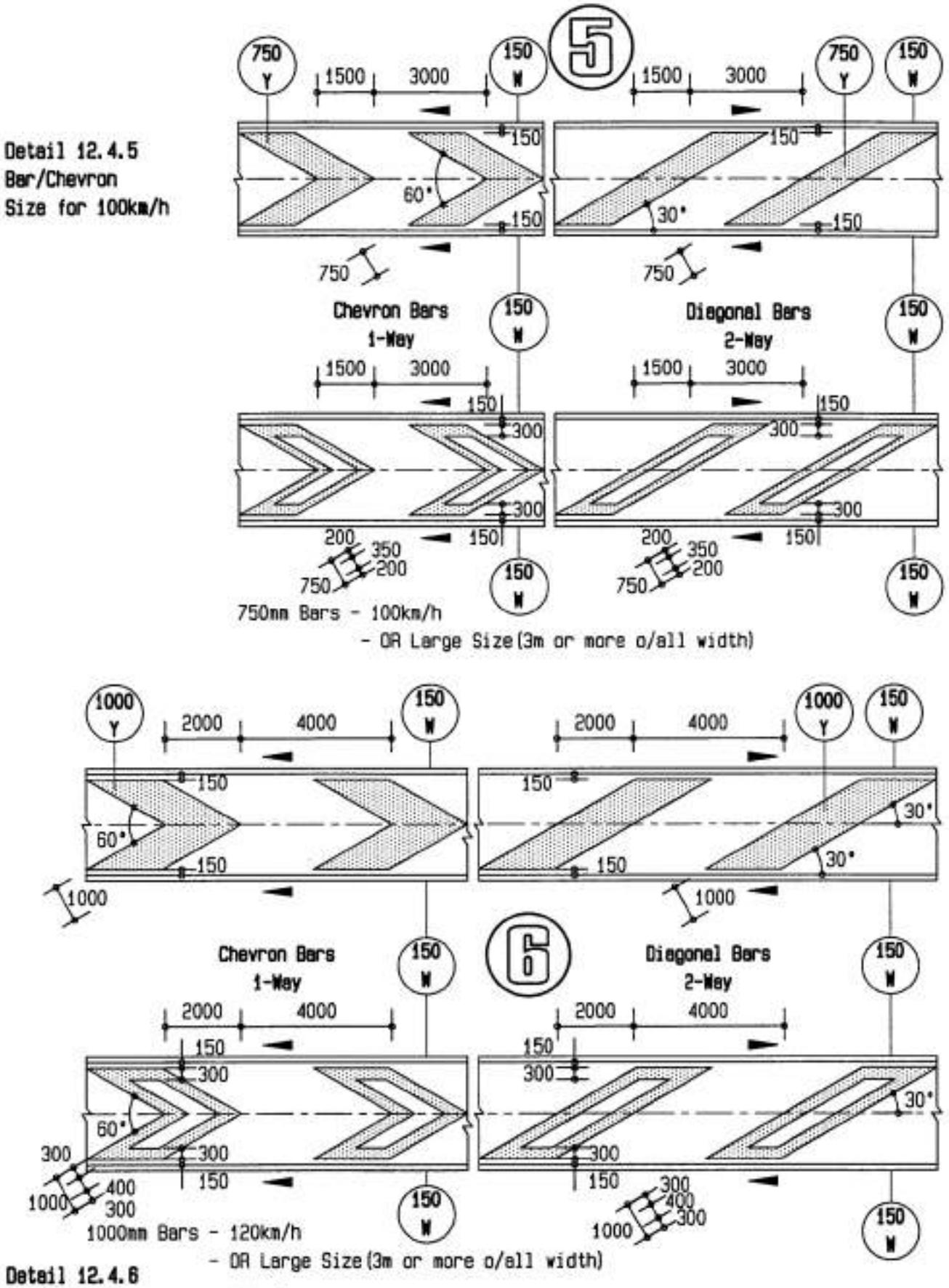


Fig.12.5 Progressive Increase in Island Size – Steps 5 and 6

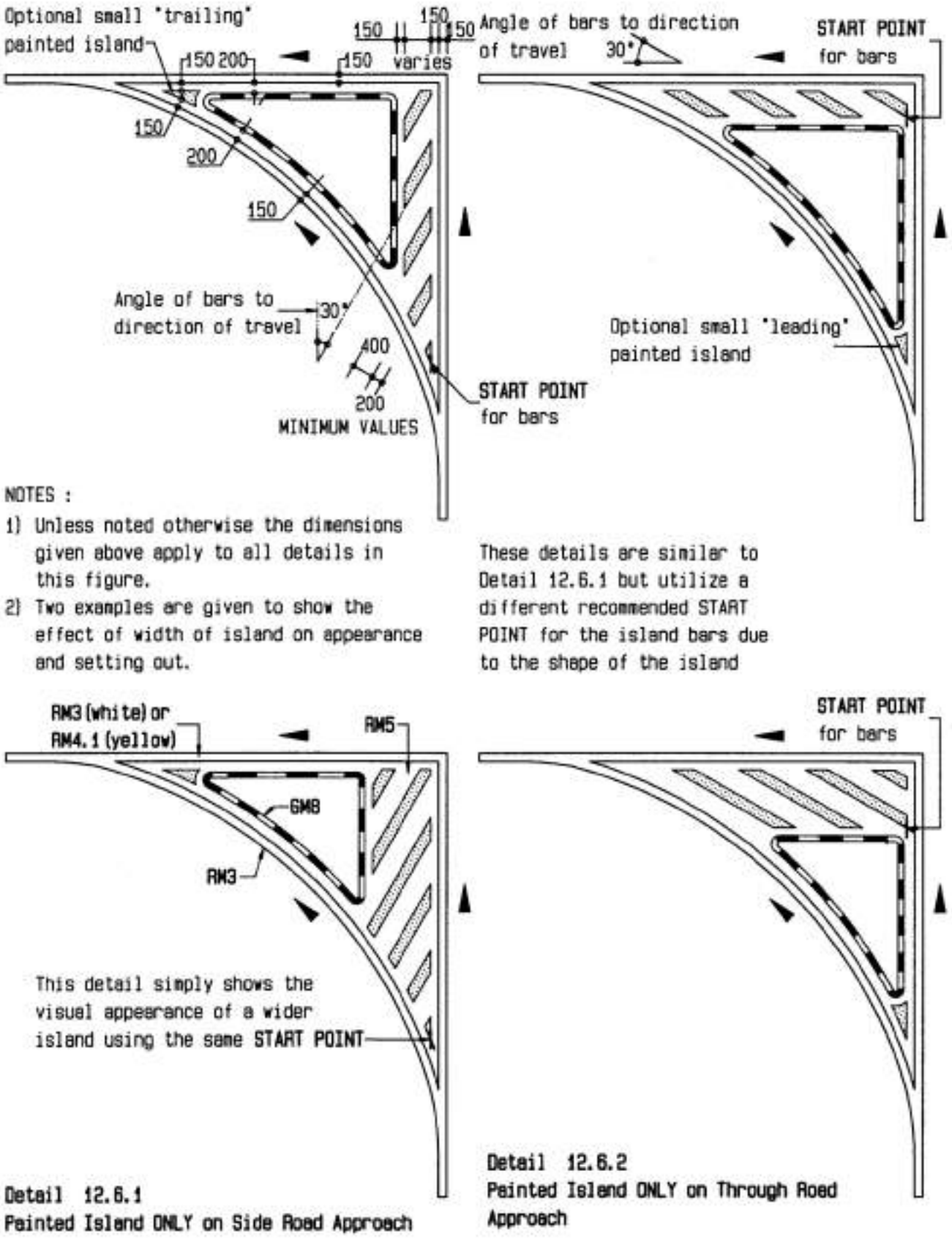


Fig.12.6 Painted Islands at Triangular Traffic Islands - 1

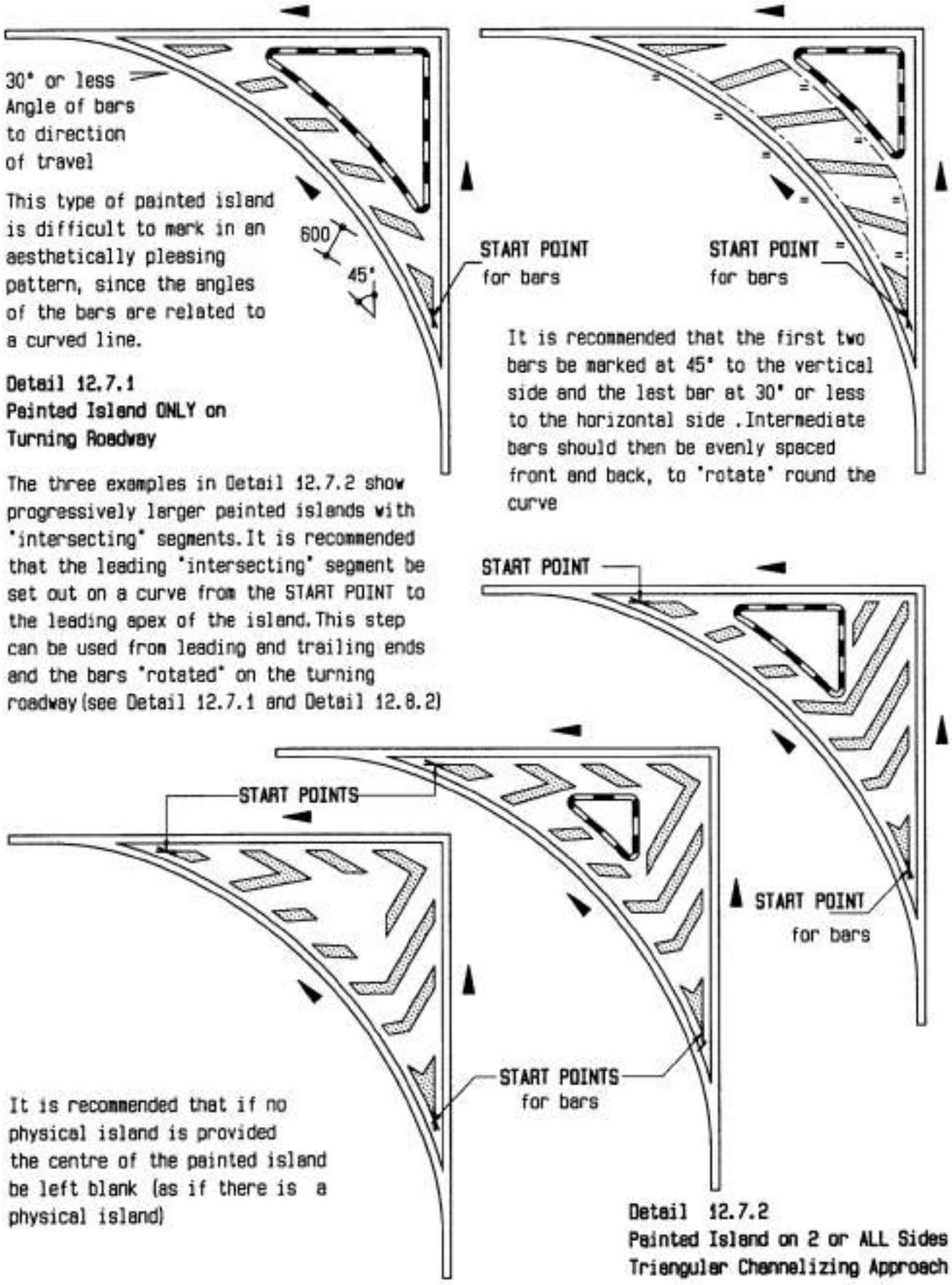


Fig.12.7 Painted Islands at Triangular Traffic Islands - 2

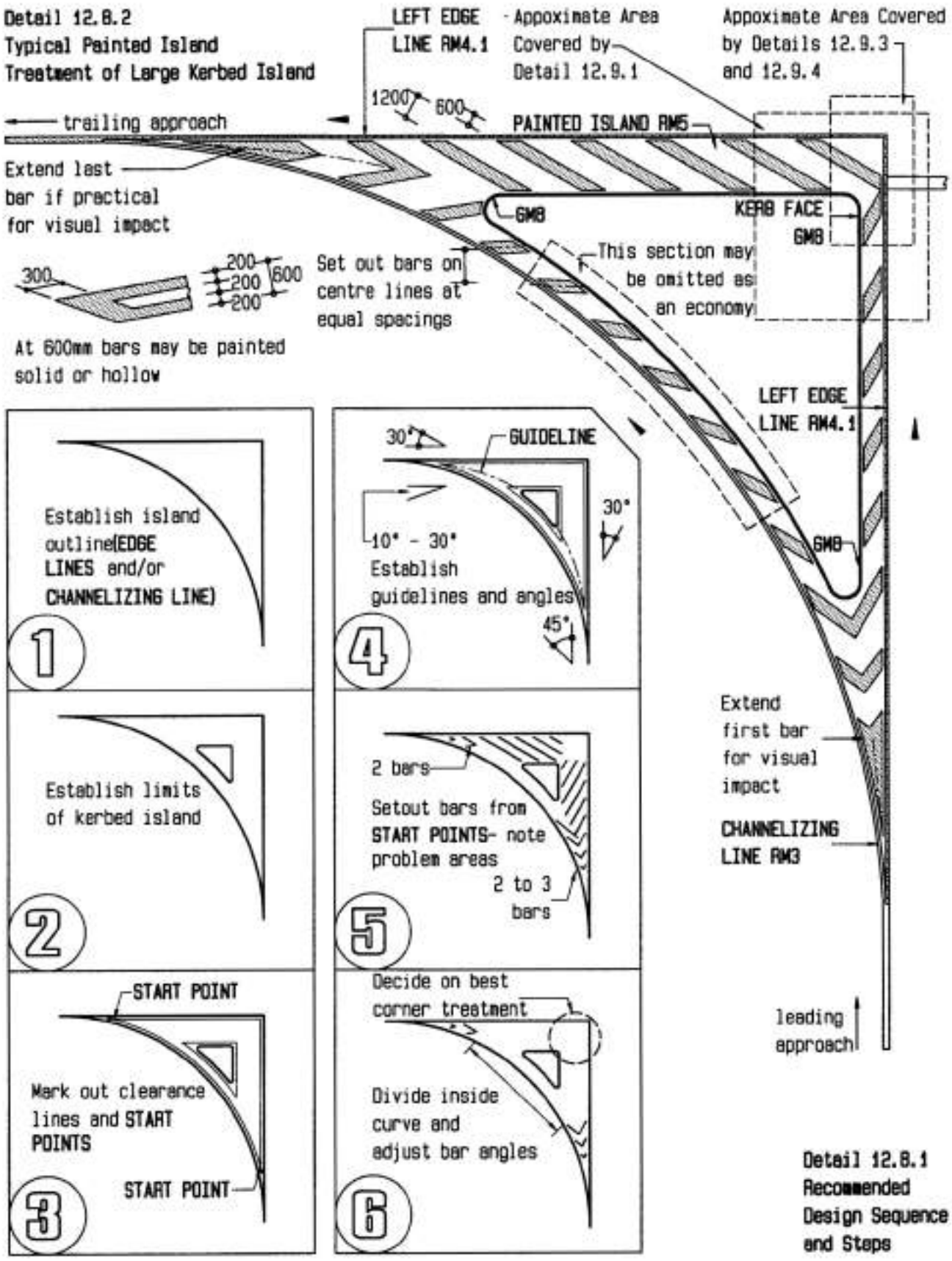


Fig.12.8 Painted Islands at Triangular Traffic Islands - 3

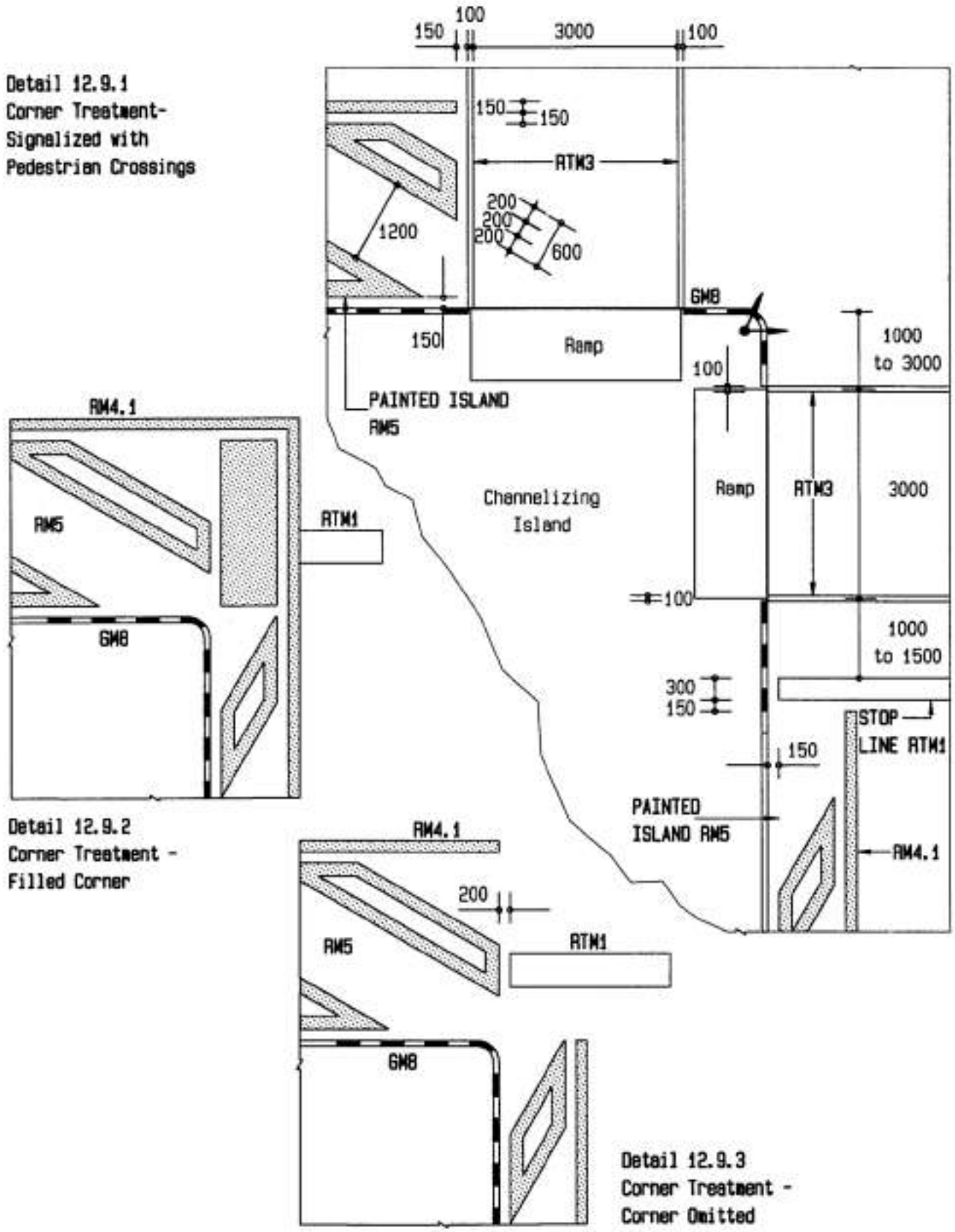
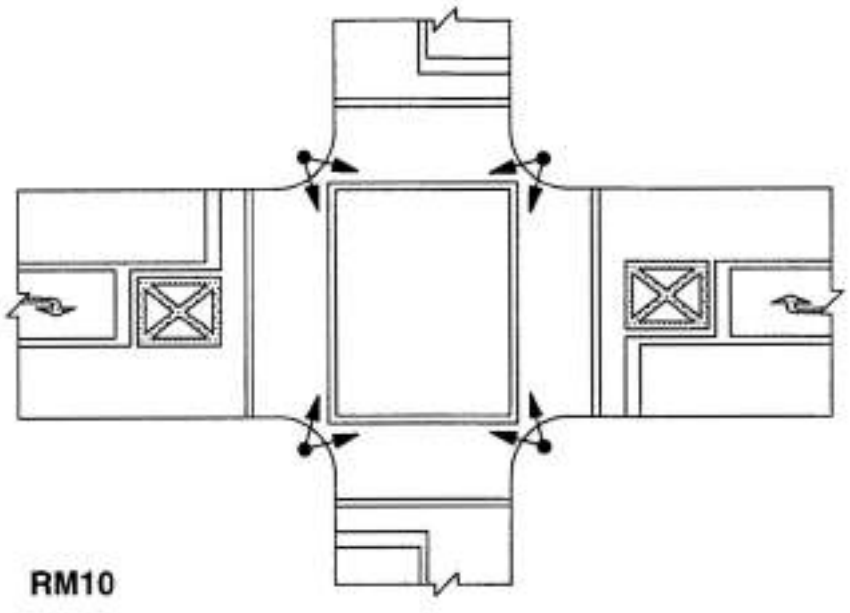


Fig.12.9 Fig.12.6 Painted Islands at Triangular Traffic Islands - 4



COLOURS:
Yellow

NOTES:

1 For details of the use of road marking RM10 refer to SADC-RTSM VOL 1, Chapter 7, page 7.2.23.
2 Mark out box as follows:
(a) Mark out perimeter at least 500 mm inside pedestrian crossings;
(b) Mark diagonals of resultant shape;
(c) Set off additional cross-hatches parallel to the diagonals;
(d) If the box is elongated establish a centre point on the long side and proceed as above.
3 If the perimeter of the box is under 20 m simply mark diagonals. When the perimeter is over 20 m mark additional cross-hatches at 2000 mm centres, or at roughly equal intervals up to a maximum of 3000 mm spacing.

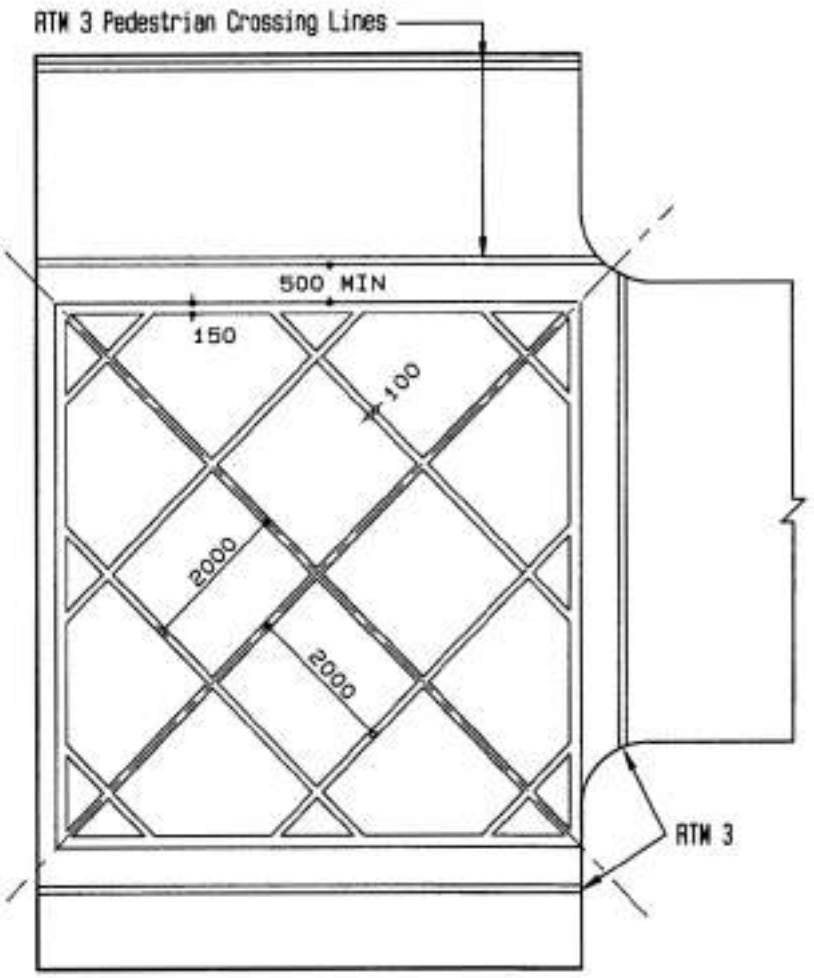
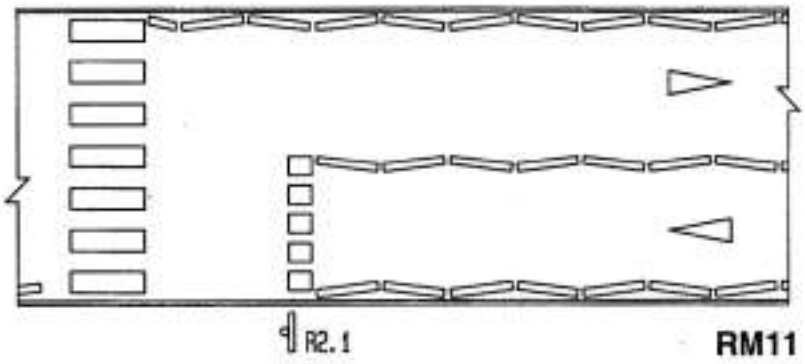


Fig.12.10 RM10 – Box Junction

COLOURS:
White

NOTES:

1 For details of the use of road marking RM11 refer to SADC-RTSM VOL 1, Chapter 7, page 7.2.25.
2 The 2 m length of line may be measured along the line (if using a mask or template (B)), or along the line of the road (for ease of setting out (A)).
3 The zig-zag offset (C) may be reduced from 500 mm to 300 mm for lanes with a width of less than 3400 mm.



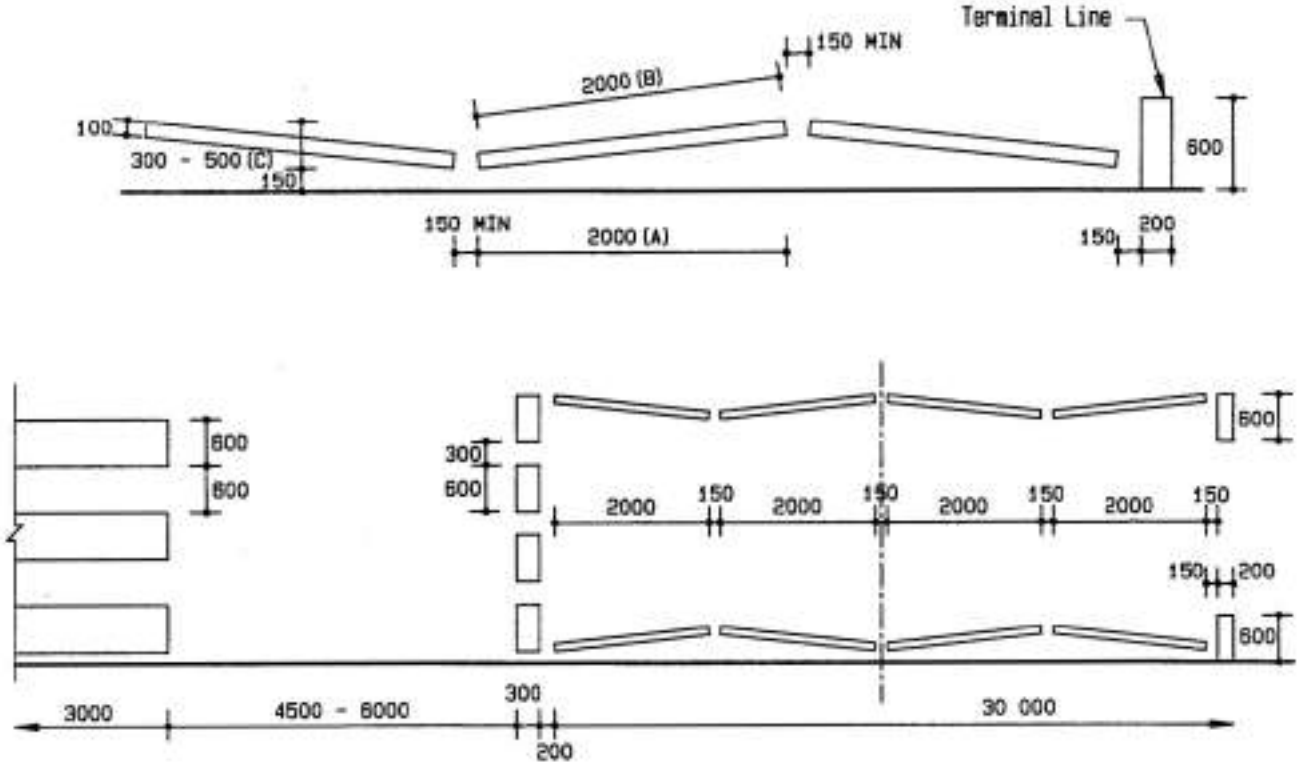
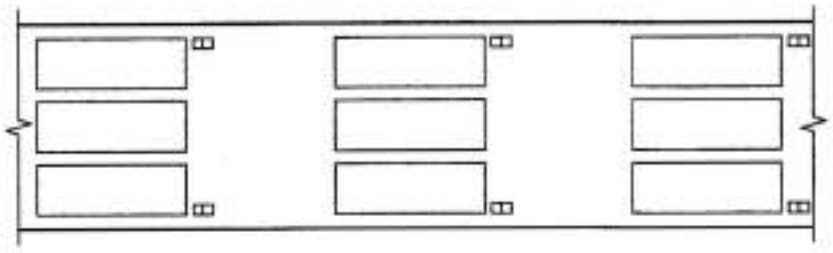


Fig.12.11 RM11 – Zig-Zag Zone Lines



WM9.1

COLOURS:
Red and white

NOTES:

1 For details of the use of road marking WM9.1 refer to SADC-RTSM VOL 1, Chapter 7, page 7.3.8.
2 Refer to page 12.2.15 Figure 12.13 for detail of similar ESCAPE ROAD marking WM9.2.
3 Details of the application of markings WM9.1 and WM9.2 are given in Volume 2, Chapters 2 and 11.

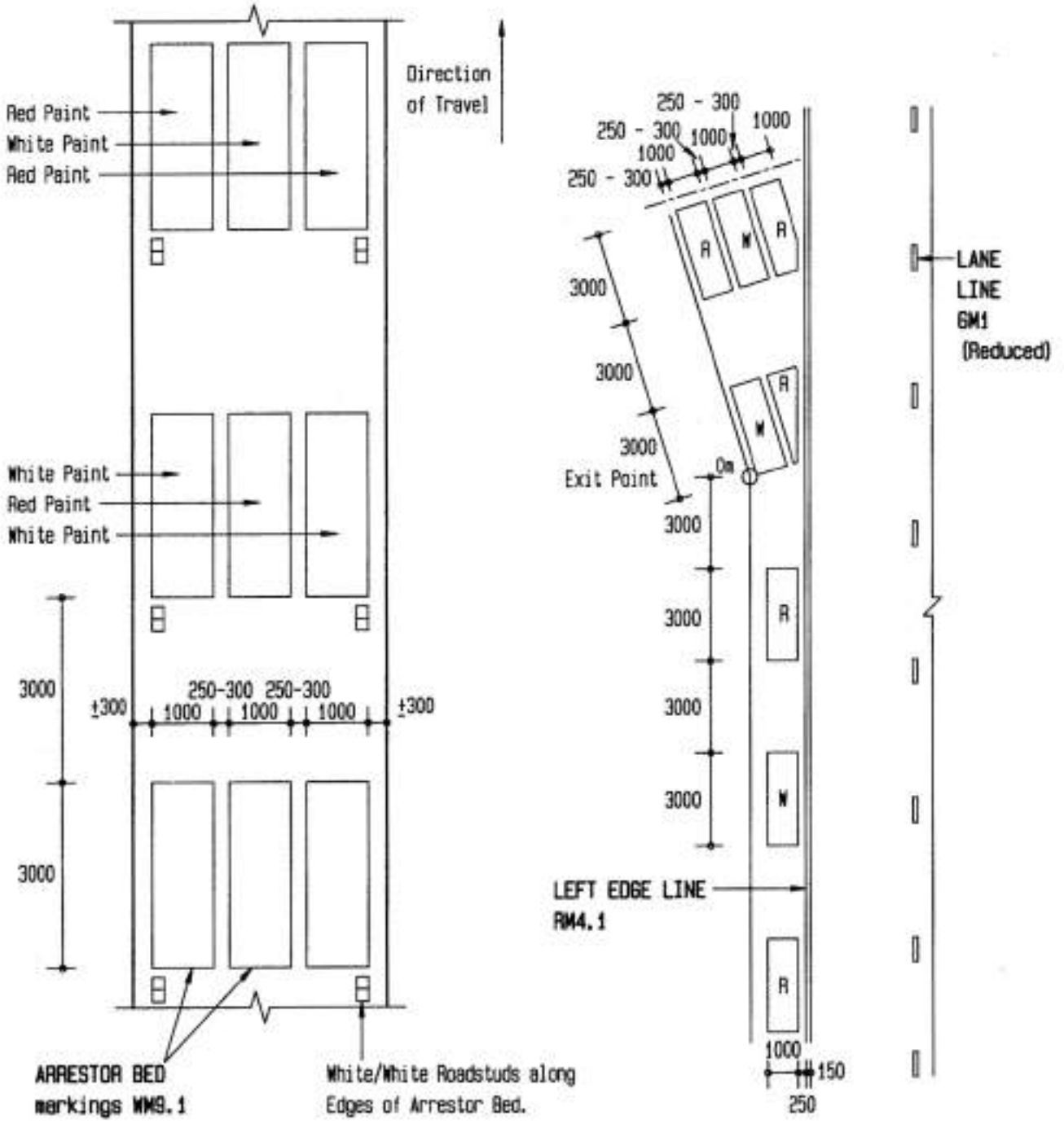
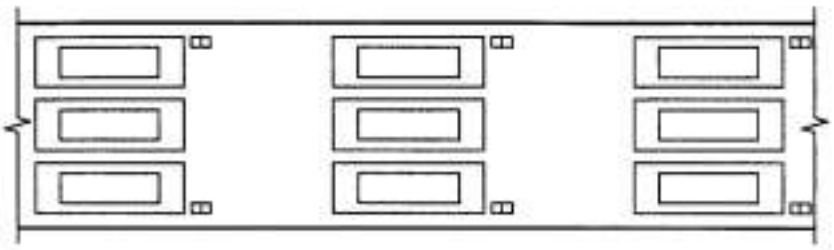


Fig.12.12 WM9.15 – Arrestor Bed Markings

COLOURS:
Red and white

NOTES:

1 See page 12.2.15.



WM9.2

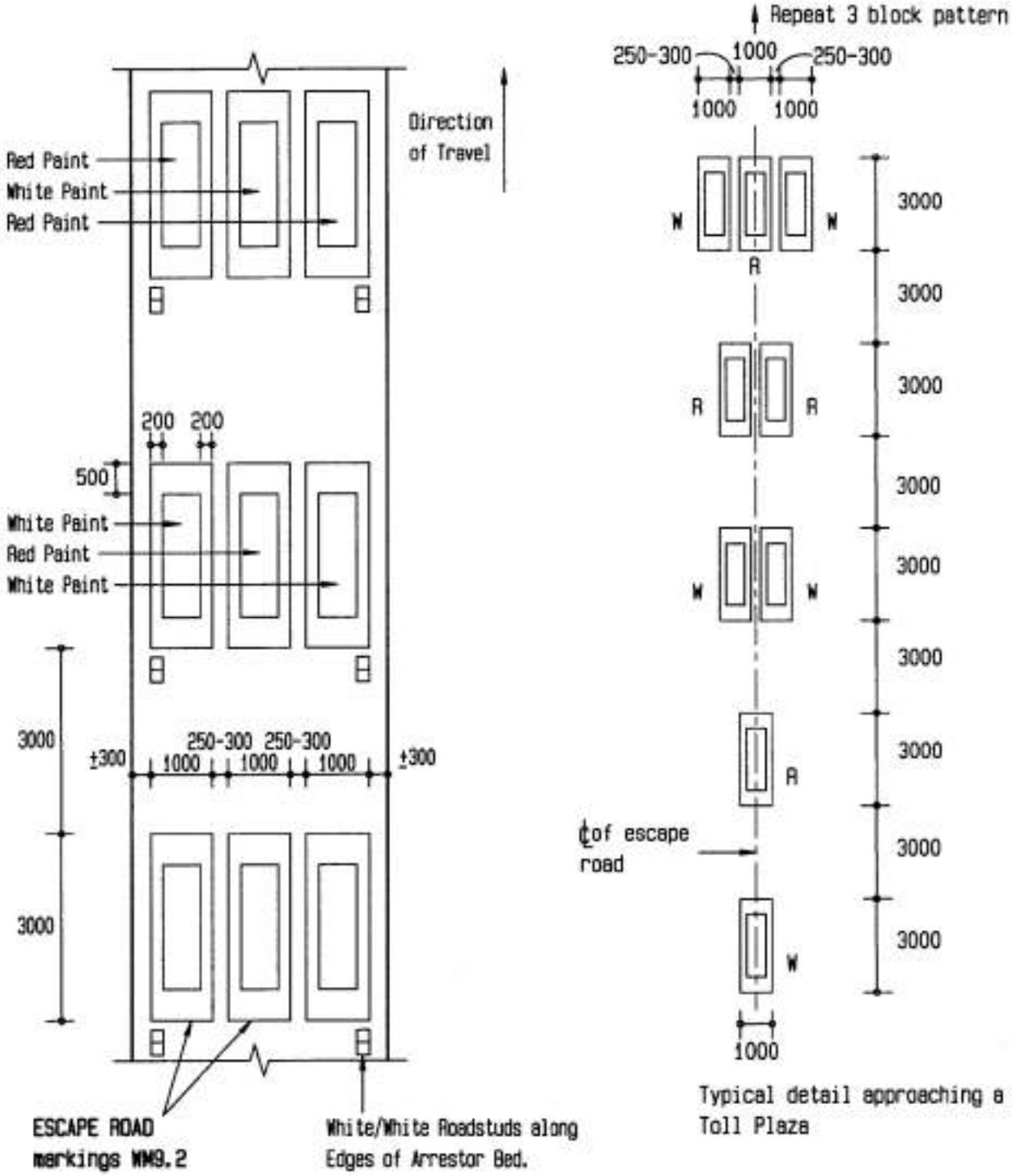
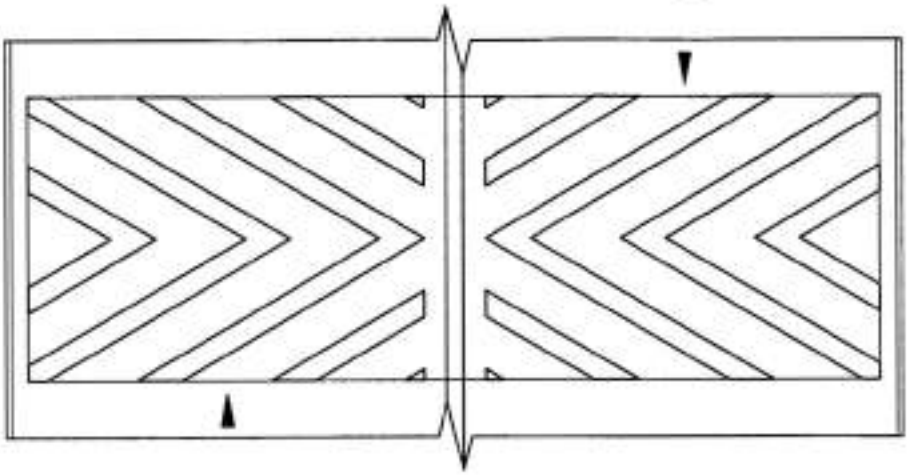


Fig.12.13 WM9.2 – Escape Road Marking



WM10

COLOURS:
White

NOTES:

1 For details of the use of road marking WM10 refer to SADC-RTSM VOL 1, Chapter 7, page 7.3.9.

2 Pattern start point shown thus *. This may be varied. However, it is recommended that all speed humps in a specific area use the same pattern

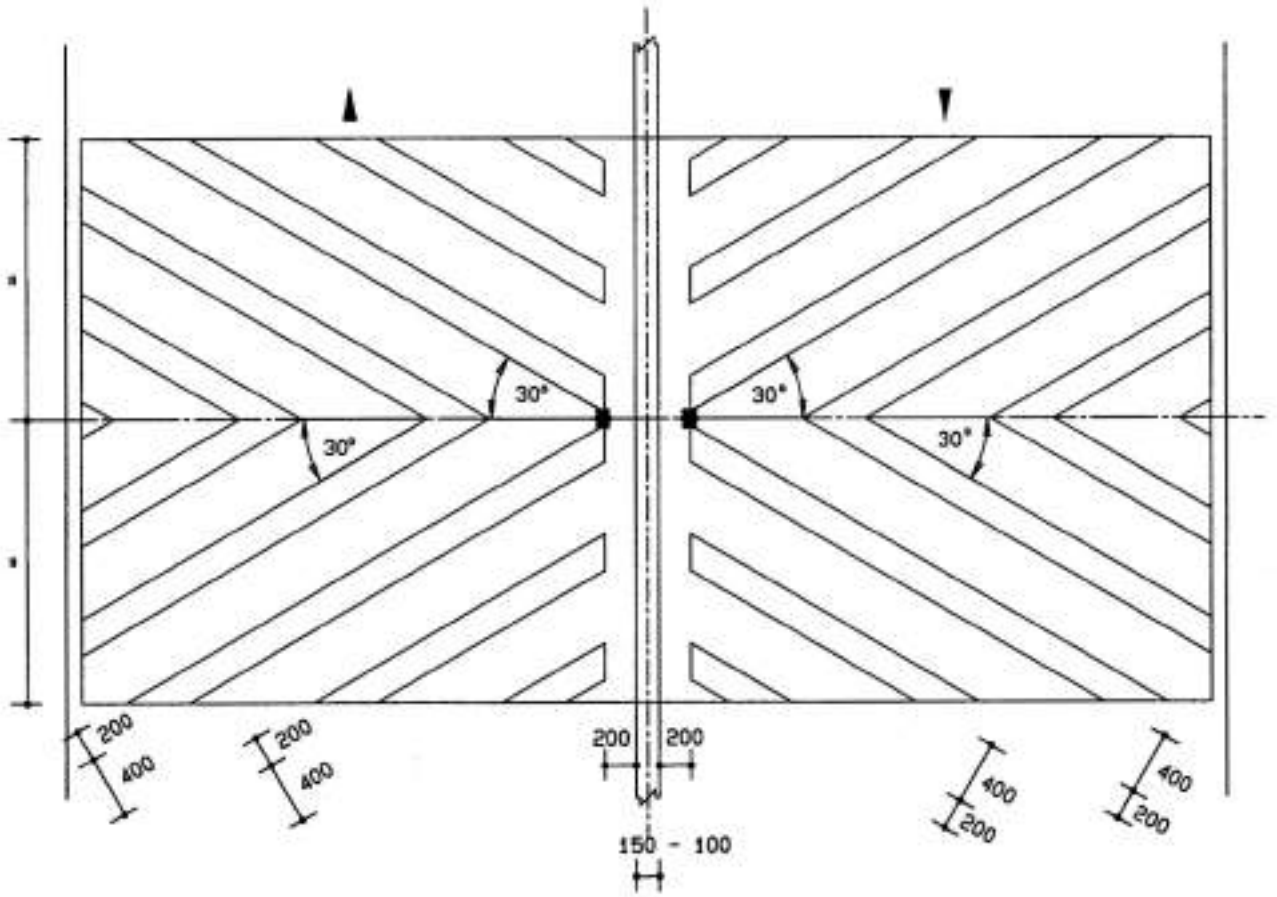


Fig.12.14 WM10 – Speed Hump

12.3 ARROW TYPES

12.3.1 General

1 This section covers the following road marking arrow types in sufficient dimensional detail to enable the setting out of the arrow, or preferably the manufacture of a mask to enable the quick and accurate marking of the road surface:

(a) MANDATORY DIRECTION ARROWS RM8 (Yellow);
(b) MANDATORY DIRECTION ARROW AHEAD WM7 (White);
(c) TRAFFIC CIRCLE MANDATORY ARROWS RM15 (Yellow);
(d) LANE REDUCTION ARROWS WM6 (White);
(e) NO OVERTAKING AHEAD ARROWS WM8 (White);
(f) END OF EXCLUSIVE USE LANE ARROWS WM11.1 AND WM11.2 (White);
(g) BIFURCATION ARROWS GM3 (White);
(h) INFORMATION ARROWS GM4 (White or Yellow).

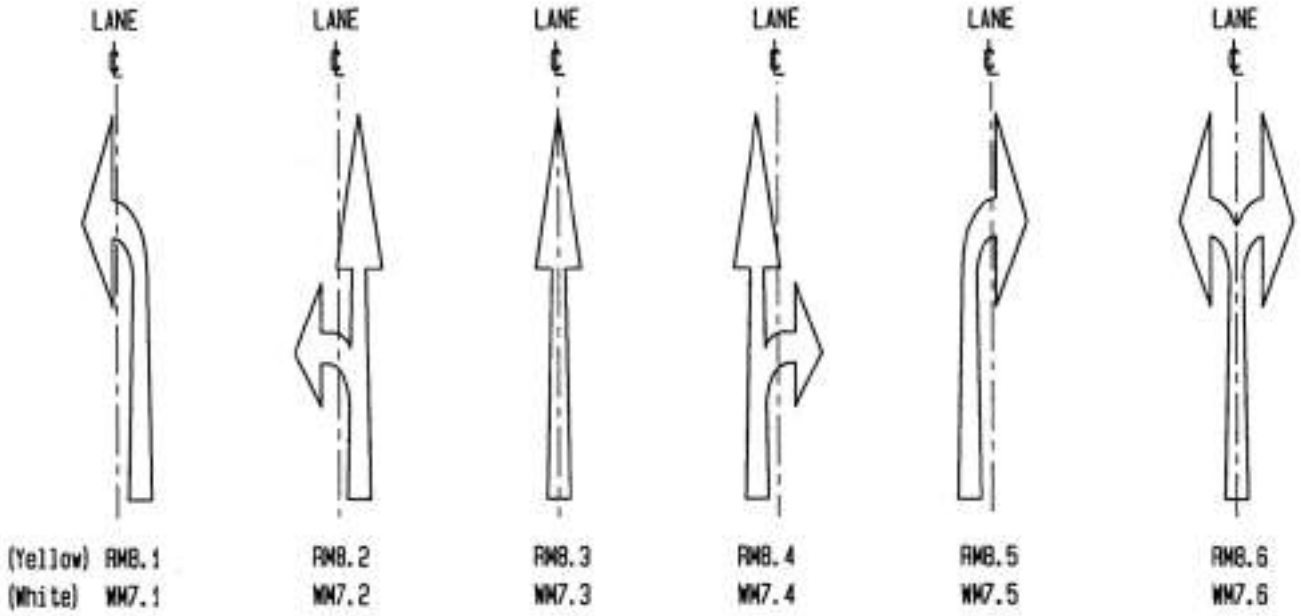
2 In all instances the arrow types are available in a range of lengths subject to their location of application. The range of locations is classified as follows:

(a) city centre (central business district);
(b) urban/rural expressway (commonly a numbered route);
(c) rural roads and all freeways.

3 Some arrow types include an additional size for special applications. Such applications include locations where markings may be difficult to see, such as:

(a) in misty areas;
(b) in areas subject to high traffic density;
(c) situations without street lighting;
(d) in identified high accident locations.

4 Several of the arrows are detailed in two ways to allow options for scaling to a size suitable for use on the road. In the one case the detail shows the arrow and a selection of dimensional letters, values for which are tabulated for the range of standard arrow lengths. In some cases an arrow is also drawn on a rectangular grid, elongated in the direction of the length of the symbol, to facilitate its enlargement. This type of detail is only given for the most commonly used arrow size. In principle, however, other sizes can be generated by varying the scale factor for the grid element length in proportion to the arrow length. It should be noted that for each arrow type the width of the arrow remains constant, irrespective of the length.



RM8
WM7

COLOURS:
Yellow (RM8)
White (WM7)

NOTES:

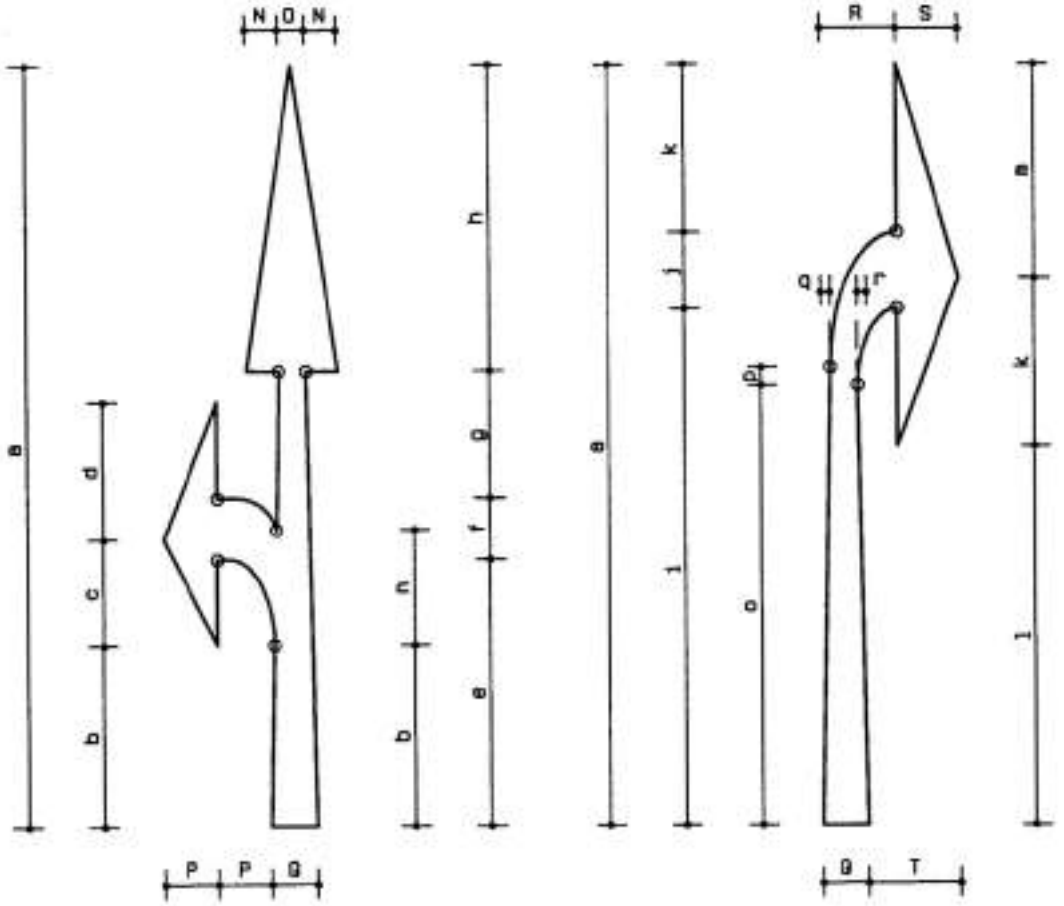
1 For details of the use of road marking RM8 refer to SADC-RTSM VOL 1, Chapter 7, page 7.2.20, an d for road marking WM7 to page 7.3.7.

2 Dimensional details of arrows are given in Figures 12.16 and 12.17. Values of dimensions for all standard arrow lengths are covered in Figure 12.16 in tabulated form, whilst Figure 12.17 illustrates arrow details, to scale for the 5 m arrow length, on a grid base. It should be noted that the arrow width does not vary with length. The grid detail can be re-drawn for other arrow lengths by retaining, at the full size, the 50 mm width of grid block and by varying the vertical block in proportion to the arrow length as follows"

"a" (arrow length)	grid block length
2500 mm	50 mm
4000 mm	80 mm
5000 mm	100 mm
7500 mm	150 mm

Arrow area m^2				
a	RM8.1/RM8.5 WM7.1/WM7.5	RM8.2/RM8.4 WM7.2/WM7.4	RM8.3 WM7.3	RM8.6 WM7.6
2500	0.67	0.89	0.66	1.03
4000	1.14	1.43	1.06	1.68
5000	1.45	1.78	1.32	2.12
7500	2.23	2.66	1.98	3.20

Fig.12.15 **RM8 – Mandatory Direction Arrows – 1**
WM7 – Mandatory Direction Arrow Ahead - 1



DIMENSIONS (mm) APPLICATIONS

Operating speed km/h	Typical applications	a	b	c	d	e	f	g	h	i
30 - 40	City centre	2500	600	350	450	884	200	417	1000	1700
50 - 90	Urban/Rural expressway	4000	960	560	720	1406	320	666	1600	2720
100 - 120	Rural and freeways	5000	1200	700	900	1767	400	833	2000	3400
ALL	Special applications	7500	1800	1050	1350	2651	600	1250	3000	5100

Operating speed km/h	Typical applications	j	k	l	m	n	o	p	q	r
30 - 40	City centre	250	550	1250	700	380	1450	58	30	29
50 - 90	Urban/Rural expressway	400	880	2000	1120	608	2320	93	48	46
100 - 120	Rural and freeways	500	1100	2500	1400	760	2900	116	60	58
ALL	Special applications	750	1650	3750	2100	1140	4350	174	90	87

All operating speeds and applications	N	O	P	Q	R	S	T
	210	180	350	300	500	400	600

Fig.12.16 **RM8 – Mandatory Direction Arrows – 2**
WM7 – Mandatory Direction Arrow Ahead - 2

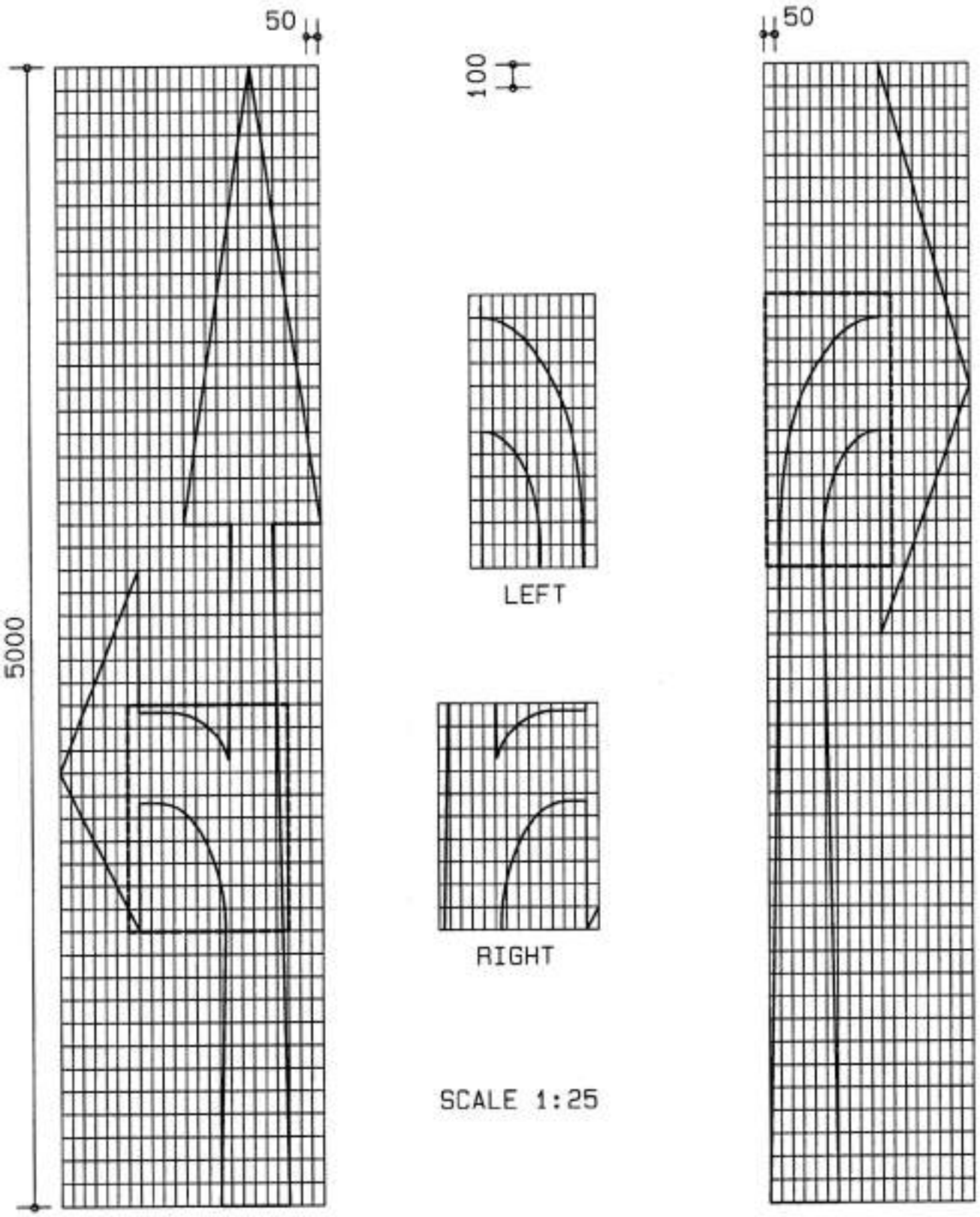
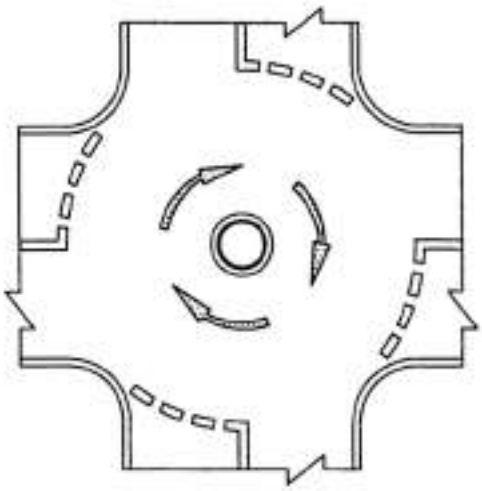


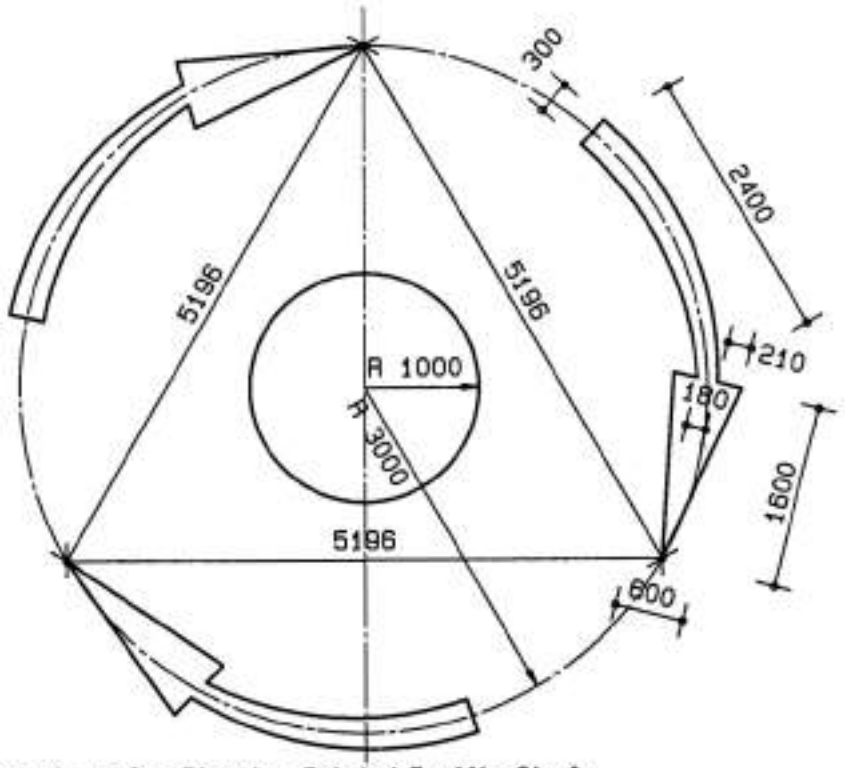
Fig.12.17 **RM8 – Mandatory Direction Arrows – 3**
WM7 – Mandatory Direction Arrow Ahead - 3

COLOURS:
Arrows: Yellow
Outer circle: White
Inner circle: Yellow

NOTES:
1 For details of the use of road marking RM15 refer to SADC-RTSM VOL1, Chapter 7, page 7.2.29
2 Details are given 2 m, 4 m and 6 m DIAMETER traffic circle. Other sizes may be used on a proportional basis. The size of the painted circle is a function of the engineering geometric design of the traffic circle.
3 The circle portion of the marking shall comprise a white outer ring marking and a yellow central marking. For small circles (4 m diameter or less) the central marking should be solid. For larger circles the marking may be an inner yellow ring. See Figure 12.19, Detail 12.19.1.

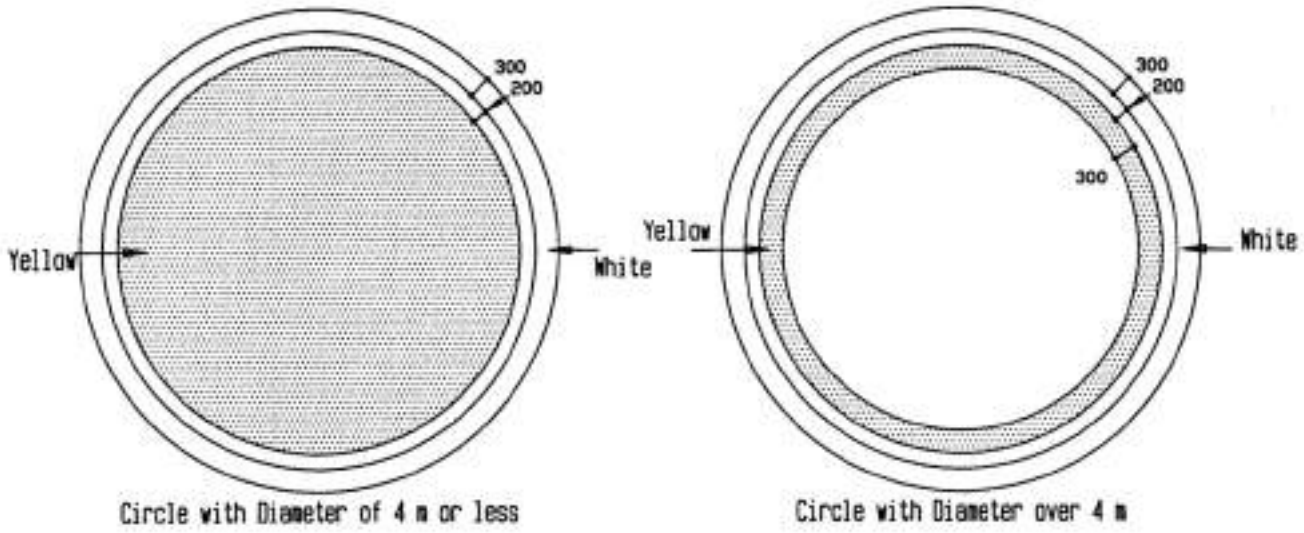


RM15

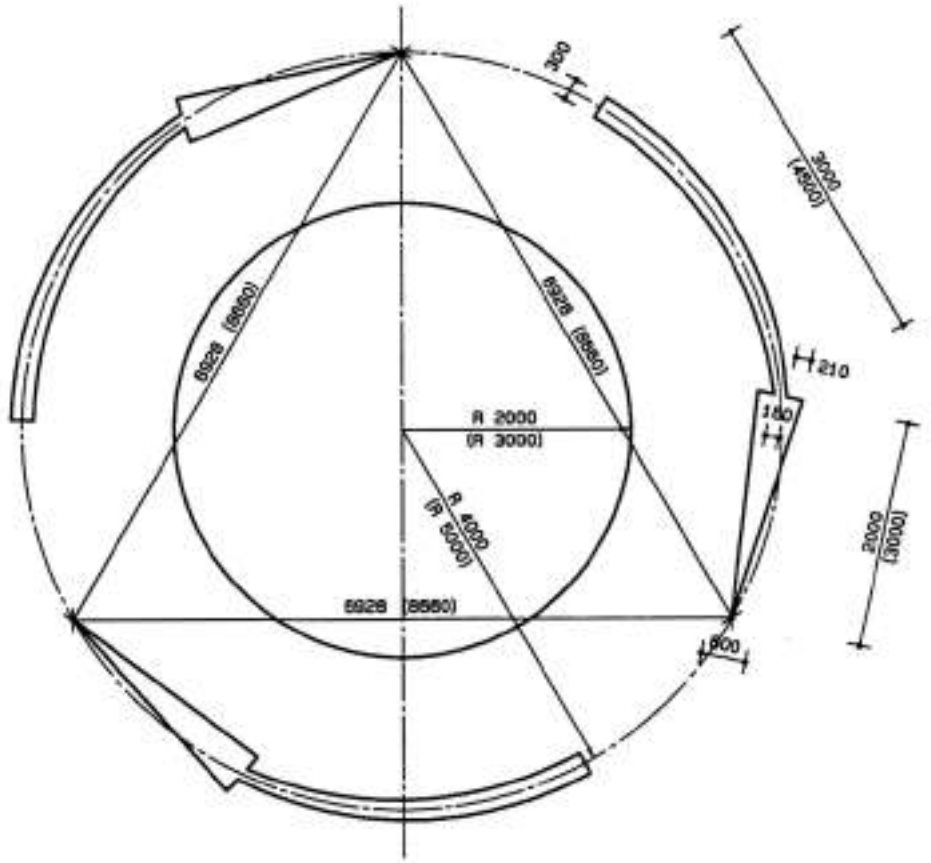


Detail 12.18.1 Diameter for a 2 m Diameter Painted Traffic Circle

Fig.12.18 RM15 – Traffic Circle Mandatory Arrows – 1



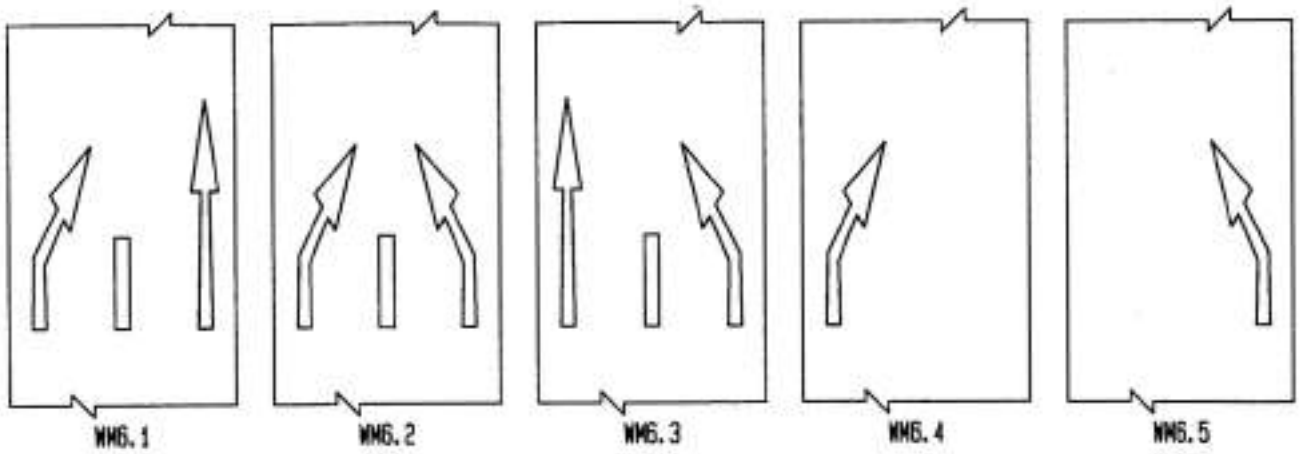
Detail 2.19.1 Traffic Circle Marking Details



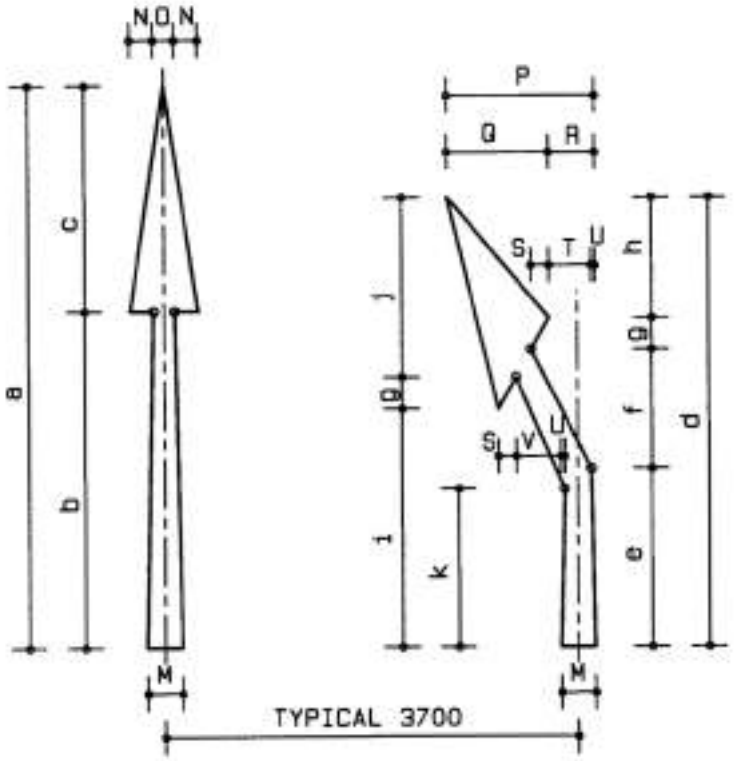
Dimensions which differ for 6 m diameter circle are given in brackets

Detail 12.19.2 Dimensions for 4 m and 6 m Diameter Painted Traffic Circles

Fig.12.19 RM15 – Traffic Circle Mandatory Arrows – 2



WM6



COLOURS: White

NOTES:

1 For details of the use of road marking WM6 refer to SADC-RTSM VOL 1, Chapter 7, page 7.3.5.

2 This figure details a range of WM6 markings in tabular form. (The length "a" refers to the longer of the two arrows.) Figure 12.21 details a 5 m arrow on a grid base to allow for easy enlargement. Note that arrow width dimensions are constant irrespective of length.

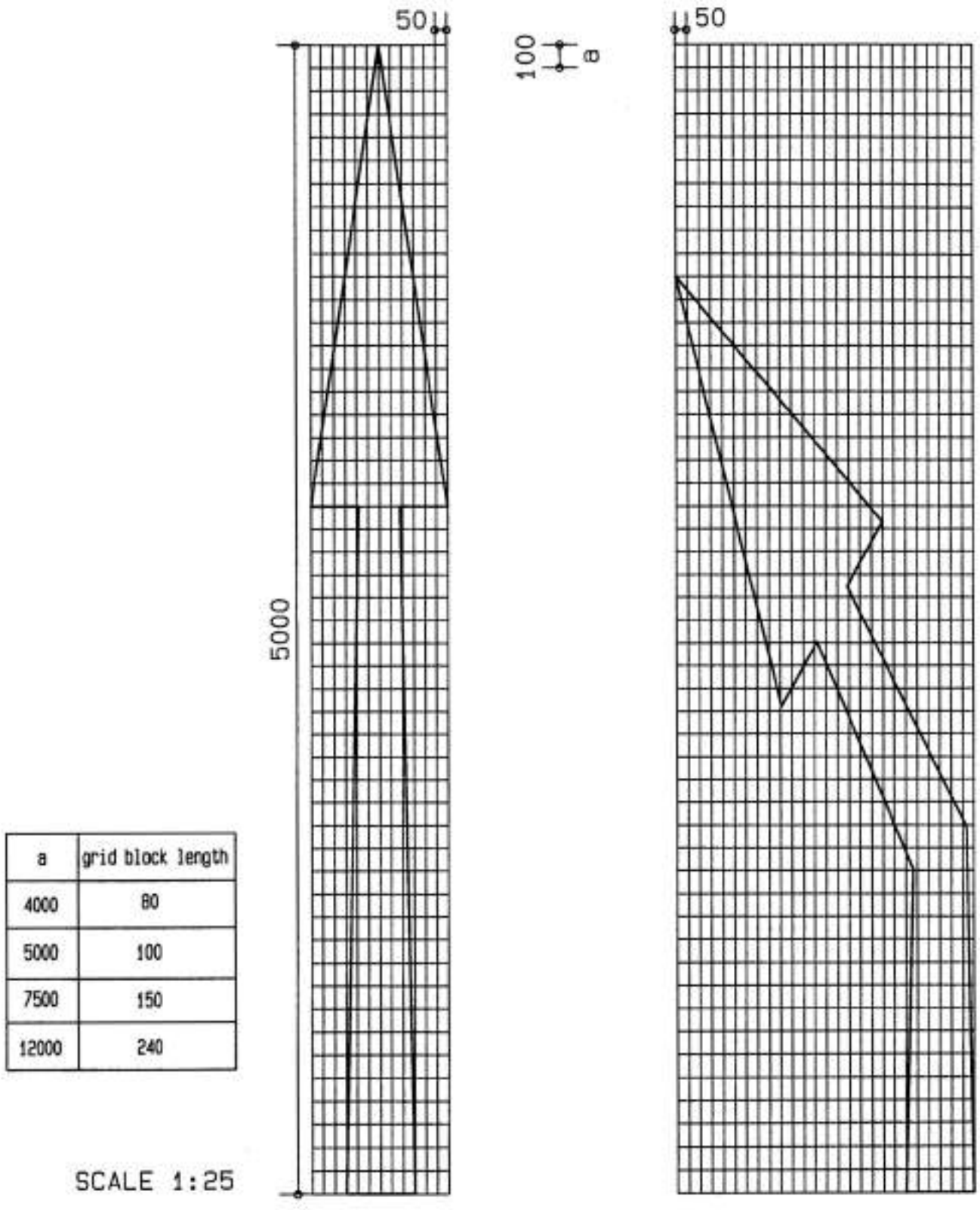
Arrow area m^2		
a	WM6.1/WM6.3	WM6.2
4000	2.08	2.06
5000	2.61	2.58
7500	3.92	3.88
12000	6.56	6.20

DIMENSIONS (mm) APPLICATIONS

Operating speed km/h	Typical applications	a	b	c	d	e	f	g	h	i	j	k
30 - 40	City centre	4000	2400	1600	3200	1271	847	227	855	1696	1277	1126
50 - 60	Urban roads	5000	3000	2000	4000	1589	1058	284	1069	2120	1596	1407
70 - 90	Urban arterial roads/Rural expressways	7500	4500	3000	6000	2384	1587	426	1603	3180	2394	2111
100 - 120	Rural roads and freeways	12000	7200	4800	9600	3814	2539	681	2566	5089	3830	3377

	M	N	O	P	Q	R	S	T	U	V
ALL operating speeds and applications	300	210	180	1300	898	402	155	370	32	390

Fig.12.20 WM6 –Lane Reduction Arrows – 1

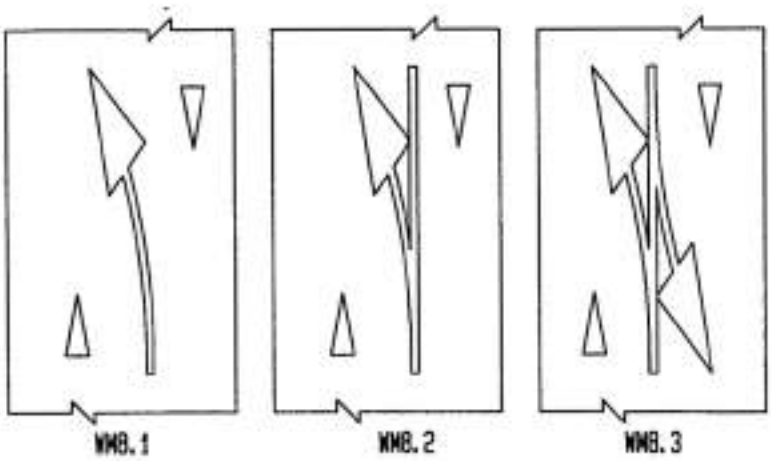


a	grid block length
4000	80
5000	100
7500	150
12000	240

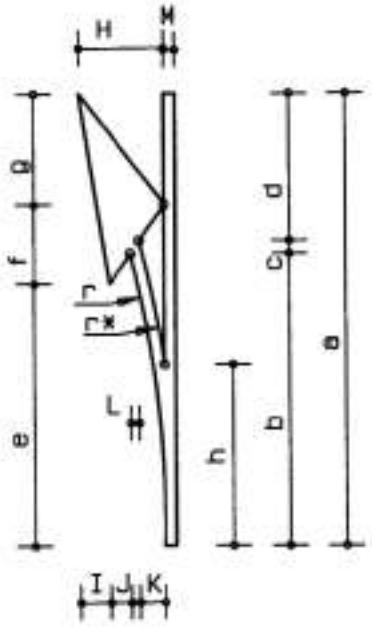
Fig.12.21 WM6 –Lane Reduction Arrows – 2

COLOURS:
White

NOTES:
1 For details of the use of road marking WM8 refer to SADC-RTSM VOL 1, Chapter 7, page 7.3.8.
2 The dimensional detail are given for the urban and rural sizes of road marking WM8, which is to be matched to the length of the DIVIDING LINE marking WM3.
3 This figure details the two arrow sizes in tabular form. Figure 12.23 details the arrows on a grid basis for easy manufacture of a template/painting mask.



WM8



Arrow area m^2	
a	Per arrow
3000	0.62
4000	0.82

DIMENSIONS (mm)

Typical applications	a	b	c	d	e	f	g	h	r	r*
Urban	3000	1941	83	976	1741	528	731	1206	5620	5820
Rural	4000	2588	111	1301	2321	704	975	1608	9900	10000

ALL applications	H	I	J	K	L	M
	735	260	181	219	75	100 or 150

Fig.12.22 WM8 –No Overtaking Ahead Arrows – 1

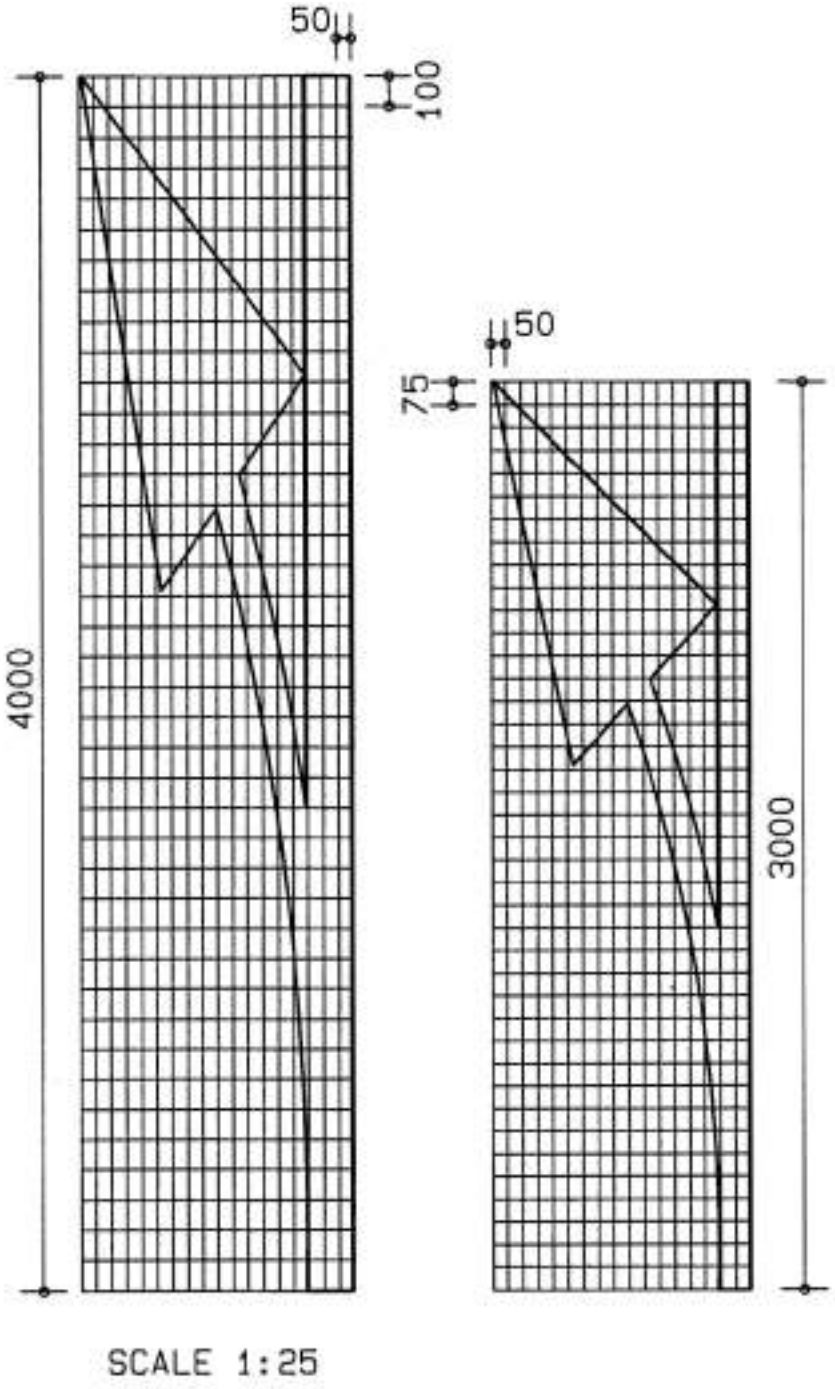
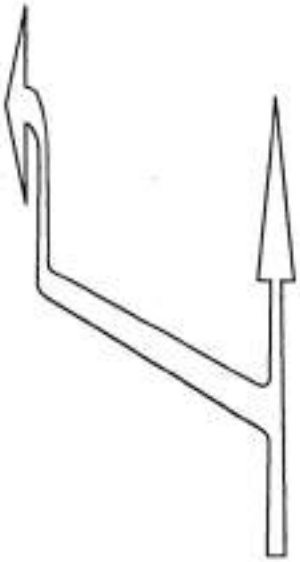


Fig.12.23 **WM8 –No Overtaking Ahead Arrows – 2**

COLOURS:
White

NOTES:
1 For details of the use of road marking WM11.1 refer to SADC-RTSM VOL 1, Chapter 7, page 7.3.9.
2 Marking WM11.1 is for use with marking RM9. For examples see Volume 2, Chapter 8.
3 The arrow is illustrated on a grid base which makes it suitable for modification to other sizes. The recommended length, with a grid block length of 200 mm, is 7.2 m. It should be noted that the grid width of 50 mm remains constant irrespective of changes in length.



WM11.1

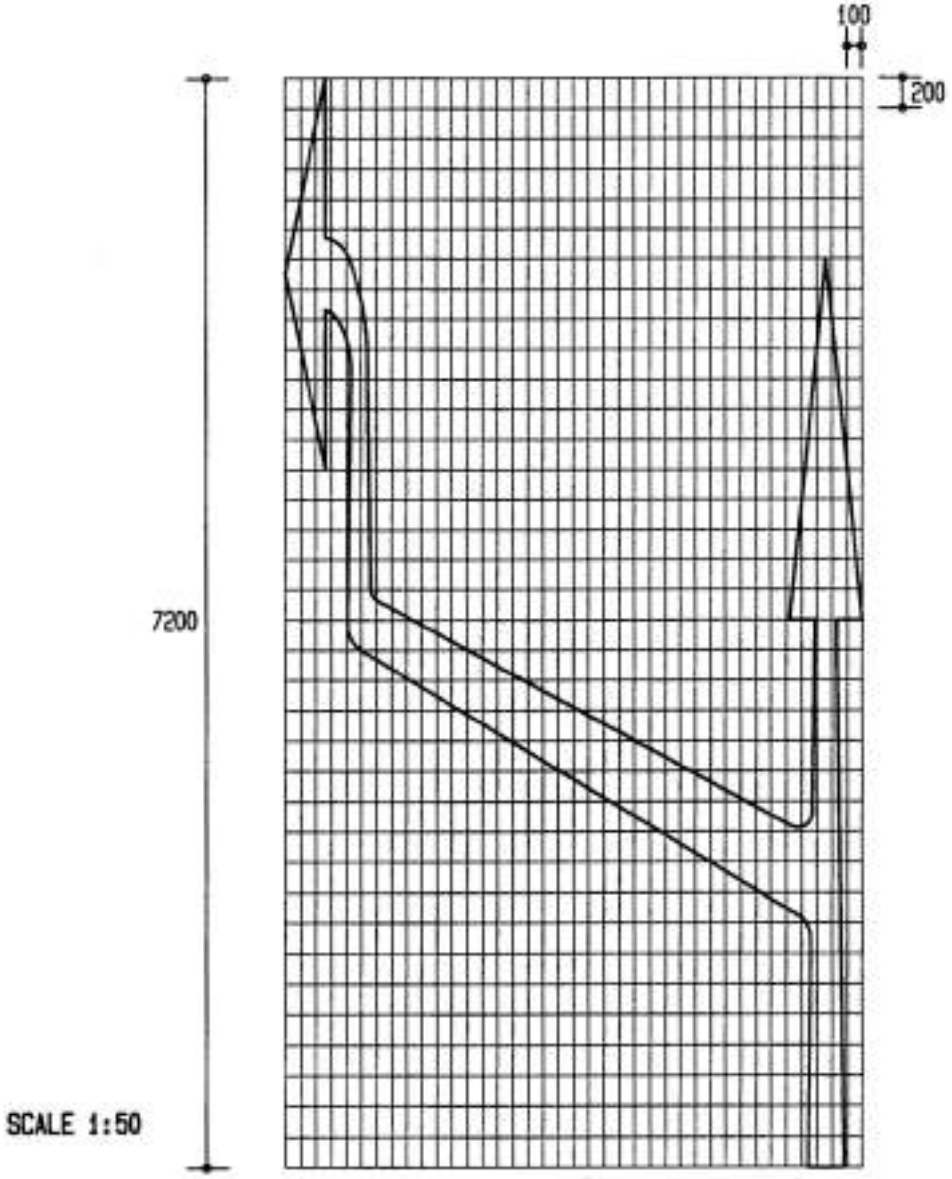
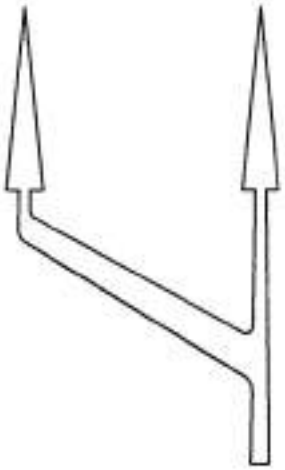


Fig.12.24 WM11.1 – End of Exclusive Use Lane Arrows – Option to Turn



COLOURS:
White

NOTES:

4 For details of the use of road marking WM11.2 refer to SADC-RTSM VOL 1, Chapter 7, page 7.3.9.

5 Marking WM11.2 is for use with marking RM9. For examples see Volume 2, Chapter 8.

6 The arrow is illustrated on a grid base which makes it suitable for modification to other sizes. The recommended length, with a grid block length of 200 mm, is 6 m. It should be noted that the grid width of 50 mm remains constant irrespective of changes in length.

WM11.2

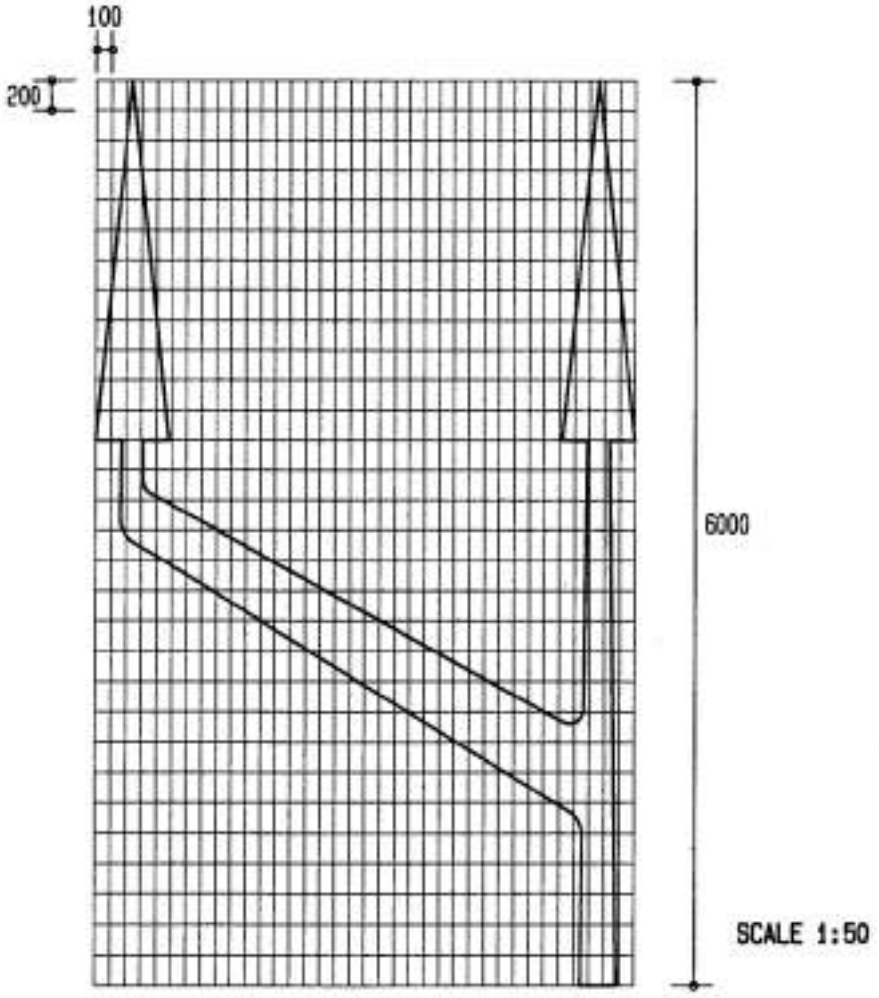
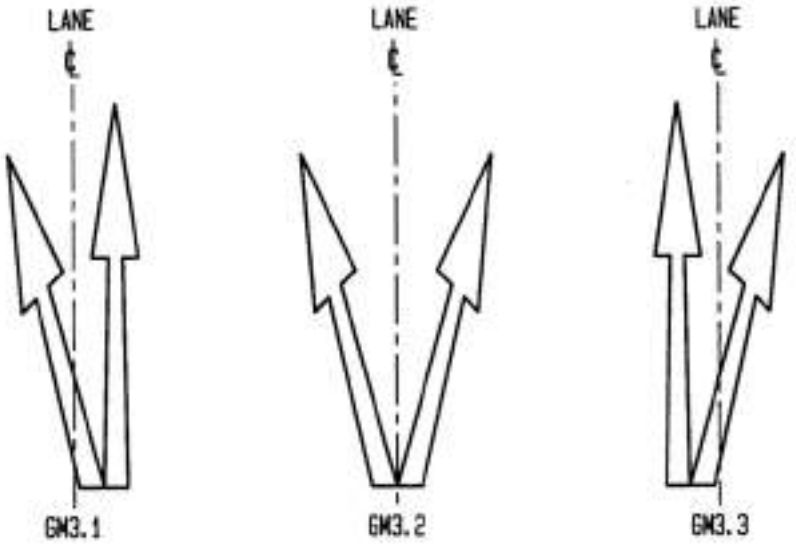


Fig.12.25 WM11.2 –End of Exclusive Use Lane Arrows – Straight-on-option



COLOURS: White

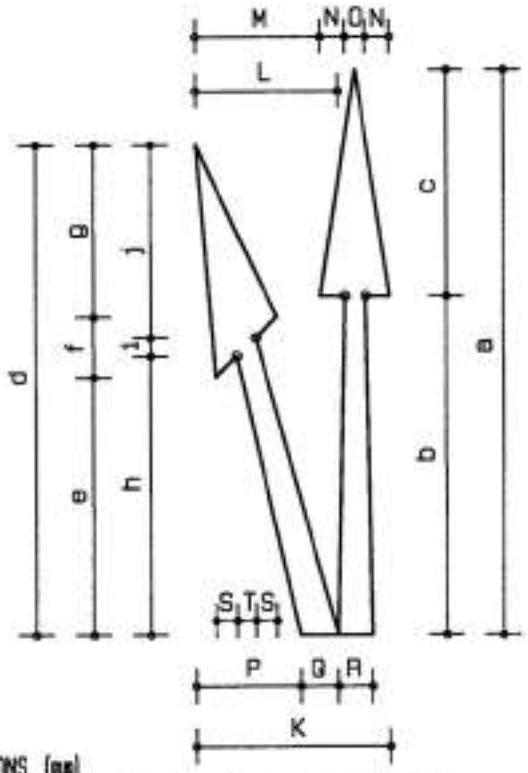
NOTES:

1 For details of the use of road marking GM3 refer to SADC-RTSM VOL 1, Chapter 7, page 7.4.3.

2 This figure details a range of GM3 markings in tabular form. (The length "a" refers to the longer of the two arrows.) Figure 12.27 details a 5 m arrow, on a grid base to allow for easy enlargement. Note that arrow width dimensions are constant irrespective of length. The grid detail can be re-drawn for other arrow lengths by retaining, at the full size, the 50 mm width of grid block and by varying the vertical block in proportion to the arrow length as follows"

"a" (arrow length)	grid block length
2500 mm	50 mm
4000 mm	80 mm
5000 mm	100 mm
7500 mm	150 mm

GM3



Arrow area m^2		
a	GM3.1/GM3.3	GM3.2
2500	1.30	1.27
4000	2.07	2.04
5000	2.59	2.55
7500	3.89	3.82

DIMENSIONS (mm)

Operating speed km/h	City centre	a	b	c	d	e	f	g	h	i	j
30 - 40	Typical applications	2500	1500	1000	2170	1141	268	761	1235	81	855
50 - 60	Urban	4000	2400	1600	3472	1826	429	1218	1976	129	1367
70 - 90	Urban arterial/Rural expressway	5000	3000	2000	4340	2282	536	1522	2470	161	1709
100 - 120	Rural and freeways	7500	4500	3000	6510	3423	804	2283	3705	242	2564

All operating speeds and applications	K	L	M	N	O	P	Q	R	S	T
	1700	1250	1100	210	180	921	329	300	188	161

Fig.12.26 GM3 – Bifurcation Arrows – 1

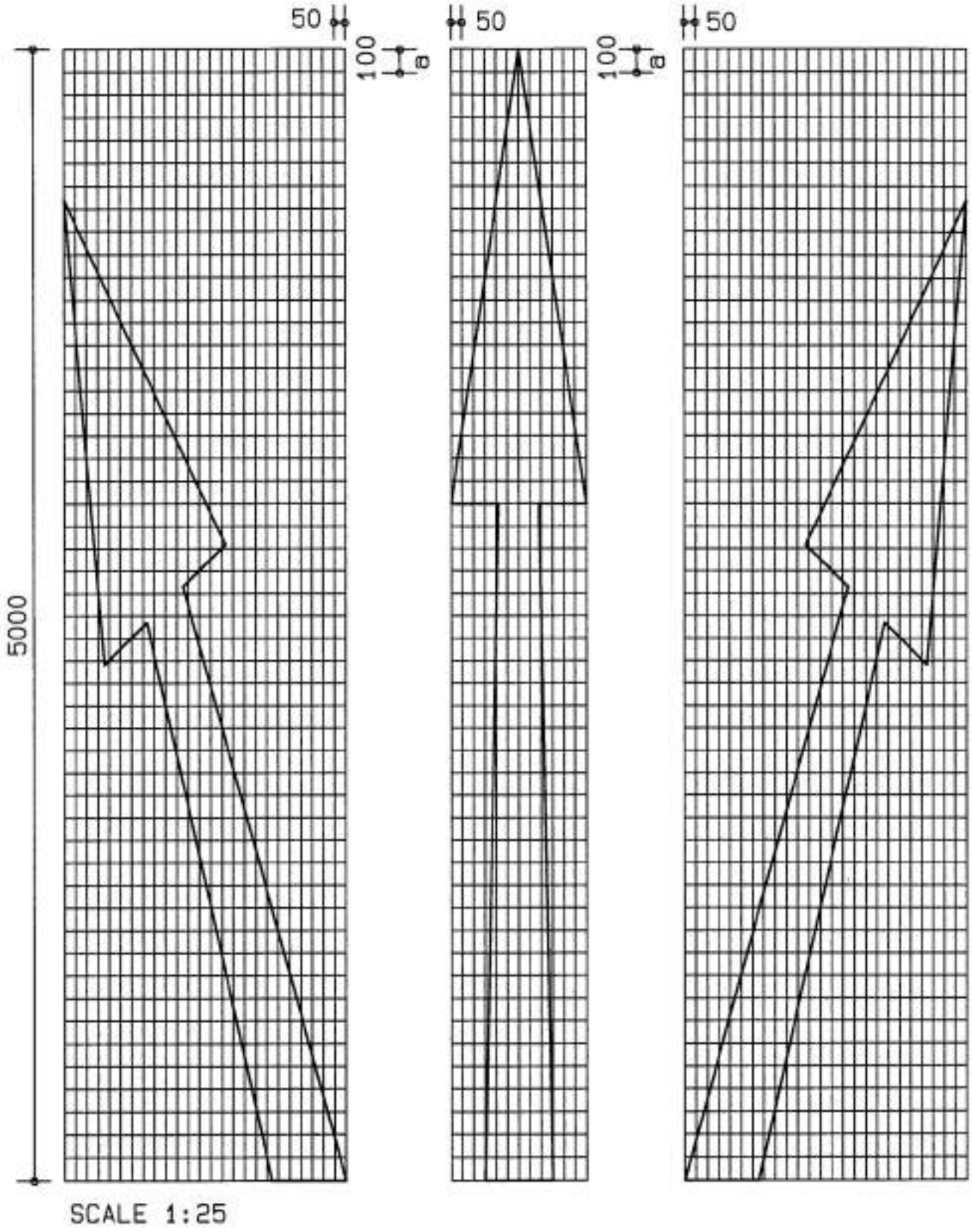
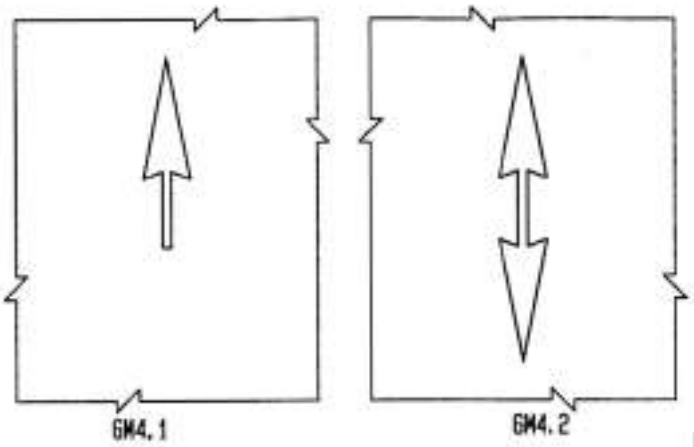


Fig.12.27 GM3 –Bifurcation Arrows – 2

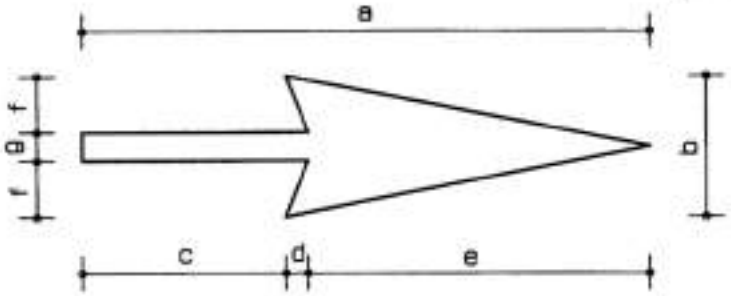


COLOURS:
White

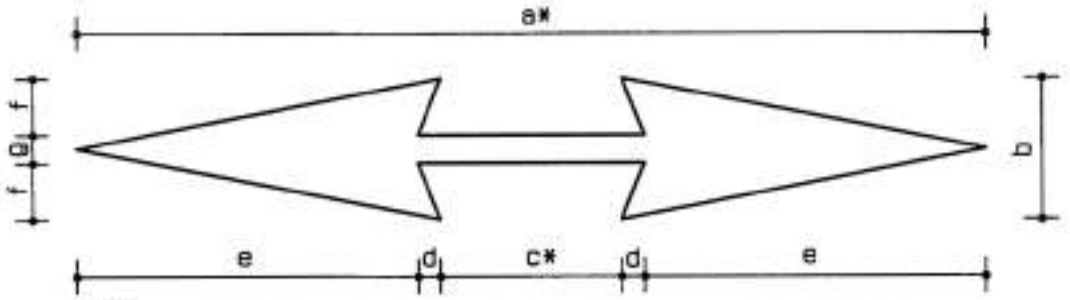
NOTES:
1 For details of the use of road marking GM4 refer to SADC-RTSM VOL 1, Chapter 7, page 7.4.3.

GM4

Area m²				
Marking	a	Area	a*	Area
GM4.1/ GM4.2(a*)	1250	0.59	2000	1.05
	2500	1.17	4000	2.10
	4000	1.88	6400	3.36
	5000	2.35	8000	4.20



GM4.1



GM4.2

DIMENSIONS (mm)

Operating speed km/h	Typical applications	a	a*	b	c	c*	d	e	f	g
30 - 40	City centre	1250	2000	1250	450	400	50	750	500	250
50 - 60	Urban	2500	4000	1250	900	800	100	1500	500	250
70 - 90	Urban arterial/Rural expressway	4000	6400	1250	1440	1280	160	2400	500	250
100 - 120	Rural and freeways	5000	8000	1250	1800	1600	200	3000	500	250

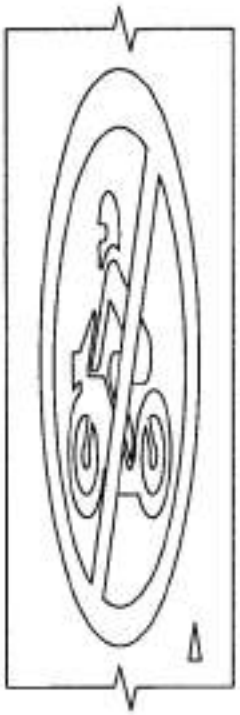
Fig.12.28 GM4 –Information Arrows

12.4 SYMBOL TYPES

12.4.1 General

1 This section details a limited number of symbolic road markings. These are not widely used, with one exception, namely RM7.1, but markings RM17 is likely to become more widely used with time. Symbols available are:

(a) NO MOTORCYCLES marking symbol RM14 (Yellow);
(b) BICYCLE symbol RM17.1 (Yellow) / GM6.1 (White);
(c) AIRPORT symbol GM6.2 (White);
(d) DISABLED PERSONS symbol RM17.3 (Yellow)/M6.3 (White) - for use in DISABLED PERSONS PARKING BAY RM16 and elsewhere;
(e) HIGH OCCUPANCY VEHICLE (HOV) LANE symbol RM17.4 (Yellow) / GM6-4 (White);
(f) EXCLUSIVE PARKING BAY CATEGORY symbol RM7.1 (Yellow) - for use with EXCLUSIVE PARKING BAY marking RM7.
(g) RAILWAY CROSSING AHEAD symbol WM1 (White);
(h) YIELD CONTROL AHEAD symbol WM5 (White).



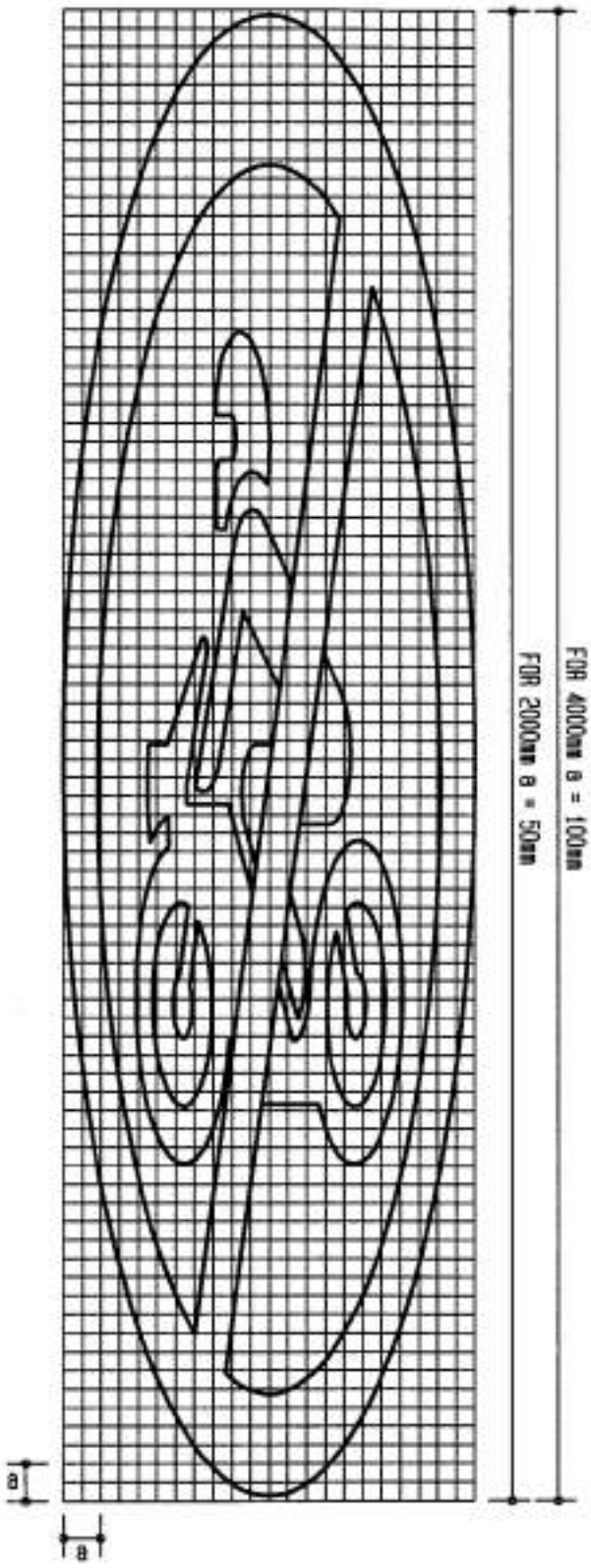
RM14

COLOURS:
Yellow

NOTES:

1 For details of the use of road marking RM14 refer to SADC-RTSM VOL1, Chapter 7, page 7.2.28
2 The symbol is an elongated version of regulatory sign R222. The Ratio of elongation is 4 to 1.
3 The symbol has also been widened at the "top" end to compensate for the effects of perspective.
4 The symbol area is:

"a" = 150 mm 0.54 m^2
"a" = 100 mm 1.92 m^2



SCALE: 1 in 10 for a = 50 mm
1 in 20 for a = 100 mm

Fig.12.29 RM14 – No Motorcycles Symbol

COLOURS:
Yellow (RM17.1) or white (GM6.1)

NOTES:
1 For details of the use of road marking refer to SADC-RTSM VOL1, Chapter 7, pages 7.2.21, 7.4.4 and 7.4.5.
2 The symbol area is 0.54 m^2.

RM17.1
GM6.1

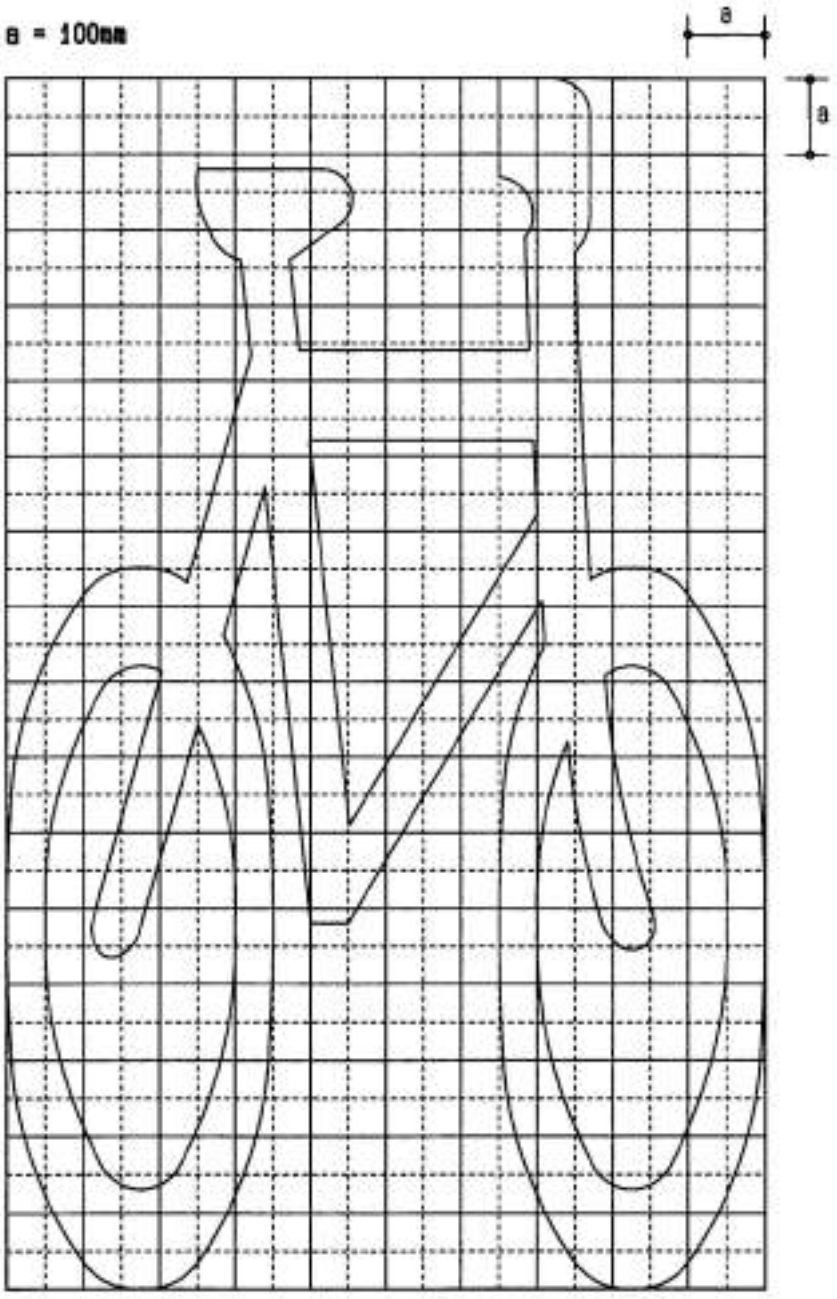


Fig.12.30 **RM17.1 – Bicycle Lane Symbol**
GM6.1 – Bicycle Symbol

GM6.2

COLOURS:
White

NOTES:
1 For details of the use of road marking refer to SADC-RTSM VOL1, Chapter 7, page 7.4.5.
2 The symbol area is 4.77 m^2.

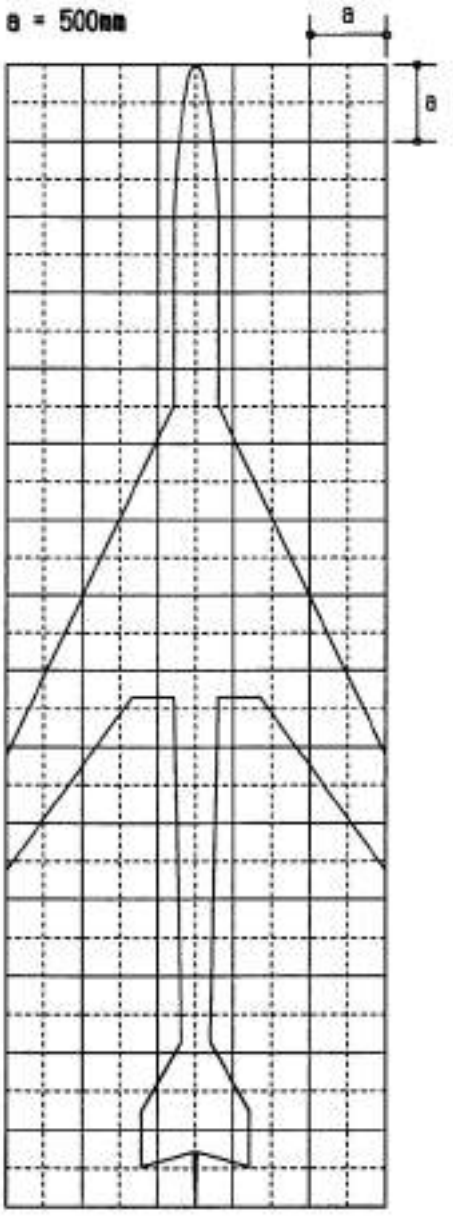


Fig.12.31 GM6.2 – Airport Symbol

COLOURS:
Yellow (RM17.3) or white (GM6.3)

NOTES:
1 For details of the use of road marking refer to SADC-RTSM VOL1, Chapter 7, pages 7.2.30 and 7.4.5.
2 This symbol has not been elongated in the direction of travel since its primary function is in connection with parking bays.
3 The symbol is a required part of DISABLED PERSONS PARKING BAY marking RM16.
4 The standard length of symbol is 1000 mm (a = 100). Other sizes may be used as follows:

"a"	symbol length
60 mm	600 mm
120 mm	1200 mm
189 mm	1800 mm

RM17.3
GM6.3

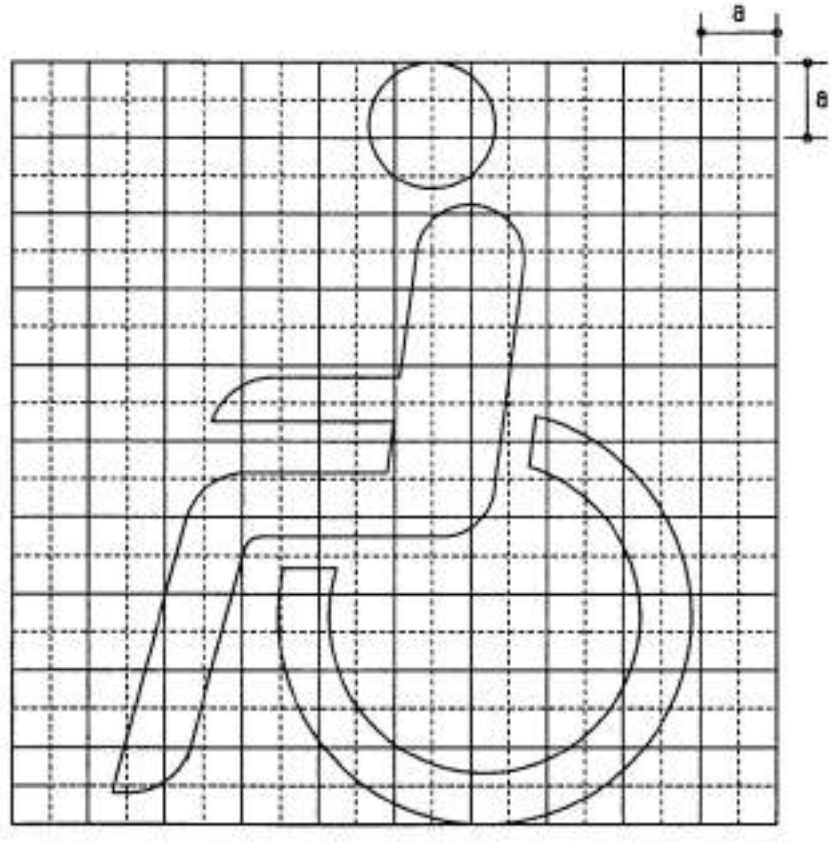
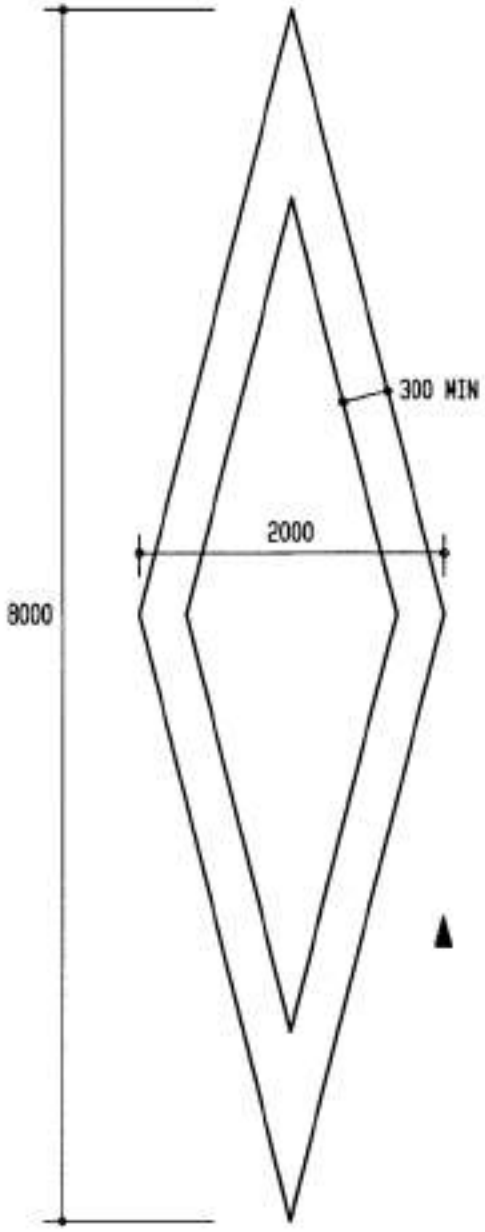


Fig.12.32 **RM17.3 – Disabled Persons Parking Bay Symbol**
GM6.3 – Disabled Persons Symbol

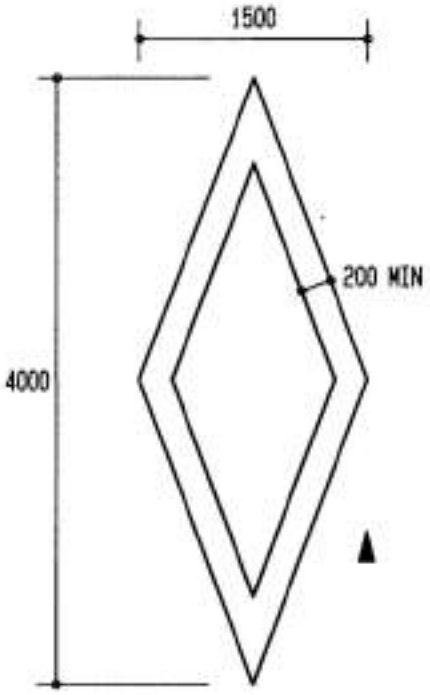
RM17.3
GM6.3

COLOURS:
Yellow (RM17.4) or white (GM6.4)

NOTES:
1 For details of the use of road marking refer to SADC-RTSM VOL1, Chapter 7, pages 7.2.21 and 7.4.5.
2 HOV (High Occupancy Vehicle) LANE SYMBOL 17.4 is for use with EXCLUSIVE USE LANE LINE RM9 to indicate that the exclusive use lane is for use by HOV's only.
3 Two sizes of symbol are available. Use of the larger symbol is optional. When it is used it is recommended that it be applied using high skid resistance materials.
4 The symbol should be positioned in the centre of the exclusive use lane.



Detail 12.33.1
For High Speed Lanes (100 - 120km/h)

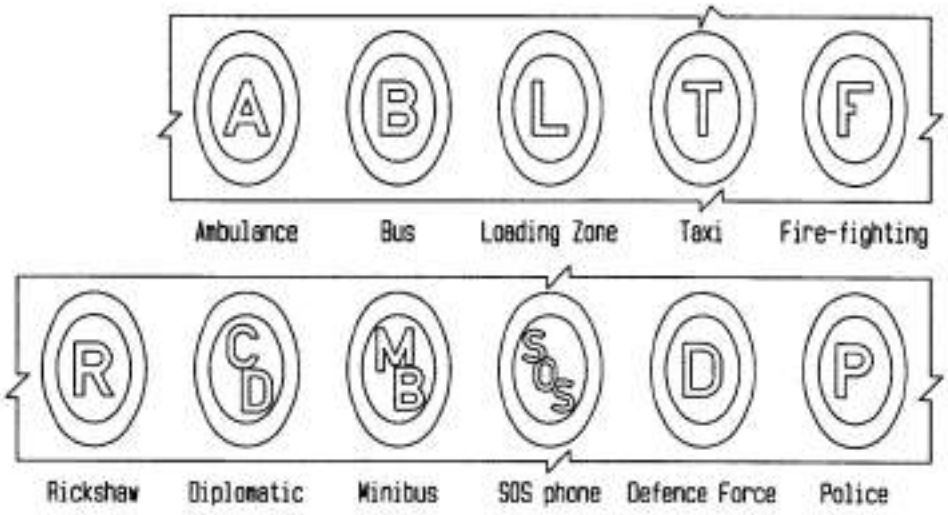


Detail 12.33.2
For Low to Medium Speed Lanes (60 - 80Km/h)

Fig.12.33 RM17.4 – High Occupancy Vehicle (HOV) Lane Symbol
GM6.4 - High Occupancy Vehicle (HOV) Symbol

COLOURS:
Yellow

NOTES:
1 For details of the use of road marking RM7.1 refer to SADC-RTSM VOL1, Chapter 7, page 7.2.19
2 For details of letters to be used within the oval symbol see Figures 12.35 to 12.40.
3 The approximate area of the applied symbol is 0.28 m^2.



RM7.1

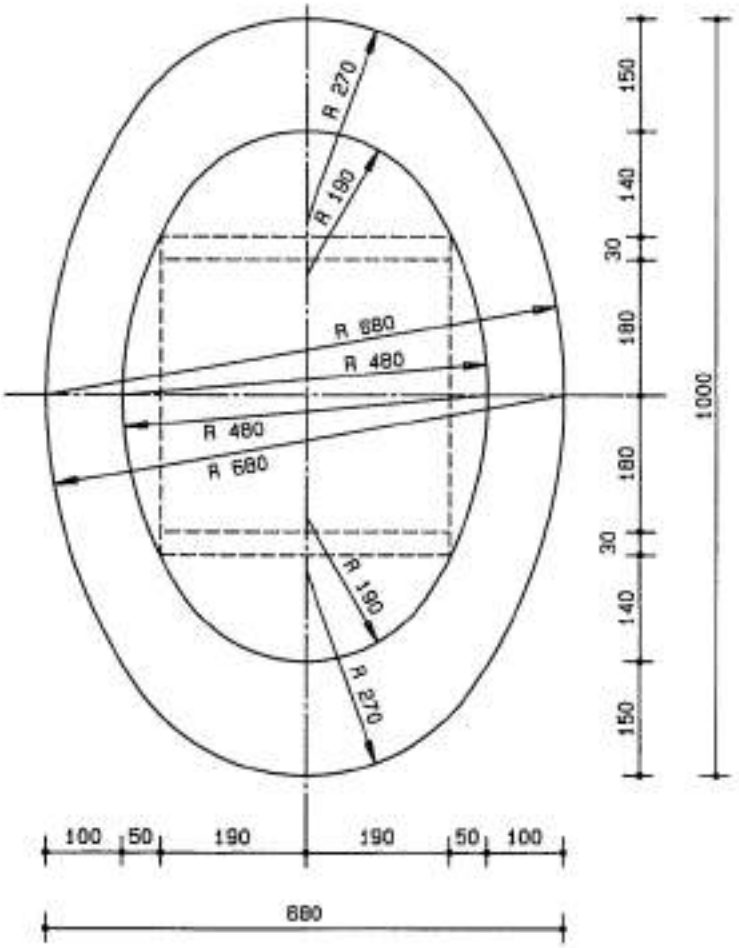
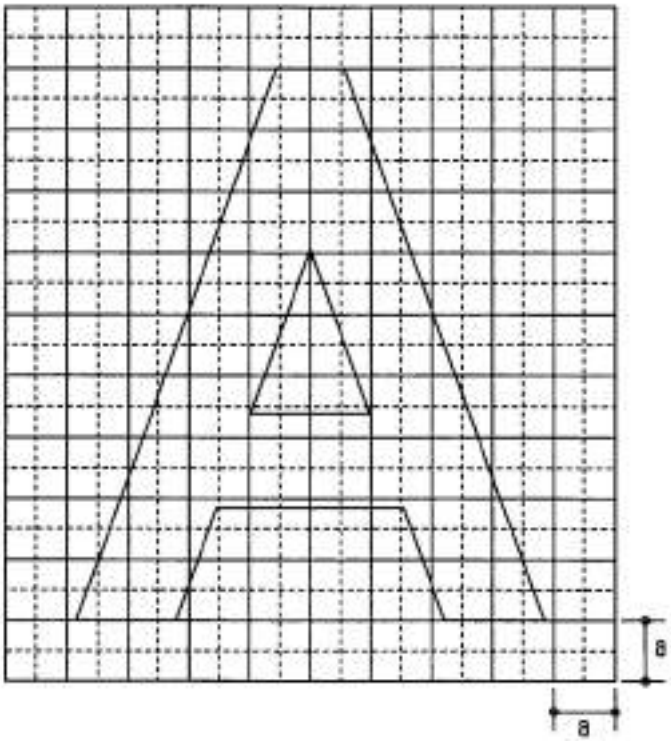


Fig.12.34 **RM7.1 – Detail of Oval Symbol for use with EXCLUSIVE PARKING BAY Marking RM7**

Ambulance
a = 40mm



Bus
a = 40mm

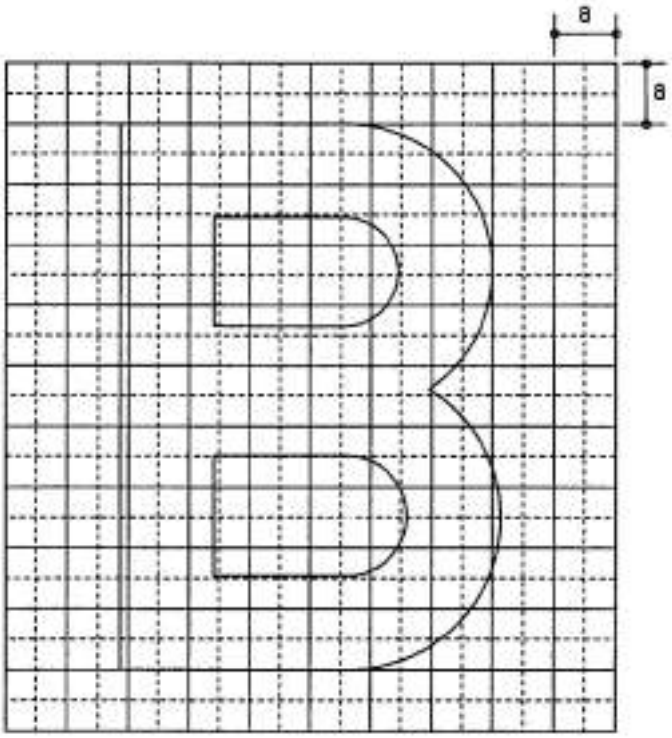
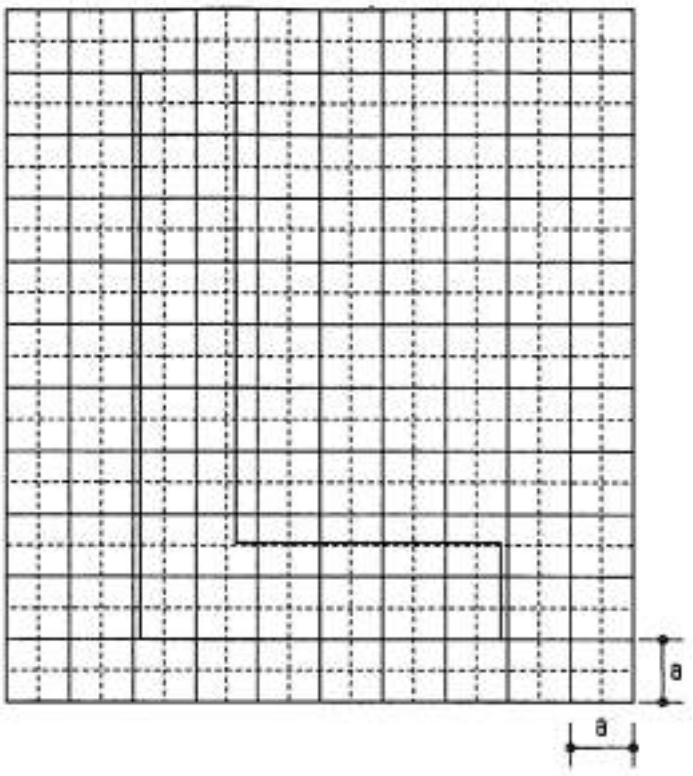
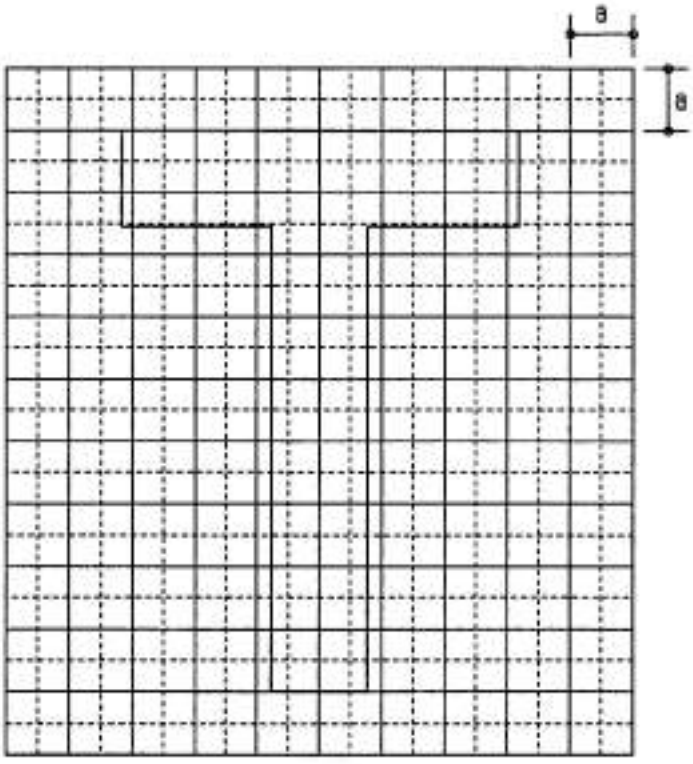


Fig.12.35 **RM7.1 – Letter Details - 1**



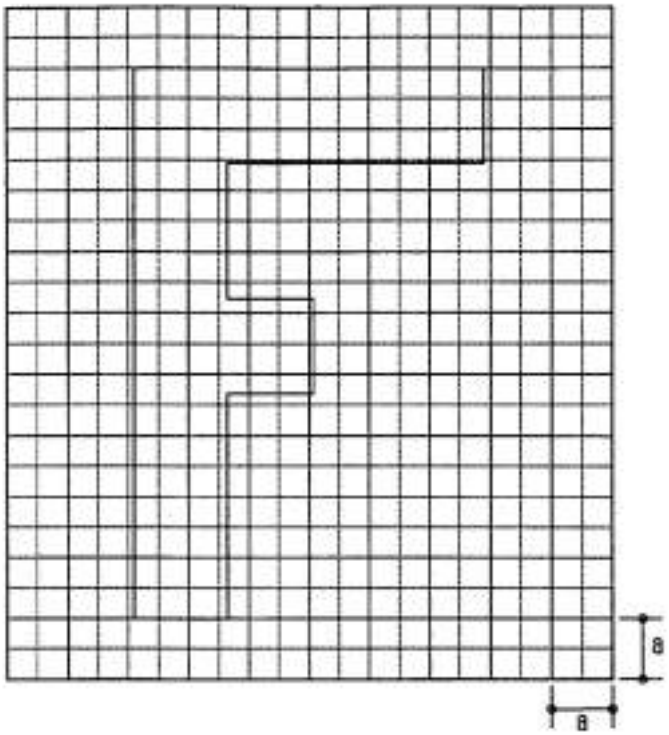
Loading Zone
a = 40mm



Taxi
a = 40mm

Fig.12.36 **RM7.1 – Letter Details - 2**

Fire-fighting
a = 40mm



Rickshev
a = 40mm

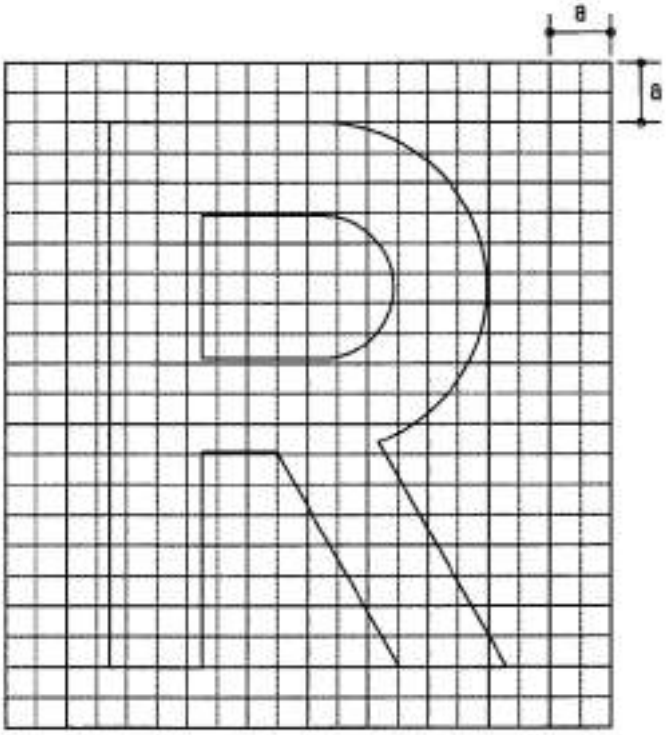
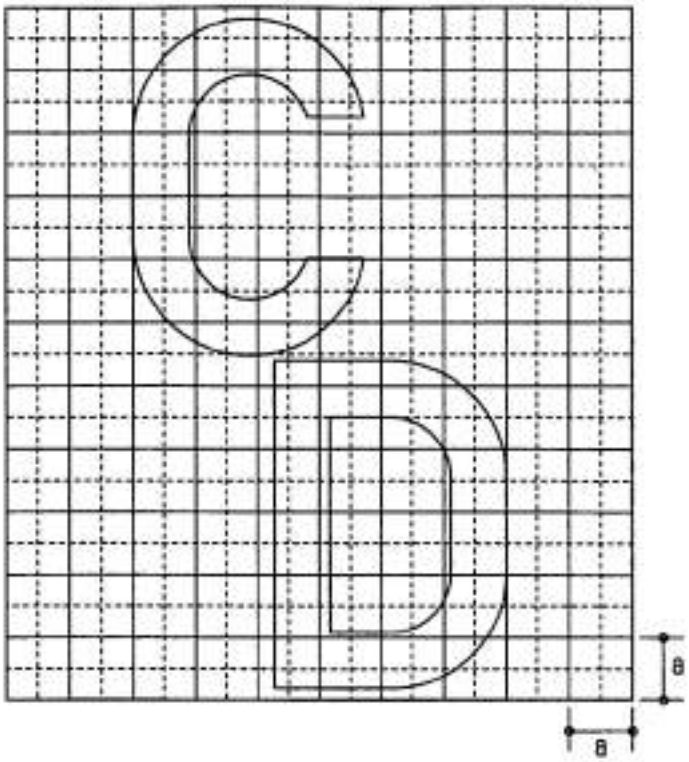
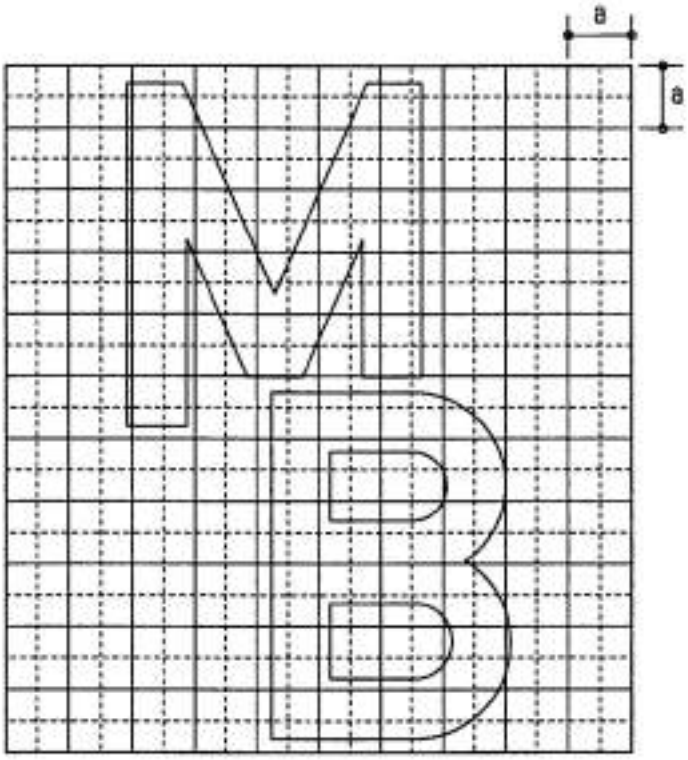


Fig.12.37 RM7.1 – Letter Details - 3



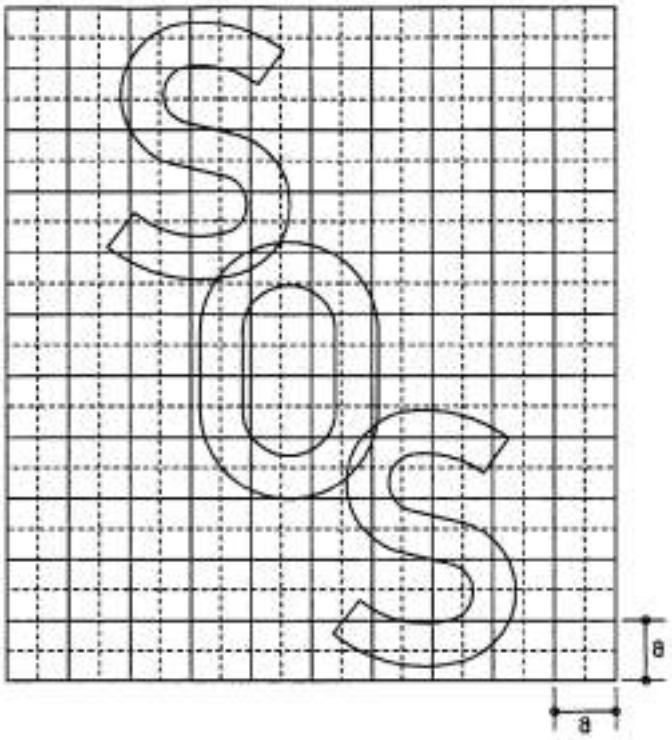
Diplomatic
a = 40mm



Minibus
a = 40mm

Fig.12.38 **RM7.1 – Letter Details - 4**

SOS phone
a = 40mm



Defence Force
a = 40mm

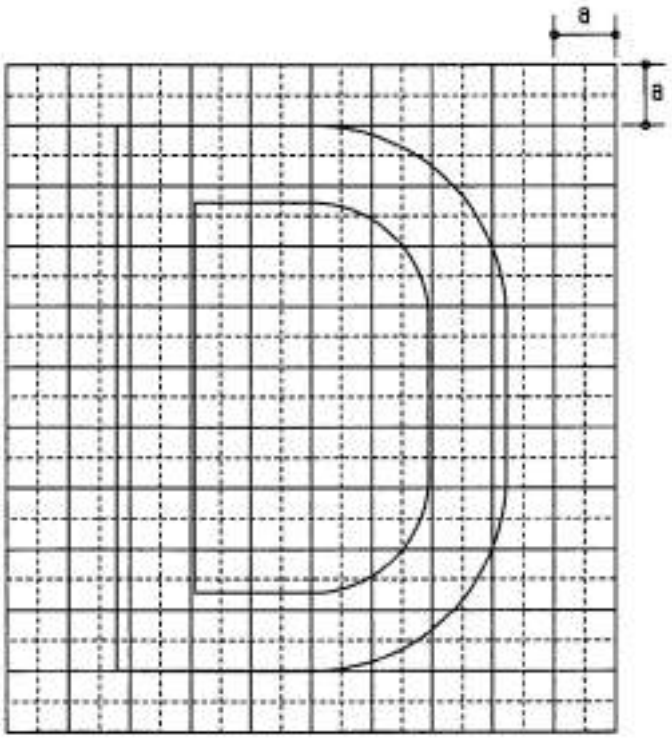


Fig.12.39 RM7.1 – Letter Details - 5

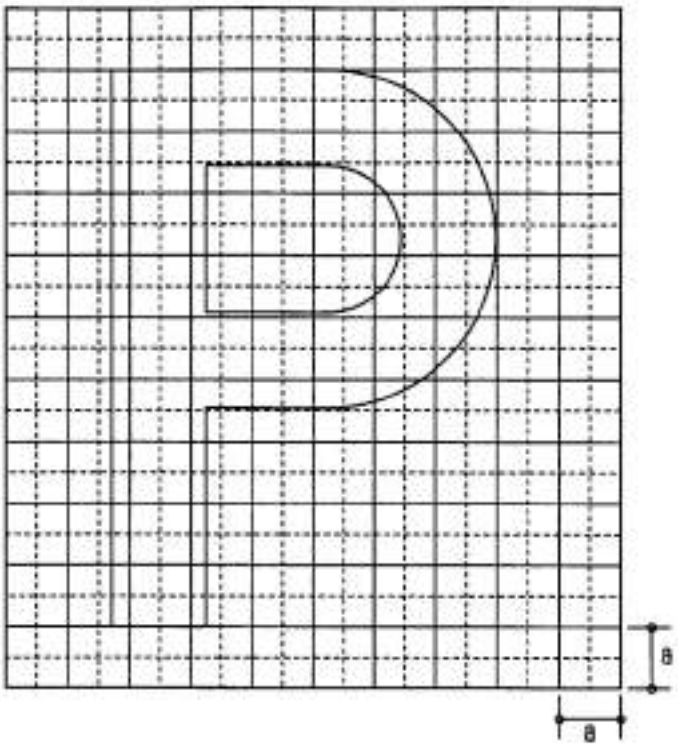
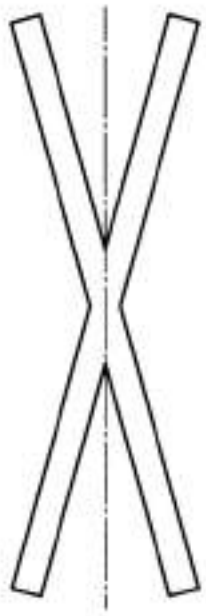


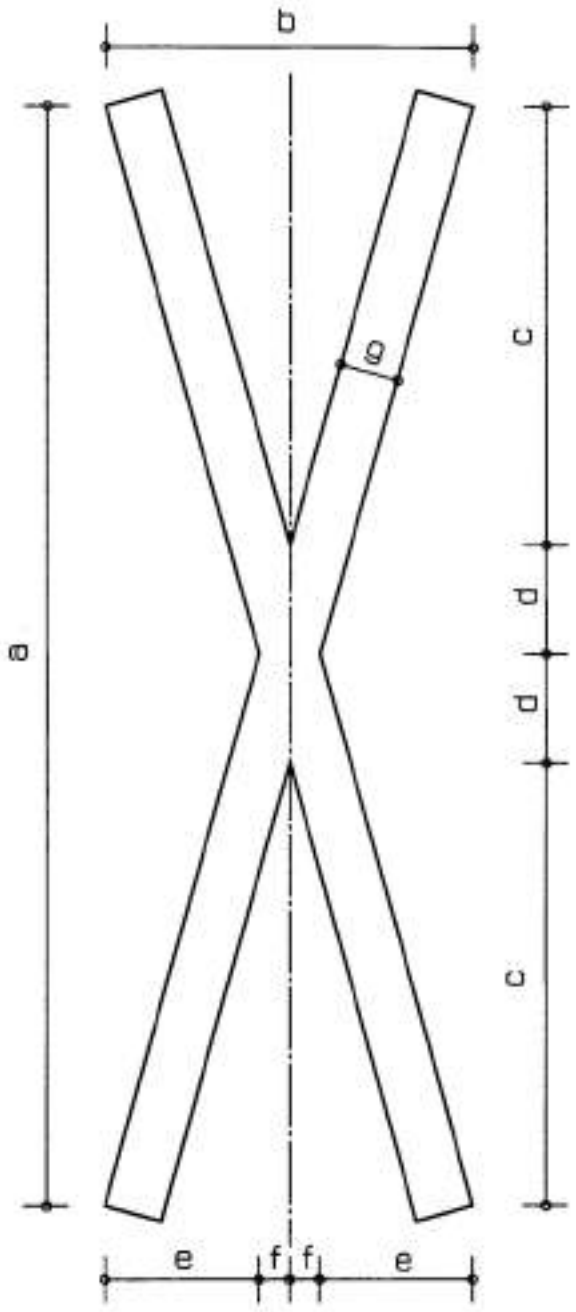
Fig.12.40 **RM7.1 – Letter Details - 6**



WM1

DIMENSIONS (mm)

Typical applications	a	b	c	d	e	f	g
Urban	4000	2500	1797	203	1135	115	200
Rural	7500	2500	3003	747	1042	208	400



COLOURS:
White

NOTES:
1 For details of the use of road marking refer to SADC-RTSM VOL1, Chapter 7, page 7.3.1.
2 Only two sizes of symbol are recommended. See the table above. The surface areas of the two sizes of marking WM1 are:
(a) For "a" = 4000:-area = 1.84 m^2
(b) For "a" = 7500:-area = 6.00 m^2

Fig.12.41 WM1 –Railway Crossing Ahead Symbol

COLOURS:
White

NOTES:
1 For details of the use of road marking refer to SADC-RTSM VOL1, Chapter 7, page 7.3.4.
2 The symbol areas for the given values of width "a" are:
(a) For "a" = 450:-area = 0.2 m^2
(b) For "a" = 850:-area = 0.83 m^2
(c) For "a" = 1350:-area = 2.15 m^2.

WM5

DIMENSIONS (mm)

Operating speed km/h	Typical applications	Distance from yield line	a	b	c	d
30 - 40	City centre	90m	450	250	100	1250
50 - 60	Urban	120m	850	450	150	2500
70 - 120	Rural	155m	1350	700	250	4000

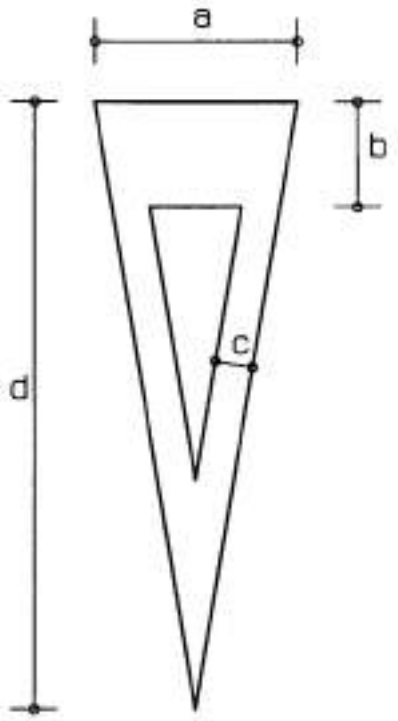


Fig.12.42 WM5 – Yield Control Ahead Symbol

12.5 WORD LETTERS

12.5.1 General

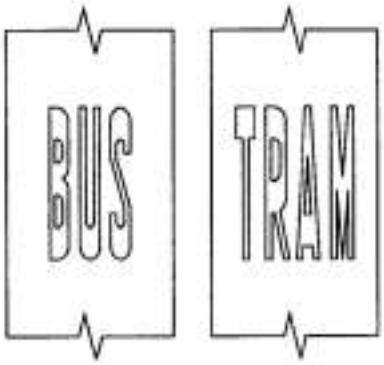
1 This section gives dimensional details for all letters in the alphabet (upper case) and for all numerals.

2 The only practical method of marking letters on the road surface is to do so using a letter mask of the appropriate size. Letter masks can be made up from the details given in the tables of dimensions, to any of the following standard lengths:

(a) 1250 mm;
(b) 2500 mm;
(c) 4000 mm;
(d) 5500 mm;
(e) 7500 mm.

3 The 5500 mm length is unique to WORD marking GM7. This letter length is an historic one, and has been retained so that road authorities do not need to make new masks. The equivalent arrow length is 5000 mm.

4 If thermoplastic sheet materials are specified, WORD markings may be cut straight from the material, instead of using a mask. The same dimensional standards should apply.



RM17.2

COLOURS:
Yellow

NOTES:

1 For details of the use of letter markings to portray simple WORD MARKINGS see SADC-RTSM VOL 1, Chapter 7, page 7.2.31.
2 Refer also to EXCLUSIVE USE LANE marking RM9 VOL 1, page 7.2.21.
3 See notes on page 12.5.3 for details of different letter sizes available. The 300 mm space between letters remains constant irrespective of letter height.

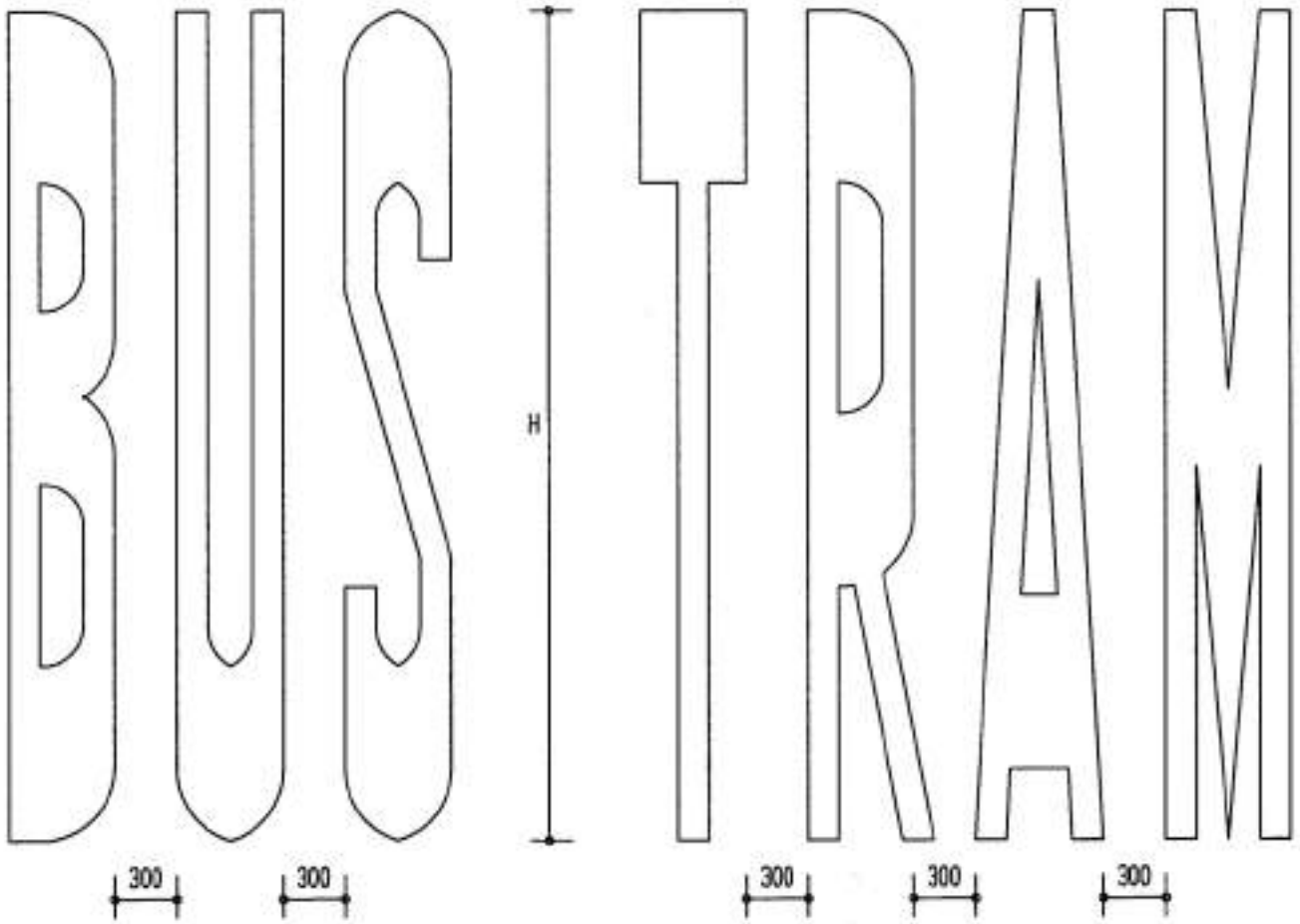


Fig12.43 RM17.2 – Word Lane Marking

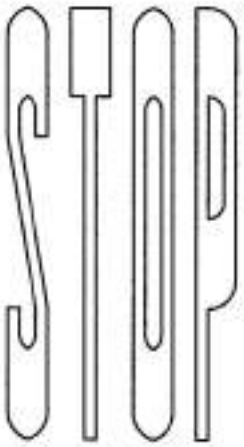
COLOURS:
White or yellow

NOTES:

1 For details of the use of letter markings to portray simple WORD MARKINGS see SADC-RTSM VOL 1, Chapter 7, page 7.4.6.

2 STOP is the most commonly used WORD MARKING. As a typical example this word is detailed in Figure 12.45 on a grid background. It should be noted that the letter widths do not vary with length. The grid detail can be redrawn for other letter lengths by retaining, at the full size, the 50 mm width of grid block and by varying the length of the vertical block in proportion to the letter length as follows:

"H" (letter length)	grid block length
1250 mm	22.7 mm
2500 mm	45.5 mm
4000 mm	72.7 mm
5500 mm	100 mm
7500 mm	136.4 mm



GM7

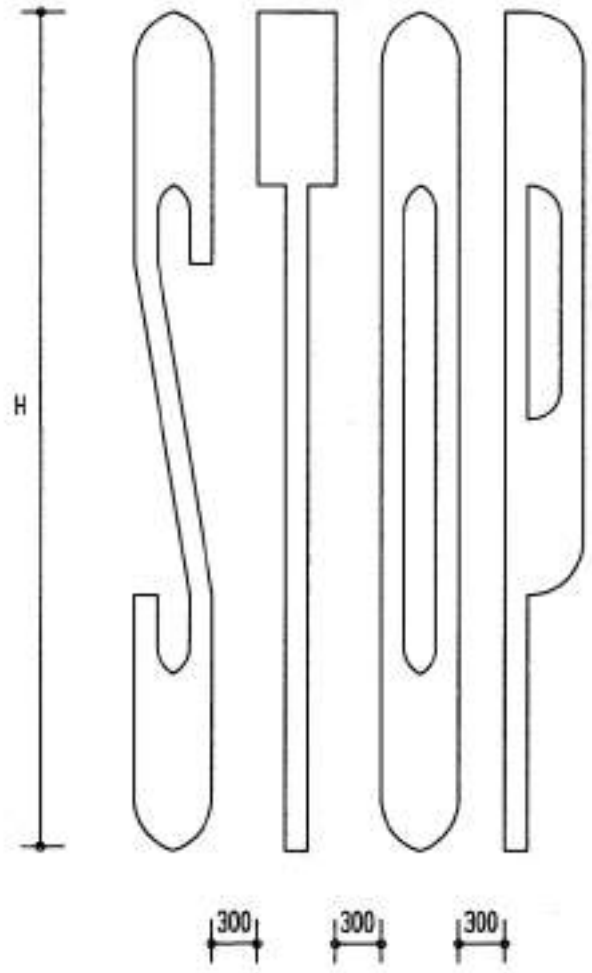


Fig12.44 **GM7 – STOP Marking - 1**

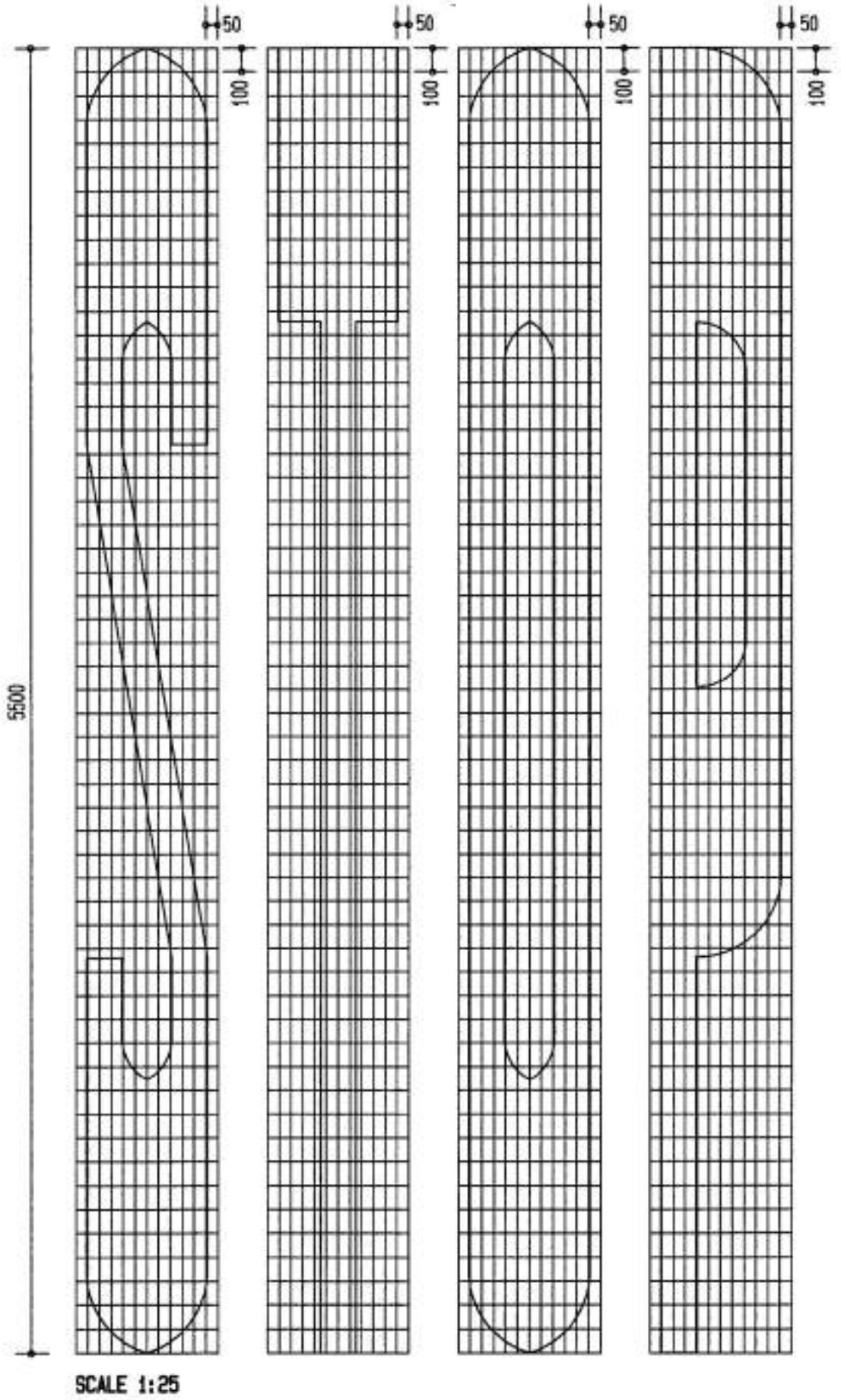
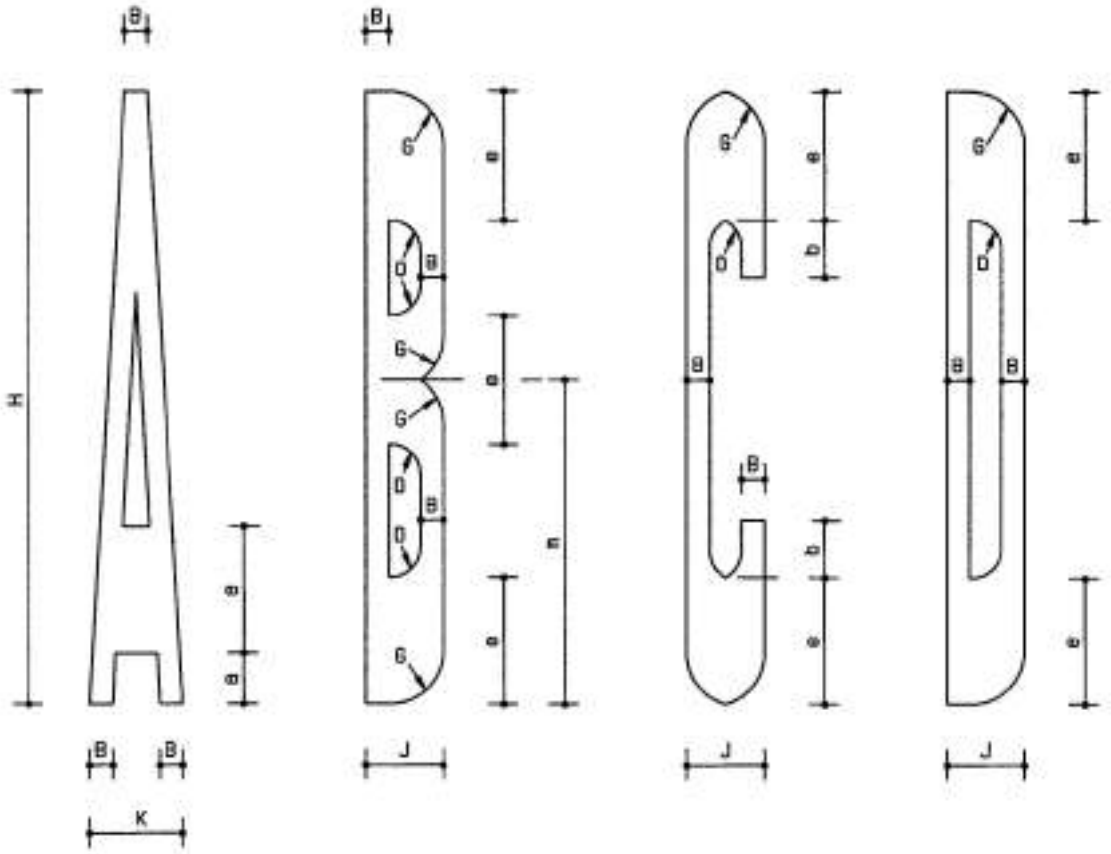


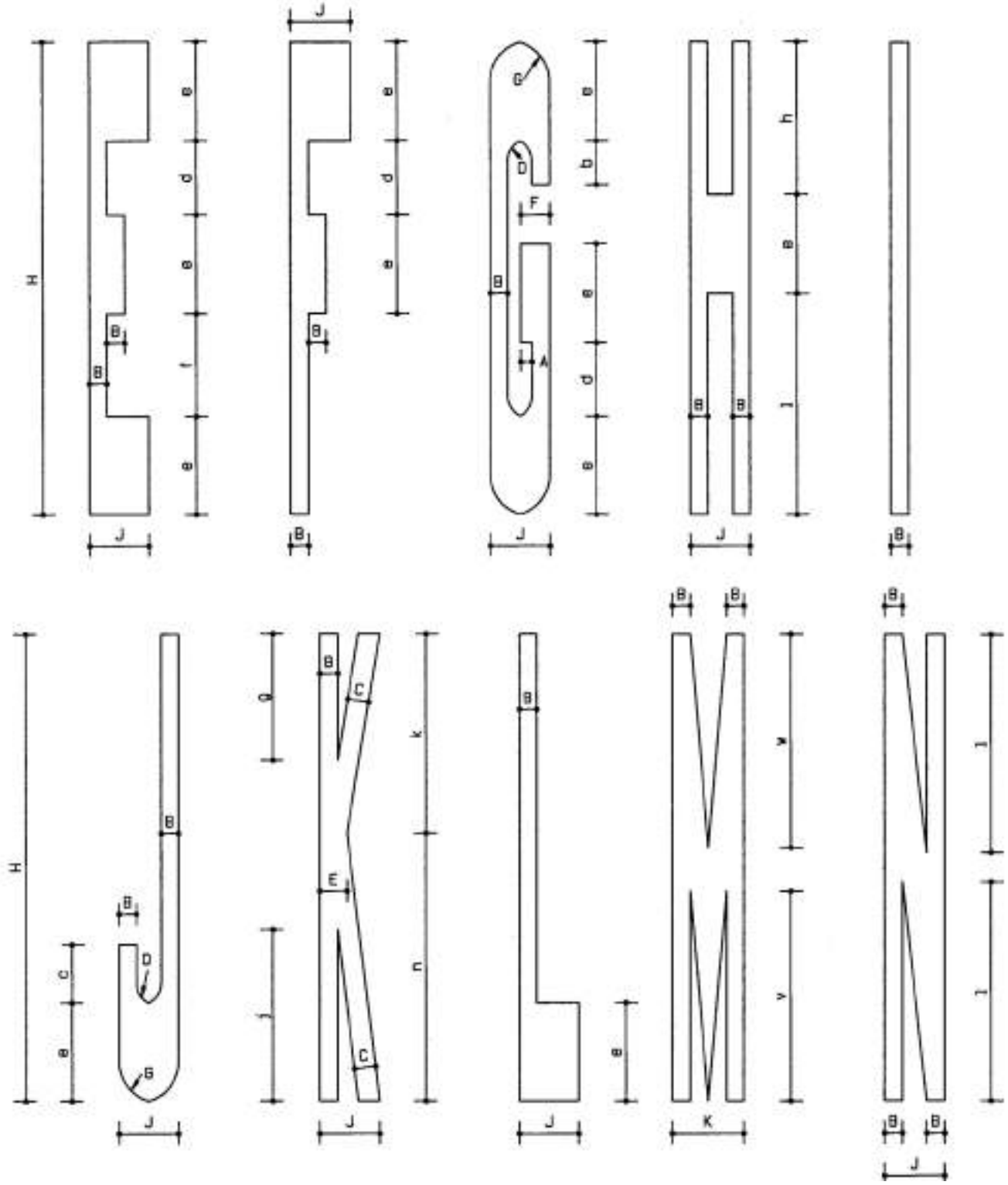
Fig12.45 GM7 – STOP Marking - 2



H	A	a	B	b	C	c	D	d	E	e	F	f	G	g	h	J	j	K	k	l	M
1250	100	150	150	120	180	155	200	195	230	260	250	275	355	310	405	510	465	610	535	585	40
2500	100	210	150	235	180	310	200	390	230	520	250	550	355	625	810	510	935	610	1070	1170	40
4000	100	335	150	375	180	500	200	625	230	835	250	870	355	1085	1290	510	1461	610	1710	1875	40
5500	100	460	150	515	180	685	200	860	230	1145	250	1205	355	1375	1775	510	2060	610	2350	2580	40
7500	100	630	150	710	180	935	200	1175	230	1560	250	1645	355	2051	2420	510	2760	610	3200	3520	40

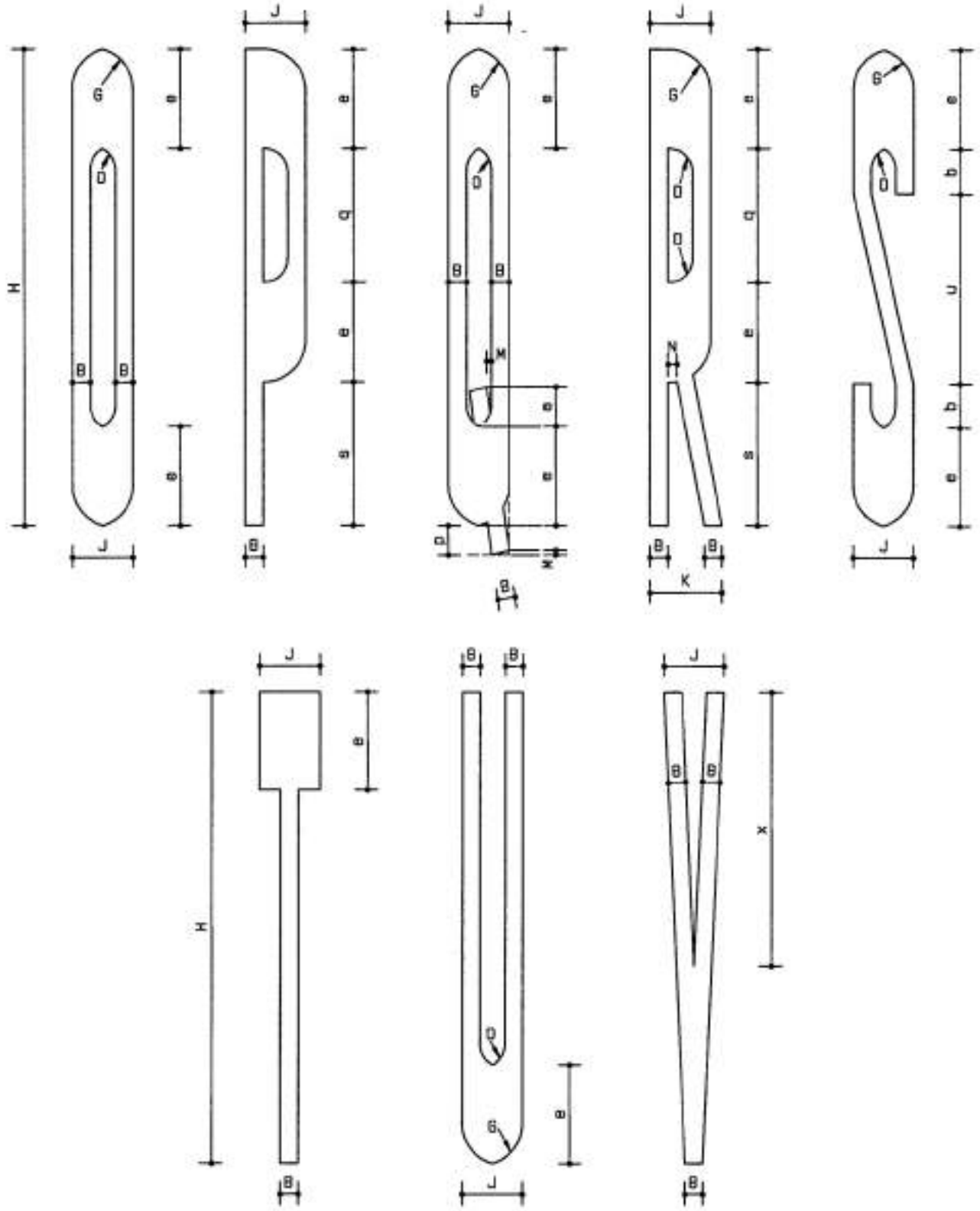
H	m	N	n	o	p	q	r	s	t	u	v	vv	w	ww	x	xx	y	yy	z	zz
1250	665	75	715	90	100	350	365	380	420	495	560	130	575	140	730	170	650	180	610	210
2500	1330	75	1430	185	155	705	730	755	835	990	1120	260	1150	285	1460	340	1300	365	1225	420
4000	2125	75	2290	285	250	1120	1165	1210	1335	1580	1790	415	1835	460	2330	540	2085	580	1955	665
5500	2920	75	3150	405	345	1550	1605	1660	1835	2180	2465	580	2520	630	3210	745	2900	805	2695	905
7500	3980	75	4300	550	470	2125	2190	2265	2765	2960	3360	790	3440	850	4370	1015	3955	1095	3670	1240

Fig12.46 GM7 – Letters - 1



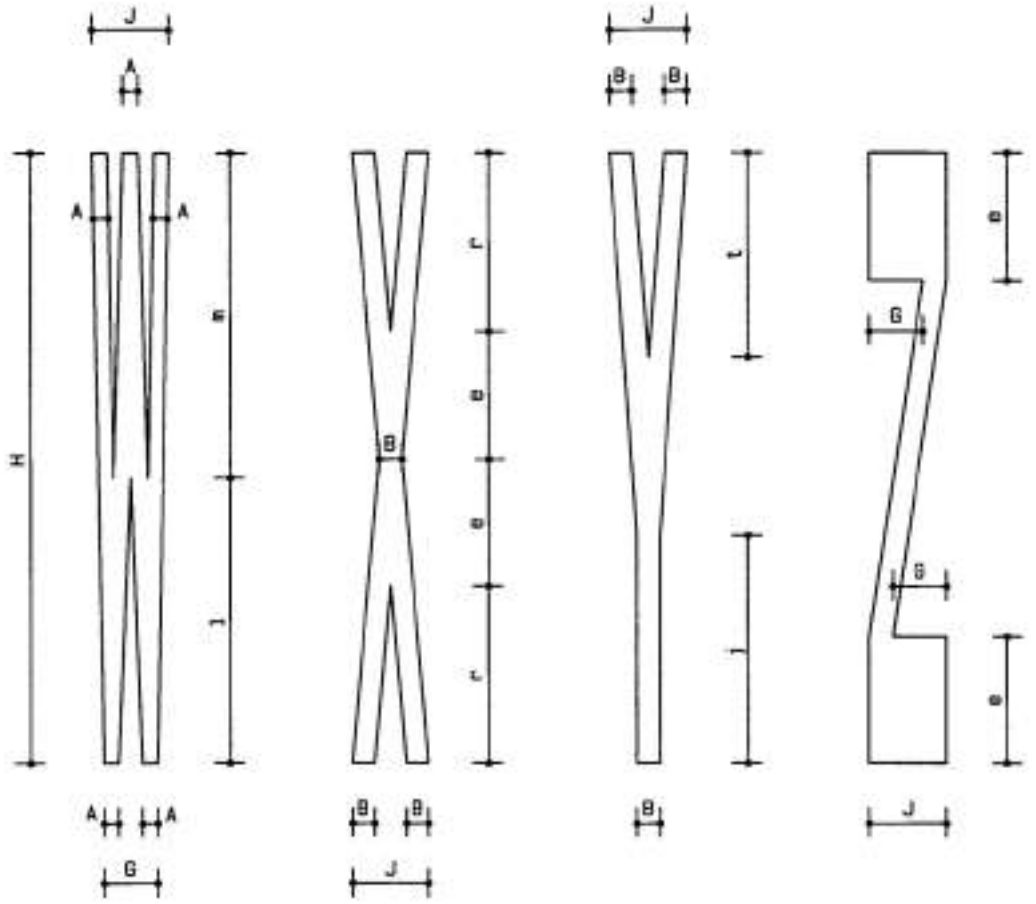
H	A	a	B	b	C	c	D	d	E	e	F	f	G	g	h	J	j	K	k	l	M
1250	100	150	150	120	180	155	200	195	230	260	250	275	355	310	405	510	465	610	535	585	40
2500	100	210	150	235	180	310	200	390	230	520	250	550	355	625	810	510	935	610	1070	1170	40
4000	100	335	150	375	180	500	200	625	230	835	250	870	355	1085	1290	510	1461	610	1710	1875	40
5500	100	460	150	515	180	685	200	860	230	1145	250	1205	355	1375	1775	510	2060	610	2350	2580	40
7500	100	630	150	710	180	935	200	1175	230	1560	250	1645	355	2051	2420	510	2760	610	3200	3520	40

Fig12.47 **GM7 – Letters - 2**



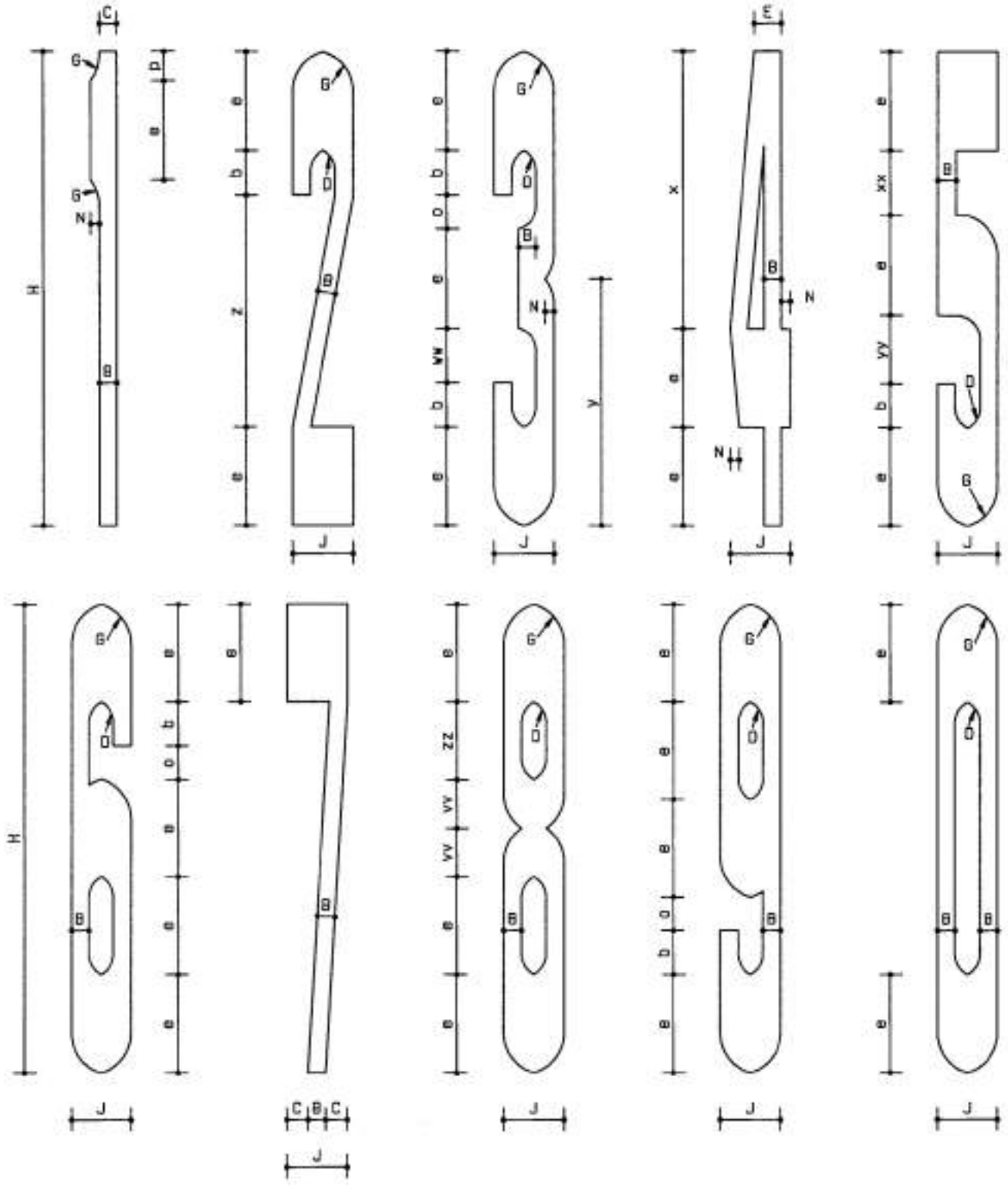
H	m	N	n	o	p	q	r	s	t	u	v	vv	w	ww	x	xx	y	yy	z	zz
1250	665	75	715	90	100	350	365	380	420	495	560	130	575	140	730	170	650	180	610	210
2500	1330	75	1430	185	155	705	730	755	835	990	1120	260	1150	285	1460	340	1300	365	1225	420
4000	2125	75	2290	285	250	1120	1165	1210	1335	1580	1790	415	1835	460	2330	540	2085	580	1955	665
5500	2920	75	3150	405	345	1550	1605	1660	1835	2180	2465	580	2520	630	3210	745	2900	805	2695	905
7500	3980	75	4300	550	470	2125	2190	2265	2765	2960	3360	790	3440	850	4370	1015	3955	1095	3670	1240

Fig12.48 **GM7 – Letters - 3**



H	A	a	B	b	C	c	D	d	E	e	F	f	G	g	h	J	j	K	k	l	M
1250	100	150	150	120	180	155	200	195	230	260	250	275	355	310	405	510	465	610	535	585	40
2500	100	210	150	235	180	310	200	390	230	520	250	550	355	625	810	510	935	610	1070	1170	40
4000	100	335	150	375	180	500	200	625	230	835	250	870	355	1085	1290	510	1461	610	1710	1875	40
5500	100	460	150	515	180	685	200	860	230	1145	250	1205	355	1375	1775	510	2060	610	2350	2580	40
7500	100	630	150	710	180	935	200	1175	230	1560	250	1645	355	2051	2420	510	2760	610	3200	3520	40

Fig12.49 GM7 – Letters - 4



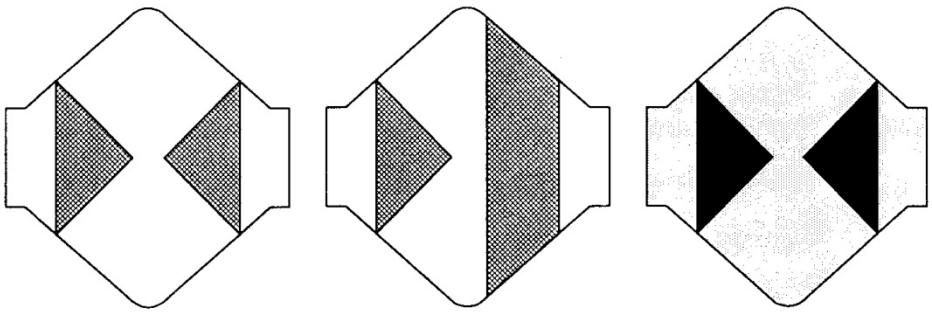
H	m	N	n	o	p	q	r	s	t	u	v	vv	w	ww	x	xx	y	yy	z	zz
1250	665	75	715	90	100	350	365	380	420	495	560	130	575	140	730	170	650	180	610	210
2500	1330	75	1430	185	155	705	730	755	835	990	1120	260	1150	285	1460	340	1300	365	1225	420
4000	2125	75	2290	285	250	1120	1165	1210	1335	1580	1790	415	1835	460	2330	540	2085	580	1955	665
5500	2920	75	3150	405	345	1550	1605	1660	1835	2180	2465	580	2520	630	3210	745	2900	805	2695	905
7500	3980	75	4300	550	470	2125	2190	2265	2765	2960	3360	790	3440	850	4370	1015	3955	1095	3670	1240

Fig12.50 **GM7 – Letters - 5**

COLOURS:

PERMANENT
Red retroreflective on white retroreflective

TEMPORARY
Black semi-matt on yellow retroreflective



D1.1 **D1.2** **D1.3**

NOTES:
1 For details of GUARDRAIL DELINEATOR use refer to SADC-RTSM VOL 1. Chapter 7, page 7.6.1.
2 The retroreflective area of each D1 or TD1 device shall be at least 70 cm^2.
3 The method of manufature shown below is optional. Other metods may be specified within the criteria of shape and area given. The method of manufacture shown requires that the ends of the base plate be crimped after the delineator part has been put in place.

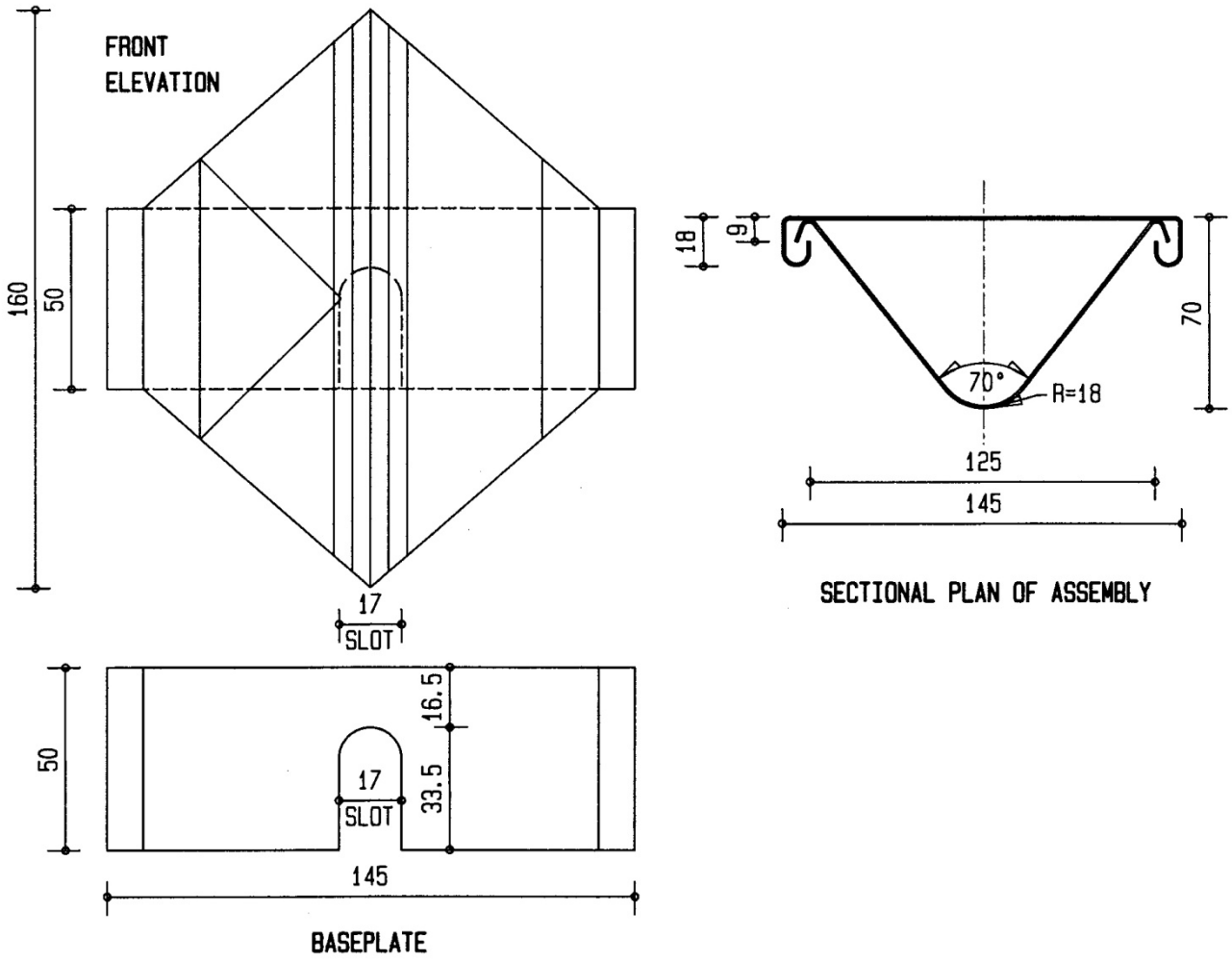


Fig.12.51 **Guardrail Delineator D1/TD1**