

A close-up photograph of a rectangular delineator. The top surface is covered in a grid of small, bright yellow reflective studs. The delineator is set on a dark, textured surface, likely asphalt. The lighting is dramatic, highlighting the reflective studs against the dark background.

Delineation

Appendix A - Locating and setting out
dividing (barrier) lines

The delineation guidelines have been developed to assist in designing and maintaining a quality delineation system.

The guidelines are to comprise 19 sections and an appendix. These are initially being released individually and in no specific order. The sections which are to be released are as follows:

Part	Title
Section 1	Introduction
Section 2	Delineation principles
Section 3	Pavement markings
Section 4	Longitudinal markings
Section 5	Enhanced longitudinal markings
Section 6	Transverse markings
Section 7	Transverse markings - Pedestrian facilities
Section 8	Diagonal and chevron markings
Section 9	Messages on pavements
Section 10	Pavement arrows
Section 11	Pavement markings at roundabouts
Section 12	Pavement markings for bicycle facilities
Section 13	Pavement markings for kerbside parking restrictions
Section 14	Maintenance of pavement markings
Section 15	Raised pavement markers
Section 16	Guide posts and delineation of safety barriers
Section 17	Alignment signs and markers
Section 18	Delineation systems
Section 19	Delineation management and audit
Appendix A	Locating and setting out of dividing (barrier) lines

To determine which sections are currently available go to:

www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/delineation_dll.html

The information contained in the various parts is intended to be used as a guide to good practice. Discretion and judgement should be exercised in the light of the many factors that may influence the choice of delineation devices in any situation. The guidelines make reference, where relevant, to current Australian Standards and are intended to supplement and otherwise assist in their interpretation and application.

Delineation

Appendix A

LOCATING & SETTING OUT DIVIDING (BARRIER) LINES

Special Note:

As from 17 January 2011, the RTA is adopting the Austroads Guides (Guide to Traffic Management) and Australian Standards (AS 1742, 1743 & 2890) as its primary technical references.

An RTA Supplement has been developed for each Part of the Guide to Traffic Management and relevant Australian Standard. The Supplements document any **mandatory** RTA practice and any complementary guidelines which need to be considered.

The RTA Supplements **must** be referred to prior to using any reference material.

This RTA document is a complementary guideline. Therefore if any conflict arises, the RTA Supplements, the Austroads Guides and the Australian Standards are to prevail.

The RTA Supplements are located on the RTA website at www.rta.nsw.gov.au





Roads and Traffic Authority
www.rta.nsw.gov.au

VERSION: 1.0
ISSUED: February 2010

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ISBN 978-1-921242-89-2 (Electronic only)
RTA/Pub. 08.091

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Appendix A. Method for locating & setting out of dividing (barrier) lines

A.1 General

This procedure has been developed and trialled within several Local Government Areas in central western New South Wales. From these trials, the procedure appears to be a satisfactory methodology for determining the correct location for linemarking when construction plans are not available and to verify that existing linemarking is correctly located according to the current signposted speed.

Barrier lines are unbroken lines that are marked longitudinally, along the centre of bi-directional roads, defining offside areas that are unsafe for vehicles to execute overtaking movements. A barrier line can be adjacent to another barrier line (BB) or to a broken separation line (BS).

If a barrier line has to be extended by less than 24 m - no action is required, however, the relevant Maintenance Authority must note the minor discrepancy in line length and/or lateral location, and carry out an adjustment after the next pavement reseal.

A.2 Barrier Line Survey

Several runs, at various speeds, will need to be undertaken when setting out barrier lines in accordance with Table AI below.

The following methodology is a relatively simple way of determining where barrier lines should begin and where they should end, or if barrier lines are needed at all.

Equipment and personnel required to set out barrier lines on a road are:

- a) One vehicle with an accessory trip-meter that reads to the nearest metre - either a sedan, station wagon or utility. Four wheel drives and trucks have a driver eye height that is too high for determining overtaking zones suitable for the 85th percentile vehicle
- b) Driver and observer
- c) Appropriate safety equipment, according to “Traffic Control at Work Sites”

85th percentile speed (km/h) V_{85}	Min sight distance (m) D	Barrier line distance (m) b	Min length of road with restricted sight distance (m) S_1	Min length of barrier line (m) S_2	Min distance between barrier lines (m) S_3
SPEED ZONE		TAIL LENGTH		LINE LENGTH	SEPARATION
≤45	120	75	20	60	100
46 - 55	150	100	25	75	125
56 - 65	180	120	30	90	150
66 - 75	210	145	35	105	175
76 - 85	240	170	40	120	200
86 - 95	270	190	45	135	225
96 - 105	300	215	50	150	250
106 - 115	330	240	55	165	275
>115	360	265	60	180	300

Table A1:

A.3 Methodology

On the first run - reset the accessory trip-meter at zero on an appropriate start point that is related to Roadloc or a prominent feature e.g. end of a bridge deck. Two personnel are required for this procedure - one to drive and call when they have lost sight and also when they consider that adequate sight ahead, suitable for overtaking has been regained, with the second person noting down each chainage when lost and regained sight is called out. Survey speed should permit accurate determination by the driver of where sight regained occurs.

Proceed along the road in one direction, noting accurately from the accessory trip-meter, generally where sight is lost to give an indication of where a barrier line will begin. Each point where it is considered that appropriate sight is regained to overtake (remembering that an overtaking vehicle has to accelerate, change lanes, pass the other vehicle and return to the correct side of the road) should be noted - this sight distance is an estimate and does not need to be an accurate overtaking length, but should be based on a more adventurous rather than a conservative estimate. All intersection chainages, as well as bridges, should be recorded, or the details transferred from Roadloc data, checking the location of any transferred data on subsequent runs. The procedure is continued to the end of the Roadloc link, noting if sight is available or not at the end. During development, it was found that a tick for sight gained and a cross for sight lost was helpful. See Table A2 below.

Forward Run		Return Run	
Chainage	Description	Chainage	Description
0.000	Bridge Abut. - sight ahead ✓	3.445	Shire boundary - end of link - X
0.225	Sight lost X	3.260	X
0.845	Sight Gained ✓	3.140	✓
1.340	CROSS ROAD	2.90	X
1.750	Sight lost X	2.675	✓
1.895	Sight Gained ✓	2.255	SIDE ROAD - T Intersection
2.255	SIDE ROAD – T junction to left	2.120	X
2.470	Sight lost X	1.985	✓
2.705	✓	1.340	CROSS ROAD
2.950	X	1.070	X
3.040	✓	0.450	✓
3.300	X	0.000	Bridge Abutment - ✓
3.445	Shire boundary - end of link - ✓		

Table A2: Example I

At the end of the link, stop the trip-meter and turn the vehicle around for the return run, recording the chainages of points where sight is lost and where adequate sight distance for overtaking is regained.

When the return run is ended (at the start of the link), the return chainages may need to be adjusted to match the forward chainages, plotting each of the points where sight is lost and where sight is regained on a line diagram on grid paper, noting the chainage of each point. Intersections and bridges will also need to be shown, with checking of chainages for these features required. See Figure A2.

From Table A1, ascertain the appropriate barrier line distance (b) – Tail Length, as given in the third column.

Assume that the linemarking on a 100km/h road, where the barrier line tail length is 215 m, is being considered. This distance is from the point where sight is regained on the forward run to the start of the barrier line for the return run. This is where both drivers first see each other - without this distance, drivers would first see each other in a head on situation with no distance available for either driver to take evasive action.

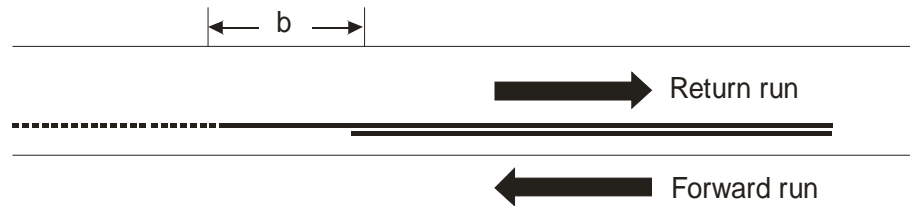


Figure A1:

Therefore, for each of the chainages that were noted down for regained sight on the forward run, 215 m is added to these to give a chainage for the start of each return run barrier line. These may differ from the points of lost sight that were noted during the survey. See Figure A3.

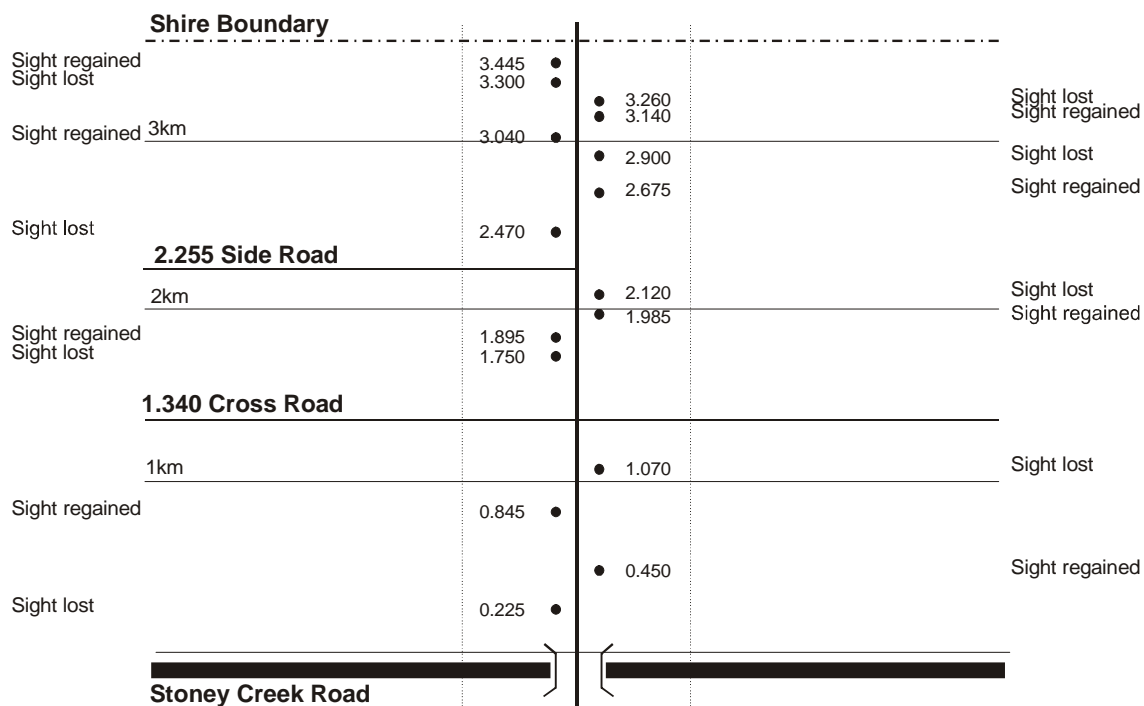
Appropriate barrier lines that are associated with intersections and narrow bridges also need to be included on Figure A3. Using the calculated beginning chainages for each barrier line, check that the appropriate barrier line separation of 250 m and minimum barrier line length of 150 m are satisfied – if not adjust the length FROM the point of lost sight. If the minimum barrier line separation cannot be achieved, the two barrier lines should be joined.

With calculated/adjusted start and finish points for barrier lines in both directions plotted on the line diagram (shown as Figure A4), reset the trip meter to zero at the start of the surveyed link and make a second pass, in a forward direction only, to check that the calculated beginning and end of each barrier line is correct.

On this run it will be necessary to accurately pick up all existing start and end points of existing barrier lines on the road for the preparation of linemarking adjustment schedules. These existing chainages can be recorded on the strip map.

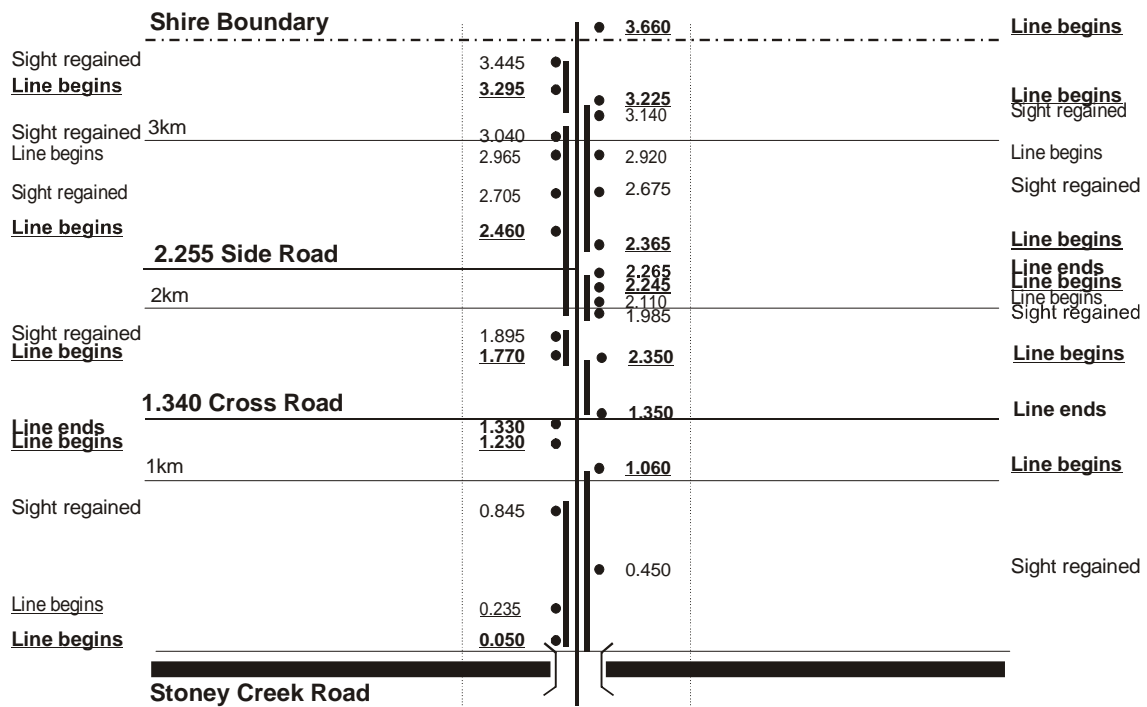
The following documentation is required for reference by the linemarking crew:

- (a) Linemarking strip map – Figure A4
- (b) Schedule of barrier line adjustments – Table A3



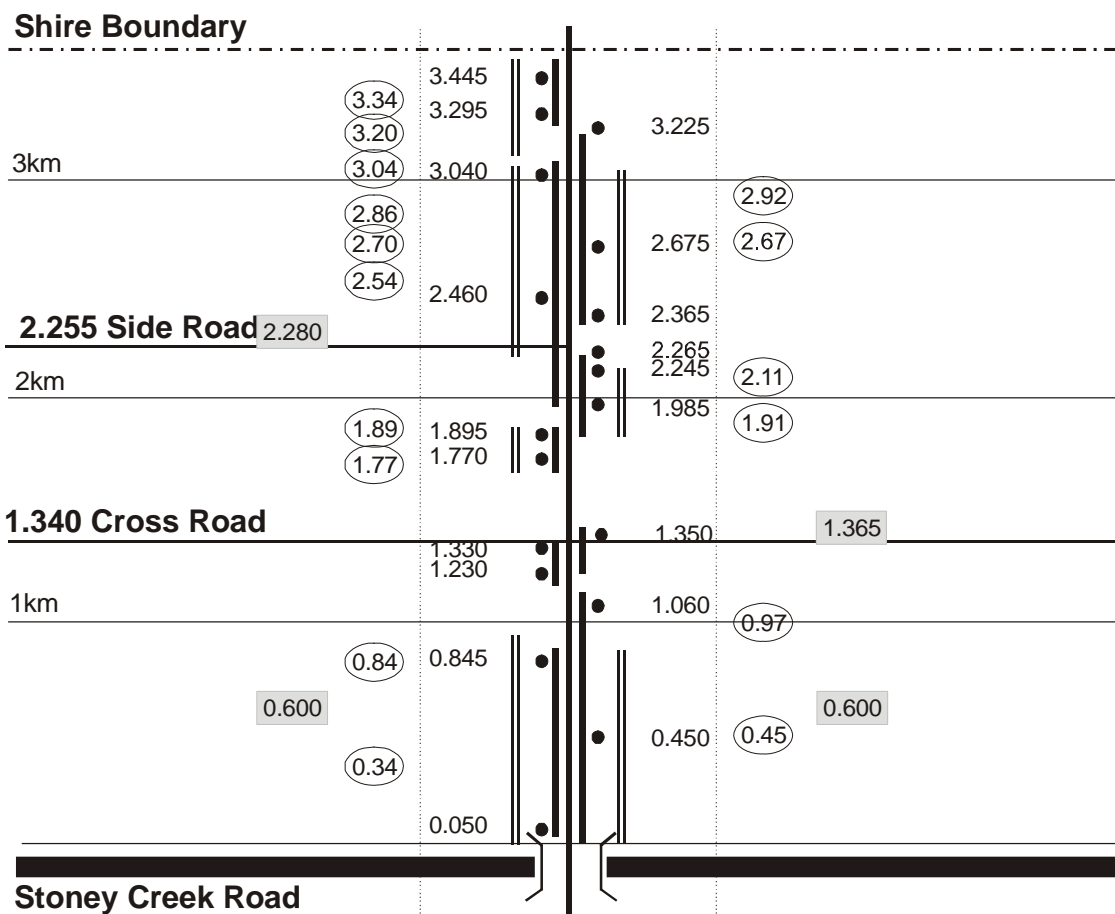
CONSTRAINTS	40km/h	60km/h	70km/h	80km/h	90km/h	100km/h	110km/h
Min.barrier line length	60	90	105	120	135	150	165
Barrier line tail length	75	120	145	170	190	215	240
Barrier line separation	100	150	175	200	225	250	275

Figure A2: Diagram I



CONSTRAINTS	40km/h	60km/h	70km/h	80km/h	90km/h	100km/h	110km/h
Min.barrier line length	60	90	105	120	135	150	165
Barrier line tail length	75	120	145	170	190	215	240
Barrier line separation	100	150	175	200	225	250	275

Figure A3: Diagram 2



CONSTRAINTS	40km/h	60km/h	70km/h	80km/h	90km/h	100km/h	110km/h
Min.barrier line length	60	90	105	120	135	150	165
Barrier line tail length	75	120	145	170	190	215	240
Barrier line separation	100	150	175	200	225	250	275

Figure A4: Diagram 3



SCHEDULE FOR BARRIER LINE ADJUSTMENT

April 2006

MR2000 Roadloc Link 123 100km/h
 3.345km North from Stoney Creek, to Shire Boundary

Forward Run									
	Chainage	Line out (m)				Line in (m)			
		“BB”	“BS”	“SB”	“SI”	“BB”	“BS”	“SB”	“SI”
Start	0.050				290		290		
End	0.340								
Start	0.986				74			74	
End	1.060								
Start	1.230				100		100		
End	1.330								
Start	1.350				100			100	
End	2.350								
Start	1.910			75					75
End	1.985								
Start	2.110				135			135	
End	2.245								
Start	2.265				100			100	
End	2.365								
Start	2.460				82		82		
End	2.542								
Start	2.705					159			
End	2.864								
Start	2.920					60			
End	3.040								
Start	3.040				164			164	
End	3.204								
Start	3.204		51					51	
End	3.255								
Start	3.255		40						40
End	3.295								
Total Length		0	91	75	1,045	219	472	624	115

Table A3: Example 2

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For further enquiries

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March 2009
RTA/Pub. 08.09 I