

Our Ref: LTA/DBC/D45.002.001

Date: 02 July 2018

CIRCULAR TO PROFESSIONAL INSTITUTIONS

Who should know

Building Owners, Developers, Architects, Engineers and Transport / Traffic consultants

(A) REVISED ROAD CROSS-SECTION DETAILS OF SAFEGUARDED ROADS

Effective date

With immediate effect

1. The revised Standard Details of Road Elements took effect on 2 Jan 2018. The changes in the revised standard include:
 - (i) increase in footpath width from 1.5m to 1.8m
 - (ii) reduction of kerb-side lane width from 3.7m to 3.5m and inner side lanes from 3.5m to 3.2m.
2. The new road cross sections have been updated to reflect the changes mentioned above. Please refer to Annex A for the revised chapter on Safeguarding of Road Reserves.
3. For approved road reserves based on the version 1.2 of the Code of Practice (COP) - Street Work Proposals relating to Development Works, generally the lane width savings shall be distributed equally to the footpath on the side-tables (except for undivided roads where the current lane widths are retained) unless advised otherwise by the LTA. Please refer to Table 8.4 in Annex A for the revised road cross-section details for approved road reserves.
4. For new road reserves, the details of the road cross-sections are stated in Table 8.5, which shall be read in conjunction with Table 8.3 on the side-table elements.
5. The updated road cross-sections provide clarity and assistance on road reserve safeguarding and its interpretation.

(B) INCLUDING PROPOSALS INVOLVING 2 LANDED HOUSES IN THE DEVELOPMENT CONTROL LODGEMENT TO ROAD & TRANSPORT SECTION

Effective date

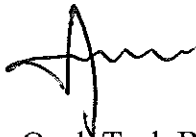
15 August 2018

6. The current lodgement scheme allows single landed house proposals to be lodged at the Development Control stage. We are pleased to announce that the Lodgement scheme would be further expanded to include development proposals involving 2 landed houses except proposals involving any of the following:
 - a. developments affected by Road Reserve Line
 - b. developments with proposed access that are less than 25m from a cul-de-sac/dead-end road
 - c. proposals requiring change in traffic scheme (eg. proposed relocation of hump, traffic signs, bus stop, etc)
 - d. proposals involving relocation of access to another road frontage
 - e. proposed works within the road structure safety zone (RSSZ)
 - f. proposed works within the influence zone of road tunnel reserve. (proposed developments that are within 50m from the line of road tunnel reserve are to confirm with LTA if their developments qualify for lodgement.)
7. We would like to take this opportunity to highlight that all lodgement submissions are deemed to have complied fully with our requirements as declared by the QP in the declaration form. If there are any deviation(s) from LTA's requirements on the plan proposals, a pre-consultation or a DC layout plan submission highlighting the deviation(s) must be made. Any request for waiver made at the CSC stage due to incorrect lodgement will be turned down.
8. The revised Corenet submission forms would be made available on 15 August 2018. All submissions made on or after this date shall use the revised forms to avoid any rejection by the system.

Enquiries

9. If you have any queries concerning this circular, please email to lta-dbc_registry@lta.gov.sg.
10. We would appreciate if you could convey the contents of this circular to members of your respective organisations.

Thank you.



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Enc.

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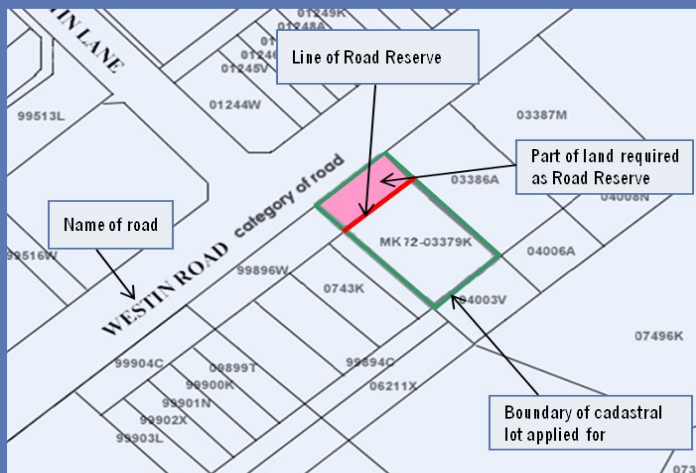
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This chapter outlines the process of safeguarding road reserves and the various standards adopted for road geometry (cross-section, junction layout, cul-de-sac layout etc).



Chapter 8

Safeguarding of Road Reserves

Glossary

Encumbrance	Generally refers to private structures that encroaches into the road reserve.
Vest in the State	To surrender the plot required for road reserve gratis to the State.

Chapter 8

Safeguarding of Road Reserves

8.1 Introduction

Road reserves indicate the extent of the existing or future road and its related facilities such as footpaths, cycling paths, bus-bays, covered linkways and other commuter facilities.

Road reserves can be safeguarded for -

- widening or extending existing roads; and
- constructing future roads, e.g. expressways, arterial roads, road interchanges, traffic junctions, etc.

8.2 Information on Road Reserve Lines

Information on road reserve lines is available to the public via the Road Line Plan (RLP). The extent of road reserve lines affecting a particular land lot is shown in the RLP. The RLP may be purchased from the convenience of home or office via the internet.

You may visit LTA's website at <http://www.lta.gov.sg> or Integrated Land Information Service (INLIS) website at <http://www.sla.gov.sg/INLIS/#/home> to make a purchase.

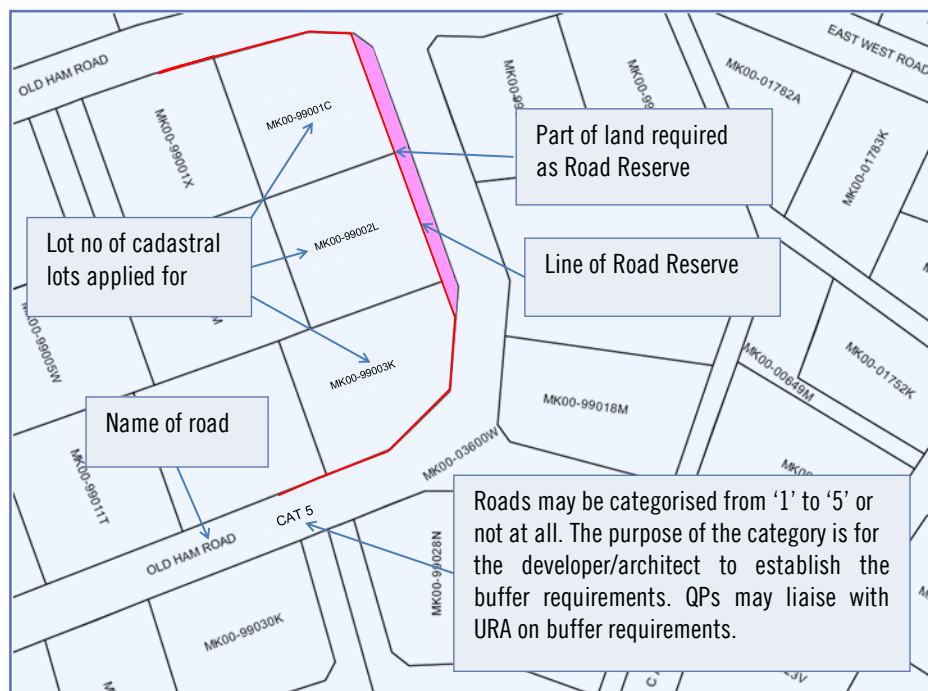


Figure 8.1 Sample of a Road Line Plan

8.3 Criteria for Safeguarding Road Reserve Lines

Generally, the future demand for road space depends on the generated traffic volume, which in turn depends on the scale, intensity and type of land use. Besides catering for the driving demand, sufficient space shall also be safeguarded for important mobility options such as walking and cycling. The width of road reserves to be safeguarded are as stated in the following sections.

8.3.1 Safeguarding of Private Residential Estate Roads and Service Roads

The road reserve width of roads within private residential estates is generally 16.0m as shown in Table 8.1 below. The details of the 16.0m road reserve shall follow S/N C of Table 8.5. The standard cross-section details for existing roads that have been constructed based on a 15.4m, 14.2m or 12.2m road reserve can be found in Appendix 8A. This is made available for reference only and all newly safeguarded local access roads in private estates shall follow the 16.0m road reserve. The road reserve width of service road shall be either 7.6m or 10m depending on its location.

Function	Development Type	Width of Road Reserve
Landed Housing Local Access Road	Detached / Semi-Detached / Terrace	16.0m
Service Roads	(i) All types (ii) Within central area* * Refers to URA definition of central area	7.6m 10m

Table 8.1 Road Reserve Width For Residential Estate Roads And Service Roads

8.3.2 Safeguarding of Expressways, Road Interchanges and Junctions

Notional alignments of expressways and locations of road interchanges are formulated in land use and transportation studies. An expressway reserve is either 45.5m wide for a dual three-lane expressway or 52.9m wide for a dual four-lane expressway. At expressway interchanges and junctions, the required road reserve varies and is dependant on the design layout.

8.3.3 Safeguarding of Splay Corners

A splay corner is required at the intersections of roads so that motorists' view of the oncoming traffic, pedestrians and cyclists will not be obstructed. Provision of a splay corner shall be as follows:

Type of Roads	Dimension of Splay Required
Roads in industrial area	9m x 9m
Roads in residential area meeting Cat 4 roads and higher	6m x 6m
Other roads in residential area	3m x 3m
Service roads and backlanes	3m x 3m

Table 8.2 Dimension of Splay Corner For Various Road Types

8.3.4 Safeguarding of Active Mobility Elements & Commuter Facilities

Active mobility elements encompasses footpath, cycling path and covered linkway. Generally, all road reserves will have a minimal provision of footpath. Where cycling path, covered linkway and other commuter facilities such as bus-bay, pedestrian overhead bridge and underpass are to be catered for, the road reserve lines would be adjusted to safeguard the additional land area required.

8.4 Cross-Section of Road Reserves

Generally, road reserves consist of a carriageway, centre median, tree-planting strip, verge for services, commuter facility/path cum drain as shown in Figure 8.2. Footpath is the default commuter facility provided in all road cross-sections. A list of cross-sections for the various types of road reserves are shown in Appendix 8A and 8B.

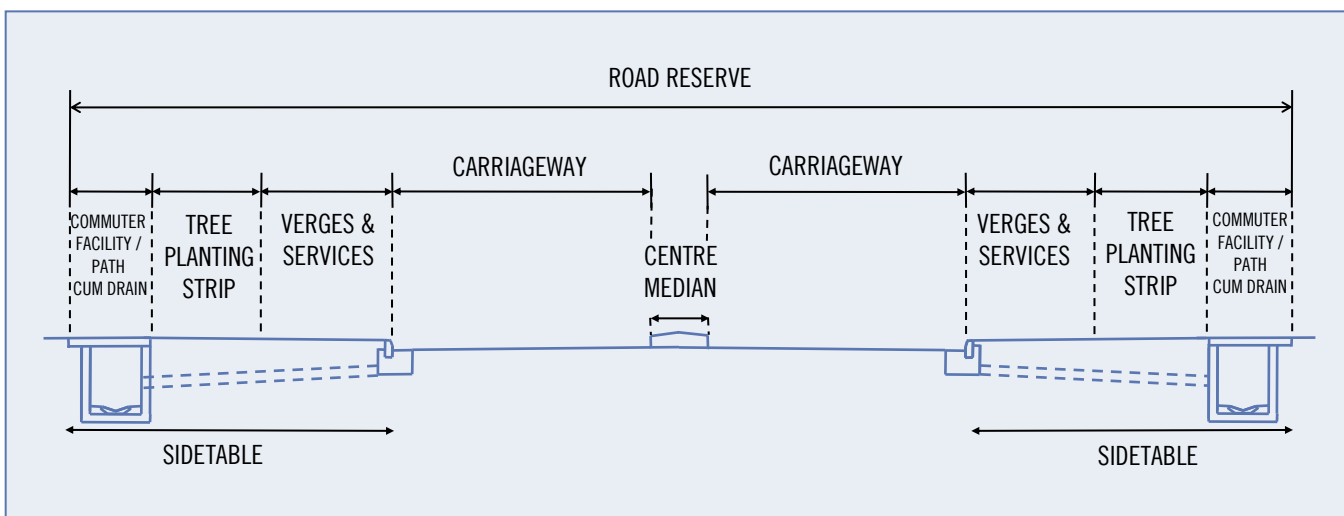


Figure 8.2 Typical Dual Carriageway Cross – Section

8.4.1 Cross-Section of Sidetable

Various combinations of commuter facilities within the sidetable are shown in Table 8.3 and Figure 8.3. The provision of commuter facility on either sidetables of a road can be similar or different. The developer shall consult LTA if there is uncertainty on the type of sidetable typology to be adopted.

Type	Commuter Facilities	Standard Width (m)
1 (Default)	Footpath only	1.8
2	Footpath + Cycling Path	1.5 + 2.0*/2.5 [#]
3	Covered Linkway	2.4/3.6 [^]
4	Covered Linkway + Cycling Path	2.4 /3.6 [^] + 2.0*/2.5 [#]

*Intra-town cycling paths facilitate short utilitarian distance trips within the town and connect cyclists to the major public transport nodes.

[#]Inter-town paths facilitates commuter, recreational and longer distance trips. They are designed for seamless travel with minimal stops and detours.

[^]Covered linkways near MRT Stations where this is high pedestrian traffic

Table 8.3 Width of Commuter Facilities

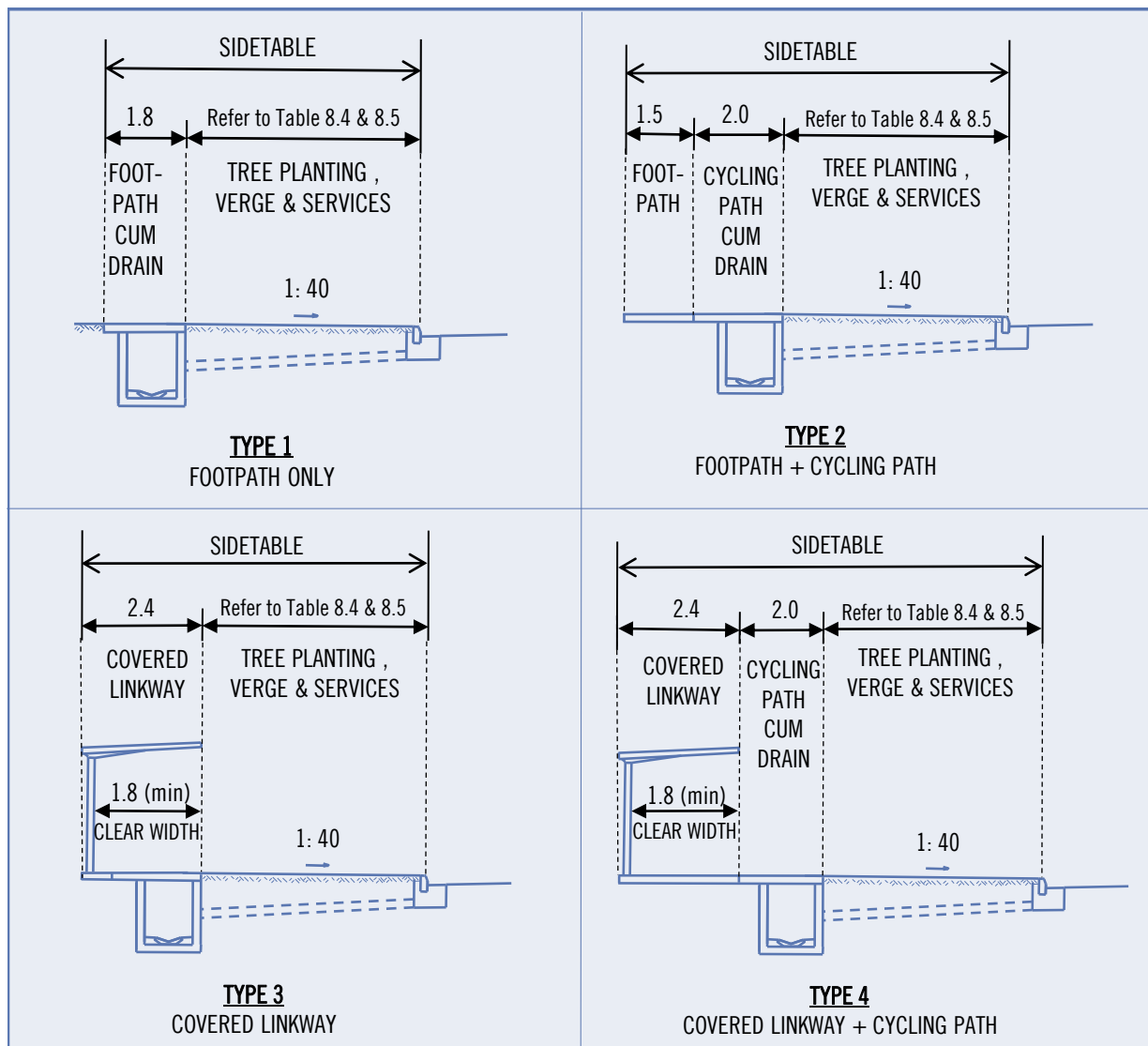


Figure 8.3 Illustrations of Types of Sidetable Typologies

8.5 Cul-de-sacs

At the end of a no-through road (dead-end), a cul-de-sac may be provided to facilitate turning for long vehicles such as refuse trucks. Generally, a cul-de-sac has to be provided for all industrial roads. The various types of cul-de-sacs are shown in Appendix 8C & 8D.

8.6 Junction Layout

A typical arrangement of the various types of junction layout are shown in Appendix 8E to 8I.

8.7 Setback of Development Boundary

Where a development proposal is affected by Road Reserve Line, the developer is required to setback his development boundary. The developer is also required to reconstruct the culvert and roadside drains to abut the Road Reserve Line. This would minimise disruption to his property when the relevant authorities carry out any upgrading works in the future.

For proposals involving minor additions and alterations works only, the developer will not be required to setback his boundary. However, no new structures shall be allowed within the road reserve.

In addition, the developer is required to vest the affected portion of land to the State without the State or the LTA making any payment or giving any consideration whatsoever for the same with vacant possession and free from encumbrances prior to the issue of the Certificate of Statutory Completion (CSC). For the purpose of vesting the affected portion of land, the developer is required to submit a copy of the approved Subdivision Plan issued under Section 14(4) of the Planning Act and a copy of the Certified Plan before handing over the completed street works within the road reserve plot to LTA and other relevant agencies.

LTA will defray private property owners for the cost involved in the subdivision of land from road reserve, subject to a cap. The costs that qualify for defrayment is limited to the fees payable to :

- (i) URA for processing the land subdivision application,
- (ii) SLA for allocation of new land lot numbers, inspection of survey and approval of the Certified Plan (CP) and
- (iii) Registered Surveyor (RS) for carrying out the surveys required for submission to URA and SLA.

The actual amount to be defrayed will be determined by LTA. All applications shall be submitted within 6 months from the date of CSC clearance by LTA. The application shall be made with the prescribed forms available for download at [https://www.lta.gov.sg/content/dam/ltaweb/corp/Industry/files/COP-Appendices/Form LTARTCS-1_Rev3.doc](https://www.lta.gov.sg/content/dam/ltaweb/corp/Industry/files/COP-Appendices/Form_LTARTCS-1_Rev3.doc) together with the necessary supporting documents. The required supporting documents are mentioned in the above-mentioned form.

Appendix 8A - Safeguarded/Approved Road Reserves (Based on COP Version 1.2)

The kerb-side lane width and inner-lane width have been revised from 3.7m to 3.5m and 3.5m to 3.2m respectively. The lane width savings shall be distributed equally to the footpath on the sidetables unless otherwise advised by the LTA. The reduced lane widths is not applicable to undivided 2-ways roads to facilitate traffic movements in the event of kerbside parking or vehicle breakdown and also turning of long vehicles such as fire engines, school buses, rubbish trucks etc. Table 8.4 shows the revised typology for safeguarded/approved road reserves based on Code of Practice for Street Work Proposals relating to Development Works Version 1.2.

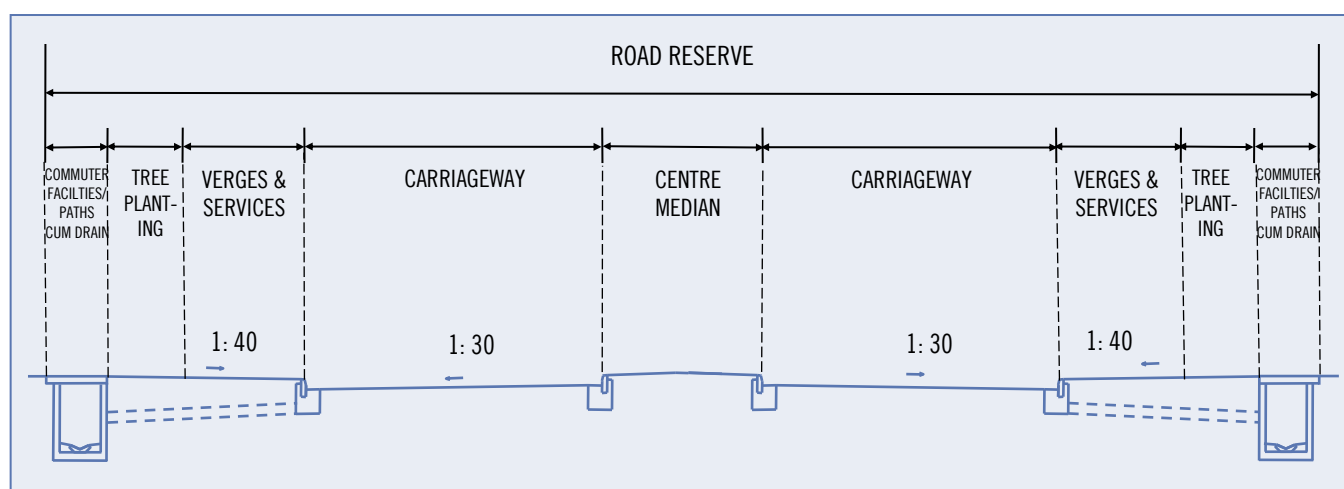


Figure 8.4 Typical cross-section for safeguarded/ approved road reserves

SAFEGUARDED/APPROVED ROAD RESERVES BASED ON VERSION 1.2 OF THE CODE OF PRACTICE FOR STREET WORK PROPOSALS RELATING TO DEVELOPMENT WORKS									
	S/N	Number of Lanes	Commuter Facility/Paths Cum Drain [Left Hand Side] (m)	Centre Median (m)	Carriageway (m)	Verge & Services (m)	Tree Planting (m)	Commuter Facility/Paths Cum Drain [Right Hand Side] (m)	Road Reserve (m)
Service Roads	A	1	0.75 (drain)	-	6.1	-	-	0.75 (drain)	7.6
	B	1	1.3 (drain)	-	7.4	-	-	1.3 (drain)	10.0
Landed Housing Local Access Road	C	2	1.5	-	7.4	-	2.5 x 2	1.5	15.4
	D	2	1.2	-	7.4	-	2.2 x 2	1.2	14.2
	E	2	1.2	-	6.6	-	1.6 x 2	1.2	12.2

SAFEGUARDED/APPROVED ROAD RESERVES [BASED ON VERSION 1.2 OF THE CODE OF PRACTICE FOR STREET WORK PROPOSALS RELATING TO DEVELOPMENT WORKS]									
	S/N	Number of Lanes	Commuter Facility Cum Drain [Left Hand Side] (m)	Centre Median (m)	Carriageway (m)	Verge & Services (m)	Tree Planting (m)	Commuter Facility Cum Drain [Right Hand Side] (m)	Road Reserve (m)
Local/Primary Access Undivided two-way road	F	2	1.5	-	10.0	-	2.5 x 2	1.5	18.0
	G	2	1.5	-	10.0	2.2 x 2	2.0 x 2	1.5	21.4
Primary Access Road	H	4	1.8	0.8	7.0 x 2	1.9 x 2	2.0 x 2	1.8	26.2
One-way traffic road	I	2	1.7	-	7.0	2.2 x 2	2.0 x 2	1.7	18.8
	J	3	1.9	-	10.3	2.2 x 2	2.0 x 2	1.9	22.5
	K	4	2.2	-	13.4	2.2 x 2	2.0 x 2	2.2	26.2
	L	5	2.4	-	16.7	2.2 x 2	2.0 x 2	2.4	29.9
Industrial Roads	M	2	1.5	-	10.0	2.2 x 2	2.0 x 2	1.5	21.4
	N	4	2.2	-	13.4	2.2 x 2	2.0 x 2	2.2	26.2
	O		1.9	4.0	7.0 x 2	3.0 x 2	2.0 x 2	1.9	31.8
Major Arterial Road	P	4	1.9	4.0	7.0 x 2	3.0 x 2	2.0 x 2	1.9	31.8
	Q	6	2.1	4.0	10.2 x 2	3.0 x 2	2.0 x 2	2.1	38.6
	R	8	2.3	4.0	13.4 x 2	3.0 x 2	2.0 x 2	2.3	45.4

Table 8.4 Typology for safeguarded/approved Road Reserve [based on Version 1.2 of Code of Practice for Street Work Proposals relating to Development Works]

Appendix 8B - New Road Reserves

The new road reserves are safeguarded based on a footpath width of 1.8m, kerb-side lane width of 3.5m, inner-lane width of 3.2m, and additional width for cycling path and covered linkway (if any). Table 8.5 shows the typology for Road Reserve safeguarded for new roads and shall be read in conjunction with Table 8.3 for the provision of commuter facilities such as covered linkway etc.

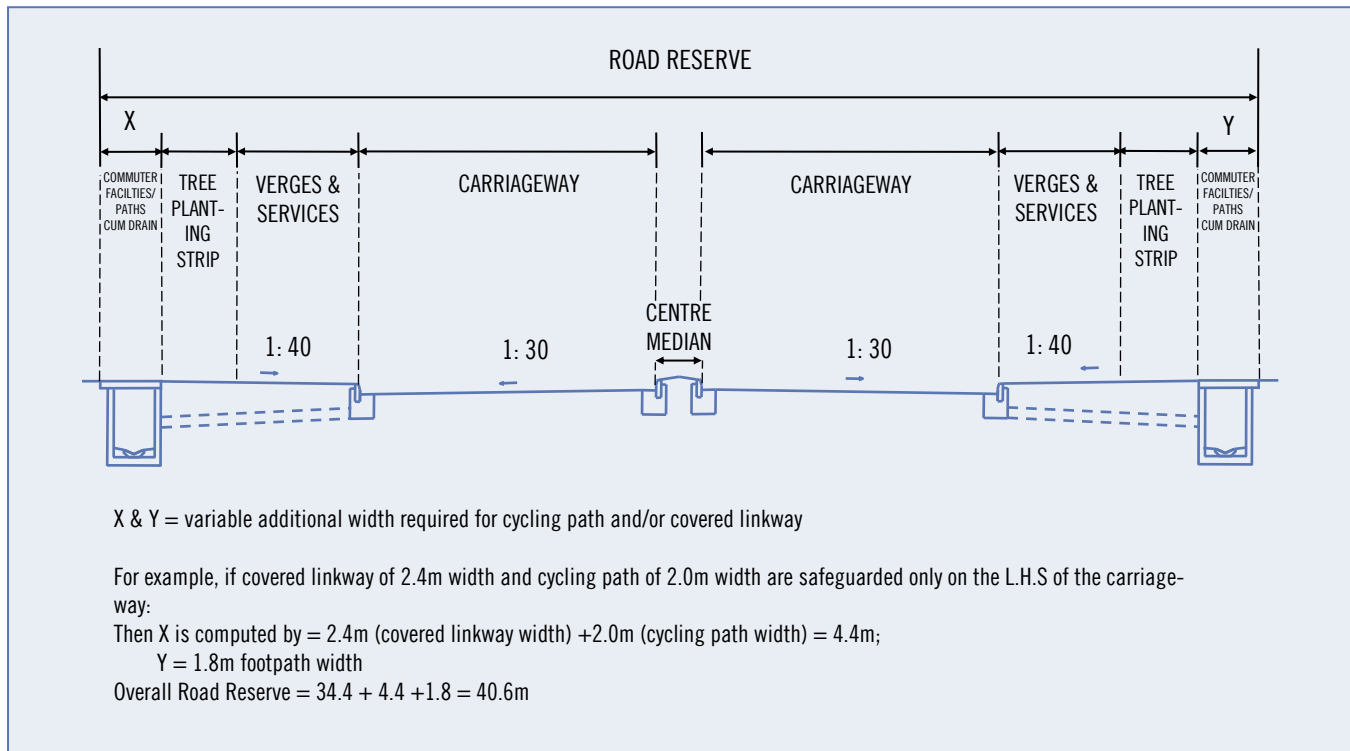


Figure 8.5 Typical cross-section for New Roads

New Road Reserves									
	S/N	Number of Lanes	Commuter Facility Cum Drain [Left Hand Side] (m) Refer to Table 8.3	Centre Median (m)	Carriage-way (m)	Verge & Services (m)	Tree Planting (m)	Commuter Facility Cum Drain [Right Hand Side] (m) Refer to Table 8.3	Road Reserve (m)
Service Roads	A	1	0.75 (drain)	-	6.1	-	-	0.75 (drain)	7.6
	B	1	1.3 (drain)	-	7.4	-	-	1.3 (drain)	10.0
Landed Housing Local Access Road	C	2	X	-	7.4	-	2.5 x 2	Y	12.4+X+Y

New Road Reserves									
	S/N	Number of Lanes	Commuter Facility Cum Drain [Left Hand Side] (m) Refer to Table 8.3	Centre Median (m)	Carriage-way (m)	Verge & Services (m)	Tree Plant-ing (m)	Commuter Facility Cum Drain [Right Hand Side] (m) Refer to Table 8.3	Road Reserve (m)
Local/Primary Access Undivided two-way road	D	2	X	-	10.0	-	2.5 x 2	Y	15.0+X+Y
	E	2	X	-	10.0	2.2 x 2	2.0 x 2	Y	18.4+X+Y
Primary Access Road	F	4	X	1.2	7.0 x 2	1.9 x 2	2.0 x 2	Y	23.0+X+Y
One-way traffic road	G	2	X	-	7.0	2.2 x 2	2.0 x 2	Y	15.4+X+Y
	H	3	X	-	10.2	2.2 x 2	2.0 x 2	Y	18.6+X+Y
	I	4	X	-	13.4	2.2 x 2	2.0 x 2	Y	21.8+X+Y
	J	5	X	-	16.6	2.2 x 2	2.0 x 2	Y	25.0+X+Y
Industrial Roads	K	2	X	-	10.0	2.2 x 2	2.0 x 2	Y	18.4+X+Y
	L	4	X	-	13.4	2.2 x 2	2.0 x 2	Y	21.8+X+Y
	M		X	4.0	7.0 x 2	3.0 x 2	2.0 x 2	Y	28+X+Y
Major Arterial Road	N	4	X	4.0	7.0 x 2	3.0 x 2	2.0 x 2	Y	28.0+X+Y
	O	6	X	4.0	10.2 x 2	3.0 x 2	2.0 x 2	Y	34.4+X+Y
	P	8	X	4.0	13.4 x 2	3.0 x 2	2.0 x 2	Y	40.8+X+Y

X = variable additional width required for footpath/ cycling path and/or covered linkway on the L.H.S of the road.

Y = variable additional width required for footpath/ cycling path and/or covered linkway on the R.H.S of the road.

Table 8.5 Typology for New Road Reserve

Appendix 8C- Cul-de-sac for Industrial Roads

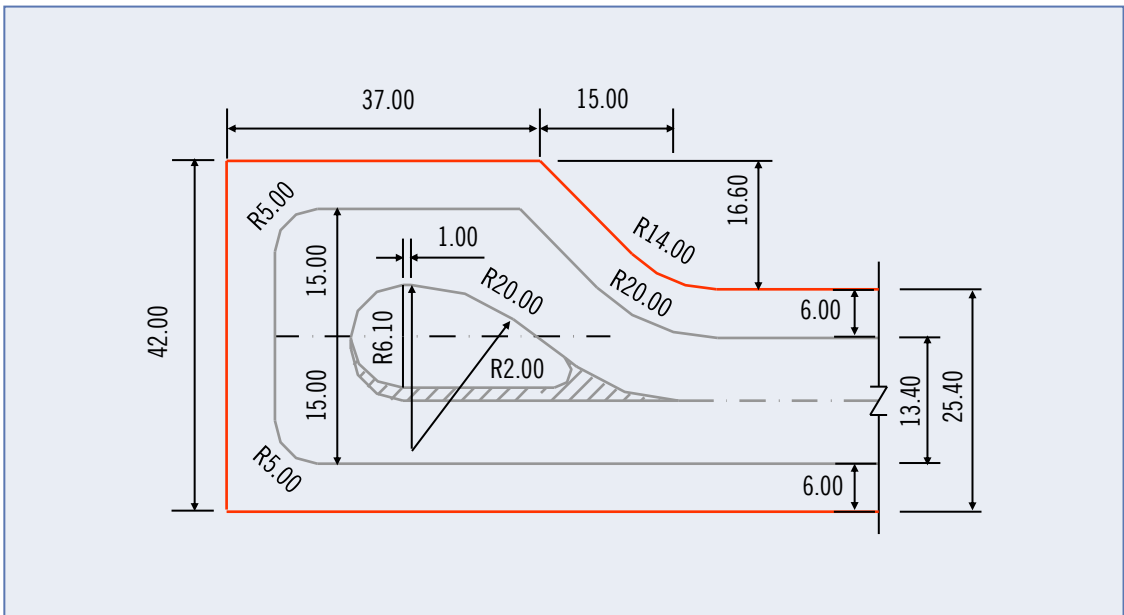


Figure 8.6 Cul-de-sac for 25.4m wide Road Reserve (refers to S/N L of Table 8.5 with $X = 1.8\text{m}$ & $Y = 1.8\text{m}$)

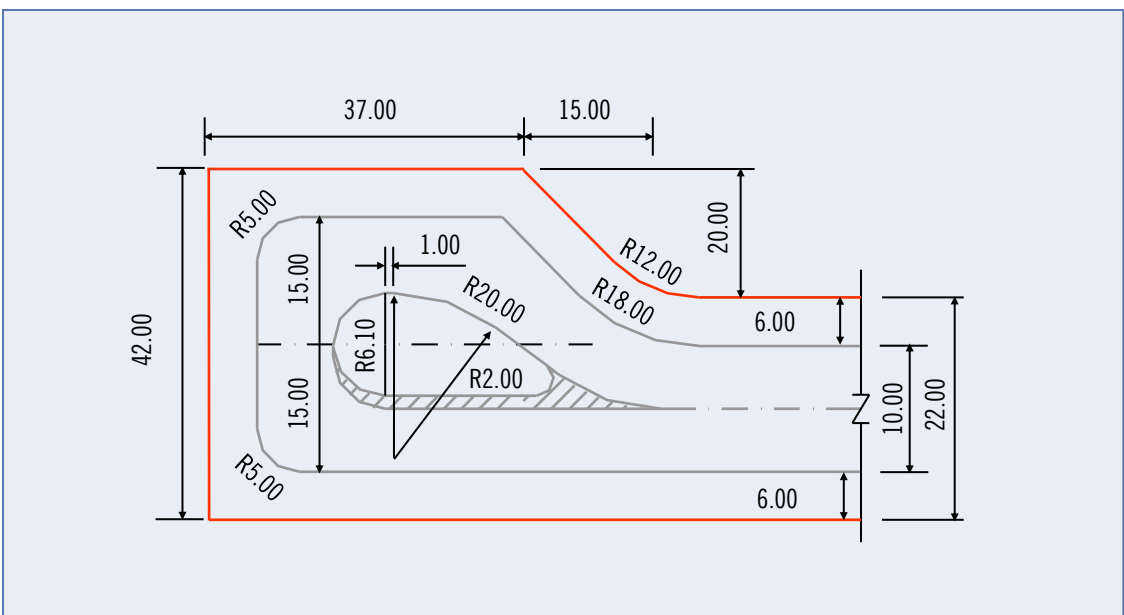


Figure 8.7 Cul-de-sac for 22.0m wide Road Reserve (refers to S/N K of Table 8.5 with $X = 1.8\text{m}$ & $Y = 1.8\text{m}$)

Appendix 8D - Cul-de-sac for Landed Housing Local Access Road

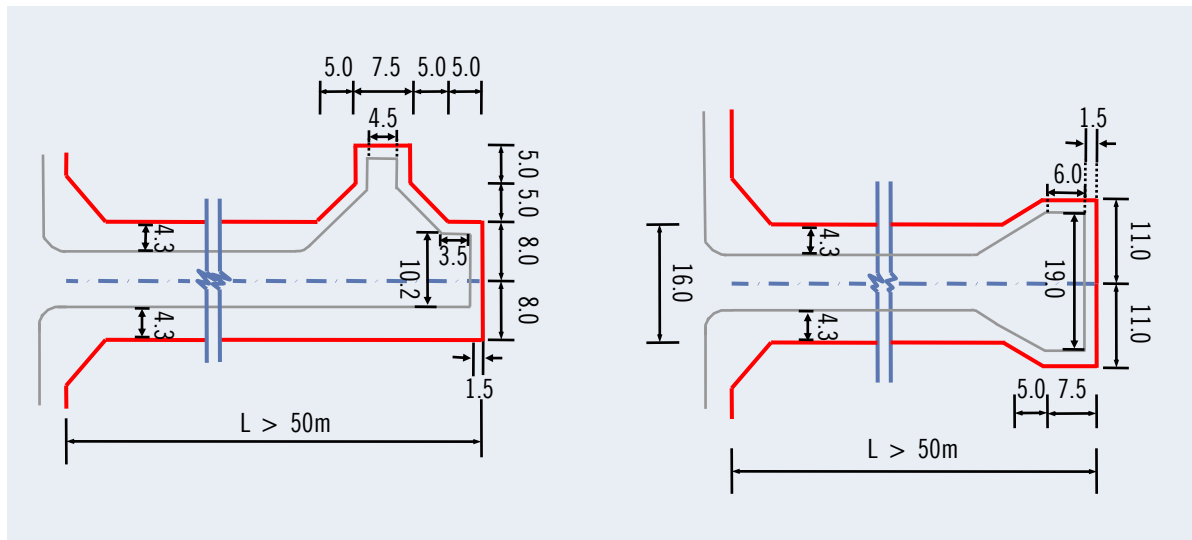


Figure 8.8 Cul-de-sac for 16.0m wide Road Reserve (refers to S/N C of Table 8.5 with $X = 1.8\text{m}$ & $Y = 1.8\text{m}$)

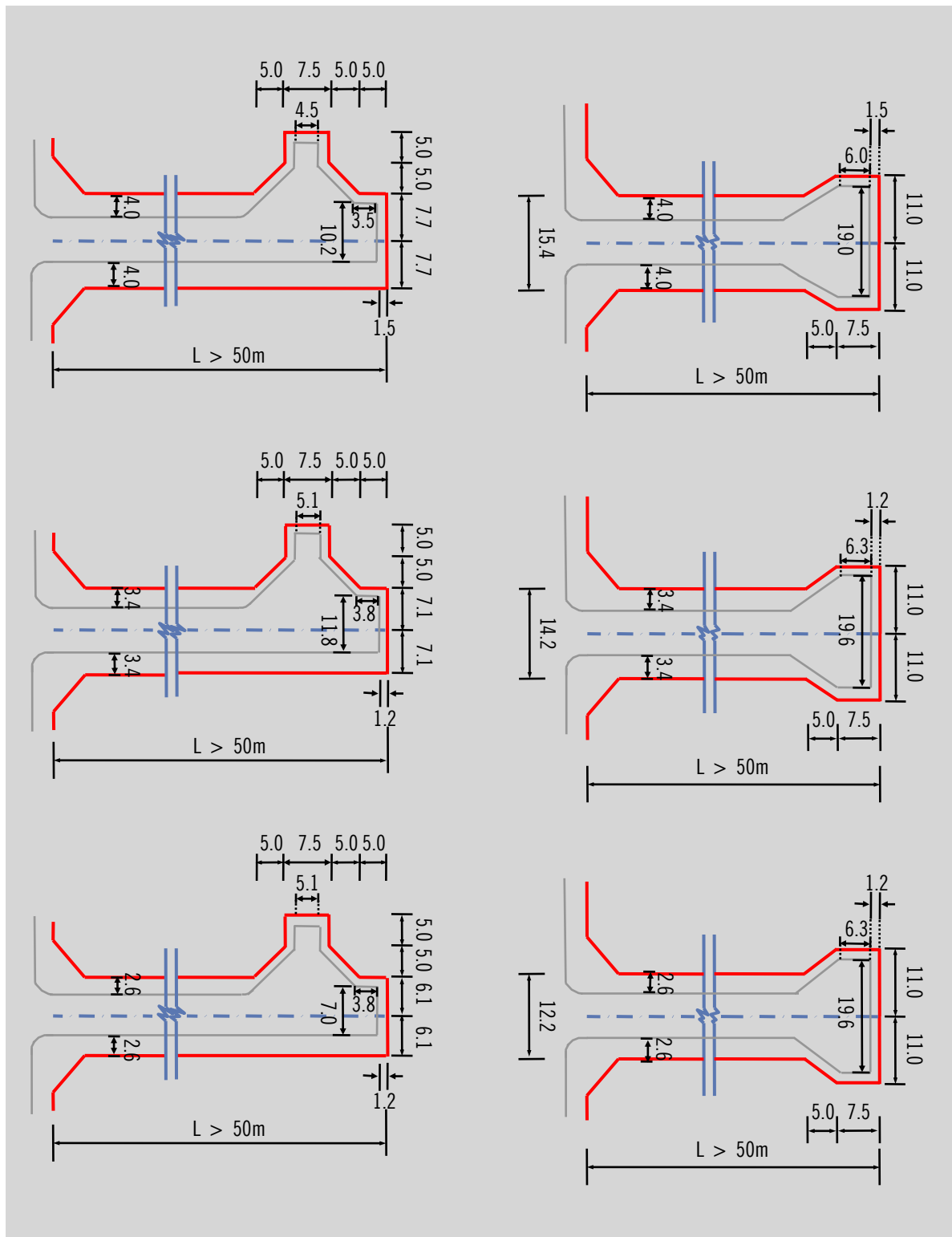


Figure 8.9 Cul-de-sac for 15.4m, 14.2m & 12.2m wide Road Reserves

Appendix 8E - 18.6m Road Reserve at Junction

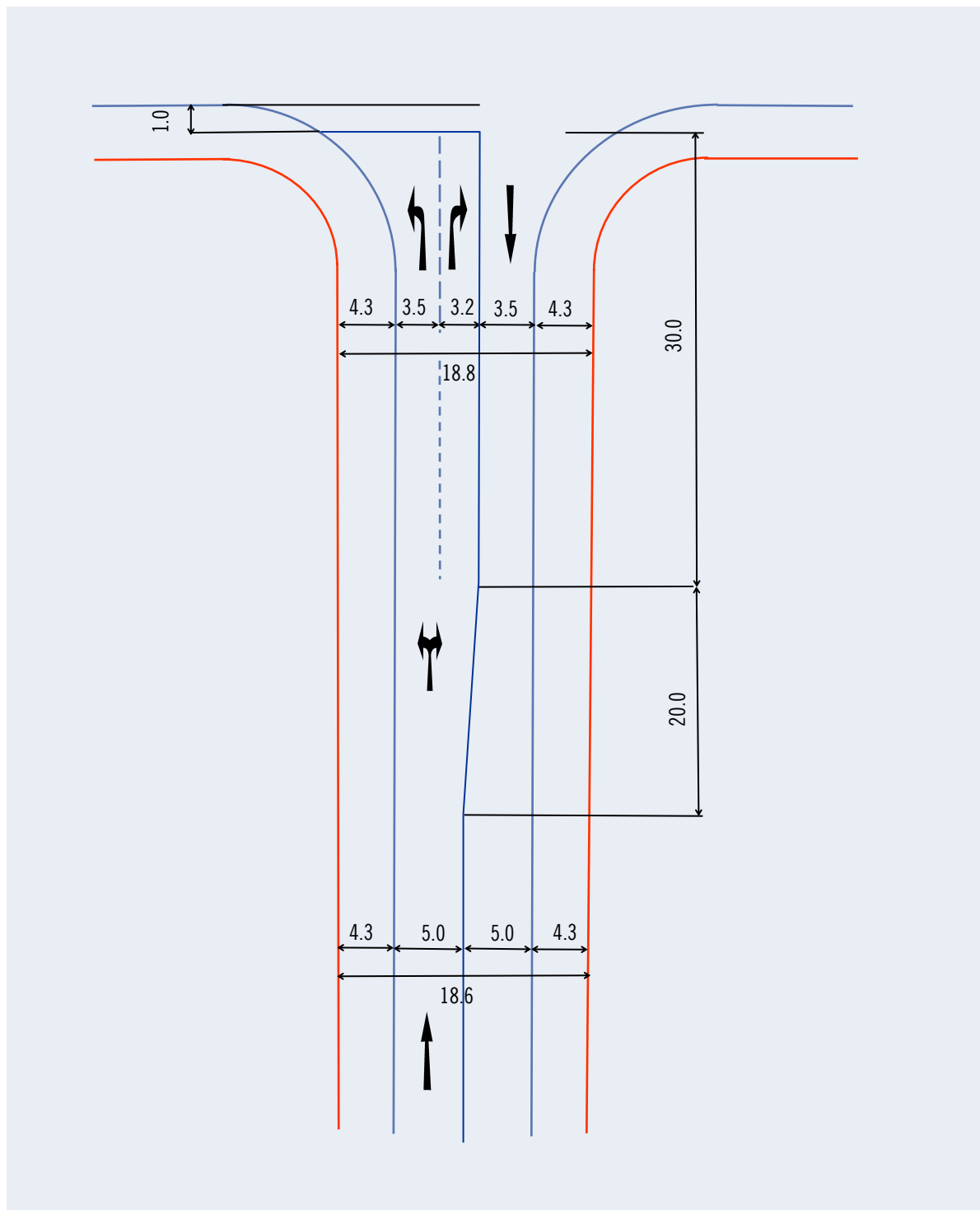


Figure 8.10 18.6m Road Reserve at Junction

The above cross-section is meant for a safeguarded 18.6m Road Reserve with only footpaths on the sidetables. Appropriate additional Road Reserve would be safeguarded at the junction based on the provision of other commuter facilities such as the cycling path, covered linkway, taxi stand etc.

The cross-section of existing roads that have been safeguarded based on 18.0m road reserve is given below. All newly safeguarded dual-one, undivided two-way roads shall follow the 18.6m road reserve.

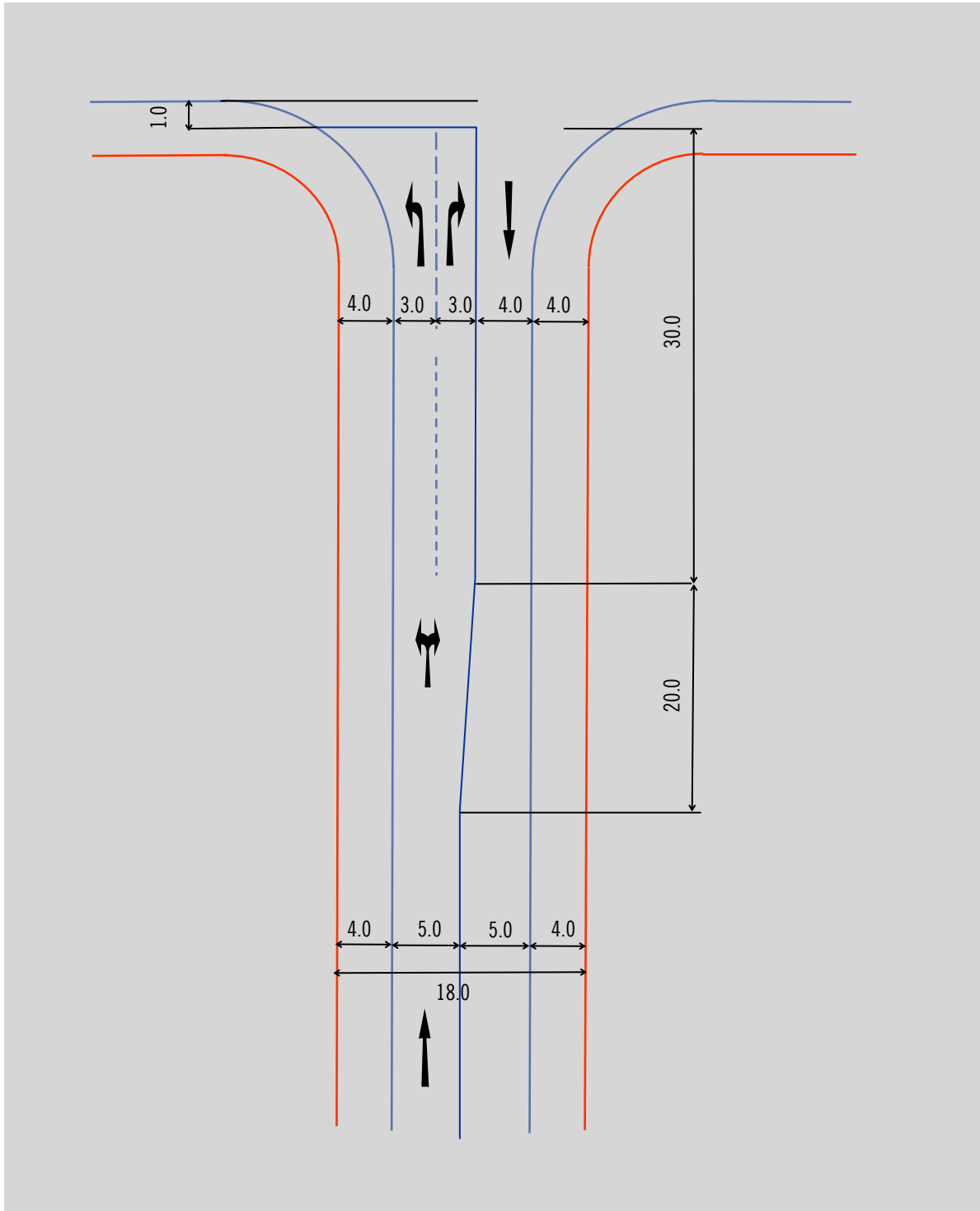


Figure 8.11 18.0m Road Reserve at Junction

Appendix 8F—26.6m Road Reserve at Cross Junction (With Slip Roads)

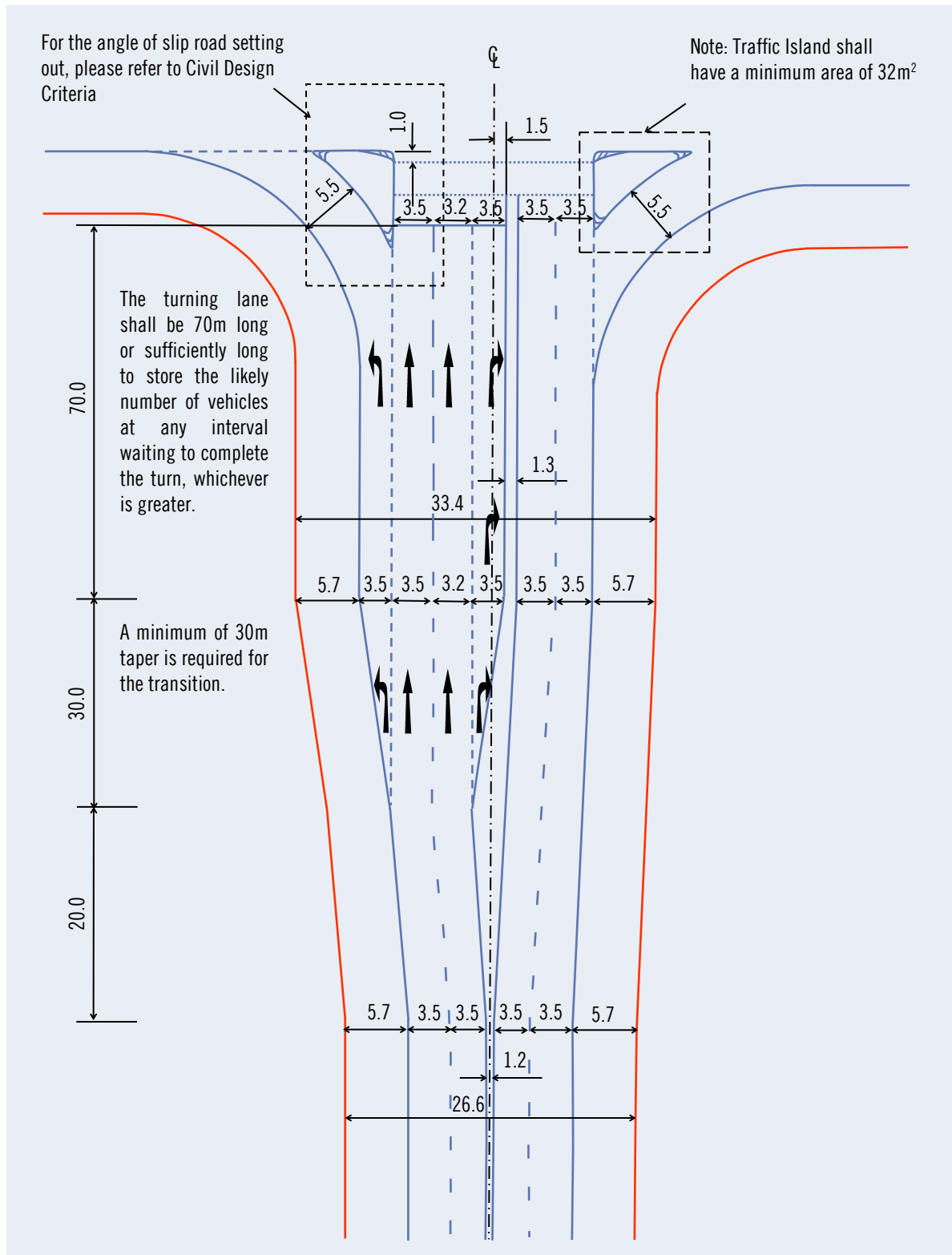


Fig 8.12 26.6m Road Reserve At Cross Junction (With Slip Roads)

The above cross-section is meant for a safeguarded 26.6m Road Reserve with only footpaths on the sidetables. Appropriate additional Road Reserve would be safeguarded at the junction based on the provision of other commuter facilities such as the cycling path, covered linkway, taxi stand etc.

The cross-section of existing roads that have been safeguarded based on 26.2m road reserve shall follow the revised lane and sidetable widths given below. All newly safeguarded dual-two roads shall follow the 26.6m road reserve.

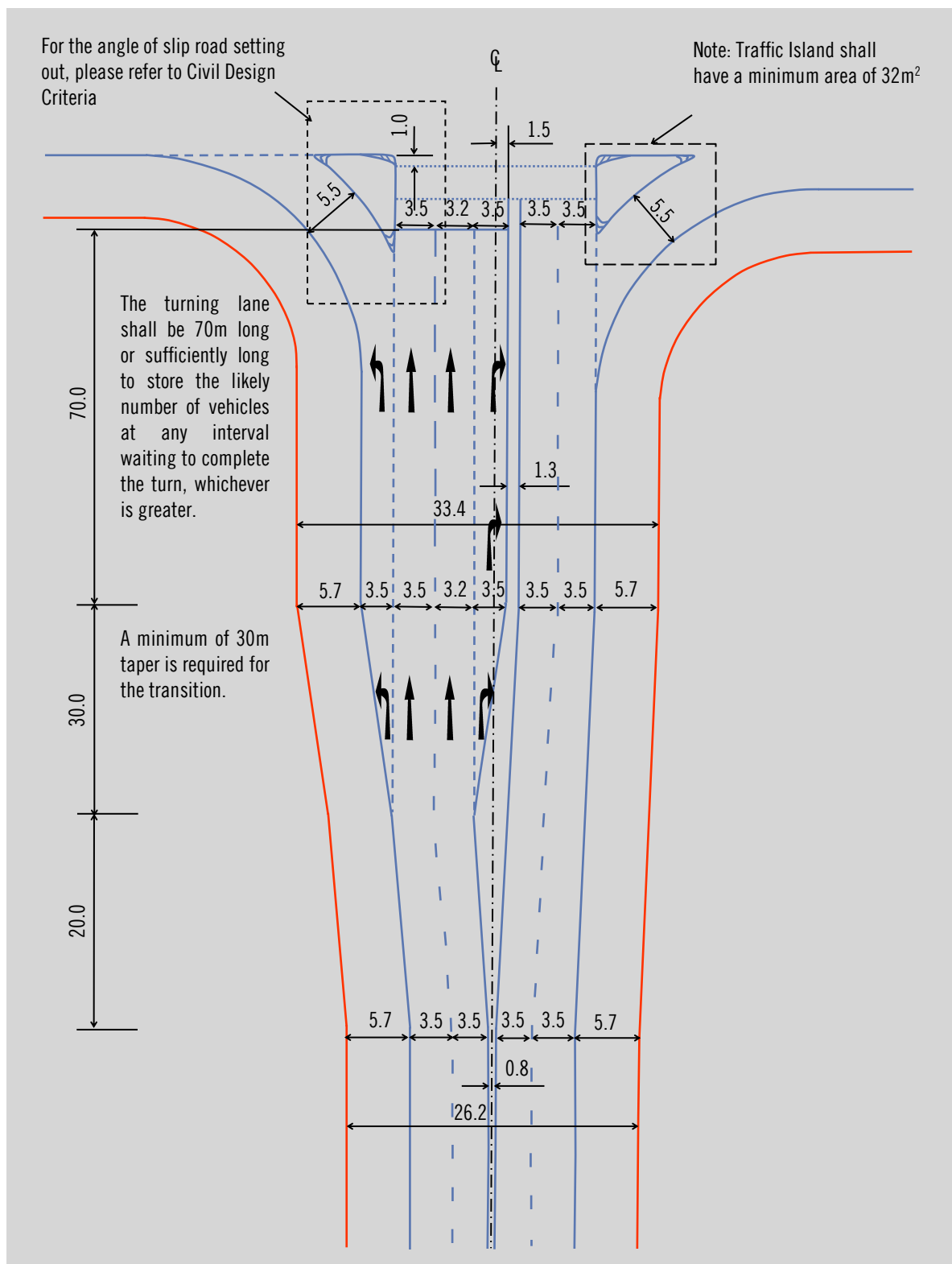


Fig 8.13 26.2m Road Reserve At Cross Junction (With Slip Roads)

Appendix 8G -26.6m Road Reserve at Cross Junction (Without Slip Roads)

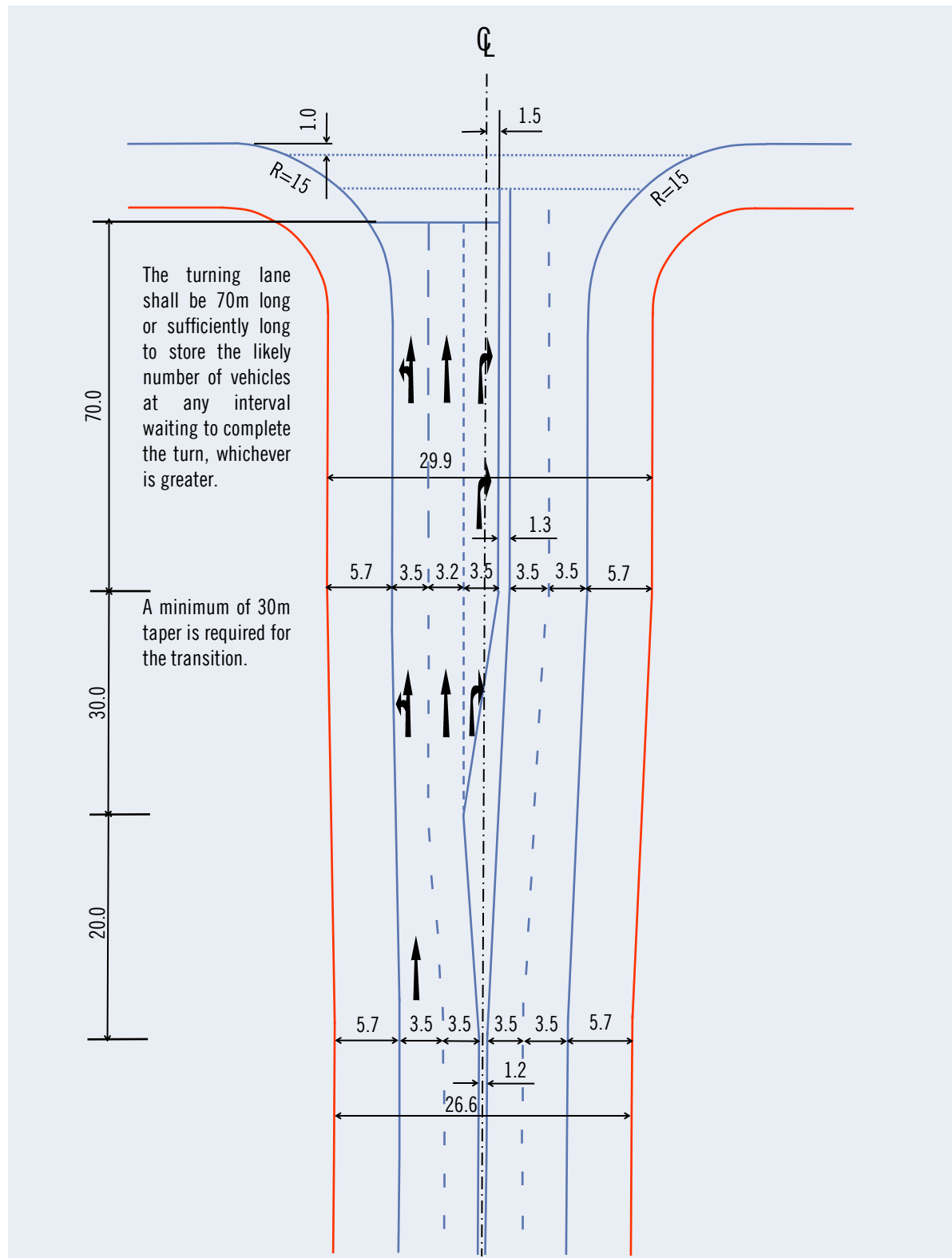


Fig 8.14 26.6m Road Reserve At Cross Junction (Without Slip Roads)

The above cross-section is meant for a safeguarded 26.6m Road Reserve with only footpaths on the sidetables. Appropriate additional Road Reserve would be safeguarded at the junction based on the provision of other commuter facilities such as the cycling path, covered linkway, taxi stand etc.

The cross-section of existing roads that have been safeguarded based on 26.2m road reserve shall follow the revised lane and sidetable widths given below. All newly safeguarded dual-two roads shall follow the 26.6m road reserve.

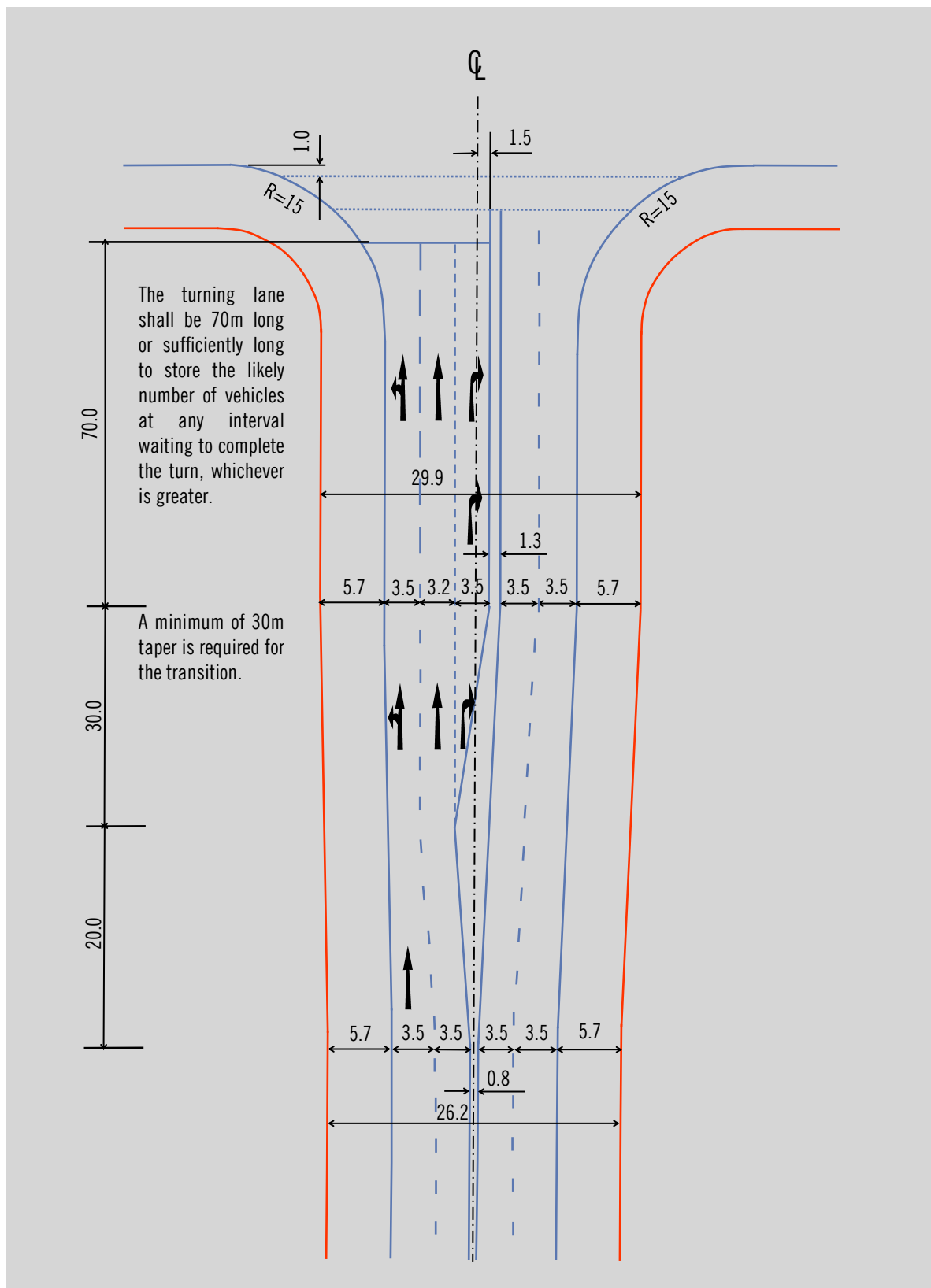


Fig 8.15 26.2m Road Reserve At Cross Junction (Without Slip Roads)

Appendix 8H –31.6m Road Reserve at Cross Junction (With Slip Roads)

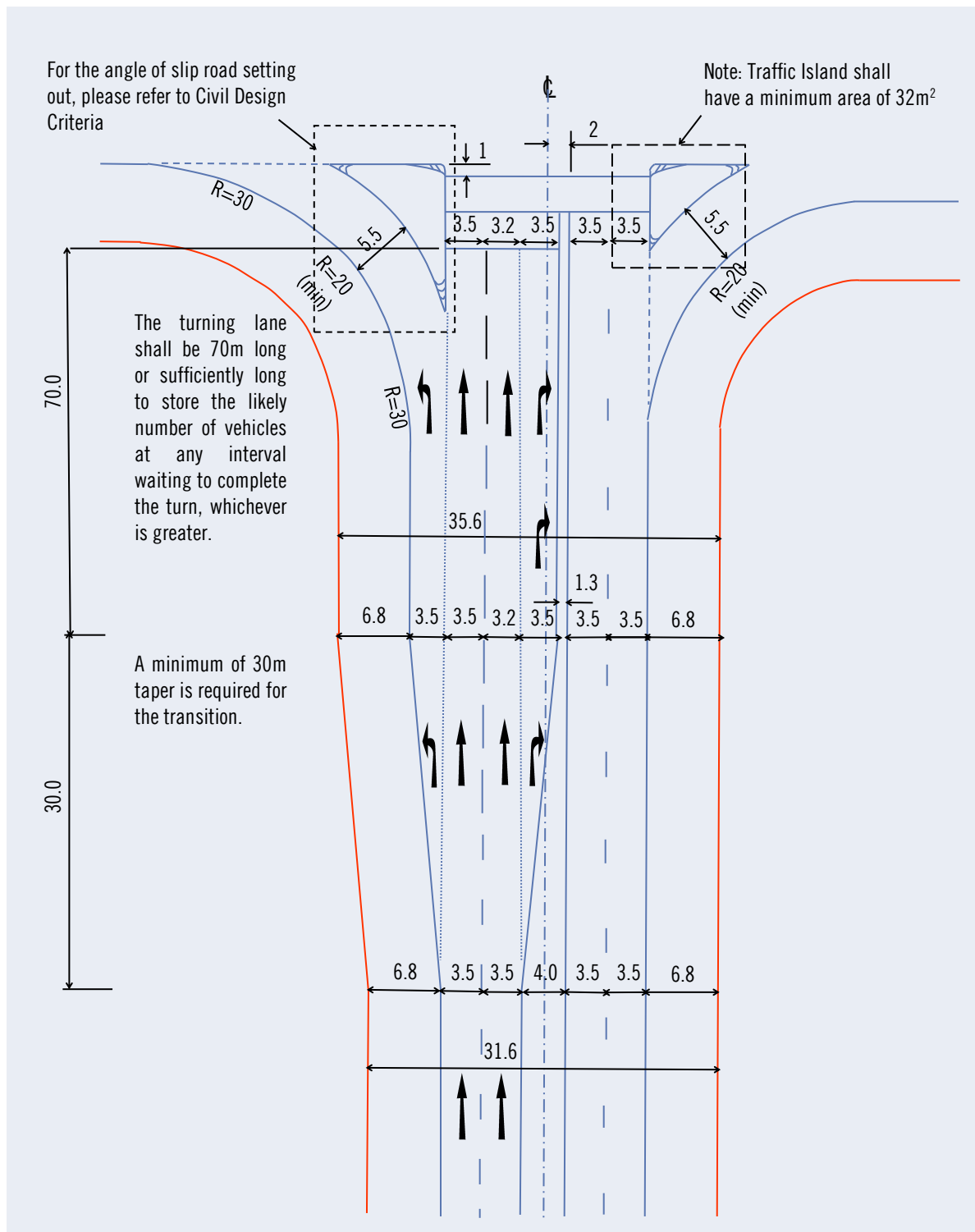


Fig 8.16 31.6m Road Reserve At Cross Junction (With Slip Roads)

The above cross-section is meant for a safeguarded 31.6m Road Reserve with only footpaths on the sidetables. Appropriate additional Road Reserve would be safeguarded at the junction based on the provision of other commuter facilities such as the cycling path, covered linkway, taxi stand etc.

The cross-section of existing roads that have been safeguarded based on 31.8m road reserve shall follow the revised lane and sidetable widths given below. All newly safeguarded dual-two roads shall follow the 31.6m road reserve.

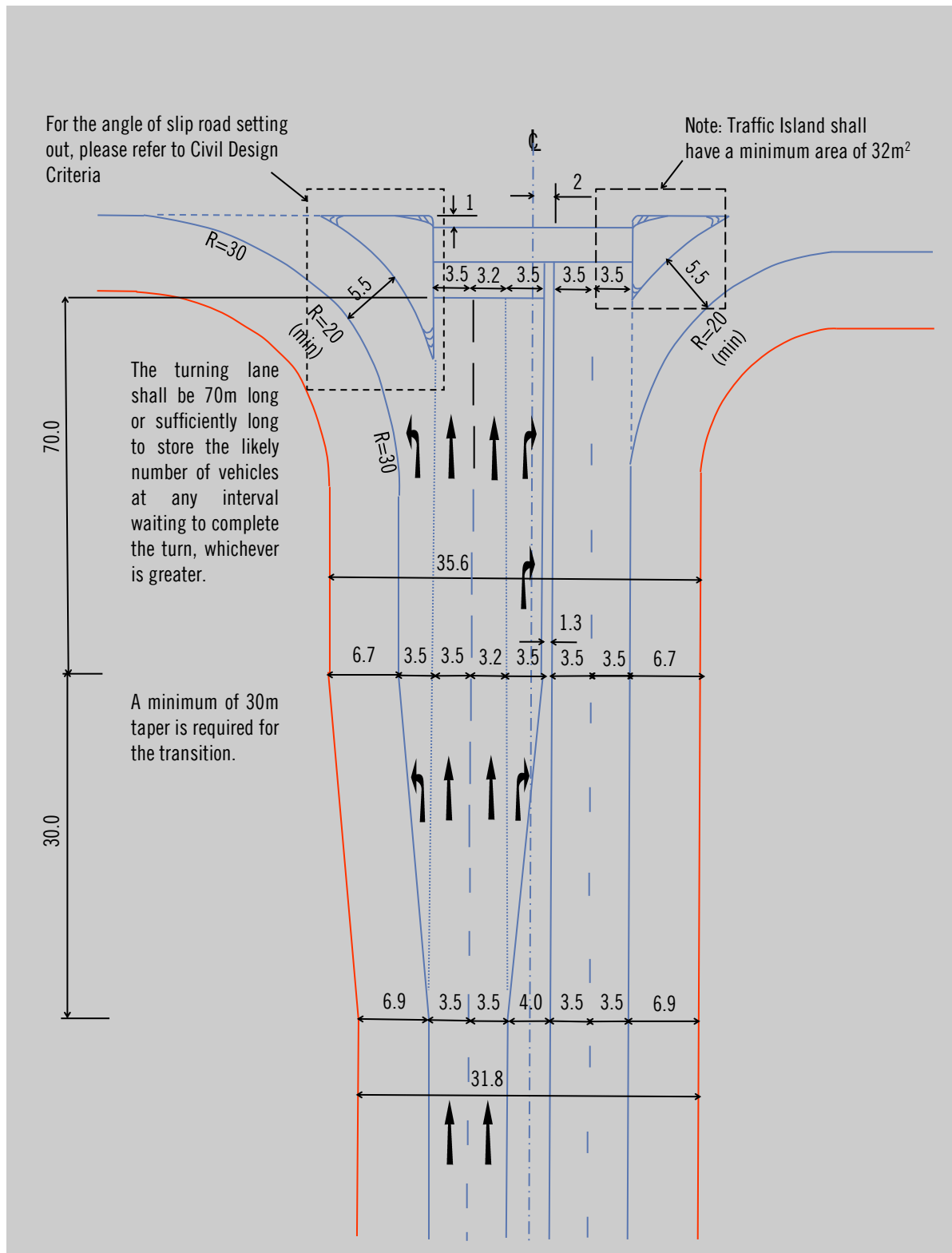


Fig 8.17 31.8m Road Reserve At Cross Junction (With Slip Roads)

Appendix 8I -38.0m Road Reserve at Cross Junction (With Slip Roads)

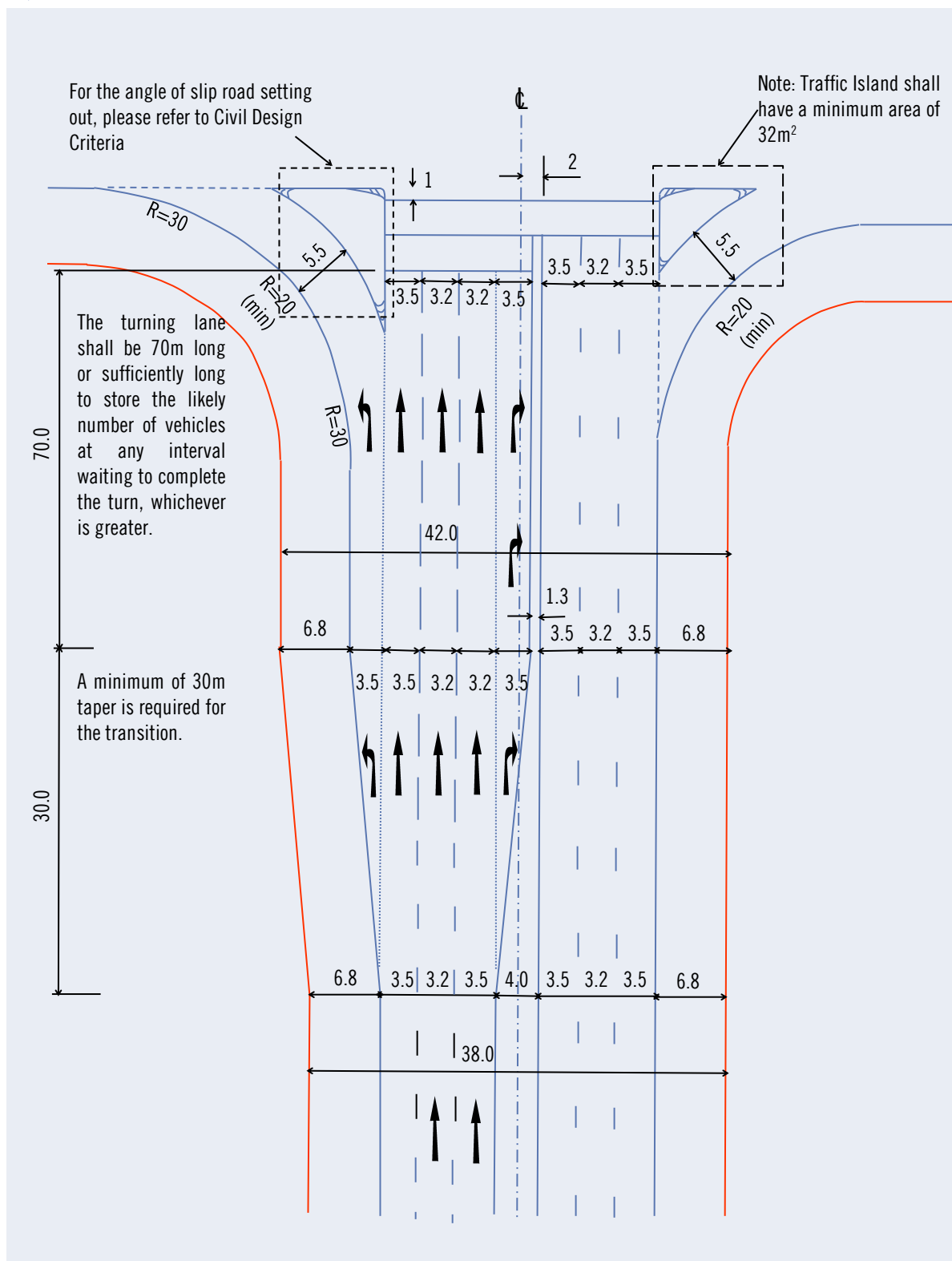


Fig 8.18 38.0m Road Reserve At Cross Junction (With Slip Roads)

The above cross-section is meant for a safeguarded 38.0m Road Reserve with only footpaths on the sidetables. Appropriate additional Road Reserve would be safeguarded at the junction based on the provision of other commuter facilities such as the cycling path, covered linkway, taxi stand etc.

The cross-section of existing roads that have been safeguarded based on 38.6m road reserve shall follow the revised lane and sidetable widths given below. All newly safeguarded dual-two roads shall follow the 38.0m road reserve.

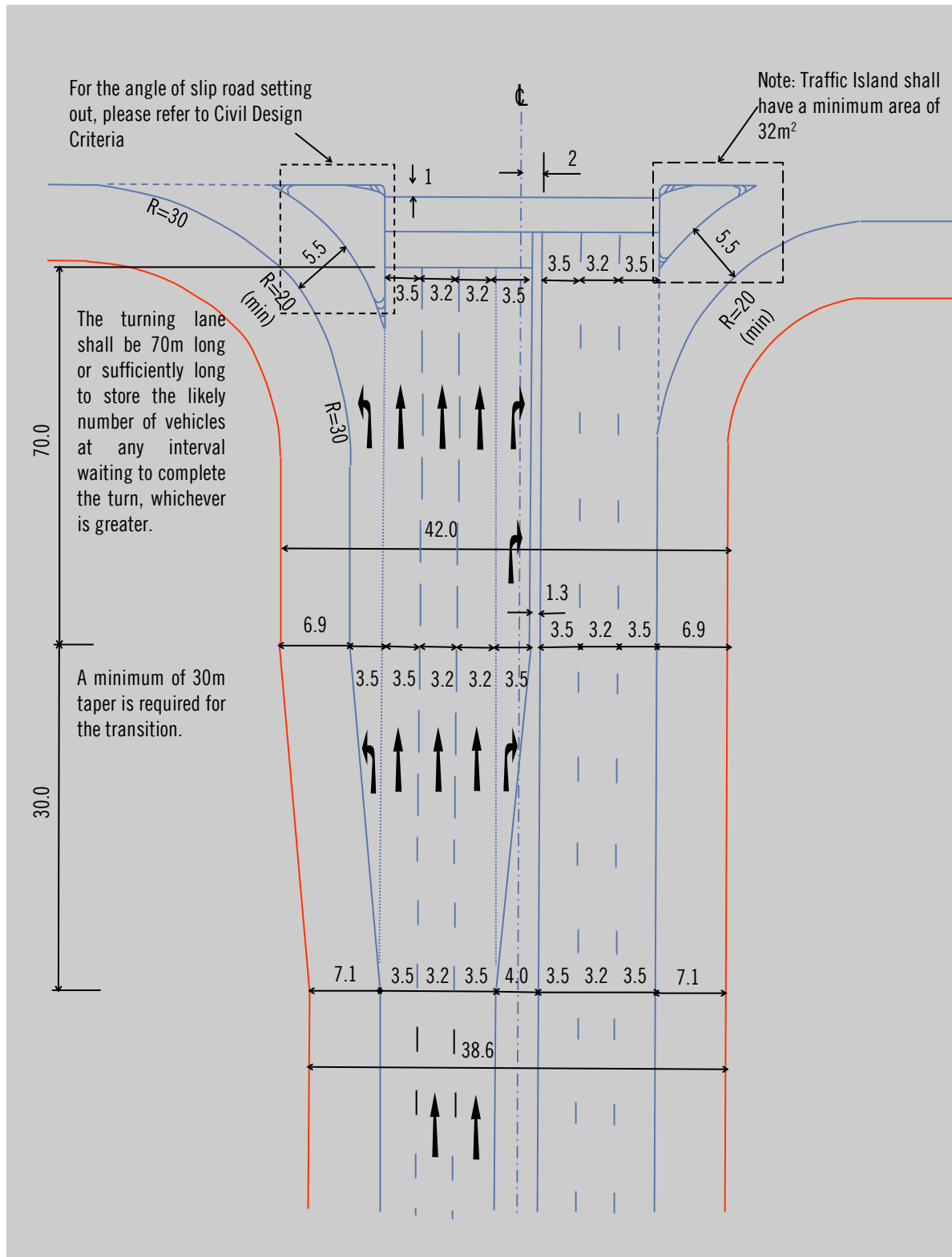


Fig 8.19 38.6m Road Reserve At Cross Junction (With Slip Roads)