

Traffic Advisory Leaflet 2/95
March 1995



Raised Rib Markings

Introduction

Raised rib markings consist of a continuous line marking with ribs across the line at regular intervals. They were first specially authorised for use on motorways as an edge line marking to separate the edge of the hard shoulder from the main carriageway. Special authorisation was then necessary as they were not prescribed in the Traffic Signs Regulations and General Directions 1981. The objective of the marking is to achieve improved visual delineation of the carriageway edge in wet conditions at night. It also provides an audible/vibratory warning to vehicle drivers, should they stray from the carriageway, and run onto the marking.

The possible benefit of using this marking on all purpose roads was also recognised, and a number of special authorisations were given in the early 1990s for their use on these roads.

Once the markings started to appear, concern was raised by cycling organisations over the potential for danger or discomfort to cyclists when crossing them. As a result, Allott and Lomax, Consulting Engineers, were commissioned by the Driver Information and Traffic Management Division of the Department of Transport, to investigate and make recommendations on the effects that the use of raised rib markings might have on vulnerable road users.

The result of the research has been to suggest that different dimensions should be used for raised rib markings on all purpose roads, from those used on motorways. These recommendations have been incorporated into the Traffic Signs Regulations and General Directions 1994 (TSRGD). The purpose of this Traffic Advisory Leaflet is to give advice, based on recommendations from the study. It covers the use of raised rib markings on all purpose roads with special reference to the needs of pedestrians, cyclists and motorcyclists.



Research Studies

These included the following:

An assessment of the degree of hazard to pedestrians, cyclists and motorcyclists; in wet, dry, dark and light conditions, and at different approach angles, for various heights of raised rib markings.

A review of the safety implications of raised rib markings already in use.

Recommendations on the use of raised rib markings on all-purpose roads as edgeline markings, with or without a hard strip.

Consideration of the use of raised rib markings in locations other than edgeline markings on all purpose roads.

Assessment of the drainage implications of raised rib markings.

Assessment of the retroreflectivity of raised rib markings.

Various Highway Authorities, including the Regional Offices of the Department of Transport (now the Highways Agency), and the Cyclist Touring Club (CTC) were consulted.

Existing sites with raised rib markings were studied. The main part of the investigation concerned off road trials in which pedestrians, including those with a mobility handicap, cyclists, and motorcyclists, took part. Tests were also made with cars and goods vehicles.



Results of trial

The studies revealed that existing raised rib markings had not contributed to any accidents. However, the off road trials suggested that problems of handling and comfort could arise for cyclists where the maximum height of the rib then permitted (13mm), and the minimum spacing (250mm) was used.

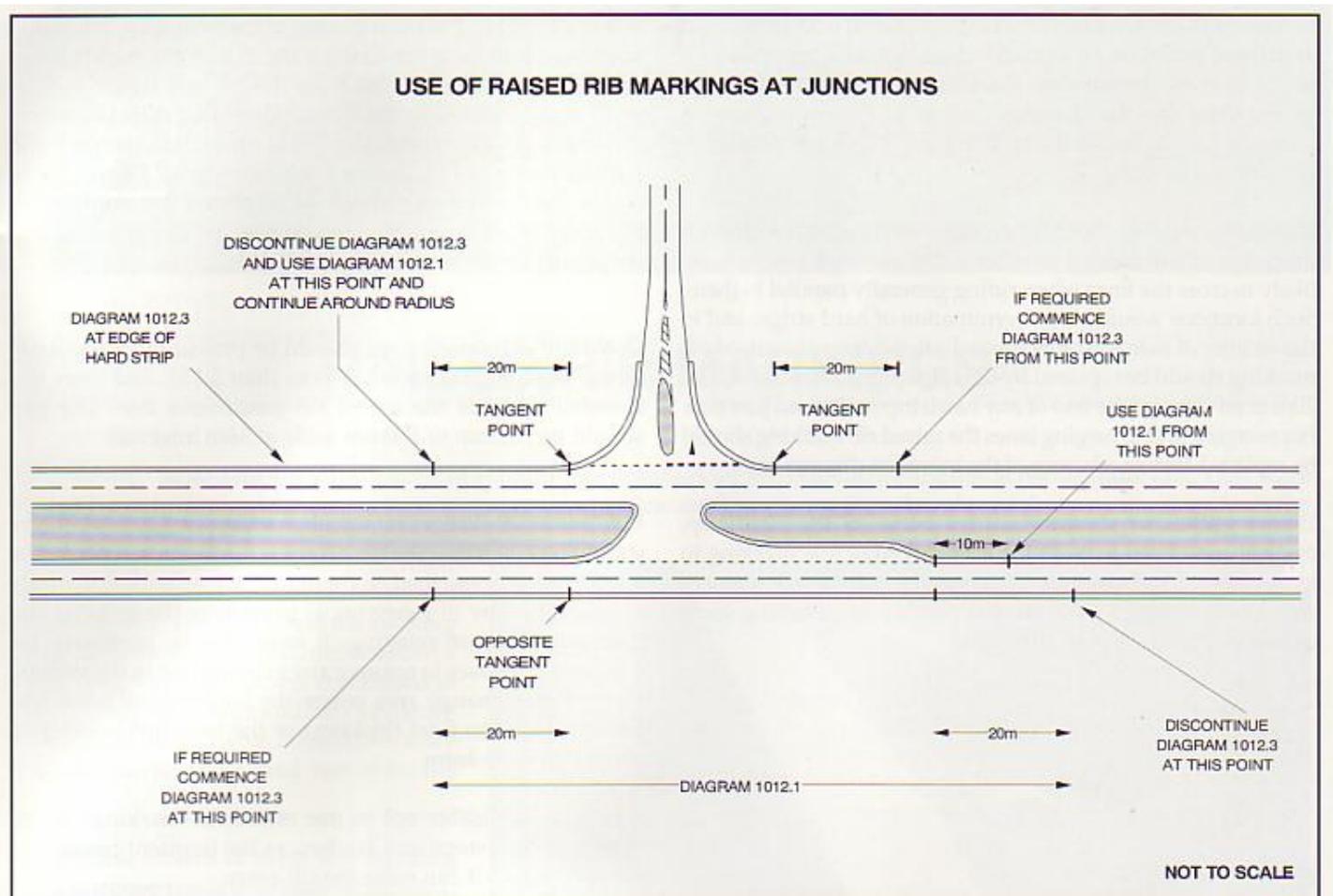
The studies found that motorcyclists had handling problems when travelling along lines with ribs at their maximum height.

The full height rib lines were uncomfortable for pedestrians, and created some degree of hazard for them.

Use of the continuous line can interfere with efficient drainage of the carriageway, particularly in flat areas, if suitable drainage gaps are not provided.

In terms of retroreflectivity it was found that the smaller spacing between the upstand of the ribs did increase this, though this did not appear to be affected by the height of the ribs. However, in storm conditions higher upstand would logically be preferable because of the increased chance of the marking being visible above any ponding that might occur.

Use of raised rib markings at junctions



Application

As a general edgeline marking: Where there is a hard strip of 1m or more, whether or not there is a kerb upstand.

As a means of delineating the edge of carriageway adjacent to a hazard such as an embankment or sharp bend: Where any hard strip is less than 1m wide, providing there is no kerb upstand.

Should NOT be used: Where there is no hard strip, but there is kerb upstand.

Dimensions

These should be in accordance with Diagram 1012.3 of TSRGD. The height of the rib should be 6mm and the space between the ribs 500mm.

Prescribed use

Raised rib markings are only prescribed for use as edgeline markings. Any other use would require special authorisation. Based on present evidence it is unlikely that special authorisation would be given for the use of raised rib markings as a centre line marking.

Crossing points

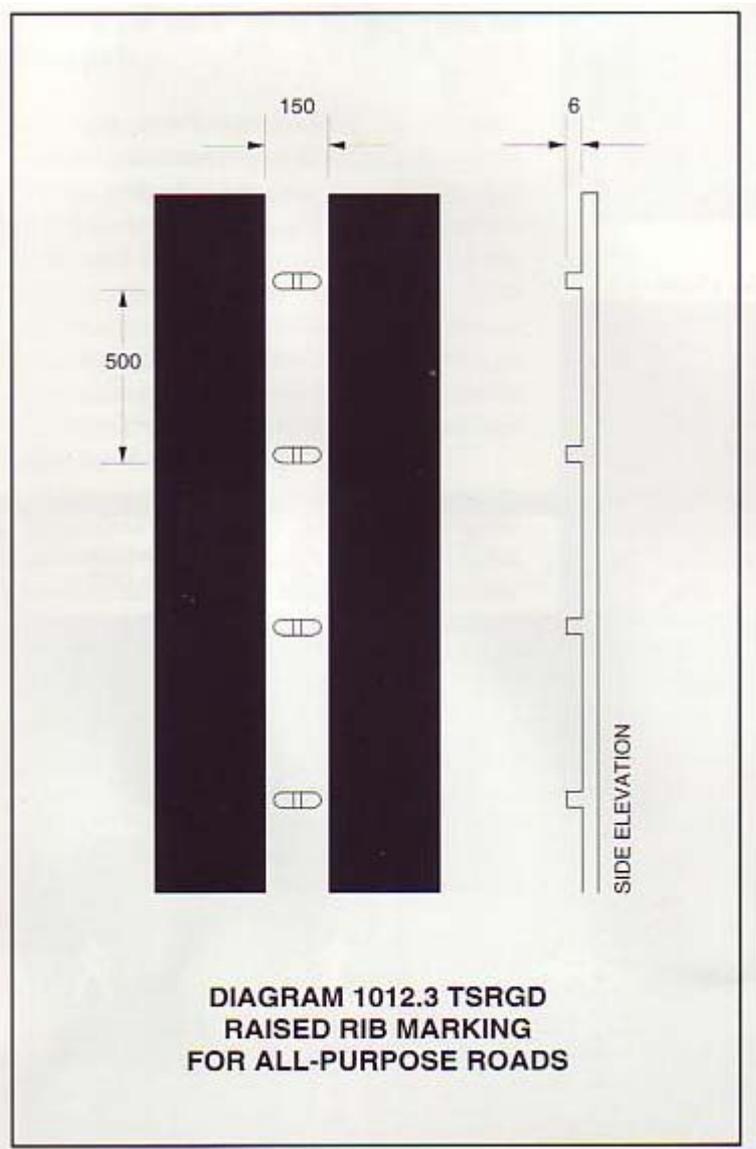
Raised rib markings should be discontinued at defined pedestrian and cyclist crossings, and replaced by a non raised rib continuous marking. It would normally be appropriate for the discontinuation to be commenced a minimum of 1m before the crossing and finish a minimum of 1m after the crossing.

Raised rib markings should be replaced with normal continuous markings in the vicinity of other locations where cyclists are likely to cross the lines when riding generally parallel to them. Such locations would be the termination of hard strips, and in the vicinity of side road junctions. In these cases the raised rib marking should be replaced by the continuous marking at least 20m in advance of the end of any hardstrip/side road junction. For merging and diverging lanes the raised rib marking should be replaced 10m in advance of the merge or diverge lane.

Where gullies or similar features occur in the hardstrip, cyclists may need to cross the adjacent edge line marking to avoid them. Any raised rib marking adjacent to such features should be replaced by a normal continuous marking for a distance of 10m on both sides of the gully.

Motor cyclists

The trials indicated that motorcyclists could encounter handling problems if the raised rib marking was laid on curves of radii less than 1000m, and motorcyclists were likely to cross them. It is unlikely that difficulties will occur where raised rib markings are provided in conjunction with hard strips of



1m or less. For hard strips of 1.5m or more, raised rib markings should be replaced by continuous markings if there is any concern that motorcyclists might frequently cross into the hard strip.

Drainage

Drainage gaps should be provided, particularly where the longitudinal fall is less than 1:150, and there is a crossfall towards the raised rib continuous line. The gap should be 100mm to 150mm wide at 36m intervals.

Maintenance

Where raised rib markings are renewed, care should be taken that the rib height is not increased above the 6mm height prescribed. Experience suggests that the only satisfactory way of renewing is to remove the original line completely before relaying. It may also be necessary for drainage purposes to remove any existing line in the vicinity of a crossfall change area where the longitudinal fall is less than 1:150, if the final thickness of the base line is likely to exceed 3mm to 4mm.

It may be advisable not to use raised rib markings in the vicinity of bus stops and lay-bys, as the frequent passage of vehicles across it can wear the rib away.

Enquiries

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References

Traffic Signs Regulations and General Directions 1994 (SI 1994 No. 1519)
Department of Transport, Traffic Signs Manual, Chapter 5, Road Markings 1985.

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