

### **Note on Stopping Sight Distance and Visibility**

Mr Hamshaw and Mr Fielding are agreed that:

- The Stopping Sight Distances (SSD) on approach to the proposed level crossing and Robertsbridge roundabout as shown on INQ/024 comply with the requirements of CD109 Highway Link Design (of DMRB);
- The visibility across the Robertsbridge roundabout is at present partially restricted due to the overhanging canopy from a tree that is located within the central island of the roundabout;
- The existing visibility across the Robertsbridge roundabout for vehicles entering from each approach can comply with the requirements of CD116 Geometric Design of Roundabouts (of DMRB) as set out in Figures 3.43N, 3.45, 3.46 and 3.48 provided at Annex 1, however this would require removal of part of the overhanging canopy from the tree in order to achieve this;
- To provide the required visibility, it will be necessary to remove the tree canopy from the central island of the roundabout between heights of 0.26m and 2m in accordance with paragraph 3.43 of CD116 of the DMRB (provided at Annex 1); and
- The canopy of the tree will need to be regularly reduced to ensure that re-growth does not compromise required visibility splays.



Philip Hamshaw

Ian Fielding

27 July 2021

## Site Visit

It is recommended that the Inspector view the southbound approach to the Robertsbridge roundabout in the location marked in pink below, standing on the footway close to the pedestrian guard rail, which is at a point broadly 15 metres back from the roundabout give way markings. This will provide an understanding of the visibility requirements of CD116.

It is also recommended the Inspector drives through the roundabout in all directions.



## Annex 1 Extracts from DMRB

## Design Manual for Roads and Bridges



Road Layout  
Design

# CD 116

## Geometric design of roundabouts

(formerly TD 16/07, TD 50/04, TD 51/17, TD 54/07, TA 23/81, TA 78/97, TA 86/03, TD 70/08)

Revision 2

### Summary

This document provides requirements for the geometric design of roundabouts.

### Application by Overseeing Organisations

Any specific requirements for Overseeing Organisations alternative or supplementary to those given in this document are given in National Application Annexes to this document.

### Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: [Standards\\_Enquiries@highwaysengland.co.uk](mailto:Standards_Enquiries@highwaysengland.co.uk)

**This is a controlled document.**

- 3.35 Junctions and accesses shall not be located on DALs, their associated tapers or within 500 metres of the end of the taper.

### Visibility

- 3.36 Visibility shall be measured in accordance with the envelope of visibility for measurement of stopping sight distance (SSD) in CD 109 [Ref 3.N], with visibility obtainable from a driver's eye height of between 1.05 metres and 2 metres to an object height of between 0.26 metres and 2 metres, except for:

- 1) visibility to the right at entry; and
- 2) across the central island.

**NOTE 1** Requirements and advice for visibility to the right and circulatory visibility are covered in sub-sections "Visibility to the right" and "Circulatory visibility".

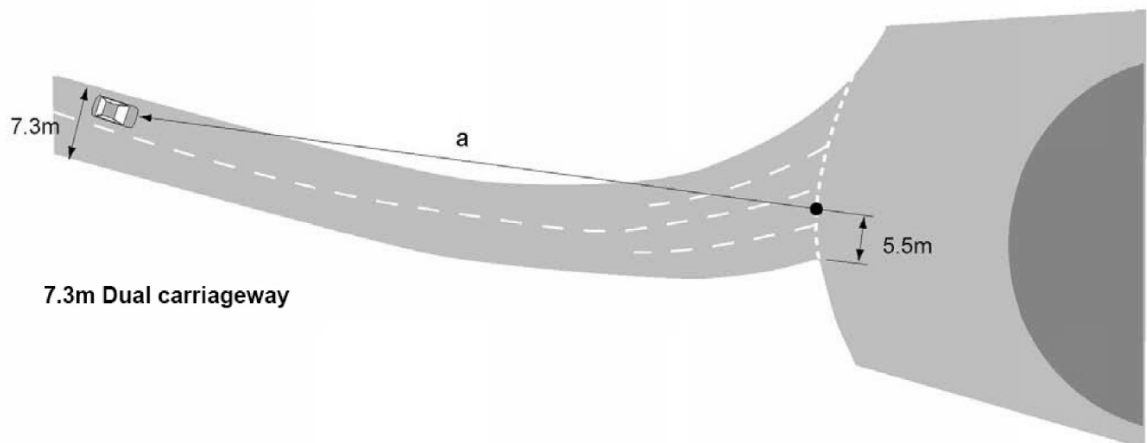
**NOTE 2** The visibility requirements in this section include no obstructions due to signs, street furniture or planting. Sign mounting heights on the central reserve of no less than 2 metres above the carriageway surface are likely to meet the visibility requirements of this section.

**NOTE 3** Isolated objects less than 550mm wide such as lighting columns, sign supports or bridge columns are acceptable.

### Forward visibility on approach (SSD)

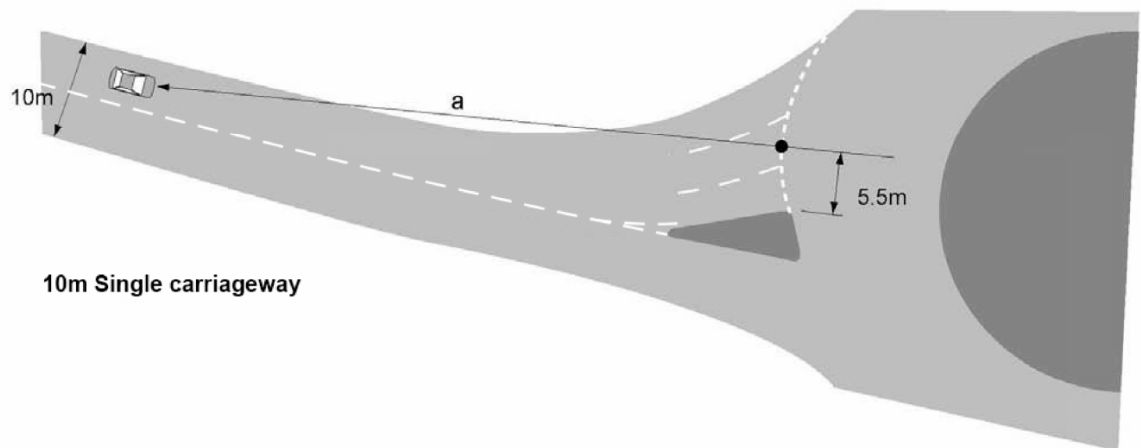
- 3.37 On a 7.3 metres wide dual carriageway, SSD shall be measured to the position of an object at the give way line (5.5 metres from the traffic island) as shown on Figure 3.37.

**Figure 3.37 Measurement of stopping sight distance on a curved approach on a 7.3 metres dual carriageway**



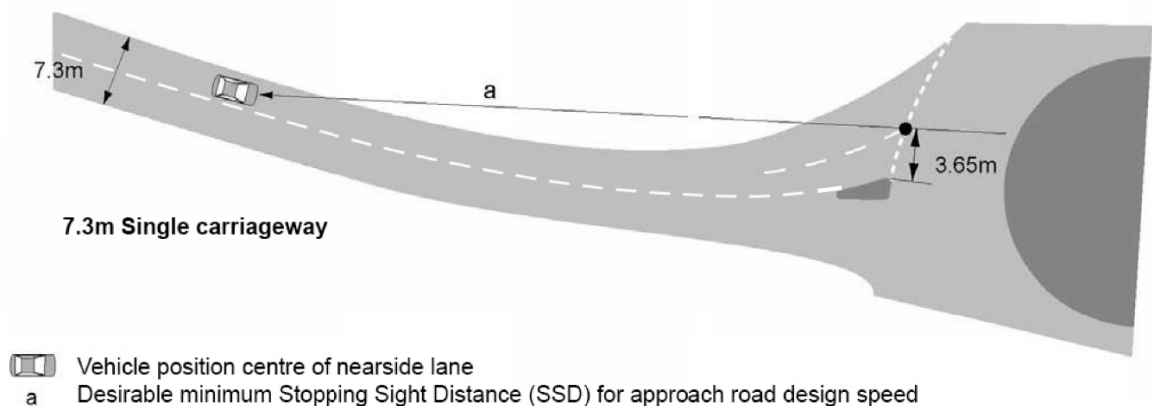
- 3.38 On a 10 metre wide single carriageway, SSD shall be measured to the position of an object at the give way line (5.5 metres from the edge of the traffic island) as shown on Figure 3.38.

**Figure 3.38 Measurement of stopping sight distance on a curved approach on a 10 metres single carriageway**



- 3.39 On a 7.3 metre wide single carriageway, SSD shall be measured to the position of an object at the give way line (3.65 metres from the edge of the traffic island) as shown on Figure 3.39.

**Figure 3.39 Measurement of stopping sight distance on a curved approach on a 7.3 metres single carriageway**



- 3.40 Visibility on the approach, 'a', to the roundabout shall conform to CD 109 [Ref 3.N].

**NOTE 1** On high speed dual carriageway approaches, the provision of transverse yellow bar markings can reduce rear shunt and overshoot accidents by helping to alert the driver to the presence of the roundabout. On high speed single carriageway roads on which drivers fail to adjust their speed in time to negotiate the roundabout safely or to stop, the provision of 'Reduce Speed Now' signs can have a similar effect. Transverse yellow bar markings are only to be used in certain circumstances, refer to TSM Chapter 5 [Ref 13.N] and TRL LR1010 [Ref 20.I] for further guidance.

**NOTE 2** *Visibility on the approach, 'a' shown on Figures 3.37, 3.38 and 3.39, is the desirable minimum SSD for the design speed of the road.*

**NOTE 3** *The visibility on the approach is measured from a vehicle position in the centre of the nearside lane, measured from the centre of the lane as shown on Figures 3.37, 3.38 and 3.39.*

**3.41** Where chevron signs are located on the central island, they shall be visible to approaching drivers in all lanes from a distance equal to the desirable minimum SSD measured back along the approach lanes from the give way line.

**NOTE** *The desirable minimum SSD is measured back from the give way line as this is the point at or before which road users need to be able to reduce speed.*

**3.42** Where chevron signs are used, the signs shall not be stacked.

**3.42.1** Where the chevron signs are inconspicuous, yellow backing boards or larger signs should be used.

**3.42.2** Where the approach to the roundabout is over a crest, a higher sign mounting height may be used.

**NOTE** *Chevron signs sometimes can impinge on circulatory visibility but the effects can be minimised by positioning the signs 2 metres back from the central island kerb line (further guidance regarding the positioning of signs is provided in TSM Chapter 4 [Ref 12.N]).*

#### **Forward visibility at entry**

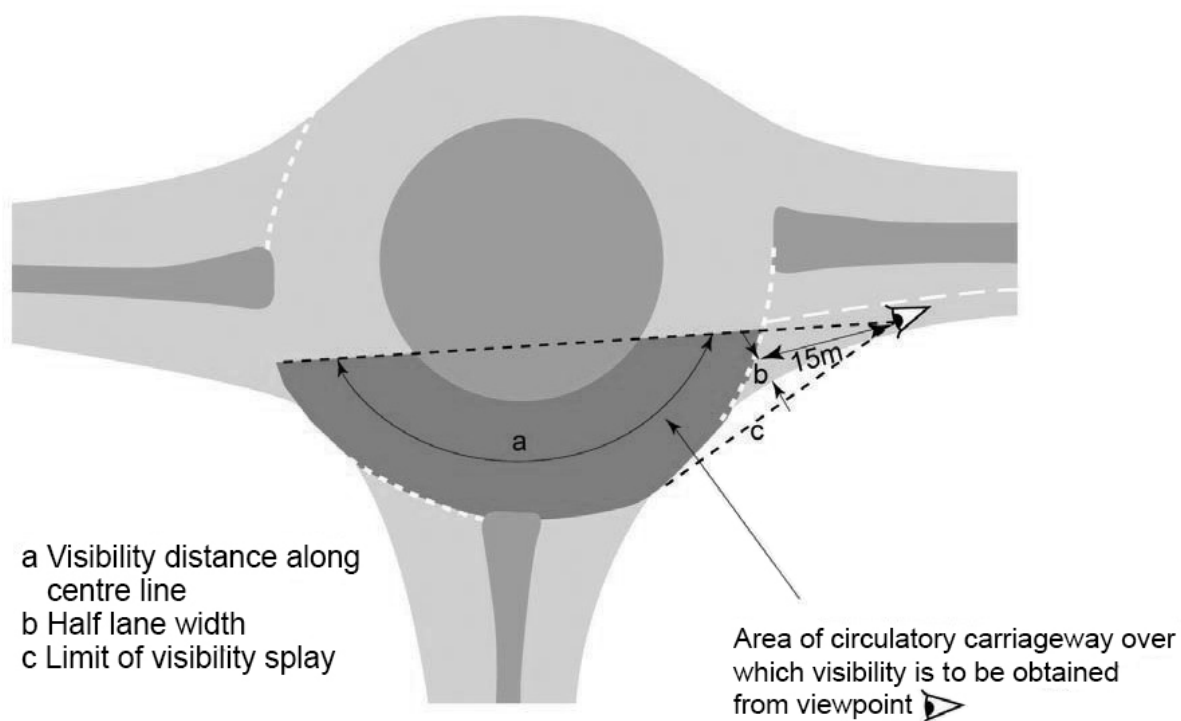
**3.43** Drivers of all vehicles approaching the roundabout shall be able to see objects of height between 0.26 metres and 2 metres on the full width of the circulatory carriageway, from the centre of the nearside lane at a distance of 15 metres back from the give way line, for the visibility distance as shown in Table 3.43.

**Table 3.43 Visibility distances required along the centre of the circulatory carriageway**

<b>ICD (m)</b>	<b>Visibility distance (m) ('a' in Figures)</b>
< 40	Whole junction
40 - 60	40
> 60 - 100	50
> 100	70

**NOTE** *The visibility distance is given in Table 3.43 is measured along the centre of the circulatory carriageway as shown in Figure 3.43N.*

**Figure 3.43N Forward visibility measured at entry**

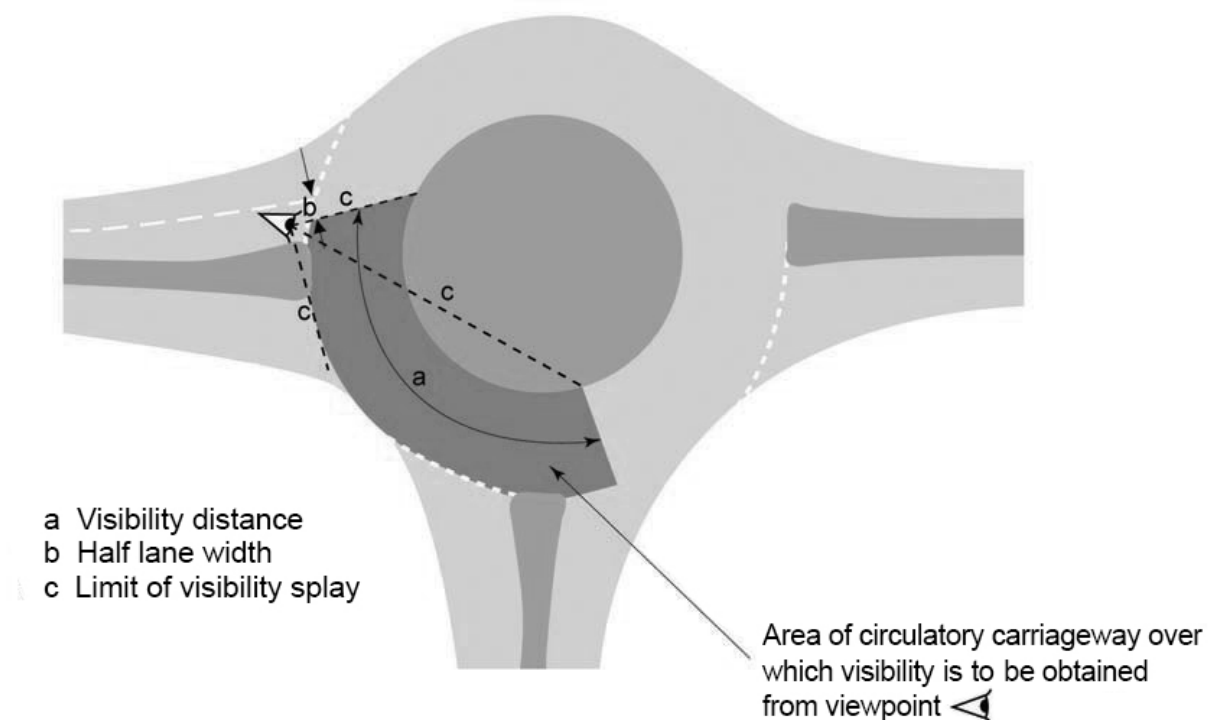


### Visibility to the right

- |      |   |
|------|---|
| 3.44 | For visibility to the right, the envelope of visibility shall be obtainable from a driver's eye height of between 1.05 metres and 2 metres to an object height of between 1.05 metres and 2 metres.   |
| 3.45 | Drivers of all vehicles approaching the roundabout shall be able to see the full width of the circulatory carriageway to their right, from the centre of the offside lane at the give way line, for the visibility distance provided in Table 3.43 and as shown in Figure 3.45. |



**Figure 3.45 Visibility to right along circulatory carriageway measured at entry (from give way line)**



**NOTE 1** The requirement for visibility to the right includes roundabouts with bridge parapets on either side of the circulatory carriageway.

**NOTE 2** Where entry problems are caused by poor visibility to the right, visibility can be improved by extending the traffic island to narrow the circulatory carriageway and moving the give way line forward.

**3.45.1** To reduce excessive approach speeds on dual carriageway approaches, visibility to the right may be limited by screening the vehicle until it is within 15 metres of the give way line.

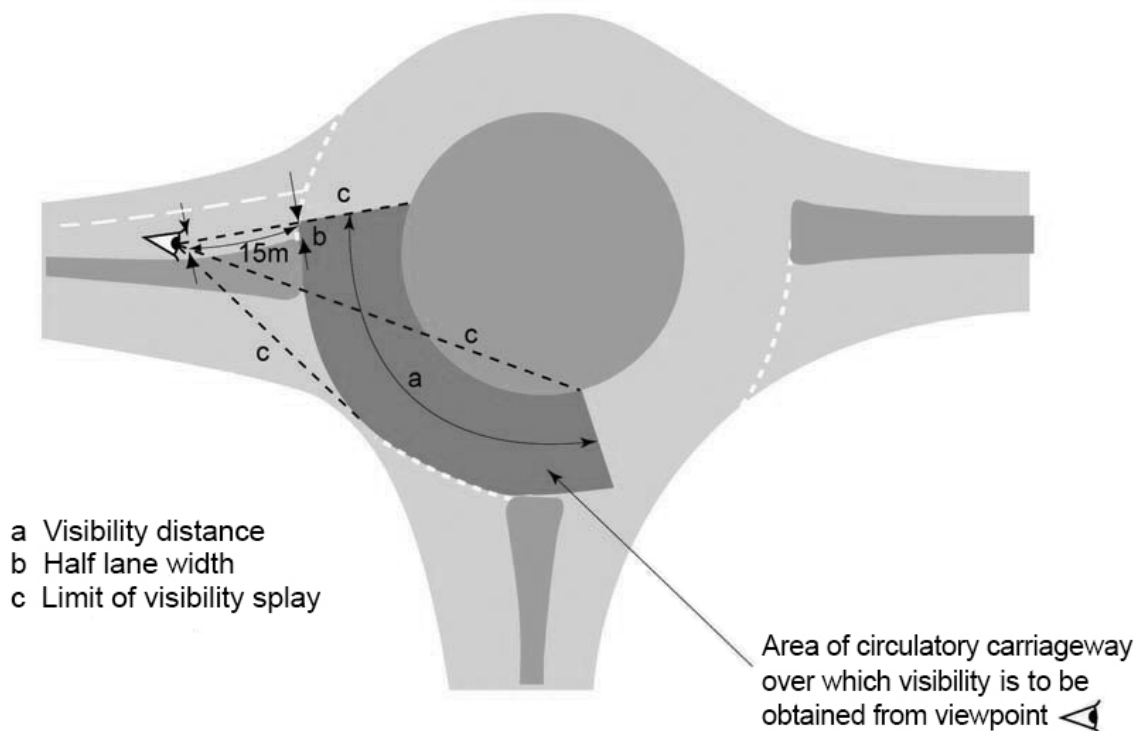
**NOTE** Excessive visibility to the right can result in high entry speeds, potentially leading to overshoot accidents and to accidents for single vehicles and PTWs. Further accident mitigation can be provided by signing and marking, and by ensuring that the layout guides drivers around the central island.

**3.45.2** Screening provided to reduce the visibility to the right should be at least 2 metres high in order to block the view of all road users.

**NOTE** Screening can be used on flared approaches on high speed single carriageway roads where there is a long traffic island.

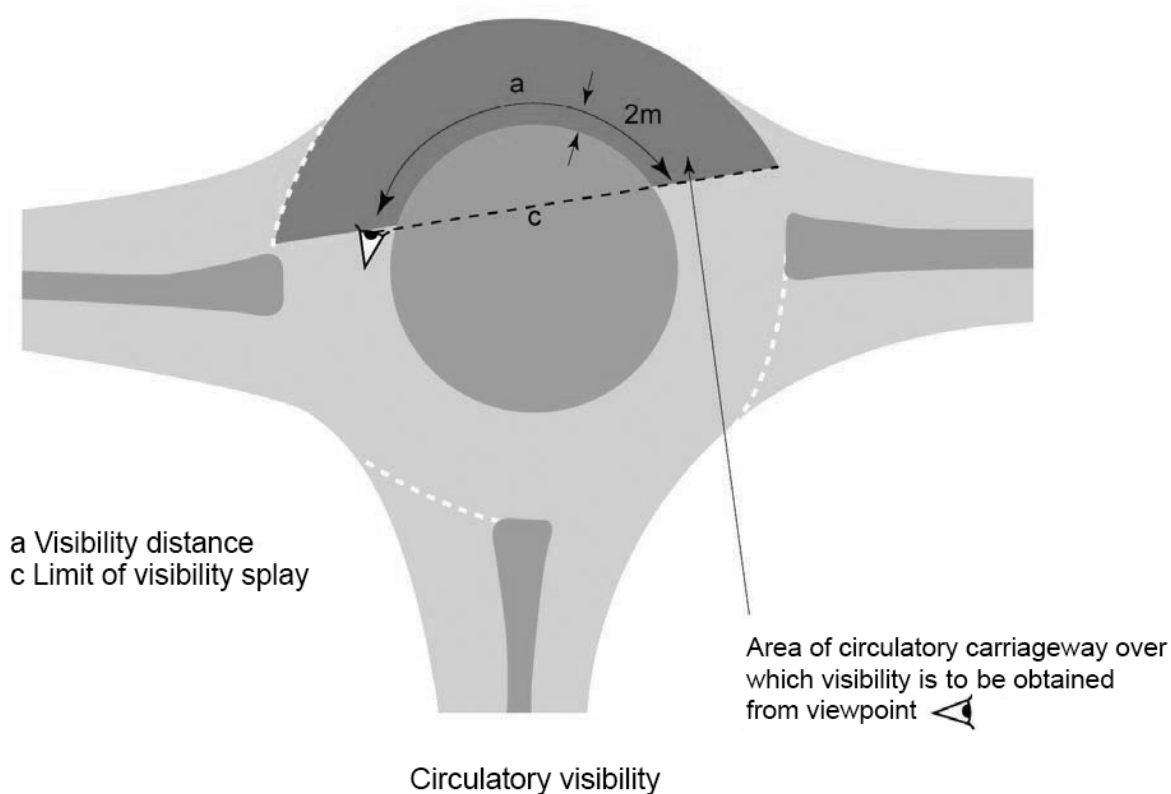
**3.46** Visibility to the right shall conform to Table 3.43 and be measured from the centre of the offside lane at a distance of 15 metres back from the give way line, as shown in Figure 3.46.

**Figure 3.46 Visibility to right along circulatory carriageway measured at 15 metres in advance of give way line**



#### **Circulatory visibility**

- 3.47 For circulatory visibility, the envelope of visibility shall be obtainable from a driver's eye height of between 1.05 metres and 2 metres to an object height of between 1.05 metres and 2 metres.
- 3.48 This visibility shall be checked at a distance of 2 metres in from the central island, as shown in Figure 3.48.

**Figure 3.48 Circulatory visibility measurement**

- 3.49 Drivers on the circulatory carriageway shall be able to see the full width of the circulatory carriageway ahead of them for the visibility distance given in Table 3.43.

**NOTE** *It is often useful to improve the conspicuity of central islands by landscaping, as long as circulatory visibility is not obstructed.*

- 3.49.1 At least the outer 2 metres of the central island should be hard standing or planted with grass or similar low level vegetation to prevent visibility issues occurring.

**NOTE 1** *Grass or similar low level vegetation can potentially cause visibility issues if not regularly maintained and road worker risk needs to be considered when using this type of landscaping.*

**NOTE 2** *Further requirements and advice for the landscape design of the central island are provided in LD 117 [Ref 4.I].*

- 3.49.2 On a full-time signal-controlled roundabout, the circulatory visibility requirements for a non-signal-controlled roundabout should be applied.

**NOTE** *Applying the same circulatory visibility for a full-time signal-controlled roundabout to that of a non-signal-controlled roundabout can help the signal-controlled roundabout to operate safely when the signals are not in use.*

### **Exit Visibility**

- 3.50 On the circulatory carriageway, the exit visibility shall conform to Table 3.43.

**NOTE** *Once a vehicle has crossed the inscribed circle at the exit from the roundabout, the SSD is to follow the requirements and advice provided in CD 109 [Ref 3.N].*

### **Pedestrian crossing visibility**

- 3.51 Drivers approaching a roundabout with a zebra crossing across the entry, shall be able to see the full