Design Manual for Roads and Bridges

Road Layout
Design

CD 169
The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platforms

(formerly TD 69/07, TA 66/95)

Version 1.0.1

Summary
This document gives the requirements and provides advice for the location and layout of lay-bys (including parking lay-bys, bus lay-bys and emergency lay-bys), maintenance hardstandings, rest areas, service areas and observation platforms.

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

This is a controlled document.

Contents

Latest release notes

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CD 169	1.0.**1**	March 2021	Core document, Scotland NAA	Incremental change to notes and editorial updates

New version of document published solely to resolve revision number issue.

This was caused when an amendment was made to the Scotland National Application Annex document in May 2020 to remove duplicate wording without a new revision number being issued. This meant there were incorrectly two revision 1 documents available on the website with different publication dates of March 2020 and May 2020.

No changes have been made to the core document since it was last updated in March 2020. No changes have been made to the England, Wales and Northern Ireland National Application Annexes since their original publication in September 2019. The Scotland National Application Annex is being re-published with a new revision number 0.0.1 to reflect the change made in May 2020 and no further changes have been made since this time.

Previous versions

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CD 169	1	May 2020		
CD 169	1	March 2020		
CD 169	0	September 2019		

Foreword

Publishing information

This document is published by Highways England.

This document supersedes TD 69/07 "The Location and Layout of Lay-bys and Rest Areas" and TA 66/95, "Police Observation Platforms on Motorways", which are now both withdrawn.

This document replaces Chapters 2 and 3 of TA 57/87 "Road Side Features" which were previously superseded by TD 69/07 and now also replaces paragraphs 1.5.1 to 1.5.3 of Chapter 1 of TA 57/87.

This document replaces paragraphs 2.54 to 2.60 of Chapter 2 of TD 22/06 "Layout of Grade Separated Junctions".

This document replaces paragraphs 4.19 to 4.23 of Chapter 4 of TD 70/08 "Design of Wide Single 2+1 Roads".

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This document gives requirements and advice relating to the:

1) provision, siting and design of lay-bys on all-purpose trunk roads;
2) design of maintenance hardstandings, rest areas and service areas on all-purpose trunk roads and motorways; and
3) the design of observation platforms on motorways.

Lay-bys provide stopping opportunities for road users needing to stop for a short duration. Service areas or rest areas can be more appropriate than lay-bys for longer duration stops.

In addition to acting as short-term stopping places, lay-bys can be provided for more specialised functions such as providing emergency refuge for broken-down vehicles, facilitating bus stops and providing hardstandings where maintenance vehicles can pull off the road.

Observation platforms can provide vantage points where police vehicles and other authorised users can stop clear of the carriageway and observe the operation of the motorway.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 9.N] apply to this document.

Abbreviations and symbols

Abbreviations

Abbreviation	Definition
AADT	Average Annual Daily Traffic
DfT	Department for Transport
DVSA	Driver and Vehicle Standards Agency
EA	Emergency Area
ERT	Emergency Roadside Telephone
MSA	Motorway Service Area
WS2+1	Wide Single 2+1 Roads

Symbols

Symbol	Definition
R	Radius
V	The design speed in kph

Terms and definitions

Terms and definitions

Term	Definition
All-purpose trunk road rest area	Off-carriageway stopping provision that includes parking and can include tourist information, toilets, public telephone, picnic area, disabled facilities and/or viewpoints.
All-purpose trunk road service area	Off-carriageway stopping provision including facilities as specified in DfT Circular 02/2013 [Ref 13.N].
Bus lay-by	An area where public service vehicles can stop adjacent to the carriageway to pick up or drop off passengers.
Emergency area	A purpose built place of relative safety which is located adjacent to the nearside of a smart motorway or expressway mainline carriageway or diverge connector road. NOTE: The legislative title for an emergency area is an emergency refuge area and the regulations governing the use of a normal hard shoulder apply.
Emergency lay-by	A place adjacent to the carriageway on the all-purpose trunk road where road users can stop in an emergency.
Expressway	A high speed dual carriageway that has at least two lanes in each direction, grade separated junctions and uses technology to support operational regimes (see GD 300 [Ref 10.N]).
Lay-by	A generic term covering parking lay-bys, bus lay-bys and emergency lay-bys.
Maintenance hardstanding	An area where authorised workers can stop adjacent to the carriageway.
Maintaining Organisation	The organisation responsible for the maintenance of the road.
Motorway rest area	Off-carriageway stopping provision including facilities as specified in DfT Circular 02/2013 [Ref 13.N].
Motorway service area	Off-carriageway stopping provision including facilities as specified in DfT Circular 02/2013 [Ref 13.N].
Non-emergency stopping provision	A generic term covering the following facilities: 1) all-purpose trunk road rest area; 2) all-purpose trunk road service area; 3) motorway rest area; 4) motorway service area; 5) parking lay-by; 6) roadside fuel station; 7) truck stop.

Terms and definitions (continued)

Term	Definition
Parking lay-by	An area where road users can stop adjacent to the carriageway. NOTE: Parking lay-bys can be either type A with or without a merge or a type B layout.
Observation platforms	Parking area off-carriageway to allow authorised users to stop and observe road users.
Roadside fuel station	A facility at the roadside that provides fuel for road users.
Segregation island	A kerbed traffic island located between a mainline carriageway and a type A parking lay-by.
Truck stop	Off-carriageway stopping provision including facilities as specified in DfT Circular 02/2013 [Ref 13.N].
Type A parking lay-by	A parking lay-by incorporating a segregation island. NOTE: A type A lay-by can incorporate a merge layout, depending on the type of road, traffic volume and the speed limit.
Type B parking lay-by	A parking lay-by without a segregation island.

1. Scope

Aspects covered

1.1 This document shall be used for the following:

1) the provision, siting and design of parking lay-bys, bus lay-bys, emergency lay-bys;
2) the siting and access layout for rest areas, motorway service areas (MSA) and all-purpose trunk road service areas, and;
3) the siting and layout of observation platforms and maintenance hardstandings.

1.1.1 The requirements and advice in Sections 9 and 10 of this document regarding MSAs and all-purpose trunk road services should be read in conjunction with the advice in DfT Circular 02/2013 [Ref 13.N].

NOTE *This document does not cover the internal layout or facilities to be provided at MSAs, all-purpose trunk road services and rest areas (excluding expressways). Further details can be obtained from the Overseeing Organisation.*

1.2 This document shall not be used for the design of emergency areas (EAs) on expressways (see GD 300 [Ref 10.N] or smart motorways (see IAN 161 [Ref 12.N]).

1.3 This document shall not be used for the design of abnormal load lay-bys.

Implementation

1.4 This document shall be implemented forthwith on all schemes on the Overseeing Organisations' motorway and all-purpose trunk roads according to the implementation requirements of GG 101 [Ref 9.N].

Use of GG 101

1.5 The requirements contained in GG 101 [Ref 9.N] shall be followed in respect of activities covered by this document.

2. General principles

2.1 Parking lay-bys, bus lay-bys and emergency lay-bys shall not be provided on motorways.

2.1.1 To avoid noise and visual intrusion and to reduce the possibility of trespassing, parking lay-bys, maintenance hardstandings, rest areas, MSAs, all-purpose trunk road service areas and observation platforms should be sited away from residential and industrial areas.

2.1.2 Parking lay-bys should not be located where they can be used by vehicles for long-term parking or near high trip generators (e.g. tourist attractions or public transport interchanges) as this can result in capacity issues.

2.1.3 Where an existing parking lay-by has been identified as having an operational or road safety problem, the lay-by should not be closed or reclassified without first investigating the wider impact on the non-emergency stopping provision along the route.

2.1.4 Lay-bys, maintenance hardstandings, rest areas, MSAs and observation platforms should not be located adjacent to sites where security of the site could be compromised.

NOTE *Sites such as bridges and viaducts could be subject to intentional damage and / or acts of terrorism.*

Non-emergency stopping provision

2.2 On motorways and all-purpose trunk roads, non-emergency stopping provision shall be provided for each direction of travel.

NOTE *Non-emergency stopping provision on motorways takes the form of MSAs, motorway rest areas and truck stops. For more information see DfT Circular 02/2013 [Ref 13.N].*

2.2.1 Non-emergency stopping provision for all-purpose trunk roads may include any of the following:

1) parking lay-by;
2) all-purpose trunk road rest area;
3) all-purpose trunk road service area;
4) truck stops, and/ or;
5) roadside fuel stations.

2.2.2 Where parking for all vehicle types can be accommodated, non-emergency stopping provision may also include local communities, tourist attractions and retail facilities directly accessed from an all-purpose trunk road route.

2.2.3 Local communities, tourist attractions or retail facilities along a route should not be included as part of the non-emergency stopping provision where they:

1) restrict the type of vehicle that can stop;
2) charge for short term parking; or
3) are subject to seasonal closures.

2.2.4 The spacing for non-emergency stopping provision on all-purpose trunk roads should be as shown in Table 2.2.4.

Table 2.2.4 Recommended spacing for non-emergency stopping provision in each direction

Carriageway type	Two-way annual average daily traffic (AADT) vehicle flow	Recommended spacing for non-emergency stopping provision
Dual carriageway	All	2.5km
Single carriageway	>8,000	Between 2km and 5km
	2,500 – 8,000	Between 5km and 8km
	1,200 – 2,500	Between 8km and 12km

2.2.5 A mixture of non-emergency stopping provision should be used along an all-purpose trunk road route to take account of the need for both short duration stops (typically parking lay-bys) and longer duration stops (for example rest areas).

2.2.6 The distance between adjacent non-emergency stopping facilities should be measured between the points where the road user has the opportunity to enter the facility.

NOTE *For online facilities such as parking lay-bys, measurements are taken between the start of diverges. For offline facilities it is measured to the point where the road user enters the car park.*

2.3 Bypassed community facilities not directly accessed from the all-purpose trunk road shall not be included as part of non-emergency stopping provision.

3. Siting of lay-bys

General

3.1 This section shall be applied to the provision of parking lay-bys, bus lay-bys and emergency lay-bys on the all-purpose trunk road.

Siting

3.2 Lay-bys shall not be sited on the outside of a right hand curve with a radius of less than the appropriate value for the design speed of the road as shown in Table 3.2.1.

NOTE *Siting a lay-by on the outside of a right hand curve increases the risk of a road user unintentionally entering the lay-by.*

3.2.1 Lay-bys should not be sited on the inside of a left hand curve with a radius less than the appropriate value for the design speed of the road, as shown in Table 3.2.1.

Table 3.2.1 Minimum radius where the lay-by is sited on a curve

Design speed (kph)	120	100	85	70	60	50
Minimum curve radius (m)	2,040	1,440	1,020	720	510	360

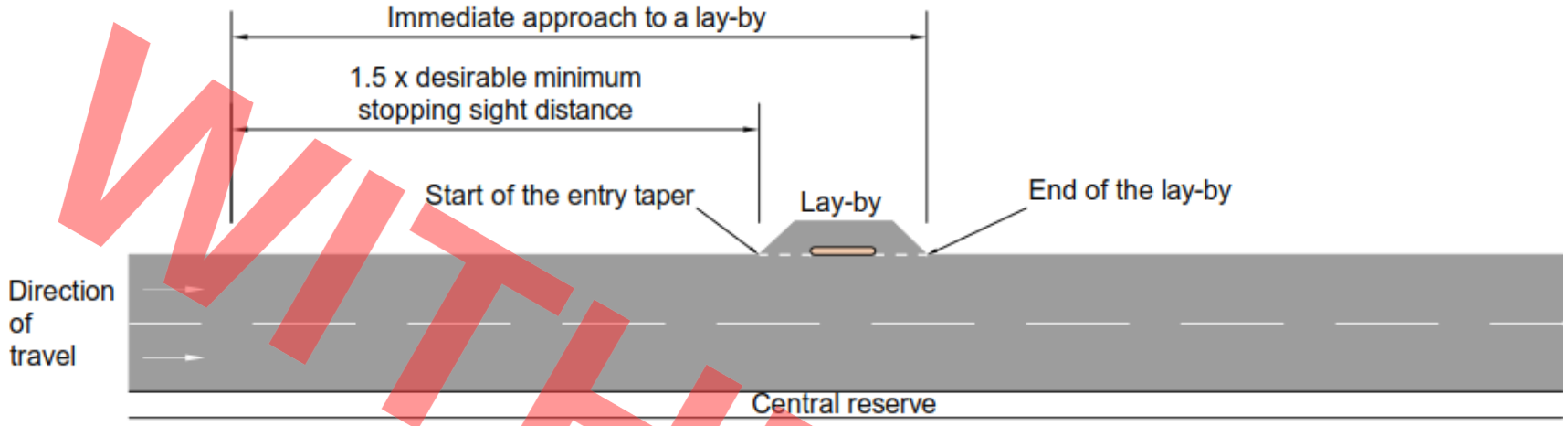
NOTE *Siting a lay-by on the inside of a left hand curve can lead to visibility being compromised.*

3.3 Restrictions to geometry relaxations that apply on the immediate approach to junctions shall also apply to lay-bys.

NOTE *For requirements and advice regarding restrictions on the immediate approach to junctions see CD 109 [Ref 7.N].*

3.4 For the purpose of this document the immediate approach to a lay-by on a dual carriageway shall be the length of the mainline carriageway measured from a point 1.5 times the desirable minimum stopping sight distance upstream of the start of the lay-by entry taper to a point level with the end of the lay-by (see Figure 3.4).

Figure 3.4 Immediate approach to a lay-by on a dual carriageway



3.5 For the purpose of this document the immediate approach to a lay-by on a single carriageway road shall be:

1) on the lane adjacent to the lay-by, the length of the mainline carriageway 1.5 times the desirable minimum stopping sight distance upstream of the start of the lay-by entry taper to a point level with the end of the lay-by (see Figure 3.5); and
2) on the lane opposite the lay-by, the length of the mainline carriageway 1.5 times the desirable minimum stopping sight distance upstream of the end of the lay-by to a point level with the start of the lay-by entry taper (see Figure 3.5).

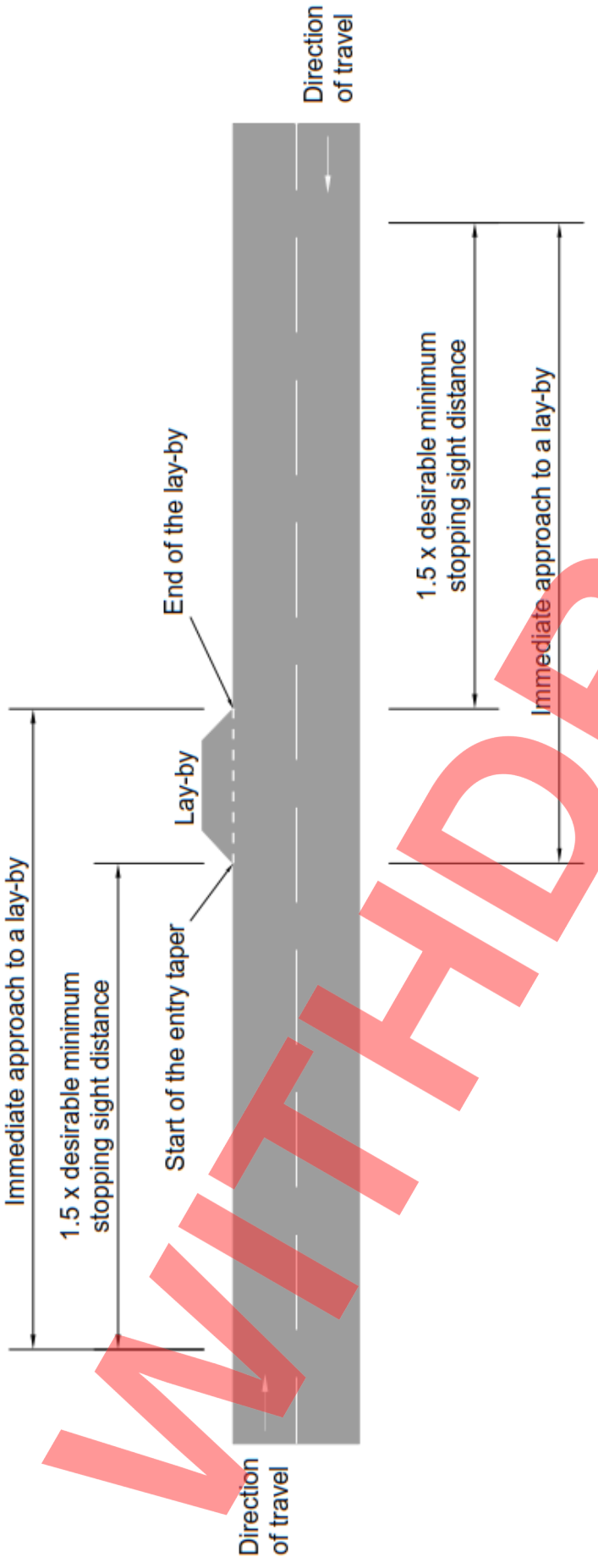


Figure 3.5 Immediate approach to a lay-by - single carriageway

3.6 In both directions of travel, lay-bys shall not be provided within one kilometre of the start / end of a dual carriageway.

3.7 The separation between a lay-by and an at-grade junction or access (excluding field accesses) on the same side of the road, both upstream and downstream, shall be at least 3.75V metres where V is the design speed in kph.

NOTE 1 *The 3.75V separation measurement is taken from the closest point of the lay-by to the at-grade junction or access.*

NOTE 2 *Document CD 122 [Ref 4.N] provides the separation requirements between a lay-by and a grade separated junction.*

NOTE 3 *The separation distance between a lay-by and a junction or access is required to reduce the possibility of road users confusing the downstream junction or access with the lay-by entrance and to reduce the likelihood of late manoeuvres where a junction or access is upstream of the lay-by.*

3.8 Lay-bys shall not be sited between a junction advance direction sign and the junction diverge.

3.9 Junctions and accesses shall not be located within lay-bys.

3.10 Lay-bys shall not be located on gradients in excess of the desirable maximum gradients in accordance with CD 109 [Ref 7.N].

3.11 Lay-bys shall not be sited on crests with a value less than the desirable minimum value in accordance with CD 109 [Ref 7.N].

3.12 On single carriageway roads, where there is a need for lay-bys on both sides of the road in close proximity, lay-bys shall be at least 150m apart (measured as shown in Figure 3.12).

Figure 3.12 Minimum seperation for a pair of lay-bys on a single carriageway (left-right stagger configuration shown)

3.12.1 Staggered lay-bys should be arranged in a left-right configuration (nearside lay-by first).

NOTE *A left-right configuration reduces the likelihood of vehicles making a right turn into a lay-by from the opposite direction or using the lay-by to make a U-turn.*

3.13 On dual carriageway roads, lay-bys on opposing carriageways shall not be located opposite each other.

NOTE *Providing lay-bys opposite each other on opposing carriageways on a dual carriageway increases the potential for road users to cross between the two facilities on foot.*

Visibility

3.14 Unobstructed visibility shall be provided for road users exiting a lay-by using a visibility splay formed using an x and y distance as described below (see Figures 3.15, 3.16, 3.17Na and 3.17Nb for an illustration):

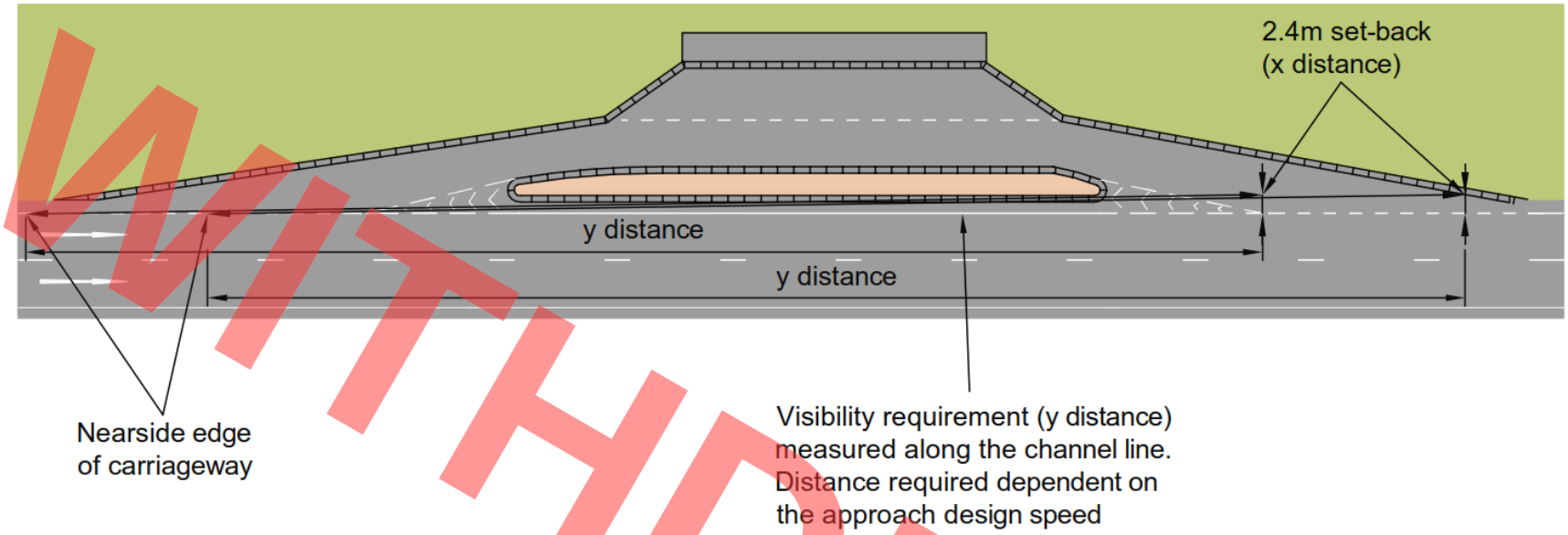
1) x distance - a point 2.4m set-back into the lay-by from the edge of carriageway (as detailed in this section for each lay-by type); and
2) y distance - a measurement along the nearside edge of carriageway, as shown in Figure 3.15, that corresponds to the CD 109 [Ref 7.N] desirable minimum stopping sight distance for the design speed of the mainline road.

3.15 For type A parking lay-bys without a merge taper, the x distance shall be measured perpendicular to the mainline carriageway, at a distance of 2.4 metres back from the midpoint of the mainline traffic edge of the give way road marking (diagram 1003A, schedule 9, part 6, item 3 of the SI 2016/362 2016 [Ref 14.N]) as shown in Figure 3.15.

Figure 3.15 Visibility requirements at the exit from type A parking lay-bys without a merge taper

3.16 For type A parking lay-bys with a merge, the x distance shall be measured perpendicular to the mainline carriageway for the length of the merge, at a distance of 2.4 metres back from the mainline traffic side of the edge of carriageway marking (diagram 1010 schedule 11, part 4, item 10 of the SI 2016/362 2016 [Ref 14.N]) as shown in Figure 3.16.

Figure 3.16 Visibility requirements at the exit from type A parking lay-bys with a merge taper



3.17 For type B parking lay-bys, vehicles can exit the lay-by at any point along its length and therefore visibility shall be provided from a distance 2.4m back from the mainline traffic edge of the road marking to diagram 1010 (schedule 11, part 4, item 10) of the SI 2016/362 2016 [Ref 14.N] for the entire length of the lay-by parking area in both directions, see Figures 3.17Na and 3.17Nb.

NOTE *The visibility for road users exiting a type B lay-by are required in both directions as potentially road users can choose to leave the lay-by in either direction. See CD 109 [Ref 7.N] and shown in Figures 3.17Na and 3.17Nb.*

Figure 3.17Na Visibility requirements at the exit from a type B parking lay-by - nearside lane

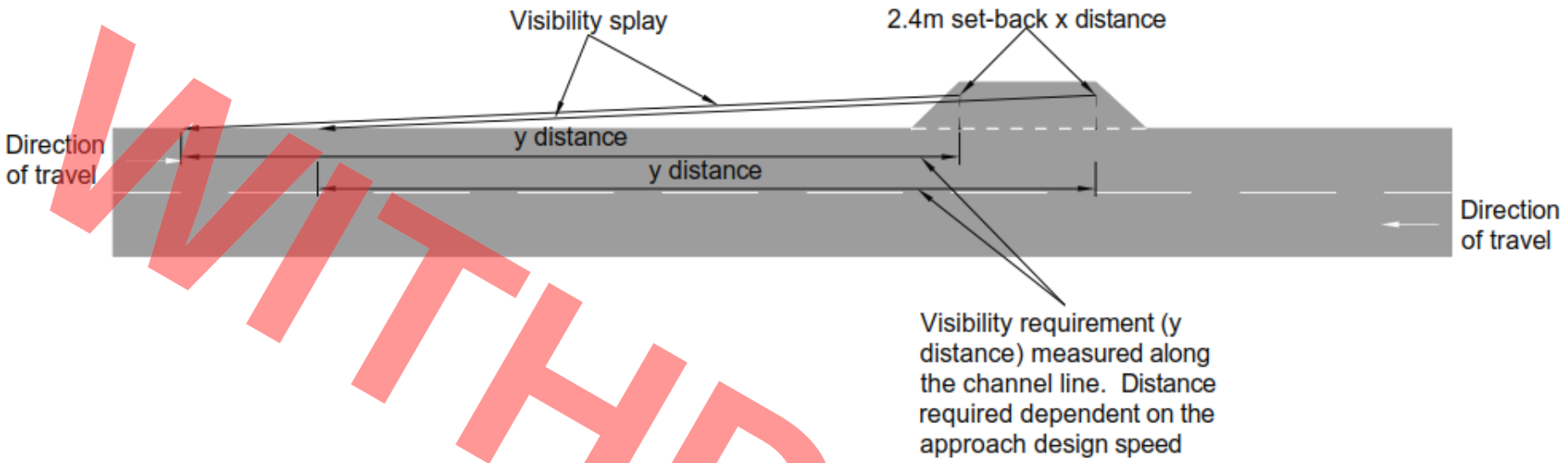


Figure 3.17Nb Visibility requirements at the exit from a type B parking lay-by - opposite lane

Wide single 2+1 roads

3.18 Parking lay-bys on wide single 2+1 (WS2+1) roads shall be type A - without merge taper layout (see Section 4).

3.19 Parking lay-bys on WS2+1 roads shall not be located within 375m of the start or end of a changeover and / or WS2+1 interface as defined in CD 109 [Ref 7.N].

3.20 Parking lay-bys on WS2+1 roads shall not be located within 375m of the outer extents of a junction as defined in CD 123 [Ref 3.N] or the entry and exit flare of a roundabout as defined in CD 116 [Ref 5.N].

NOTE *When measuring the distance between a parking lay-by and an adjacent changeover, WS2+1 interface or junction, the measurement to / from the lay-by is taken from the outer extents of the entry / exit.*

3.21 Parking lay-bys on WS2+1 roads shall only be sited on the same side of the carriageway as the overtaking lane section.

3.21.1 Parking lay-bys on WS2+1 roads should be provided for both directions of travel as recommended in the "Siting" section of this document.

NOTE *The need for parking-lay bys to be sited in both directions of travel is to minimise the likelihood of right turns from the single lane.*

4. Parking lay-bys

Lay-by types

4.1 Parking lay-bys shall be designed to one of the layouts listed in Table 4.1.

Table 4.1 Types of parking lay-by

Type A - with merge taper	incorporating a physical segregation island, but with a merge taper.
Type A - without merge taper	incorporating a physical segregation island.
Type B	without a segregation island.

4.2 Parking lay-by types shall be selected according to the road type and speed limit as shown in Tables 4.2a and 4.2b.

Table 4.2a Parking lay-by type on dual carriageway roads

Speed limit > 40mph	Speed limit ≤ 40mph
Type A - with merge taper.	Type A - without merge taper.

Table 4.2b Parking lay-by type on single carriageway roads

Speed limit	>40mph	≤ 40mph	
AADT	Any	> 8,000	≤ 8,000
Parking Lay-by type	Type A - without merge taper.	Type A - without merge taper.	Type A without a merge taper or type B.

4.2.1 On single carriageway roads, a type A parking lay-by without a merge taper layout should be used where the use of Table 4.2b gives a choice of either a type A parking lay-by without a merge taper, or a type B parking lay-by.

Layout of type A parking lay-bys

Requirements and advice applicable to all type A parking lay-bys

4.3 All type A parking lay-bys shall have a parking area that has a minimum width of 3.5 metres.

4.4 The length of a parking area for all type A parking lay-bys shall be a minimum of 45 metres.

4.4.1 Where the need for extra parking capacity has been identified, the length of the parking area should be extended beyond the minimum length requirement.

NOTE *Parking areas longer than the minimum requirement can be appropriate where:*

1) there is a high proportion of HGV traffic;
2) non-emergency stopping provision is limited on a route;
3) the parking lay-by is the final one on a route before a motorway or large urban area.

4.5 All type A parking lay-bys shall have 10 metre long tapers at the start and end of the parking area.

4.5.1 For all type A parking lay-bys there should be a kerb radius of 12 metres at both ends of the taper at the start of the parking area.

4.5.2 For all type A parking lay-bys there should be a kerb radius of 10 metres between the end of the parking area (adjacent to the footway) and the end taper.

4.6 All type A parking lay-bys shall have a running lane that is 3.5 metres wide where it is adjacent to the full width of the physical segregation island.

NOTE *Figure 4.6Na provides an illustration of a type A parking lay-by with a merge taper and Figure 4.6Nb provides an illustration of a type A parking lay-by without a merge taper.*

Figure 4.6Na Geometric layout of type A parking lay-by - with merge taper

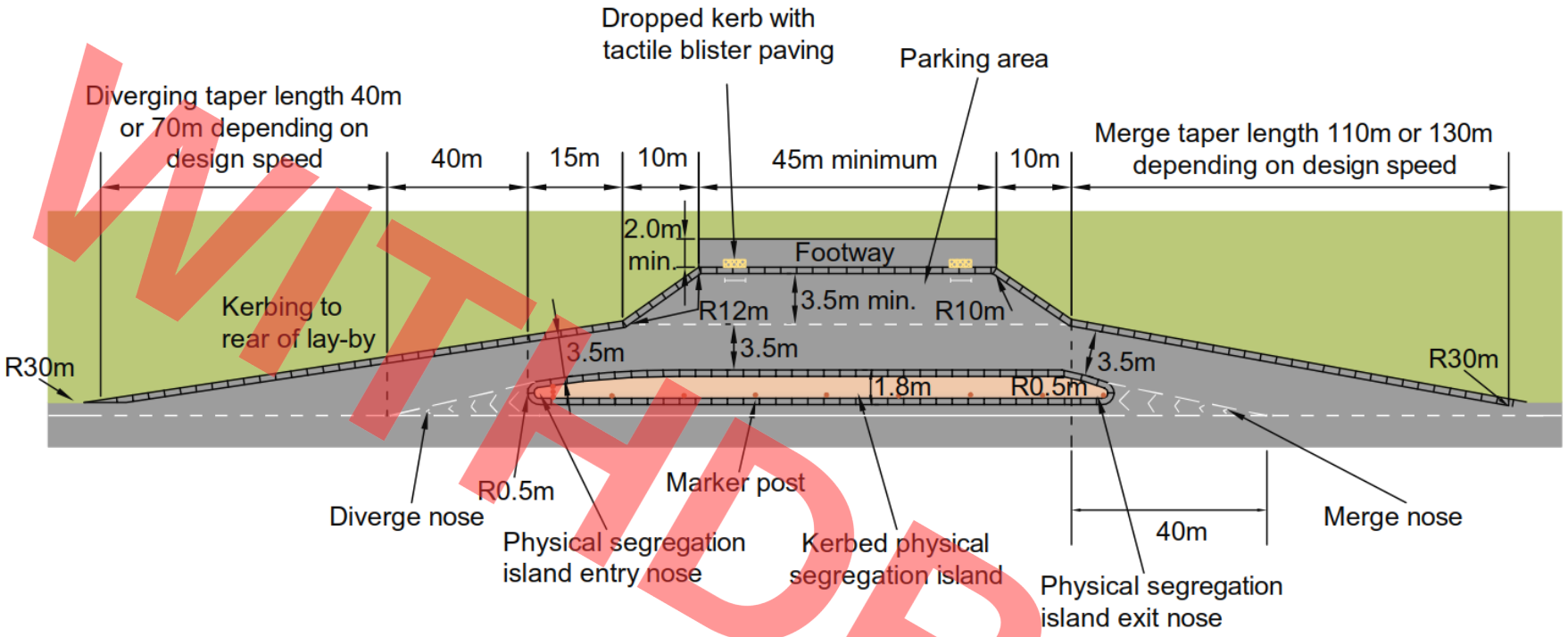
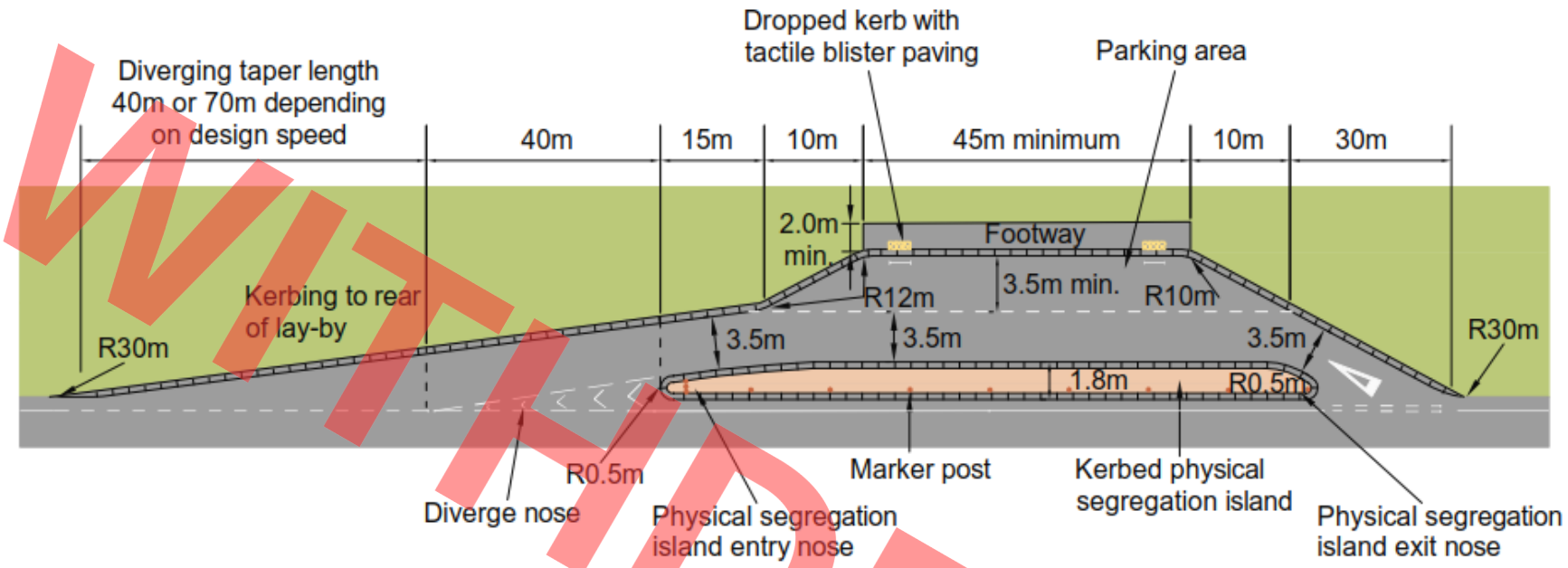


Figure 4.6Nb Geometric layout of type A parking lay-by - without merge taper



4.7 At the commencement of the diverge taper for all type A parking lay-bys the kerb radius shall be 30 metres.

4.8 All type A parking lay-bys shall have a diverge taper that is:

1) 40 metres long for roads with a design speed of 100 kph or less; or
2) 70 metres long for roads with a design speed of 120kph.

4.9 For all type A parking lay-bys, a diverge nose (formed using road markings) of 40 metres in length shall be provided (see Figures 4.6Na and 4.6Nb).

NOTE *The entry layout into all type A parking lay-bys provides a smooth transition from the mainline carriageway into the lay-by parking area.*

4.10 All type A parking lay-bys shall include a raised and kerbed physical island to segregate the lay-by from the mainline carriageway.

4.11 All type A parking lay-by physical segregation islands shall be 1.8 metres wide for a length equivalent to the length of the lay-by parking area.

4.12 Both ends of the physical segregation island provided at all type A parking lay-bys shall have a 0.5 metre radius.

4.13 The start of the physical segregation island shall extend 15 metres upstream of a point level with the commencement of the parking area (see Figures 4.6Na and 4.6Nb).

4.13.1 All type A parking lay-by physical segregation islands should commence with either profiled edges, or half batter kerbs laid flat to form an incline rising 70-110mm.

4.13.2 All type A parking lay-by physical segregation islands should have 45-degree batter kerbing provided on the outside of the island adjacent to the mainline carriageway.

NOTE *The kerbing on the commencement and outside edge of the physical segregation island allows for occasional overrun by long vehicles.*

4.14 All type A parking lay-by physical segregation islands shall have a hard surface with a colour that contrasts with the colour of the lay-by surfacing and mainline carriageway surfacing.

NOTE *Hard surfaces are provided for ease of maintenance and to withstand occasional overrun by long vehicles.*

4.15 All type A parking lay-by physical segregation islands shall include collapsible black and white marker posts with a red reflector to diagram 560 (schedule 2, part 6, item 2) of the SI 2016/362 2016 [Ref 14.N] installed along the island to increase its conspicuity.

4.16 Physical segregation island marker posts shall be spaced at maximum intervals of 4.5 metres measured centre to centre.

4.16.1 All type A parking lay-by physical segregation islands should also have a cluster of three marker posts transversely arranged to face on-coming traffic near the upstream / entry edge of the island (see Figures 4.6Na and 4.6Nb).

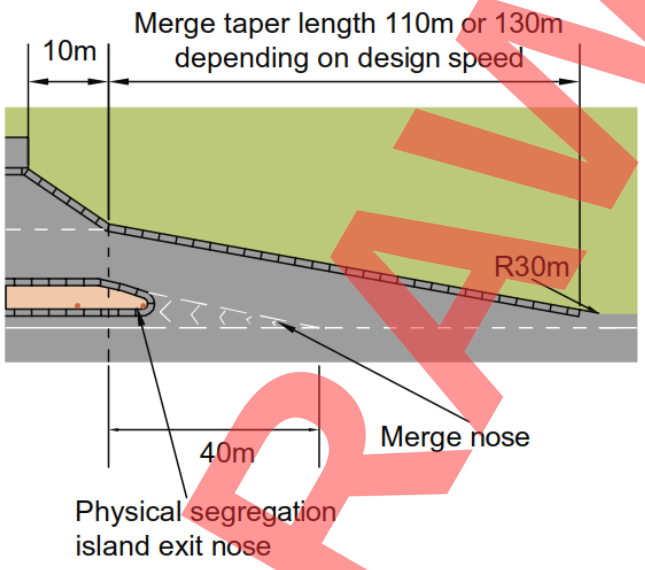
4.17 The height of marker posts installed on all type A parking lay-by physical segregation islands shall not exceed 0.6 metres above the surface of the adjacent carriageway.

Exit of a type A parking lay-by with a merge taper

4.18 Type A parking lay-bys with a merge taper shall include a hatched merge nose road marking at the end of the physical segregation island.

4.19 For a type A parking lay-by with a merge taper, the combined length of the tapered end of the physical segregation island and the merge nose road marking shall be 40 metres as illustrated in Figure 4.19.

Figure 4.19 Termination of physical segregation island and merge nose at type A parking lay-bys with a merge taper



4.20 For type A parking lay-bys with a merge taper, the merge taper length shall be:

1) 110 metres for roads with a design speed of 100 kph or less; or
2) 130 metres for roads width a design speed of 120 kph.

NOTE *The merge taper length accommodates the length of the merge nose road marking and the tapered end of the physical segregation island.*

4.21 For type A parking lay-bys with a merge taper, the kerb radius at the end of the merging length shall be 30 metres.

Exit of a type A parking lay-by without a merge taper

4.22 For type A parking lay-bys without a merge taper, a distance of 30 metres shall be provided between the end of the parking area taper and the edge of the mainline carriageway where the give way road markings terminate (see Figure 4.6Nb).

4.23 For type A parking lay-bys without a merge taper, a kerb radius of 30 metres shall be provided where the exit from the lay-by meets the mainline carriageway.

Layout of type B parking lay-bys

4.24 Type B parking lay-bys shall have a parking area that has a minimum width of 3.5 metres.

4.25 The length of the parking area for a type B parking lay-by shall be between a minimum of 30 metres and a maximum of 100 metres.

NOTE *Parking areas longer than the minimum requirement can be appropriate where:*

1) there is a high proportion of HGV traffic;
2) non-emergency stopping provision on a road is limited on the route;
3) the lay-by is the final one on a route before a motorway or large urban area.

4.26 The entry taper for a type B parking lay-by shall be 45 metres long.

4.27 The exit taper for a type B parking lay-by shall be 25 metres long.

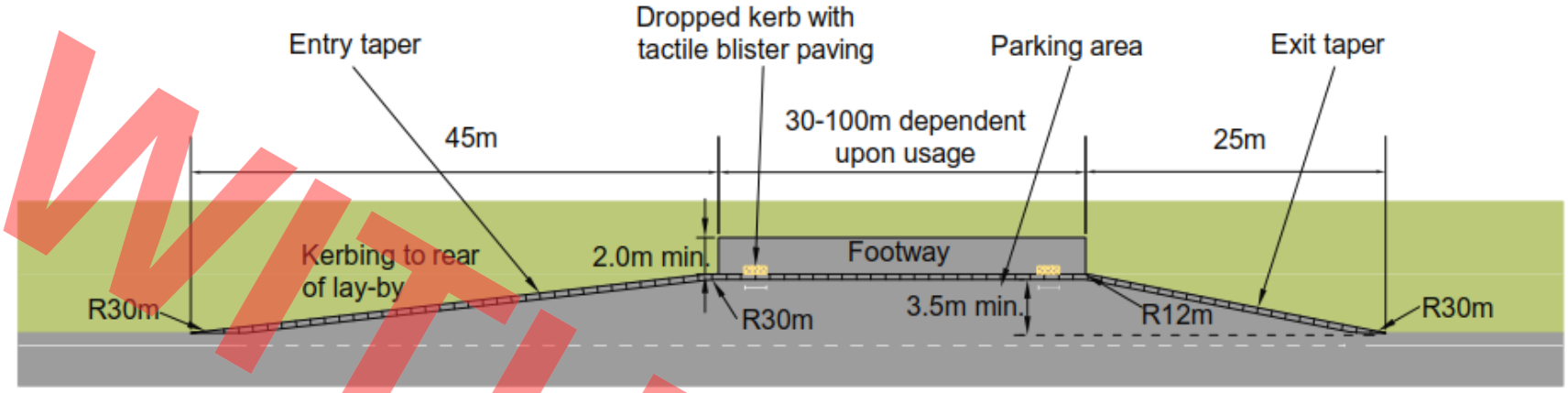
4.28 The kerb radius at the start of the entry and end of the exit taper of type B parking lay-bys shall be 30 metres.

4.29 The kerb radius at the end of the entry taper within the type B parking lay-by shall be 30 metres.

4.30 The kerb radius at the beginning of the exit taper within the type B parking lay-by shall be 12 metres.

NOTE *Figure 4.30N provides an illustration of a typical type B parking lay-by.*

Figure 4.30N Geometric layout of type B lay-by (to be used only on single carriageway roads with speed limits not exceeding 40 mph)



Traffic signs and road markings

Advance traffic signs

4.31 Advance traffic signs in accordance with diagram 2501 (schedule 11, part 2, item 55) or diagram 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] shall be erected at least 800 metres before the entrance into a parking lay-by.

4.32 Advance traffic sign in accordance with diagram 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] shall only be used where a parking lay-by incorporates an ERT.

4.33 Where parking lay-bys are located at irregular intervals, or the distance between them is greater than that indicated in Table 2.2.4, additional traffic signs in accordance with diagram 2501 (schedule 11, part 2, item 55) or 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] shall be used at intervals of not less than 3.2km (2 miles).

4.34 An informatory sign in accordance with diagram 801 (schedule 11, part 2, item 56) (parking place) or diagram 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] shall be provided at the start of the parking lay-by entry taper.

NOTE 1 *Where a sign to diagram 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] is provided at the start of the parking lay-by entry taper, the distance and arrow symbols are excluded.*

NOTE 2 *Traffic signs and road markings for the different parking lay-by types are illustrated in Figure 4.34N2a, Figure 4.34N2b and Figure 4.34N2c.*

Figure 4.34N2a Traffic signs and road markings for a type A parking lay-by - without merge taper

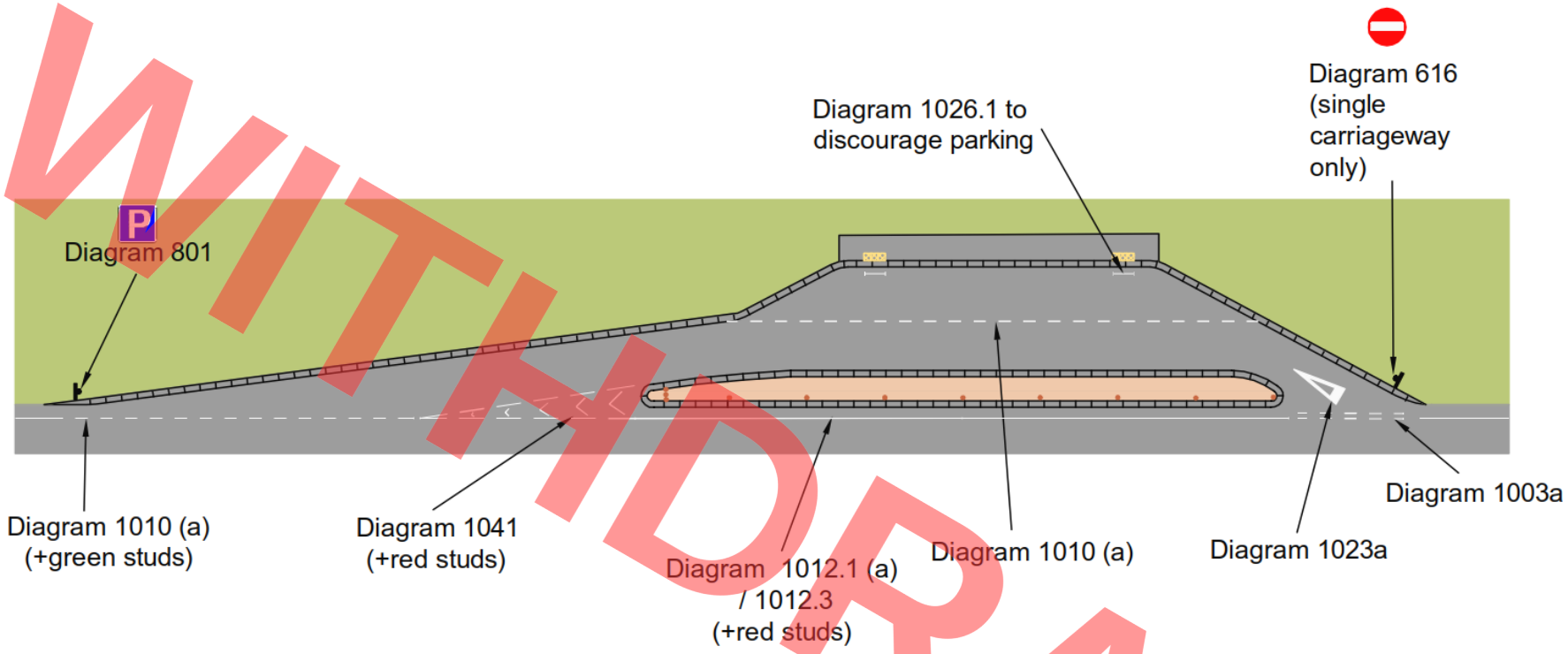


Figure 4.34N2b Traffic signs and road markings for a type A parking lay-by - with merge taper

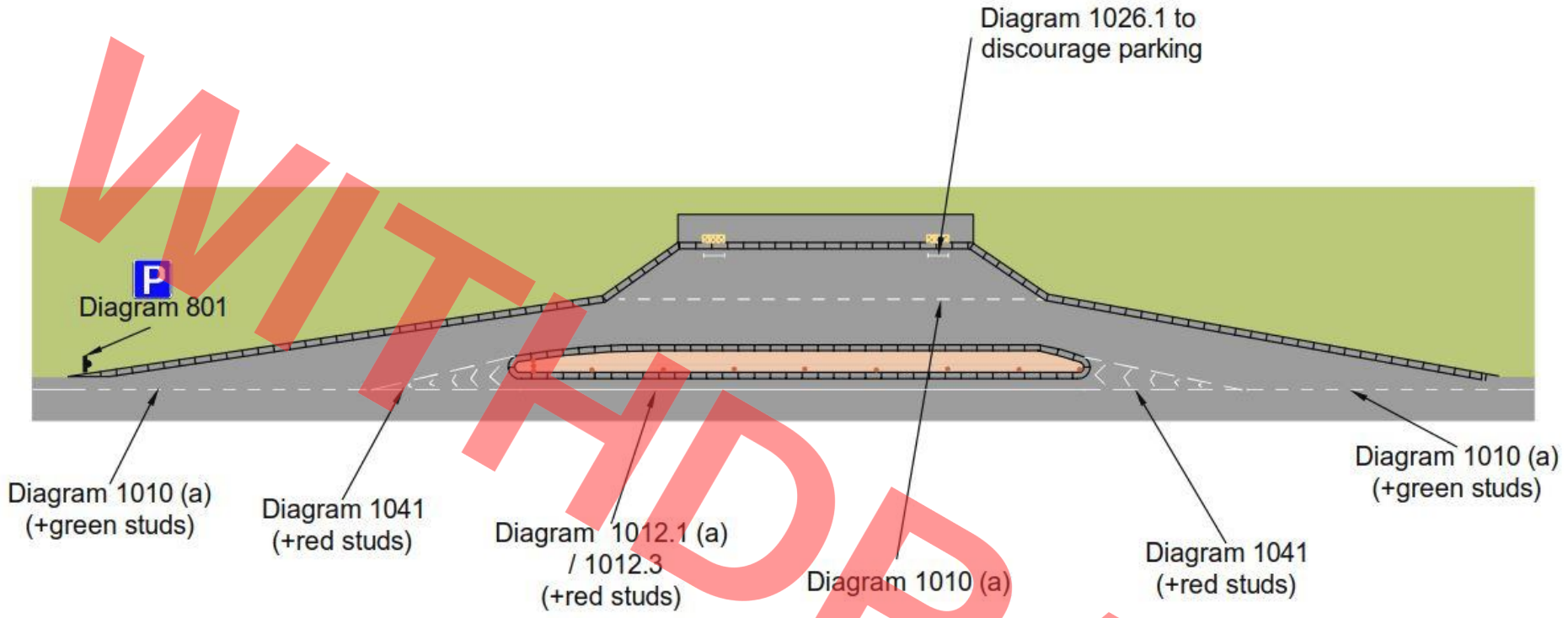
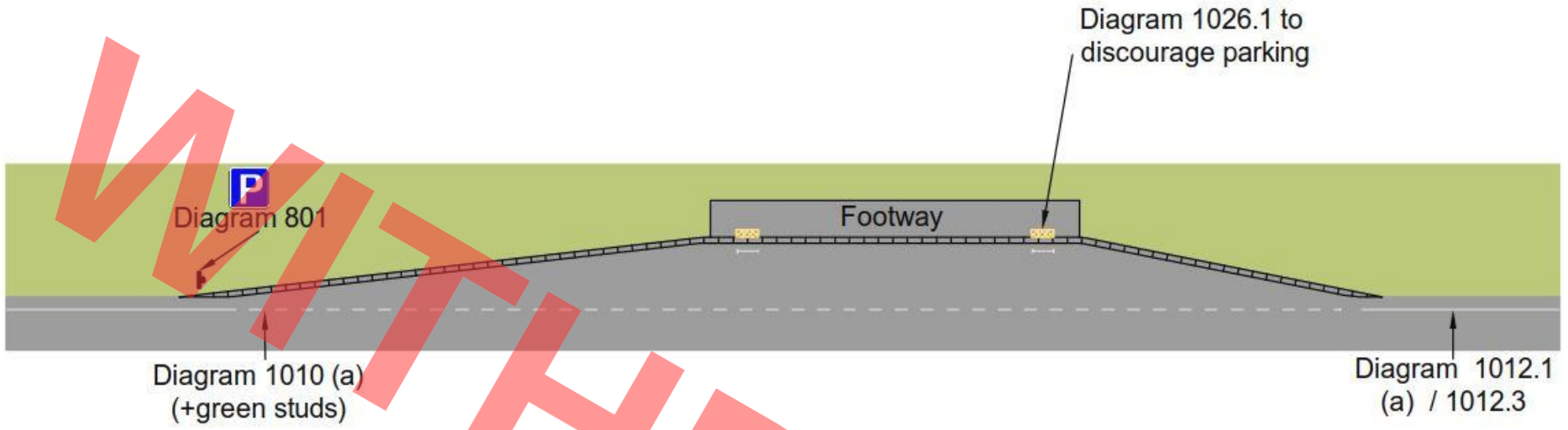


Figure 4.34N2c Traffic signs and road markings for a type B parking lay-by



Road studs

4.35 Reflective green road studs shall be installed across the entries of all type A parking lay-bys and for the full length of type B parking lay-bys.

4.36 Where there is an edge of carriageway road marking on the mainline carriageway, reflective red road studs shall be used in conjunction with the road marking adjacent to the segregation island for all type A parking lay-bys.

4.37 Reflective red road studs shall be used in the hatched nosing on the entry to all type A parking lay-bys and on the exit from type A parking lay-byes with a merge.

NOTE 1 *Guidance on the provision of road studs is provided within TSM Chapter 5 [Ref 16.N].*

NOTE 2 *Road stud provision for the different lay-by types is illustrated in Figure 4.34N2a, Figure 4.34N2b and Figure 4.34N2c.*

Road markings and traffic signs

4.38 For all type A parking lay-bys, the approach to the physical segregation island shall be provided with diverge nose chevron road markings in accordance with diagram 1041 (schedule 11, part 4, item 27) of the SI 2016/362 2016 [Ref 14.N] (see Figures 4.6Na, 4.6Nb, 4.34N2a and 4.34N2b).

4.39 Bifurcation arrow road markings shall not be used on the mainline carriageway adjacent to any type of parking lay-by.

NOTE *Bifurcation arrow road markings are not used as they could mislead road users into thinking the parking lay-by is a junction exit.*

4.40 Road markings in accordance with diagram 1010 (schedule 11, part 4, item 10) of the SI 2016/362 2016 [Ref 14.N] shall be provided at the entry to all type A parking lay-bys and across the full length of type B parking lay-bys.

4.41 Road markings in accordance with diagram 1010 (schedule 11, part 4, item 10) of the SI 2016/362 2016 [Ref 14.N] shall be provided on the exit from type A parking lay-bys with a merge taper.

4.42 Give way road markings in accordance with diagram 1023A (schedule 9, part 6, item 4) and the double broken white line in accordance with diagram 1003A (schedule 9, part 6, item 3) of the SI 2016/362 2016 [Ref 14.N] shall be provided on the exit from type A parking lay-bys without a merge taper.

4.43 A 'No Entry' sign in accordance with diagram 616 (schedule 3, part 2, item 10) of the SI 2016/362 2016 [Ref 14.N] and in conjunction with a traffic regulation order, shall be provided at the exit of a type A lay-by without a merge taper on single carriageway roads (see Figure 4.34N2a).

NOTE *'No Entry' traffic signs in accordance with diagram 616 (schedule 3, part 2, item 10) of the SI 2016/362 2016 [Ref 14.N] are to be placed so that they face mainline carriageway traffic.*

4.44 The centre line warning road marking in accordance with diagram 1004 (schedule 11, part 4, item 2) or 1004.1 (schedule 11, part 4, item 3) of the SI 2016/362 2016 [Ref 14.N] shall be used on both approaches and adjacent to parking lay-bys on 2 lane single carriageway roads.

NOTE *The centre line warning road marking is provided to discourage overtaking in the vicinity of the parking lay-by.*

Footway, kerbing and surfacing

4.45 Parking lay-bys shall have a raised footway with a minimum width of 2 metres adjacent to the lay-by parking area.

NOTE *Requirements and advice for the design of footways is provided in CD 239 [Ref 2.N].*

4.46 The edge of the carriageway pavement in all parking lay-bys shall be kerbed with half batter kerbs.

4.47 In the absence of existing roadside kerbing upstream of a parking lay-by, the kerbing within the parking lay-by shall start within the approach taper using a dropped kerb initially leading to half batter kerbing.

4.48 The parking area surface within all parking lay-bys shall be resistant to oil and diesel spillage.

4.49 Parking lay-bys shall include a length of dropped kerbing at the start and end of the parking area to allow pedestrians to access the footway (see Figures 4.6Na, 4.6Nb and 4.30N).

NOTE *Details for the layout of dropped kerbs are provided in Inclusive Mobility [Ref 8.N].*

4.49.1 To discourage parking at the location of a dropped kerb within a parking area, a road marking in accordance with diagram 1026.1 (schedule 11, part 4, item 17) of the SI 2016/362 2016 [Ref 14.N] should be provided.

Street lighting

4.50 On roads with a system of street lighting, parking lay-bys shall be illuminated to the same standard as the mainline carriageway.

4.51 Street lighting columns shall not be located on parking lay-by physical segregation islands.

Emergency roadside telephones

4.52 Where an ERT is provided at a parking lay-by it shall be located at the back of the footway adjacent to a length of dropped kerbs.

NOTE 1 *Requirements and advice for ERTs are provided in TD 131 [Ref 1.I].*

NOTE 2 *ERTs can be introduced in any parking lay-by without it being designated for emergency use only.*

4.53 Where an ERT is being proposed for a parking lay-by and there is a lay-by located on the opposite side of the road or within close proximity on the adjacent carriageway, ERTs shall be installed in both lay-bys.

Facilities for trading

4.54 Facilities for trading shall not be permitted within type B parking lay-bys.

NOTE 1 *Lay-bys used for trading are based on the siting and layout requirements and advice for type A parking lay-bys identified in this document.*

NOTE 2 *See Figure 4.54N2 for an illustrative layout of a type A parking lay-by with a trading facility.*

Figure 4.54N2 Geometric layout of type A parking lay-by with a trading facility

Provision for cycle traffic

4.55 Where a parking lay-by is proposed on a road with a speed limit of 40mph or above and there is a cycle facility, the cycle facility shall become a cycle track and divert around the back of the parking lay-by and its footway.

NOTE 1 *The cycle track at lay-bys provides a continuous facility that does not require cyclists to dismount.*

NOTE 2 *Requirements and advice for cycle design is provided in CD 195 [Ref 1.N].*

4.56 Where a parking lay-by is proposed on a road with a speed limit of 30mph or below, where there is space and where there is a cycle facility, the cycle facility shall become a cycle track and be diverted around the back of the parking lay-by and its footway.

4.56.1 Where the road has a speed limit of 30mph or less and there is insufficient space to provide a cycle track, the cycle lane markings may continue on the carriageway adjacent to the parking lay-by as an advisory cycle lane.

NOTE *Requirements and advice for cycle lane design is provided in CD 195 [Ref 1.N].*

5. Bus lay-bys

General

5.1 The geometric parameters in this section shall apply to new and improved bus lay-bys on single and dual carriageway all-purpose trunk roads.

NOTE *Siting requirements and advice for bus lay-bys are provided in Section 3 of this document.*

5.2 The full width stopping area of a bus lay-by shall be a minimum of 3.5 metres wide.

5.3 The kerb radius at both ends of the entry taper and the downstream end of the exit taper shall be 30 metres.

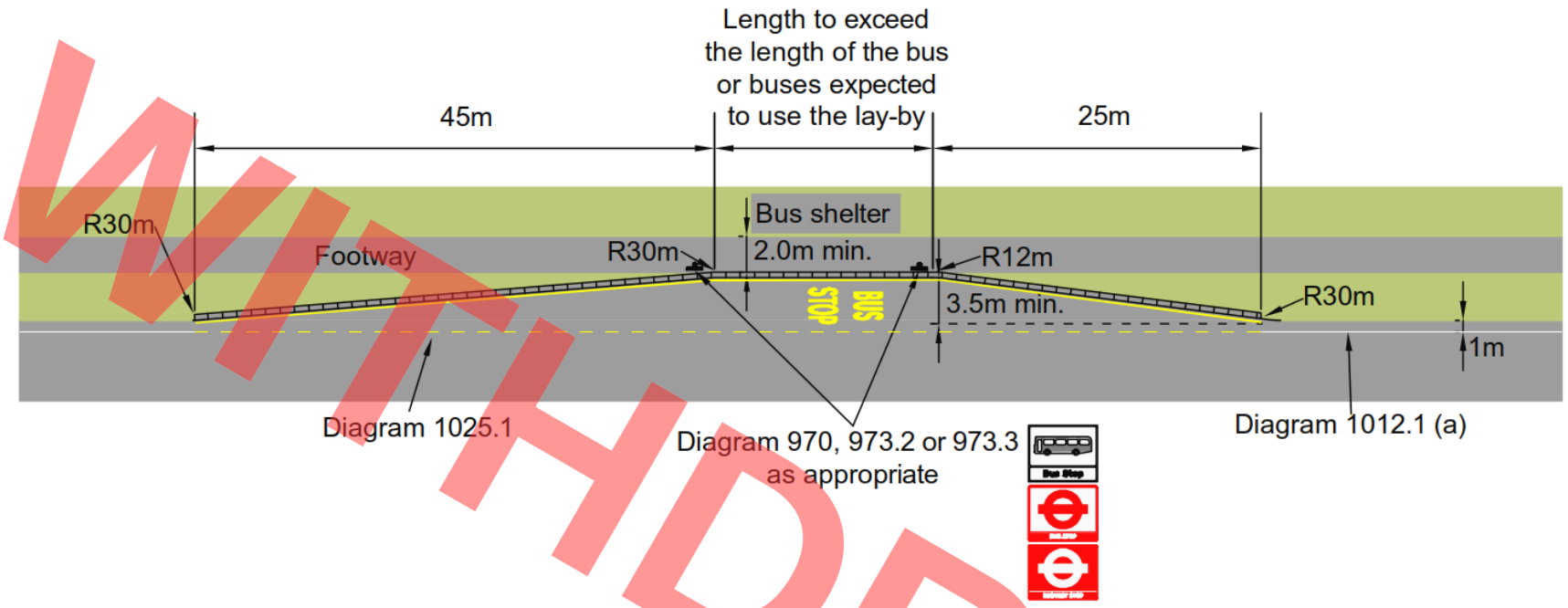
5.4 Bus lay-bys shall have a 45 metre long diverge taper.

5.5 Bus lay-bys shall have a 25 metre long merge taper.

5.6 The kerb radius at the upstream end of the exit taper within the bus lay-by shall be 12 metres.

NOTE *Figure 5.6N shows an illustrative layout of a bus lay-by.*

Figure 5.6N Geometric layout of a bus lay-by



5.7 The length of the full width stopping area within a bus lay-by shall exceed the length necessary to accommodate the bus or buses (if more than one bus is likely to use the lay-by at any one time) expected to use the lay-by.

NOTE *The length of the full width stopping area within the bus lay-by needs to exceed the length of a bus or buses to ensure that a stationary bus does not encroach onto the carriageway.*

5.8 A bus lay-by shall have a raised boarding area that is both:

1) located at the position where passengers board and alight the bus; and
2) extends to the back of the footway.

5.9 The raised boarding area for a bus lay-by shall be a minimum of 3 metres long.

5.9.1 The length of the raised boarding area of a bus lay-by should accommodate the anticipated peak numbers of passengers waiting at the stop.

5.10 The kerb height of the boarding area shall be agreed with the local highway authority or passenger transport authority and the relevant bus operator(s).

5.10.1 Local disability groups should be consulted on the boarding area layout and the kerb height.

5.11 A footway with a minimum width of 2 metres shall be provided adjacent to a bus lay-by.

5.11.1 If a bus stop shelter is provided at the bus lay-by, the bus stop shelter should not obstruct the footway.

NOTE 1 *Requirements and advice for cycle provision at bus stops and bus lay-bys is provided within CD 195 [Ref 1.N].*

NOTE 2 *The DfT Inclusive Mobility [Ref 8.N] provides advice on additional infrastructure for bus lay-bys and information regarding appropriate walking distances to bus stops.*

Traffic signs and road markings

5.12 Road markings in accordance with diagram 1025.1 (Schedule 7, Part 4, Item 9) SI 2016/362 2016 [Ref 14.N] shall be used across the full length of the bus lay-by.

5.13 Traffic signs in accordance with diagram 970 (Schedule 11, Part 2, Item 76) or diagram 973.2 or 973.3 (Schedule 11, Part 2, Item 77) of the SI 2016/362 2016 [Ref 14.N] shall be positioned at the front of the footway at both ends of the full width stopping area.

6. Emergency lay-bys

General

6.1 Emergency lay-bys shall not be provided on motorways.

6.1.1 Emergency lay-bys may be provided on all-purpose single or dual carriageway roads.

NOTE *Siting requirements and advice for emergency lay-bys are provided in Section 3 of this document.*

6.1.2 Emergency lay-bys should only be provided where providing or retaining a parking lay-by could result in a safety or a operational issue and there is a need to prohibit road users from non-emergency stops.

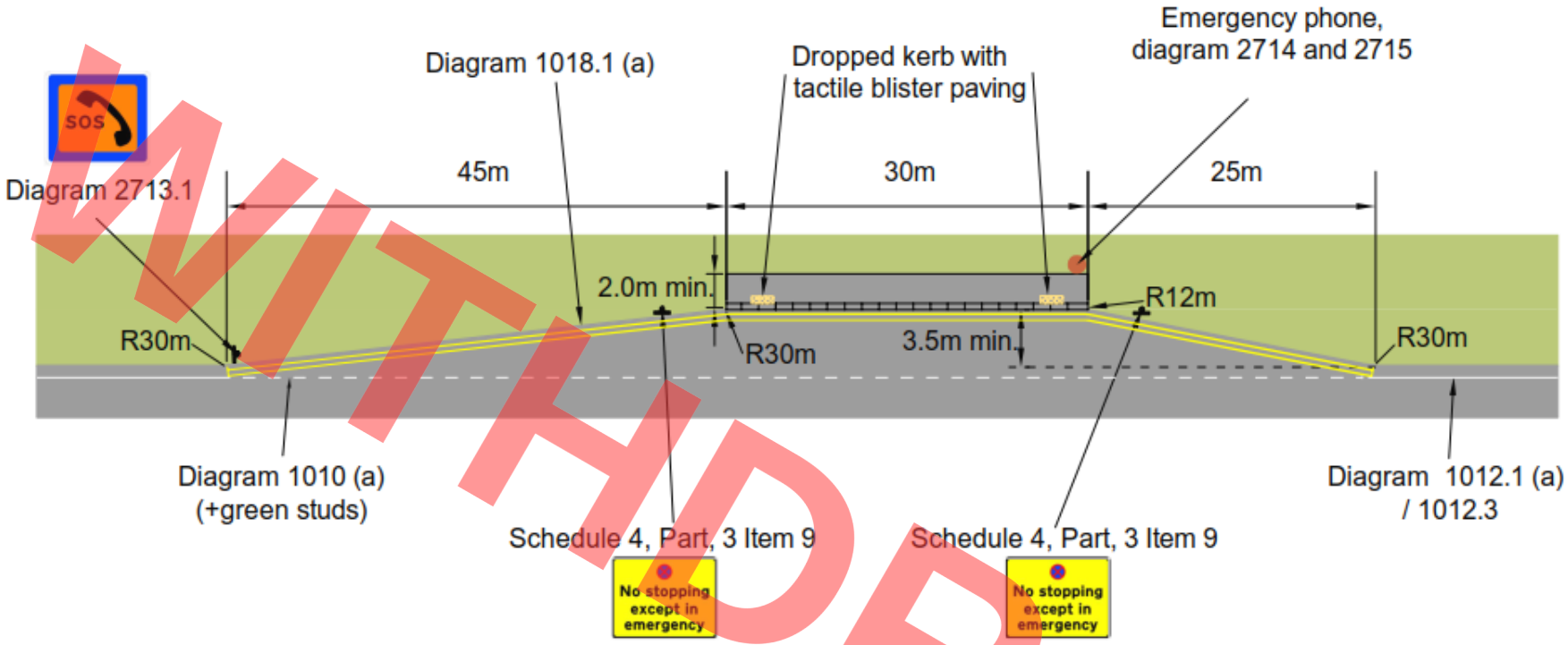
6.2 The length of the full width parking area within an emergency lay-by shall be 30 metres.

NOTE 1 *With the exception of the length of the parking area, emergency lay-bys have the same geometric layout requirements as type B parking lay-bys detailed in section 4 of this document ("Layout of type B parking lay-bys").*

NOTE 2 *Emergency lay-bys include additional traffic signs and road marking as identified in the below sub section "Traffic signs and road markings" .*

NOTE 3 *Figure 6.2N3 shows an illustrative layout of an emergency lay-by.*

Figure 6.2N3 Geometric layout of emergency lay-by



Emergency roadside telephones

6.3 Where an emergency lay-by has an ERT, the ERT shall be located adjacent to a length of dropped kerbs.

6.3.1 Where ERTs are provided they should include traffic signs in accordance with diagrams 2714 (schedule 11, part 2, item 59) and 2715 (schedule 11, part 2, item 60) of the SI 2016/362 2016 [Ref 14.N].

NOTE *Requirements and advice for ERTs are provided in TD 131 [Ref 1.I].*

Traffic signs and road markings

6.4 Where an emergency lay-by includes an ERT, a traffic sign in accordance with diagram 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] shall be erected at least 800 metres upstream of the start of the entry taper of the emergency lay-by to give advance warning to road users.

6.5 Where an emergency lay-by includes an ERT, a traffic sign to diagram 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] but with no distance indicated, shall be erected at the start of the entry taper of the emergency lay-by.

6.6 Where traffic signs to diagram 2713.1 (schedule 11, part 2, item 57) of the SI 2016/362 2016 [Ref 14.N] are used for an emergency lay-by, the "P" symbol shall be omitted from the sign face.

NOTE *For more information on traffic signs for emergency lay-bys see TSM Chapter 3 [Ref 15.N].*

6.7 Road markings in accordance with diagram 1010 (schedule 11, part 4, item 10) of the SI 2016/362 2016 [Ref 14.N] shall be provided across the full length of the emergency lay-by.

6.8 Reflective green road studs shall be installed across the full length of the emergency lay-by.

NOTE *Guidance on the provision of road studs is provided within TSM Chapter 5 [Ref 16.N].*

6.9 To discourage general parking within an emergency lay-by, a traffic regulation order prohibiting non-emergency use of the lay-by shall be obtained.

6.10 A regulatory sign shall be placed at the back of the emergency lay-by facing the parking area to prohibit non-emergency stopping (schedule 4, part 3, item 9 of the SI 2016/362 2016 [Ref 14.N]).

6.11 Road markings in accordance with diagram 1018.1 (schedule 7, part 4, item 1) of the SI 2016/362 2016 [Ref 14.N] shall be provided along the whole length of the emergency lay-by.

7. Maintenance hardstandings

Location

7.1 Maintenance hardstandings shall only be provided where one or more of the following operational needs have been identified:

1) to provide a works area and working space to undertake maintenance activities on the road or highway infrastructure;
2) to provide a place of safety from which to install, maintain or remove temporary traffic management; and/ or
3) to provide a safe parking location for works vehicles prior to their use for mobile works.

NOTE 1 *Maintenance hardstandings can be constructed on motorways or all-purpose trunk roads.*

NOTE 2 *For specific requirements and advice on maintenance provision for smart motorways and expressways see GD 300 [Ref 10.N] and IAN 161 [Ref 12.N] respectively.*

7.1.1 Where a particular maintenance activity can take place without the need to exclude the public from the area of the works, an existing parking lay-by or an emergency lay-by should be used.

7.1.2 Where an emergency lay-by is to be utilised by maintenance vehicles and personnel, any associated Traffic Regulation Orders should be amended to legally allow the parking of maintenance vehicles.

7.1.3 Maintenance hardstandings should be located as close as possible to the feature being maintained.

Visibility

7.2 Unobstructed visibility shall be provided for users exiting a maintenance hardstanding using a visibility splay formed using an x and y distance as described below:

1) x distance - a point 2.4m set-back into the maintenance hardstanding from the edge of the running carriageway, or from the back of hard strip or hard shoulder where one is provided, for the entire length of the maintenance hardstanding; and
2) y distance - a measurement along the nearside edge of carriageway, that corresponds to the CD 109 [Ref 7.N] desirable minimum stopping sight distance for the design speed of the mainline road.

NOTE *Visibility is measured for the entire length of the maintenance hardstanding as vehicles can exit at any point along its length.*

7.3 Visibility at maintenance hardstanding shall be provided across the full width of the approaching carriageway.

7.4 For single carriageway roads the visibility requirements from the maintenance hardstanding shall apply in both directions of travel.

NOTE *The visibility for users exiting a maintenance hardstanding is required in both directions of travel on single carriageway roads as potentially users can choose to leave the the maintenance hardstanding in either direction.*

7.5 Where a maintenance hardstanding is provided adjacent to a roundabout circulatory carriageway, the circulatory carriageway visibility requirements identified in CD 116 [Ref 5.N] shall be extended to include the maintenance hardstandings.

7.6 On the approach to a maintenance hardstanding, visibility corresponding to the desirable minimum stopping sight distance for the design speed of the road shall be provided along the mainline.

7.7 Both the Overseeing Organisation and Maintaining Organisation shall be consulted with regards to the preferred locations for maintenance hardstandings.

Choice of layout

7.8 Maintenance hardstandings shall be designed to accommodate both:

1) the largest vehicle expected to use them, and;
2) the number of vehicles anticipated to use them at any one time.

7.9 Maintenance hardstandings shall have space for maintenance personnel to move safely around their parked vehicle, together with any necessary tools or equipment.

NOTE *Safety zones as described in TSM Chapter 8 [Ref 17.N] need to be taken into account when determining the necessary space to allow personnel to safely move around the maintenance hardstanding.*

7.10 Both the Overseeing Organisation and Maintaining Organisations shall be consulted with regards to the layout of the maintenance hardstandings.

7.10.1 There are three basic layouts that may be used for maintenance hardstandings:

1) a layout based on an emergency lay-by (as illustrated in Figure 6.2N3 with changes to traffic signing and road markings as identified below);
2) a simple maintenance hardstanding (as illustrated in Figure 7.10.1a); or
3) a maintenance hardstanding including vehicle restraint system (as illustrated in Figure 7.10.1b).

Figure 7.10.1a Geometric layout of simple maintenance hardstanding

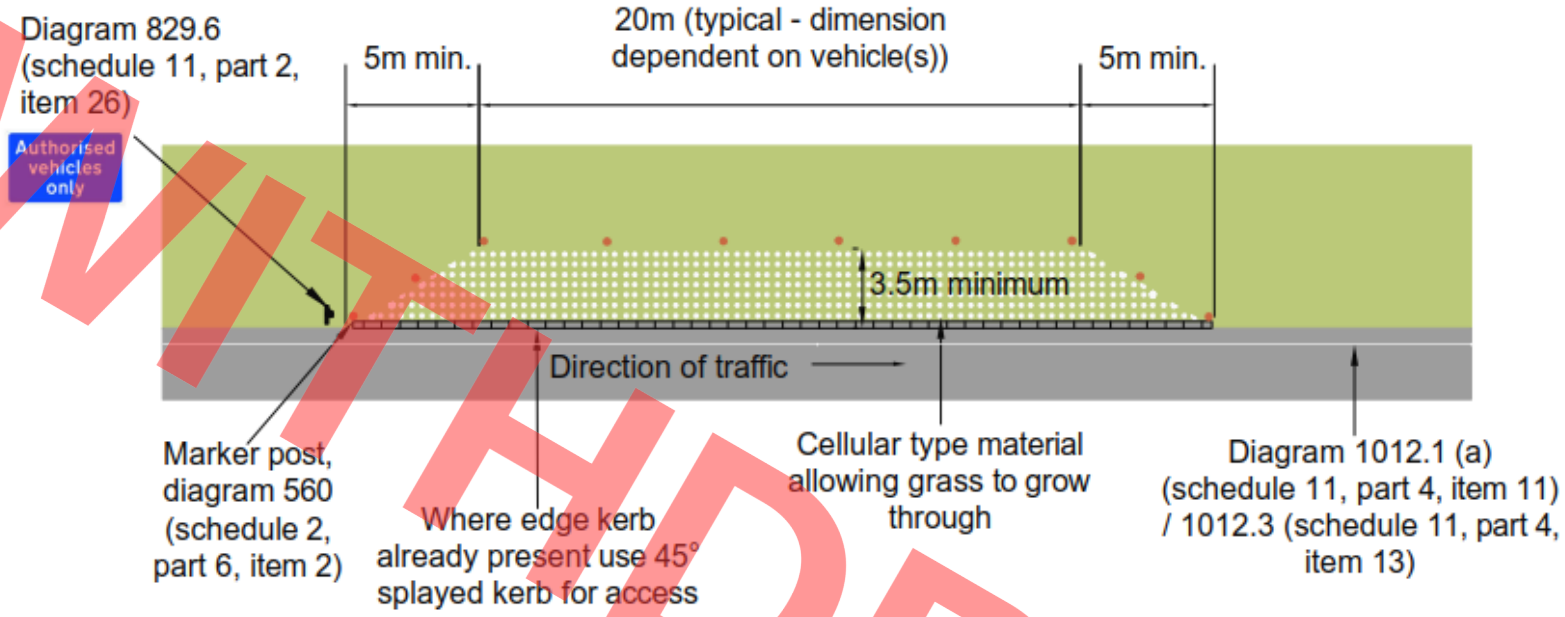
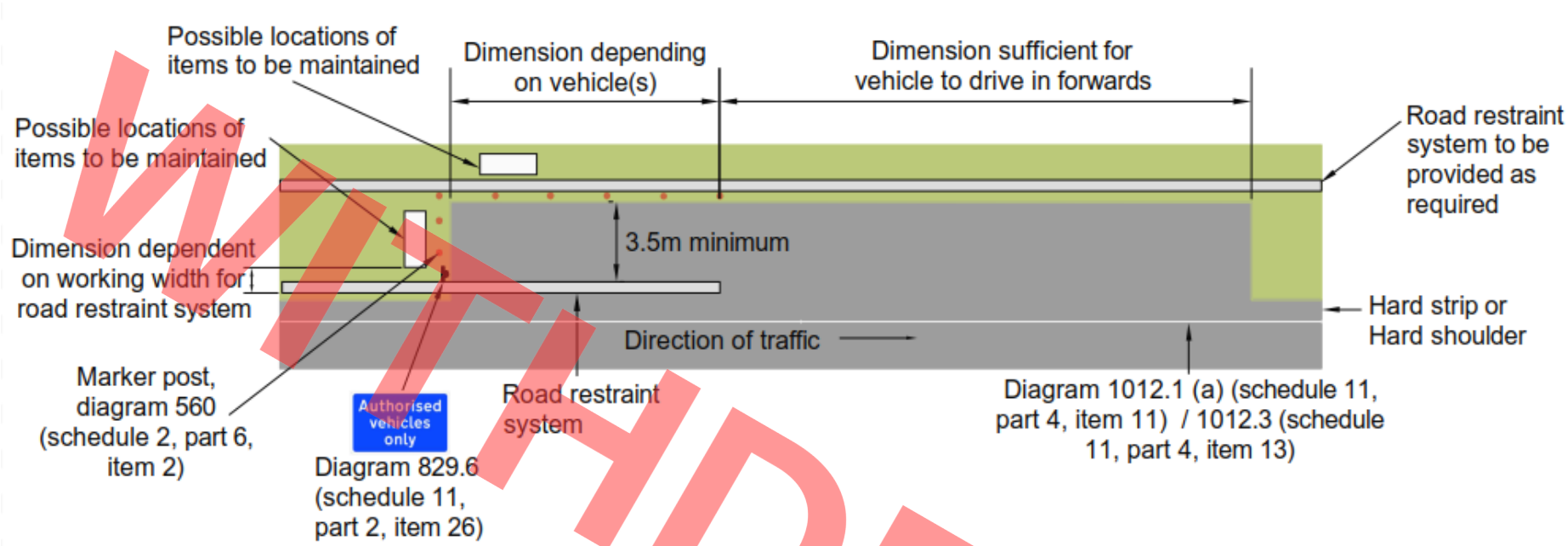


Figure 7.10.1b Geometric layout of maintenance hardstanding where the feature to be mainained requires a road restraint system



NOTE *Examples of situations where maintenance hardstanding layouts can be used are shown in Table 7.10.1N.*

Table 7.10.1N Examples of layouts for maintenance hardstandings

Layout type	Road type	Feature being maintained requires a road restraint system?	Example of use
Layout based on an emergency lay-by (see Figure 6.2N3) with appropriate changes to traffic signing and road markings	Single or dual carriageway all-purpose road	No	General maintenance
Simple maintenance hardstanding	Single or dual carriageway all-purpose road	No	Mobile lane closures
Maintenance hardstanding including vehicle restraint system	Single or dual carriageway all-purpose road or motorway	Yes	Maintenance of variable message signs

7.11 The maintenance hardstanding shall be long enough to allow the vehicle to leave the mainline in forward gear and stop safely without the need to reverse along the mainline carriageway or the hard shoulder.

7.11.1 Where a maintenance hardstanding area is to be provided within a grass verge, the hardstanding area may be constructed using a strengthened cellular type material.

NOTE *A strengthened verge made of cellular type material allows grass to grow through it which makes the maintenance hardstanding less obvious to general road users.*

Traffic signs and road markings

7.12 For maintenance hardstandings a traffic sign to diagram 829.6 (schedule 11, part 2, item 26) "Authorised vehicles only" of the SI 2016/362 2016 [Ref 14.N] shall be provided.

7.12.1 Marker posts with signs to diagram 560 (schedule 2, part 6, item 2) of the SI 2016/362 2016 [Ref 14.N] should be provided along the back edge of the facility at intervals of 4.5 metres in order to identify the location of the maintenance hardstanding.

7.12.2 The appropriate regulatory signs ('No stopping except in an emergency') in accordance with schedule 4, part 1, item 1 and schedule 4, part 3, item 9 of the SI 2016/362 2016 [Ref 14.N] should be placed at the back of the maintenance hardstanding.

NOTE *Double yellow lines to diagram 1018.1 (schedule 7, part 4, item 1) of the SI 2016/362 2016 [Ref 14.N] can be used on all purpose trunk roads to supplement regulatory signs to discourage public use.*

7.12.3 Where there is a need to discourage public use of paved maintenance hardstandings, a traffic regulation order should be obtained to allow the enforcement of parking restrictions.

8. Rest areas (excluding expressways)

Siting

8.1 The access and egress arrangements for rest areas shall be designed in accordance with either:

1) CD 123 [Ref 3.N] Geometric design of at-grade priority and signal controlled junctions; or
2) CD 122 [Ref 4.N] Geometric design of grade separated junctions, except that a one step relaxation in stopping sight distance and horizontal curvature is permitted on diverge slip roads.

8.1.1 Rest areas should not be sited at locations where they have the potential to become a destination, or near high trip generators (e.g. tourist attractions or public transport interchanges) unless separate parking is provided to service such developments.

NOTE *Rest areas provide a location for road users to rest whilst on a journey and inappropriate use of rest area parking by other road users accessing nearby facilities can lead to capacity issues.*

8.2 Rest area junctions shall not be located on mainline gradients in excess of the desirable maximum gradients in accordance with CD 109 [Ref 7.N] Highway link design.

8.3 Rest area junctions shall not be provided within one kilometre of the end of a section of dual carriageway.

8.4 The separation between a rest area access and a priority junction or direct access (excluding field accesses), both upstream and downstream, shall be at least 3.75V metres where V is the design speed in kph.

NOTE *For the separation distance between a rest area access / egress and a grade separation junction see CD 122 [Ref 4.N].*

8.4.1 Rest areas should be provided in a left-right stagger configuration.

8.4.2 Where it is not possible to pair rest area sites in a left-right stagger configuration, advance signs for the next easily available nearside site should be provided to reduce the likelihood of road users using one on the opposite side of the road.

8.5 Rest areas and their associated advance signing shall not be positioned so that junctions, direct accesses (excluding field accesses) or emergency areas are located between the rest area advance signing and the rest area itself.

9. Motorway service areas

Access and siting arrangements

9.1 Access / egress from MSAs shall either be:

1) directly to / from the mainline carriageway using a new junction arrangement in accordance with CD 122 [Ref 4.N] Geometric design of grade separated junctions, except that a one step relaxation in stopping sight distance and horizontal curvature is permitted on MSA diverge slip roads, or;
2) via a connection from an existing grade separated junction.

NOTE *MSA junctions are subject to the same spacing and weaving length requirements as provided in CD 122 [Ref 4.N].*

9.1.1 MSAs should not be sited at locations where they have the potential to become a destination, or near high trip generators (e.g. tourist attractions or public transport interchanges) unless separate parking is provided to service such developments.

NOTE *MSAs provide a location for road users to rest whilst on a journey and inappropriate use of MSA parking areas by other road users accessing adjacent facilities can lead to capacity issues.*

9.1.2 Measures should be taken to reduce any 'see through' effects when looking from a diverge slip to the merge slip or internal road system of the MSA.

NOTE *Measures to reduce the 'see through' effect can include the use of suitable landscaping or screening on traffic islands or within the service area site itself.*

9.2 MSA junctions shall not be located on mainline gradients in excess of the desirable maximum gradients in accordance with CD 109 [Ref 7.N].

9.3 High containment kerbs shall not be used on MSA slip roads.

Street lighting

9.4 Where the mainline is lit, then the MSA slip roads shall be lit.

9.5 Where the mainline is not lit, the MSA lighting shall:

1) commence at the back of the diverge nose;
2) be terminated prior to the back of the merge nose.

9.5.1 MSA lighting should not cause lighting spillage onto the mainline or onto environmentally sensitive areas.

Traffic signs

9.6 Traffic signs informing road users of the presence of a MSA shall be provided in accordance with SI 2016/362 2016 [Ref 14.N] both in advance of the facility and at the MSA junction.

NOTE *Further information regarding MSA traffic signing for the Strategic Road Network in England can be found in Signing of Roadside Facilities [Ref 6.N].*

9.7 MSAs and their associated advance signing shall not be positioned so that junctions, accesses or emergency areas are located between the MSA advance signing and the MSA diverge slip road.

9.8 End of motorway regulation signs shall be provided at the end of the diverge connector road in accordance with diagram 2932 (schedule 9, part 4 item 16) of the SI 2016/362 2016 [Ref 14.N].

9.9 Motorway regulation signs shall be provided at the start of the merge connector road in accordance with diagram 2901 (schedule 9, part 4 item 13) of the SI 2016/362 2016 [Ref 14.N].

10. All-purpose trunk road service areas

Access and siting arrangements

10.1 Access / egress to / from an all-purpose trunk road service areas shall be either:

1) directly to / from the mainline carriageway using a new junction arrangement in accordance with CD 122 [Ref 4.N] Geometric design of grade separated junctions, except that a one step relaxation in stopping sight distance and horizontal curvature is permitted on diverge slip roads; or
2) directly to / from the mainline carriageway using a new junction arrangement in accordance with CD 123 [Ref 3.N] Geometric design of at-grade priority and signal controlled junctions; or
3) directly to / from the mainline carriageway using a new junction arrangement in accordance with CD 116 [Ref 5.N] Roundabouts; or
4) via a connection from an existing grade separated junction, at-grade priority junction, signal controlled junction or roundabout.

NOTE *All-purpose trunk road service areas are subject to the same spacing and weaving length requirements as provided in CD 122 [Ref 4.N] or CD 123 [Ref 3.N] or CD 116 [Ref 5.N] depending on the standard of road and the junction choice.*

10.1.1 All-purpose trunk road service areas should not be sited at locations where they have the potential to become a destination, or near high trip generators (e.g. tourist attractions or public transport interchanges) unless separate parking is provided to service such developments.

NOTE *All-purpose trunk road service areas provide a location for road users to rest whilst on a journey and inappropriate use of all-purpose trunk road parking areas by other road users accessing adjacent facilities can lead to capacity issues.*

10.1.2 All-purpose trunk road service area junctions should not be sited where the mainline gradient exceeds 8%.

10.1.3 Measures should be taken to reduce any 'see through' effects when looking from a diverge slip to the merge slip or internal road system of the all-purpose trunk road service areas.

NOTE *Measures to reduce the 'see through' effect can include the use of suitable landscaping or screening on traffic islands or within the service area site itself.*

10.2 High containment kerbs shall not be used on service area slip roads.

Street lighting

10.3 Where the mainline is lit, then the all-purpose trunk road service area junction shall be lit.

10.4 Where the mainline is not lit, the all-purpose trunk road service area lighting shall:

1) commence at the back of the diverge nose;
2) be terminated prior to the back of the merge nose.

10.4.1 Service area lighting should not cause lighting spillage onto the mainline or into environmentally sensitive areas.

Traffic signs

10.5 Traffic signs informing road users of the presence of a service area shall be provided in accordance with SI 2016/362 2016 [Ref 14.N] both in advance of the facility and at the service area junction.

NOTE *Further information regarding roadside facility traffic signing for the Strategic Road Network in England can be found in Signing of Roadside Facilities [Ref 6.N].*

10.6 Service areas and their associated advance signing shall not be positioned so that junctions, accesses or emergency areas are located between the service area advance signing and the service area diverge slip road.

11. Observation platforms

Introduction

11.1 The requirements in this section of the document shall be used for the layout and location of observation platforms on motorways.

NOTE 1 *For requirements and advice for smart motorways see IAN 161 [Ref 12.N] and for expressways see GD 300 [Ref 10.N].*

NOTE 2 *Observation platforms can be required to facilitate the activities of appropriately authorised organisations, these can include:*

1) Police;

2) Driver and Vehicle Standards Agency (DVSA);

3) Traffic Officers ;

4) other emergency services and maintenance / vehicle recovery organisations carrying out relevant duties related to the safe operation of the network.

Consultation / siting

11.2 To identify the need for observation platforms, consultation with the police force responsible for the route, representatives from appropriate authorities such as DVSA, Traffic Officers, Maintaining Organisation and other interested parties shall take place during the early stages of the development of a project.

11.2.1 The consultation should cover the siting, the intervals and type of each observation platform.

11.2.2 The design and consultation process for the provision of observation platforms should assess the following:

1) cost - sites at a change between cutting and embankment can avoid additional land take and keep earthworks to a minimum;

2) visibility requirements;

3) access - access from the mainline carriageway to the platform to enable emergency vehicles using the observation platform to merge with the mainline traffic at an appropriate speed;

4) speed detection - where an observation platform is to be used in conjunction with a police speed detection system an observation platform located too close to an off-slip can allow offending vehicles to leave the motorway;

5) radio communication - appropriate radio and mobile phone reception for those frequencies used by the authorised personnel;

6) potential unauthorised use - (e.g. observation platforms located near an ERT can encourage use by the general public);

7) intrusion - observation platforms located near residential properties can be deemed to intrude on the privacy of residents.

NOTE *Regular spacing is not necessary, it is more important to use the most suitable sites for the identified activities while enabling the user's safe methods of working to be achieved.*

Visibility

11.3 The visibility from vehicles parked in an observation platforms shall be unobstructed for a minimum distance of 0.8km both upstream and downstream of the platform.

11.3.1 The visibility from parked vehicles should be unobstructed for a distance of at least 1.6km both upstream and downstream of the platform.

Layout

11.4 Observation platforms shall be located on the nearside of the carriageway behind the hard shoulder.

11.4.1 The layout of observation platforms may be based on any of the following layouts:

1) drive through platform (see illustrative Figure 11.4.1a);
2) reverse-in platform (see illustrative Figure 11.4.1b);
3) reverse-in at grade platform (see illustrative Figure 11.4.1c).

Figure 11.4.1a Observation platform type 1: drive-through platform

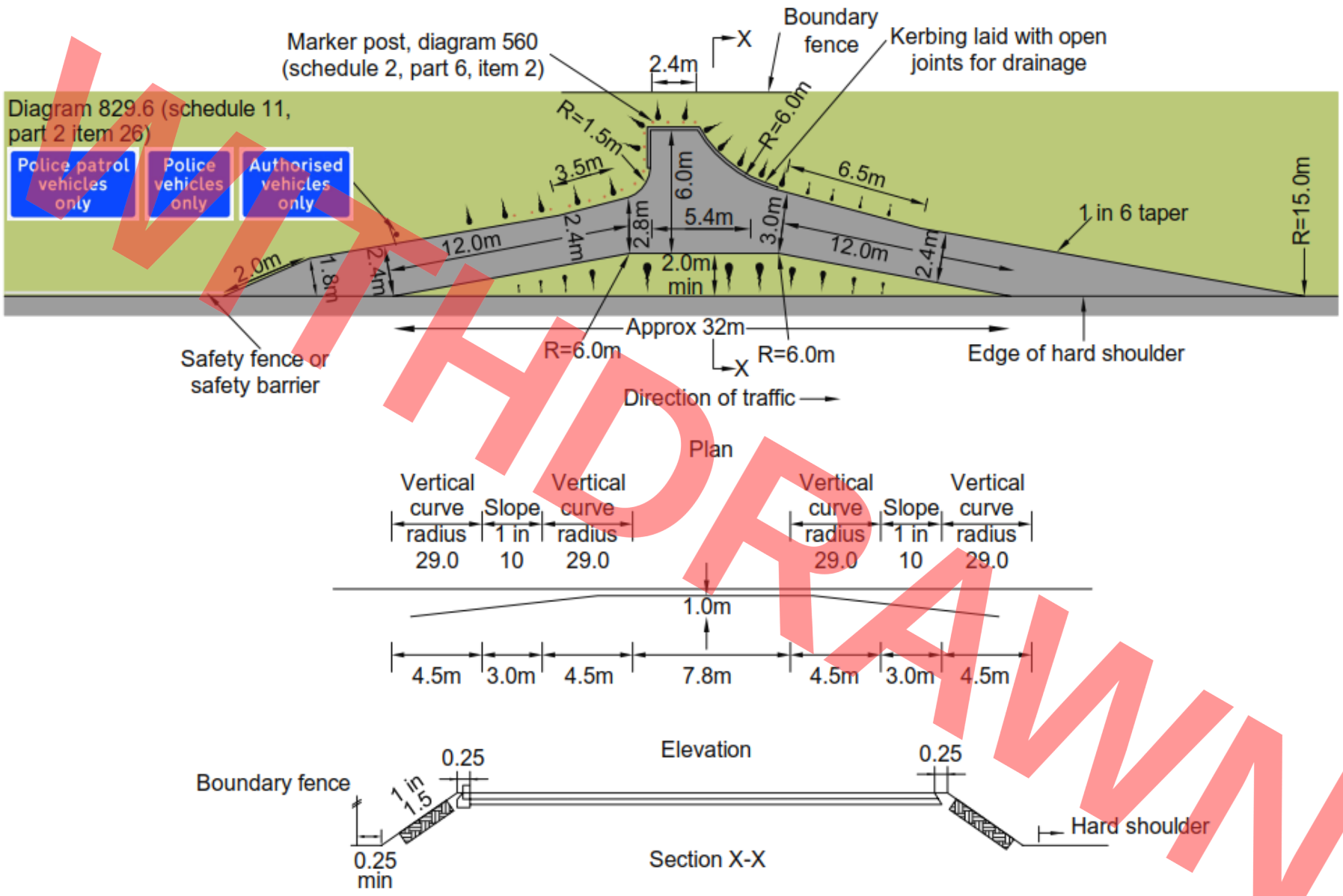


Figure 11.4.1b Observation platform type 2: reverse-in platform

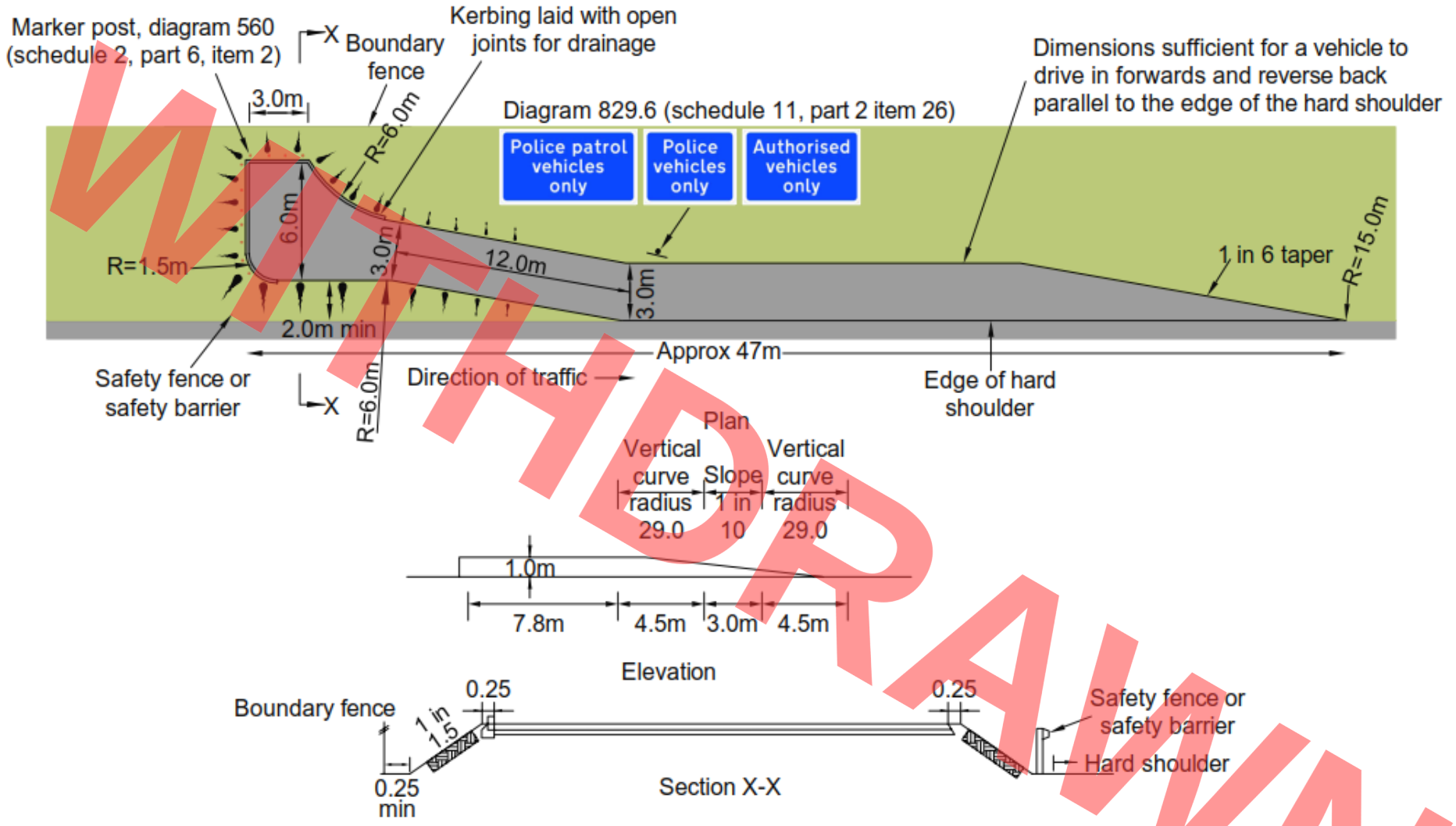
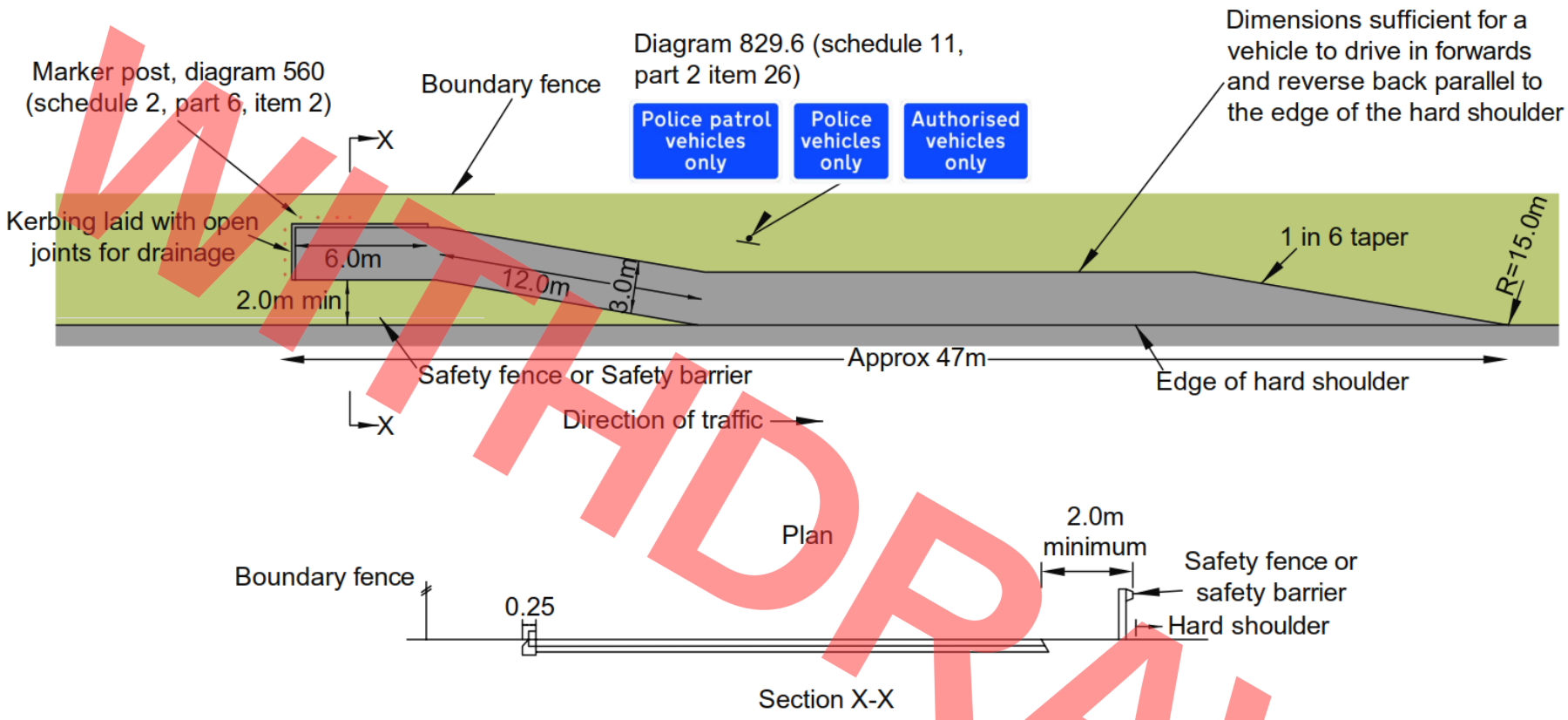


Figure 11.4.1c Observation platform type 3: reverse-in at-grade platform



11.4.2 The observation platform should be 1 metre above the level of the adjacent carriageway for observation platform types 1 and 2.

11.4.3 The parking area on observation platforms should provide suitable surface water drainage.

11.4.4 The taper from the observation platform to the back of the hard shoulder should give authorised vehicles a straight run onto the hard shoulder.

NOTE *A road restraint system can need to be provided upstream of an observation platform. For requirements and advice on the provision of road restraint systems see CD 377 [Ref 11.N].*

11.4.5 A traffic sign to diagram 829.6 (schedule 11, part 2, item 26) of the SI 2016/362 2016 [Ref 14.N] indicating that the observation platform is only for authorised vehicle use should be placed in advance of the platform.

11.4.6 The traffic sign to diagram 829.6 (schedule 11, part 2, item 26) of the SI 2016/362 2016 [Ref 14.N] should be sited to discourage unauthorised use, whilst also ensuring that it does not impair visibility from a vehicle parked on the platform.

11.4.7 Marker posts with reflectors to diagram 560 (schedule 2, part 6, item 2) of the SI 2016/362 2016 [Ref 14.N] should be located at the back and side of the observation platform.

NOTE *A pedestrian restraint system can need to be provided at an observation platform. For requirements and advice on the provision of pedestrian restraint systems see CD 377 [Ref 11.N].*

12. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. CD 195, 'Designing for cycle traffic'
Ref 2.N	Highways England. CD 239, 'Footway and cycleway pavement design'
Ref 3.N	Highways England. CD 123, 'Geometric design of at-grade priority and signal-controlled junctions'
Ref 4.N	Highways England. CD 122, 'Geometric design of grade separated junctions'
Ref 5.N	Highways England. CD 116, 'Geometric design of roundabouts'
Ref 6.N	TSO. Signing of Roadside Facilities, 'Guide to the Signing of Roadside Facilities for Motorists on the Strategic Road Network in England'
Ref 7.N	Highways England. CD 109, 'Highway link design'
Ref 8.N	Department for Transport (UK Gov). Inclusive Mobility, 'Inclusive Mobility'
Ref 9.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 10.N	Highways England. GD 300, 'Requirements for new and upgraded all-purpose trunk roads (expressways)'
Ref 11.N	Highways England. CD 377, 'Requirements for road restraint systems'
Ref 12.N	Highways England. IAN 161, 'Smart Motorways'
Ref 13.N	Department for Transport. DfT Circular 02/2013 , 'The strategic road network and the delivery of sustainable development'
Ref 14.N	SI 2016/362, 'The Traffic Signs Regulations and General Directions 2016' , 2016
Ref 15.N	TSO. TSM Chapter 3, 'Traffic Signs Manual Chapter 3 - Regulatory Signs'
Ref 16.N	TSO. TSM Chapter 5, 'Traffic Signs Manual Chapter 5 - Road Markings'
Ref 17.N	TSO. TSM Chapter 8, 'Traffic Signs Manual Chapter 8 - Traffic Safety Measures and Signs for Road Works and Temporary Situations'

13. Informative references

The following documents are informative references for this document and provide supporting information.

Ref 1.I	Highways England. TD 131, 'Roadside technology and communications'

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CD 169
England National Application Annex to CD 169
The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platforms

(formerly TD 69/07)

Revision 0

Summary
There are no specific requirements for Highways England supplementary or alternative to those given in CD 169.

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

This is a controlled document.

Contents

Release notes

Version	Date	Details of amendments
0	Sep 2019	Highways England National Application Annex to CD 169.

Department for Infrastructure
An Roinn Bonneagair

Road Layout
Design

CD 169
Northern Ireland National Application Annex to CD 169 - The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platforms

(formerly TD 69/07)

Revision 0

Summary
This National Application Annex contains the Department for Infrastructure, Northern Ireland specific requirements for traffic signs and road markings and introduces Northern Ireland specific document Director of Engineering Memorandum DEM 129/11.

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 team in the Department for Infrastructure, Northern Ireland. The email address for all enquiries and feedback is: dcu@infrastructure-ni.gov.uk

This is a controlled document.

Contents

Release notes

Version	Date	Details of amendments
0	Sep 2019	Department for Infrastructure Northern Ireland National Application Annex to CD 169.

Foreword

Publishing information

This document is published by Highways England on behalf of Northern Ireland.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This National Application Annex provides the Department for Infrastructure, Northern Ireland additional requirements to CD 169 [Ref 3.N] for traffic signs and road markings. This National Application Annex also provides additional requirements to CD 169 [Ref 3.N] for the design of parking lay-bys and rest areas in Northern Ireland.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 2.N] apply to this document.

Abbreviations

Abbreviations

Abbreviation	Definition
TSRGD	Traffic Signs Regulations and General Directions
TSRNI	Traffic Signs Regulations Northern Ireland

NI/1. Additional requirements in Northern Ireland (additional to CD 169)

NI/1.1 All traffic signs and road markings at lay-bys, maintenance hardstandings, service areas, rest areas and observation platforms shall conform to the TSR(NI) 1997 [Ref 4.N].

NOTE *Traffic sign and road marking diagram numbers are generally the same but can occasionally differ between the two sets of regulations TSRGD 2016 [Ref 5.N] and TSR(NI) 1997 [Ref 4.N].*

NI/1.2 In Northern Ireland, lay-bys shall be designed in accordance with the DEM 129/11 [Ref 1.N] Director of Engineering Memorandum DEM 129/11 Location of Lay–bys and Rest Areas.

NOTE *The DEM 129/11 [Ref 1.N] Director of Engineering Memorandum DEM 129/11 Location of Lay–bys and Rest Areas includes advice on the spacing of lay-bys, use of emergency telephones and the ownership of rest areas.*

NI/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Northern Ireland. DEM 129/11, 'Director of Engineering Memorandum 129/11 - Location of Lay-bys and Rest Areas'
Ref 2.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 3.N	Highways England. CD 169, 'The location and layout of lay-bys and rest areas'
Ref 4.N	The Stationery Office (TSO). Department for Infrastructure (DfI). TSR(NI) 1997, 'The Traffic Signs Regulations (Northern Ireland) 1997'
Ref 5.N	The Stationery Office. TSRGD 2016, 'The Traffic Signs Regulations and General Directions 2016'

Road Layout
Design

CD 169
Scotland National Application Annex to CD 169 The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platforms

(formerly TD 69/07)

Version 0.0.1

Summary
This National Application Annex contains the Transport Scotland additional requirements for the design of parking lay-bys and bus lay-bys on the Scottish trunk road network.

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 Transport Scotland team. The email address for all enquiries and feedback is: TSStandardsBranch@transport.gov.scot

This is a controlled document.

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Latest release notes

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CD 169	0.0.**1**	March 2021	Scotland NAA	Incremental change to notes and editorial updates

Document was amended in May 2020 to remove duplicate wording where the reference text stated 'roads for all'.

A new revision number was incorrectly not created at this time and no further changes have been made to this document since May 2020.

Previous versions

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CD 169	0	September 2019		

Foreword

Publishing information

This document is published by Highways England on behalf of Transport Scotland.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This National Application Annex provides the Transport Scotland additional requirements for the design of parking lay-bys and bus lay-bys on the Scottish trunk road network.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 1.N] apply to this document.

Abbreviations

Abbreviations

Abbreviation	Definition
NAA	National Application Annex

S/1. Lay-by design

S/1.1 In Scotland, parking lay-bys shall be designed in accordance with the Transport Scotland document Roads for All [Ref 2.N].

NOTE *The Scottish Roads for All [Ref 2.N] document includes requirements and advice that provide:*

1) a parking bay that has dropped kerbs, tactile paving and traffic signs specific for disabled road users located towards the exit end of the lay-by; and

2) a wider parking area.

S/1.2 In Scotland, bus lay-bys shall be designed in accordance with Roads for All [Ref 2.N].

NOTE *The Scottish Roads for All [Ref 2.N] document includes information on:*

1) a drop off point in rural areas where no other drop off facility or connecting footway is available; and

2) a suitable crossing facility where opposing bus lay-bys are provided.

S/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 2.N	Transport Scotland. Roads for All, 'Roads for All - Good Practice Guide for Roads'

Llywodraeth Cymru
Welsh Government

Road Layout
Design

CD 169
Wales National Application Annex to CD 169
The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platforms

(formerly TD 69/07)

Revision 0

Summary
There are no specific requirements for Welsh Government supplementary or alternative to those given in CD 169.

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 Welsh Government team. The email address for all enquiries and feedback is: Standards_Feedback_and_Enquiries@gov.wales

This is a controlled document.

Contents

Release notes

Version	Date	Details of amendments
0	Sep 2019	Welsh Government National Application Annex to CD 169.