



**Planning &
Infrastructure**

BLACKTOWN CITY COUNCIL GROWTH CENTRE PRECINCTS Development Control Plan

To view an electronic version in PDF format, visit the Growth Centres website: www.growthcentres.nsw.gov.au

© Crown Copyright 2015

Department of Planning and Environment

Printed July 2015

Disclaimer

While every reasonable effort has been made to ensure that this document is correct at the time of printing, the State of New South Wales, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance or upon the whole or any part of this document.

Copyright Notice

In keeping with the Department of Planning and Infrastructure's commitment to encourage the availability of information, you are welcome to reproduce the material that appears in this Development Control Plan for personal, in-house or non-commercial use without formal permission or charge. All other rights are reserved. If you wish to reproduce, alter, store or transmit material appearing in this Development Control Plan for any other purpose, a request for formal permission should be directed to:

Strategies and Land Release
Department of Planning
Level 5, 2-10 Valentine Avenue
Parramatta NSW 2150

You are required to acknowledge that the material is provided by the Department or the owner of the copyright as indicated in this Development Control Plan and to include this copyright notice and disclaimer in any copy. You are also required to acknowledge the author (the Department of Planning and Infrastructure) of the material as indicated in this Development Control Plan.

Contents

1	Introduction	1
1.1	Name and application of this plan	3
1.2	Purpose of this plan	4
1.3	Structure of this plan	4
1.4	Relationship to other planning documents	7
1.4.1	The Act and the Growth Centres SEPP	7
1.4.2	Blacktown Council planning documents	7
1.4.3	Growth Centres Biodiversity Certification	8
1.4.4	Summary of applicable planning documents	8
1.5	Consent authority	8
1.6	Exempt and Complying Development	8
1.7	Development Application Process	10
1.7.1	Development Application Process	10
1.7.2	Variations to Development Controls	11
2	Precinct Planning Outcomes	12
2.1	Introduction	13
2.2	The Indicative Layout Plan	13
2.3	Subdivision site analysis	14
2.3.1	Flooding and water cycle management	14
2.3.2	Salinity and soil management	17
2.3.3	Aboriginal and European heritage	18
2.3.4	Native vegetation and ecology	19
2.3.5	Bushfire hazard management	21
2.3.6	Site contamination	22
2.3.7	Odour assessment and control	23
3	Neighbourhood and subdivision design	25
3.1	Residential Density, Neighbourhood Design and Subdivision	27
3.1.1	Residential Density	28
3.1.2	Block and Lot Layout	30
3.1.3	Battle-axe lots	37
3.1.4	Corner Lots	39
3.2	Subdivision Approval Process	40
3.3	Construction Environmental Management	43
3.4	Movement Network	44
3.4.1	Street layout and design	44
3.4.2	Laneways	53
3.4.3	Shared Driveways	57
3.4.4	Access to arterial and sub-arterial roads	59
4	Development in the residential zones	61
4.1	Site responsive design	63

4.1.1	Site analysis	63
4.1.2	Cut and fill	63
4.1.3	Sustainable building design	65
4.1.4	Salinity, sodicity and aggressivity	66
4.2	Dwelling design controls	67
4.2.1	Summary of Key Controls	67
4.2.2	Streetscape and architectural design	74
4.2.3	Front setbacks	79
4.2.4	Side and rear setbacks	81
4.2.5	Dwelling Height, Massing and Siting	85
4.2.6	Landscaped Area	86
4.2.7	Private Open Space	87
4.2.8	Garages, Site Access and Parking	88
4.2.9	Visual and acoustic privacy	90
4.2.10	Fencing	93
4.3	Additional controls for certain dwelling types	95
4.3.1	Residential development adjacent to transmission easements	95
4.3.2	Attached or abutting dwellings	95
4.3.3	Secondary dwellings, studio dwellings and dual occupancies	96
4.3.4	Multi dwelling housing	100
4.3.5	Controls for residential flat buildings, manor homes and shop top housing	101
4.4	Other development in residential areas	104
4.4.1	General requirements	104
4.4.2	Child Care Centres	106
4.4.3	Educational Establishments and Places of Worship	109
4.4.4	Neighbourhood Shops	111
4.4.5	Seniors Housing	113
5	Centres Development Controls	115
5.1	Introduction	117
5.2	Development controls	117
5.2.1	Streetscape and architectural design	117
5.2.2	Building bulk, scale and design	121
5.2.3	Signs	123
5.2.4	Acoustic and visual privacy	125
5.2.5	Safety, surveillance and maintenance	127
5.2.6	Site servicing	128
5.2.7	Traffic circulation, parking and access	129
6	Employment Lands Subdivision and Development Controls	131
6.1	Land to which this Part applies	133
6.2	Subdivision	134
6.2.1	Lot Subdivision	134
6.2.2	Strata or Community Title	134
6.2.3	Battle Axe Lots	135
6.3	Landscape Design	136
6.3.1	Streetscape and Allotment Frontages	136
6.3.2	Allotment Landscape	136

6.3.3	Landscaping of Car Parking Areas	138
6.3.4	Communal Areas	139
6.4	Built Form and Streetscape	140
6.4.1	Setbacks	140
6.4.2	Building Design and Siting	140
6.4.3	External Building Materials and Colours	142
6.4.4	Entrance Treatment	143
6.4.5	Ancillary Buildings, Storage and Service Areas	143
6.5	Ecologically Sustainable Development	145
6.6	Fencing, Signage and Lighting	147
6.6.1	Fencing	147
6.6.2	Signage and Lighting	148
6.7	Access and Parking	149
6.7.1	Vehicular Access	149
6.8	Car parking	151
6.9	Waste Management	152
6.10	Safety and Surveillance	154
6.11	Additional Land Use Controls	155
6.11.1	Neighbourhood Shops	155
6.11.2	Child Care Centres	155
6.11.3	Sex Services Premises	156

Schedules

- Schedule One - Alex Avenue Precinct
- Schedule Two – Riverstone Precinct
- Schedule Three – Marsden Park Industrial Precinct
- Schedule Four – Area 20 Precinct
- Schedule Five – Schofields Precinct
- Schedule Six – Marsden Park Precinct

Appendices

- Appendix A – Glossary
- Appendix B – Riparian Protection Area Controls
- Appendix C – Salinity Management Strategy
- Appendix D – Prescribed Trees and Preferred Species
- Appendix E – Crime Prevention through Environmental Design
- Appendix F – Lodgement Requirements

Figures

Figure 1-1: Blacktown City Council Growth Centre Precincts	6
Figure 1-2: Development Approval process	10
Figure 3-1: Example for calculating Net Residential Density of a subdivision application	27
Figure 3-2: Distinct and coherent streetscapes occur in varying proportions in density bands	29
Figure 3-3: Measurement of minimum lot widths and lot area	34
Figure 3-4: Two examples of lot subdivision for 'sets' of attached or abutting terraces.	36
Figure 3-5: Examples of locations of battle-axe lots	37
Figure 3-6: Examples of driveways and shared driveways for battle-axe lots	38
Figure 3-7: Corner lots	39
Figure 3-8: Sample of a Building Envelope Plan (BEP)	42
Figure 3-9: Sample of a Public Domain Plan (PDP)	42
Figure 3-10: Typical sub-arterial road	49
Figure 3-11: Typical collector road	50
Figure 3-12: Typical local street	51
Figure 3-13: Typical access street	52
Figure 3-14: Laneway principles	54
Figure 3-15: Sample lane layouts	55
Figure 3-16: Sample laneways showing maximum number of secondary dwellings or strata studios ...	56
Figure 3-17: Indicative examples of shared driveways	58
Figure 4-1: Maximum cut and fill within residential lots	64
Figure 4-2: The combination of built form, lot size, garaging and landscaping creates different streetscapes	75
Figure 4-3: Streetscape design principles	78
Figure 4-4: Minimum front setback distances	80
Figure 4-5: Minimum front setbacks for dwellings fronting open space or drainage land	80
Figure 4-6: Minimum setbacks for corner lot dwellings	80
Figure 4-7: Dwelling and open space siting principles for different lot orientations	82
Figure 4-8: Battle axe lot (without any street frontage) example of setbacks	83
Figure 4-9: Battle axe lot (fronting access denied road) setbacks	84
Figure 4-10: Soft landscaped area and principal private open space	86
Figure 4-11: Measures to attenuate noise	90
Figure 4-12: Strategies for minimising noise transmission	92
Figure 4-13: Fencing design for corner lots	94
Figure 5-1: Awnings	120
Figure 5-2: Preferred locations for signs	125
Figure 6-1: Battle axe lot dimensions	135

Note: Figures referred to in the text of this DCP **by name only** are located within the relevant Precinct Schedule, if applicable to that Precinct. **Not all figures referred to in the controls in this DCP apply to all Precincts.**

Tables

Table 1-1: Adoption dates of Schedules to the BCC Growth Centre DCP amendments	3
Table 1-2: Structure of the BCC Growth Centre DCP	5
Table 1-3: Guide to the controls in this DCP	7
Table 2-1: Water quality and environmental flow targets	15
Table 3-1: Typical characteristics of residential net densities	28
Table 3-2: Minimum lot size by density bands	33
Table 3-3: Minimum lot frontages by density bands	33
Table 3-4: Subdivision Approval Process	40
Table 4-1: Summary of lot and dwelling types	68
Table 4-2: Summary of key controls for lots with frontage width $\geq 4.5\text{m}$ for rear accessed dwellings	69
Table 4-3: Summary of key controls for lots with frontage width $\geq 7\text{m}$ and $< 9\text{m}$ for front accessed dwellings	70
Table 4-4: Summary of key controls for lots with frontage width $\geq 9\text{m}$ and $\leq 15\text{m}$ for front accessed dwellings	71
Table 4-5: Summary of key controls for lots with frontage width $> 15\text{m}$ for front accessed dwellings	72
Table 4-6: Summary of key controls for lots in the Environmental Living Zone	73
Table 4-7: Noise criteria for residential premises impacted by traffic noise	91
Table 4-8: Key controls for secondary dwellings and studio dwellings	97
Table 4-9: Key controls for multi dwelling housing	100
Table 4-10: Key controls for residential flat buildings, manor homes and shop top housing	102
Table 4-11: Car parking requirements for places of public worship and educational establishments	110
Table 5-1: Car parking requirements in centres	129
Table 6-1: Landscape car parking	138
Table 6-2: Communal Area provision	139
Table 6-3: Specific land use requirements for car parking	151

1.0

Introduction

1.1 Name and application of this plan

This Development Control Plan (DCP) is the Blacktown City Council Growth Centre Precincts Development Control Plan 2010 (also referred to as BCC Growth Centre DCP). It has been prepared pursuant to the provisions of Section 72 of the *Environmental Planning and Assessment Act 1979*.

This DCP was adopted by the Deputy Director General Strategies and Land Release (or delegate) of the Department of Planning on 14 May 2010 and came into force on 19 May 2010. The Blacktown City Council Growth Centre Precincts are shown in **Figure 1-1**. This DCP only applies to Precincts where precinct planning has been completed, as shown on **Figure 1-1** and listed below¹:

- The Alex Avenue Precinct as shown in the Land Application Map in Schedule One.
- The Riverstone Precinct as shown in the Land Application Map in Schedule Two.
- The Marsden Park Industrial Precinct as shown in the Schedule Three.
- The Area 20 Precinct as shown in the Land Application Map in Schedule Four.
- The Schofields Precinct as shown in the Schedule Five.
- The Marsden Park Precinct as shown in Schedule Six

A list of the amendments incorporating precincts where precinct planning has been completed into the BCC Growth Centre DCP is provided in **Table 1-1**.

Table 1-1: Adoption dates of Schedules to the BCC Growth Centre DCP amendments

Section	Date adopted
Alex Avenue Precinct	14 May 2010
Riverstone Precinct	14 May 2010
Marsden Park Industrial Precinct	Originally adopted 19 November 2010 Amended 30 November 2011
Area 20 Precinct Cudgegong Road Station	Originally adopted 25 October 2011 Amended 14 July 2015
Schofields Precinct	9 May 2012 Amended 27 March 2013
Marsden Park Precinct	4 October 2013
Housing Diversity Amendment	13/08/2014

¹ Note that not all land in the Alex Avenue, Riverstone and Area 20 Precincts is land to which this DCP applies. Some parts of the Precincts are excluded and reference should be made to **Figure 1-1** and to Schedule One, Schedule Two and Schedule Four for details.

1.2 Purpose of this plan

The purpose of this DCP is to:

- a. Communicate the planning, design and environmental objectives and controls against which the Consent Authority will assess Development Applications (DAs);
- b. Consolidate and simplify the planning controls for the Blacktown City Council's Growth Centre Precincts;
- c. Ensure the orderly, efficient and environmentally sensitive development of the Precincts as envisaged by the North West Growth Centre Structure Plan and *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (the Growth Centres SEPP);
- d. Promote high quality urban design outcomes within the context of environmental, social and economic sustainability.

1.3 Structure of this plan

The main body of this DCP is structured in six parts containing objectives and controls which apply to all development in the Growth Centre Precincts to which this DCP applies.

As Precinct planning is completed for each Precinct, a Schedule is added to this DCP with Precinct Specific controls in addition to the controls within the main body of the DCP. In the event of an inconsistency between a Precinct's Schedule and the main body of this DCP, the Precinct's Schedule prevails. Appendices provide more detailed guidance on specific issues. **Table 1-2** provides a summary of the content of each of the seven sections and the appendices.

Table 1-2: Structure of the BCC Growth Centre DCP

Part	Summary
1 – Introduction	Sets out the aims and objectives of the DCP, identifies the land to which the DCP applies, explains the structure of the document, the relationship of the DCP to other planning documents, and explains procedures for exempt and complying development and submitting a development application.
2 – Precinct Planning Outcomes	Sets out the general structural elements of the Indicative Layout Plan which development should comply with. Also establishes matters to be addressed when carrying out a site analysis to inform the design of subdivisions and other developments. This part of the DCP provides the rationale for the more detailed and specific planning controls in the parts that follow.
3 – Neighbourhood and subdivision design	Provides objectives and controls related to residential subdivision design including the residential density and character, neighbourhood design, movement network, street and laneway design, the subdivision approval process and construction environmental management.
4 – Development in the residential zones	Establishes the objectives and controls that guide residential development, including dwelling houses, semi-detached, attached and abutting dwellings, multi unit housing, secondary and studio dwellings, dual occupancies, manor homes, residential flat buildings and shop top housing. Also covers residential amenity controls such as streetscape, safety, privacy, sustainable building design and fencing. This section also contains controls applying to non-residential development in residential zones, such as child care centres, neighbourhood shops, schools and community uses.
5 – Centres Development Controls	Provides objectives, controls and design principles for the town centres and neighbourhood centres, including the core retail and commercial area and the mixed use fringe areas.
6 – Employment Lands Development Controls	Provides controls to guide the development of industrial areas and business parks.
Precinct Schedules	A schedule for each Precinct that provides additional objectives and controls which are precinct specific, as well as precinct specific maps which are referred to throughout the main body of this DCP. Note that a separate schedule (Schedule 2) contains controls for the Leppington Major Centre. This is because it is the only major centre in the SWGC and requires specific controls.
Appendix A – Glossary	Explains the terms used in the DCP.
Appendix B – Riparian Protection Area Controls	Provides details of the management of the riparian zones along the main creek lines in the Precinct, and the management of stormwater quantity and quality from development, to achieve environmental objectives for waterways.
Appendix C – Salinity management plan	Provides details to guide subdivision and building development applications and works, to minimise the risk of developments increasing the risk of, and impacts from, soil and groundwater salinity.
Appendix D – Prescribed trees and preferred species	Identifies trees that are subject to the tree preservation provisions of the Precinct Plans, and provides a list of plant species that are preferred for use in landscaping within the Precinct.
Appendix E – Crime Prevention through Environmental Design	Establishes principles and controls for the implementation of Crime Prevention through Environmental Design in all aspects of new urban development across the Precinct.
Appendix F – Lodgement Requirements	Sets out requirements for information to be submitted with Development Applications.

Additional notes to readers are provided throughout this document. These notes are not part of the formal provisions of the DCP, but are intended to provide additional guidance and explanation of the provisions. If further guidance is required on the interpretation of provisions in the DCP, readers should refer to the definitions or contact Council for advice.

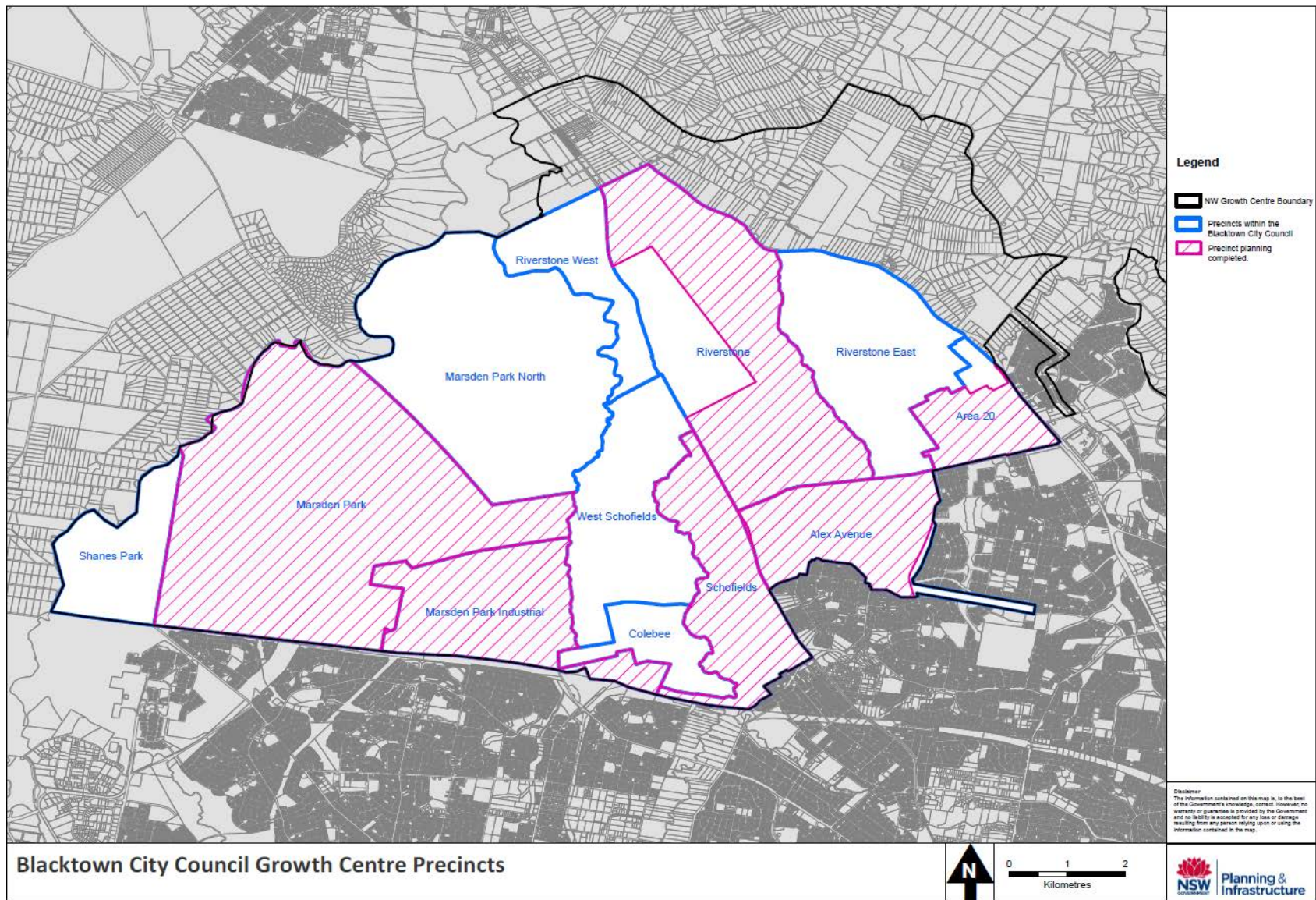


Figure 1-1: Blacktown City Council Growth Centre Precincts

Table 1-3 summarises the controls that are applicable to the main types of development that are permissible in this DCP.

Table 1-3: Guide to the controls in this DCP

Relevant DCP clause	Residential Subdivision	Industrial Subdivision	Dwelling House	Dual Occupancy Secondary Dwelling Studio Dwelling	Attached Dwelling Abutting Dwelling	Semi-Detached Dwellings	Multi Dwelling Housing	Residential Flat Buildings Manor Home	Non-residential Development **	Shop top Housing	Retail/ Commercial Development	Industrial Development
Part 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Part 2	✓	✓										
Part 3	✓											
Clause 4.1			✓	✓	✓	✓	✓	✓	✓	✓		
Clause 4.2			✓	✓	✓	✓	✓	✓	✓	✓		
Clause 4.3			✓	✓	✓	✓	✓	✓	✓	✓		
Clause 4.4									✓		✓	
Part 5										✓***	✓	
Part 6		✓										✓
Precinct Specific Schedule*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Appendices	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes:

* Additional precinct specific controls may also be contained in the relevant Precinct Schedules.

** Applies to non-residential development in land within the Residential zones (R1, R2, R3 & R4)

*** If located on land zoned B2 Local Centre or B4 Mixed Use

1.4 Relationship to other planning documents

1.4.1 The Act and the Growth Centres SEPP

This DCP has been prepared under the *Environmental Planning and Assessment Act, 1979*. It has been prepared to provide additional objectives, controls and guidance to applicants proposing to undertake development in the Blacktown City Council Growth Centre Precincts, and for Council reference in the assessment of development applications. It should be read in conjunction with the Growth Centres SEPP, in particular the specific Precinct Plans which are included as Appendices of the SEPP. The Growth Centres SEPP and the relevant Precinct Plan provide the statutory planning controls for development in the Precinct. This DCP is consistent with and supports those controls by providing more detail in relation to how development is to occur in the Precinct.

1.4.2 Blacktown Council planning documents

Blacktown Local Environmental Plan 1988 and the Blacktown Development Control Plan 2006 do not apply to land that a Precinct Plan applies to, except where specifically referred to in the Growth Centres SEPP and this DCP. Some other design standards and guidelines of Council do continue to apply, such as the Council's engineering standards documents. Where existing policies, procedures and guidelines continue to

apply to the BCC Growth Centre Precincts, these are specifically referred to in the relevant clauses of this DCP.

1.4.3 Growth Centres Biodiversity Certification

The *Threatened Species Conservation Act 1995* (the TSC Act) provides for the protection of threatened species, populations, endangered ecological communities, and critical habitat in NSW. Typically, threatened species issues are addressed during both the rezoning of land and when development applications are submitted and assessed by Council. However, the TSC Act also provides for planning instruments to be “certified”, meaning that the assessment of threatened species is done at the rezoning stage and does not need to be further considered at the development application stage. This approach provides for more strategic assessment and management of threatened species issues, and streamlines the development application process.

Biodiversity Certification was conferred upon the Growth Centres SEPP on 14 December 2007 via the gazettal of a Biodiversity Certification Order signed by the Minister for Climate Change and the Environment. The Order requires 2,000 ha of “existing native vegetation” (ENV) to be retained across the Growth Centres. Any clearance of ENV within Non-Certified Areas will be required to undertake a TSC assessment and vegetation removal may need to be offset in accordance with the Biodiversity Certification Ministerial Order.

All Indicative Layout Plans, Precinct Plans and this DCP have been prepared in accordance with the Biodiversity Certification Order. The majority of land within the Growth Centre Precincts is certified, meaning that development can occur without the need for further assessment under the TSC Act. The relevant Precinct Plans contain controls to restrict the clearing of “Existing Native Vegetation” and this is the principle mechanism for ensuring consistency with the Biodiversity Certification Order. This DCP contains other objectives and controls in relation to the protection and enhancement of native vegetation, consistent with the Biodiversity Certification Order.

1.4.4 Summary of applicable planning documents

Applicants proposing to undertake development in the Precinct, and Council when assessing development applications, should refer to:

- the Growth Centres SEPP, as amended, including the relevant Precinct Plan at the relevant Appendix;
- this DCP;
- the relevant Section 94 Contributions Plan; and
- the Growth Centres Biodiversity Certification Order, December 2007 and related amendments to the *Threatened Species Conservation Act 1995*.

1.5 Consent authority

Blacktown City Council is the consent authority for all development in the Precincts to which this DCP applies unless otherwise authorised by the *Environmental Planning and Assessment Act 1979*. Council will use this DCP in its assessment of development applications.

1.6 Exempt and Complying Development

The *Environmental Planning and Assessment Act 1979* enables certain forms of development to be classified as either exempt development or complying development through Environmental Planning Instruments.

Exempt development is development of a minor nature that can be undertaken without the need for development consent.

Complying development is development that, providing the provisions of the Building Code of Australia are satisfied, can be assessed through the issuance of a complying development certificate.

The *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, and the associated Housing Code provides controls for the siting and design of detached housing on lots 450m² and larger as well as alterations and additions to existing residential dwellings up to two storeys. Development that meets the criteria in the Housing Code is complying development and this DCP does not apply. Where a development does not meet the requirements of the Housing Code, consent is required and this DCP applies.

The *NSW Commercial and Industrial Code* outlines how internal modifications to commercial and industrial premises in certain zones can meet the complying development criteria. Where a development does not meet the requirements of these Codes, consent is required and this DCP applies.

1.7 Development Application Process

1.7.1 Development Application Process

The development application process is summarised in **Figure 1-2**.

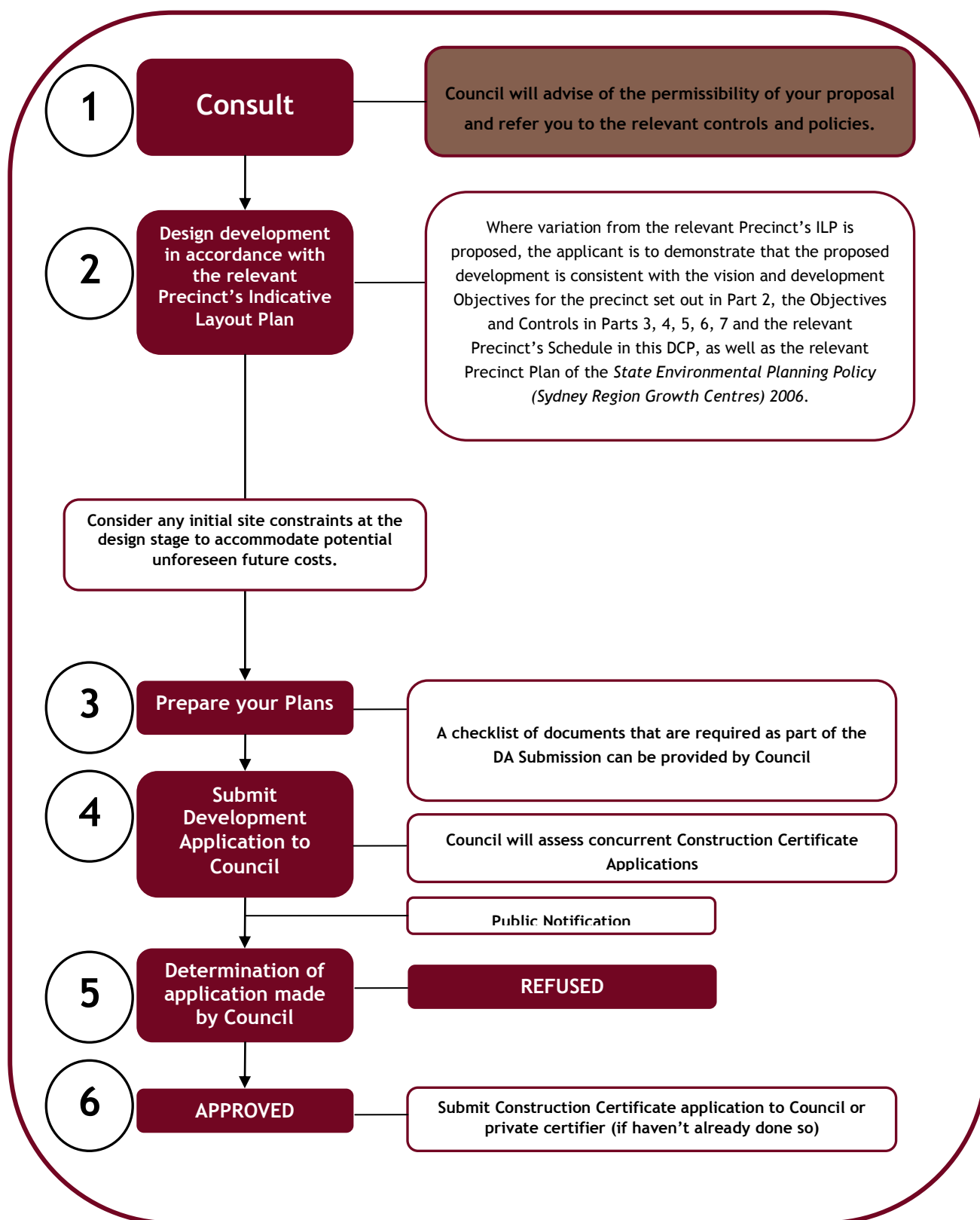


Figure 1-2: Development Approval process

1.7.2 Variations to Development Controls

Council may grant consent to a proposal that does not comply with the controls in this DCP, providing the intent of the controls is achieved. Similarly, Council may grant consent to a proposal that varies from the Indicative Layout Plan (ILP), where the variation is considered to be minor and the proposal remains generally consistent with the ILP. As such, each DA will be considered on its merits.

Where variation from the relevant Precinct's ILP is proposed, the applicant is to demonstrate that the proposed development is generally consistent with the Objectives and Controls in Parts 2, 3, 4, 5, 6 (as relevant) and the relevant Precinct Schedule in this DCP, as well as the relevant Precinct Plan under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*.

Where a variation is sought it must be justified in writing indicating how the development is meeting the intention of the objectives of the relevant control and/or is generally consistent with the ILP.

2.0

Precinct Planning Outcomes

2.1 Introduction

This Part of the DCP defines Precinct wide planning outcomes. These outcomes apply broadly to all Precincts that this DCP applies to. The specific way the outcomes are to be achieved for each Precinct is established by the Indicative Layout Plan. This part also outlines the matters to be considered when undertaking site analysis for subdivision planning. These controls should be considered during the initial stages of subdivision planning to determine the suitability and the development potential of land.

2.2 The Indicative Layout Plan

An **Indicative Layout Plan**, specific to each Precinct, is contained in the relevant Precinct Schedule. The Indicative Layout Plan forms the basis for urban development in the Precinct by setting out:

- the road network;
- public transport routes;
- the open space and drainage networks;
- the locations of land uses including residential development, schools, community facilities, utilities, centres and employment lands;
- areas requiring protection because of environmental or heritage values;
- the density and types of housing that are preferred in various parts of the Precinct.

Objectives

- a. To ensure that development in the Precinct occurs in a coordinated manner consistent with the North West Structure Plan and the Precinct's Indicative Layout Plan.

Controls

1. All development applications are to be generally in accordance with the Indicative Layout Plan.
2. When assessing development applications, Council will consider the extent to which the proposed development is consistent with the Indicative Layout Plan.
3. Any proposed variations to the general arrangement of the Indicative Layout Plan must be demonstrated by the applicant, to Council's satisfaction, to be consistent with the Precinct Planning vision in the relevant Precinct Schedule.

2.3 Subdivision site analysis

The following clauses contain matters to be addressed in relation to existing site characteristics, when planning new subdivisions.

2.3.1 Flooding and water cycle management

Objectives

- a. to manage the flow of stormwater from urban parts of the Precinct to replicate, as closely as possible, pre-development flows;
- b. to define the flood constraints and standards applicable to urban development in the Precinct;
- c. to minimise the potential of flooding impacts on development.

Controls - General

1. No residential allotments are to be located at a level lower than the 1% Annual Exceedance Probability (AEP) flood level plus a freeboard of 500mm (i.e. within the 'flood planning area').
2. Pedestrian and cycle pathways and open space may extend within the 1% AEP flood level, provided the safe access criteria contained in the NSW Floodplain Manual are met. The **Flood Prone Land** figure in the relevant Precinct's Schedule shows indicatively the extent of the 1% AEP flood level.

Note: Where development is proposed within or adjacent to land that is shown on the **Flood Prone Land** figure, in the relevant Precinct's Schedule, as being affected by the 1% AEP level, Council may require a more detailed flood study to be undertaken by the applicant to confirm the extent of the flood affectation on the subject land.

3. Stormwater is to be managed primarily through the street network in accordance with Council's Water Sensitive Urban Design Development Control Plan.
4. Roads on primary drainage lines shown on the Key elements of the water cycle management and ecology strategy figure, in the relevant Precinct Schedule, are to be constructed in the locations shown, and are to be designed in accordance with specifications of Council in relation to management of stormwater flows and quality.
5. Roads are generally to be located above the 1% AEP level.
6. Management of 'minor' flows using piped systems for the 20% AEP (residential land use) and 10% AEP (commercial land use) shall be in accordance with Blacktown Council's Engineering Guidelines for Subdivision and Development. Management measures shall be designed to:
 - prevent damage by stormwater to the built and natural environment,
 - reduce nuisance flows to a level which is acceptable to the community,
 - provide a stormwater system which can be economically maintained and which uses open space in a compatible manner,
 - control flooding,

- minimise urban water run-off pollutants to watercourses, and
 - meet the standards for a 20% AEP flood level.
7. Management of 'major' flows using dedicated overland flow paths such as open space areas, roads and riparian corridors for all flows in excess of the pipe drainage system capacity and above the 20% AEP shall be in accordance with Blacktown Council's Engineering Guidelines for Subdivision and Development. Management measures shall be designed to:
- prevent both short term and long term inundation of habitable dwellings,
 - manage flooding to create lots above the designated flood level with flood free access to a public road located above the 1% AEP flood level,
 - control flooding and enable access to lots, stabilise the land form and control erosion,
 - provide for the orderly and safe evacuation of people away from rising floodwaters,
 - stabilise the land form and control erosion, and
 - meet the standards for a 1% AEP flood level.
8. Where practical, development shall attenuate up to the 50% AEP peak flow for discharges into the local tributaries, particularly Category 1 and 2 creeks. This will be achieved using detention storage within water quality features and detention basins.
9. The developed 1% AEP peak flow is to be reduced to pre-development flows through the incorporation of stormwater detention and management devices.
10. In general, Council will not support development, including the filling of land, within the floodway due to its function as the main flow path for flood waters once the main channel has overflowed and the possibility of a significant threat to life and property in a major flood.
11. The trunk stormwater system is to be constructed and maintained by Council in accordance with the Riparian and Water Cycle Management Strategy at **Appendix B**, and to achieve water quality targets set by the Department of Environment, Climate Change and Water in **Table 2-1**.

Table 2-1: Water quality and environmental flow targets

	WATER QUALITY % reduction in pollutant loads				ENVIRONMENTAL FLOWS Stream erosion control ratio ¹
	Gross Pollutants (>5mm)	Total suspended solids	Total phosphorous	Total nitrogen	
Stormwater management Objective	90	85	65	45	3.5-5.0: 1
'Ideal' stormwater outcome	100	95	95	85	1:1

¹ This ratio should be minimised to limit stream erosion to the minimum practicable. Development proposals should be designed to achieve a value as close to one as practicable, and values within the nominated range should not be exceeded. A specific target cannot be defined at this time.

12. Where development on land affected by local runoff or local overland flooding – major drainage is proposed, it must be designed in accordance with Council's "*Engineering Guide for Development*".
13. Where development within the floodway is proposed, it must meet the requirements of the **Controls – development within the floodway**, below.

Controls - development within the floodway

14. In determining any application for development on land designated as being within the floodway or flood fringe, Council will consider the following:
 - Whether the proposed building materials are suitable;
 - Whether the buildings are to be sited in the optimum position to avoid flood waters and allow evacuation;
 - Whether proposed structures or the filling of land are likely to affect flood flows;
 - Whether earthworks required to maintain the capacity of the floodplain and flood flow velocities will impact on soil salinity and soil stability;
 - The potential impact of the development, including earthworks, on native vegetation;
 - The views of other authorities, as considered necessary and whether the applicant has consulted with those authorities and the outcomes of that consultation; and
 - Consistency with the NSW Floodplain Manual.
15. An application lodged for development in a floodway (other than agriculture, cultivation and minor alterations to existing buildings) shall be accompanied by a survey plan to satisfactorily demonstrate that:
 - The development will not increase flood hazard or damage to other properties or adversely affect them in any way, by the provision of a report from a professional civil engineer experienced in hydraulics.
 - The building can withstand the force of flooding, by the provision of a detailed report from a professional structural engineer.
16. Applications may be required to indicate that permanent fail-safe, maintenance-free measures are incorporated in the development to ensure the timely, orderly and safe evacuation of people from the area should a flood occur. In addition, it may also be necessary to demonstrate that the displacement of these people during times of flood will not significantly add to the overall community cost and community disruption caused by the flood.
17. Applications may be required to indicate proposed flood proofing of the structure to the satisfaction of Council.

2.3.2 Salinity and soil management

Objectives

- a. To manage and mitigate the impacts of, and on, salinity and sodicity.
- b. To minimise the damage caused to property and vegetation by existing saline soils, or processes that may create saline soils.
- c. To ensure development will not significantly increase the salt load in existing watercourses.
- d. To prevent degradation of the existing soil and groundwater environment, and in particular, to minimise erosion and sediment loss and water pollution due to siltation and sedimentation.

Controls

1. Every subdivision development application for land identified in the **Areas of potential salinity and soil aggressivity risk** figure, in the relevant Precinct Schedule, as having a high risk of salinity or mildly to moderately aggressive soil is to be accompanied by a salinity report prepared by a suitably qualified person. The report is to cover the conditions of the site, the impact of the proposed subdivision on the saline land and the mitigation measures that will be required during the course of construction. The qualified person is to certify the project upon completion of the works. Investigations and sampling for salinity are to be conducted in accordance with the requirements of Site Investigations for Urban Salinity (DNR). Where applicable, the salinity report shall also report on the issues of soil aggressivity and sodicity and any mitigation measures required. All works are to comply with the Western Sydney Salinity Code of Practice 2004 (WSROC).
2. A comprehensive Salinity Management Plan must be submitted based on the findings of the site specific investigation and prepared in accordance with the Western Sydney Salinity Code of Practice 2004 (WSROC) and **Appendix C**.
3. All subdivision, earthworks and building works are to comply with the Salinity Management Plan.
4. Salinity and sodicity management related to **Appendix C** is to complement WSUD strategies, improving or at least maintaining the current condition, without detriment to the waterway environment.
5. All development must incorporate soil conservation measures to minimise soil erosion and siltation during construction and following completion of development. Soil and Water Management Plans, prepared in accordance with Blacktown DCP and Managing Urban Stormwater - Soils and Construction (Landcom 3rd Edition March 2004 ('The Blue Book')) are to be submitted with each relevant subdivision Development Application.
6. Salinity shall be considered during the planning, design and carrying out of earthworks, rehabilitation works and during the siting, design and construction of all development including infrastructure:
 - To protect development and other works from salinity damage; and
 - To minimise the potential impacts that development and other works may have on salinity.

2.3.3 Aboriginal and European heritage

Objectives

- a. To manage Aboriginal heritage values to ensure enduring conservation outcomes.
- b. To ensure areas identified as archaeologically or culturally significant are managed appropriately.

Controls

1. Development applications must identify any areas of Aboriginal heritage value that are within or adjoining the area of the proposed development, including any areas within the development site that are to be retained and protected (and identify the management protocols for these).
2. Developments or other activities that will impact on Aboriginal heritage may require consent from the Department of Environment, Climate Change and Water (DECCW) under the National Parks and Wildlife Act 1974 and consultation with the relevant Aboriginal communities.
3. Any development application that is within or adjacent to land that contains a known Aboriginal cultural heritage site, as indicated on the Aboriginal cultural heritage sites figure, in the relevant Precinct Schedule, must consider and comply with the requirements of the National Parks and Wildlife Act, 1974.
4. Where the necessary consents have already been obtained from the DECCW, the development application must demonstrate that the development will be undertaken in accordance with any requirements of that consent.
5. Applications for subdivision and building on the properties identified on the **European cultural heritage sites** figure, in the relevant Precinct's Schedule, are to be accompanied by a report from a suitably qualified heritage consultant detailing the results of archaeological investigations undertaken to confirm the presence of archaeological material relating to the heritage site. Where archaeological material is identified, the proposal is to address the requirements of the *Heritage Act 1977*.

Notes:

Any works, development or other activity that will impact on a known site of Aboriginal cultural heritage significance may require approval under the National Parks and Wildlife Act, 1974, in addition to any approval requirements of Council under the relevant Precinct Plan. Applicants should consult with DECCW to determine requirements for assessment and approval where developments or other works are to be carried out on or near Aboriginal heritage sites identified on the Aboriginal cultural heritage sites figure, in the relevant Precinct Schedule.

Council or the DECCW may require additional investigations to be undertaken as part of a development application to confirm the presence of Aboriginal cultural heritage on the land.

Where works uncover items that may be Aboriginal cultural heritage, the applicant is to consult with DECCW to determine an appropriate course of action.

2.3.4 Native vegetation and ecology

Objectives

- a. To conserve and rehabilitate the remaining native vegetation within the relevant Precinct;
- b. To ensure that native vegetation contributes to the character and amenity of the relevant Precinct;
- c. To preserve and enhance the ecological values of the Precinct, and ecological links to surrounding areas.

Controls

1. Native trees and other vegetation are to be retained where possible by careful planning of subdivisions to incorporate trees into areas such as road reserves and private or communal open space.
2. Where practical, prior to development commencing, applicants are to:
 - provide for the appropriate re-use of native plants and topsoil that contains known or potential native seed bank; and
 - relocate native animals from development sites. Applicants should refer to OEH's *Policy on the Translocation of Threatened Fauna in NSW*.
3. Within land that is in a **Riparian Protection Area** as shown on the figure in the relevant Precinct Schedule:
 - all existing native vegetation is to be retained and rehabilitated, except where clearing is required for essential infrastructure such as roads; and
 - native vegetation is to be conserved and managed in accordance with the Riparian Protection Area controls at **Appendix B**.
4. Development on land that adjoins land zoned E2 Environmental Conservation is to ensure that there are no significant detrimental impacts to the native vegetation and ecological values of the E2 zone.
5. All subdivision design and bulk earthworks are to consider the need to minimise weed dispersion and eradication. If Council believes that a significant weed risk exists, a Weed Eradication and Management Plan outlining weed control measures during and after construction is to be submitted with the subdivision DA.
6. A landscape plan is to be submitted with all subdivision development applications, identifying:
 - all existing trees on the development site and those that are proposed to be removed or retained;
 - the proposed means of protecting trees to be retained during both construction of subdivision works and construction of buildings;
 - proposed landscaping including the locations and species of trees, shrubs and ground cover to be planted as part of subdivision works; and

- the relationship of the proposed landscaping to native vegetation that is to be retained within public land, including factors such as the potential for weed or exotic species invasion and the contribution of the proposed landscaping to the creation of habitat values and ecological linkages throughout the Precinct.

7. The selection of trees and other landscaping plants is to consider:

- The prescribed trees in **Appendix D**;
- The use of locally indigenous species where available;
- Contribution to the management of soil salinity, groundwater levels and soil erosion.

8. For the purposes of clause 5.9 of the relevant Precinct Plan, prescribed trees include:

- Trees taller than the minimum height and greater than the minimum trunk diameter specified in **Appendix D**, and
- Tree species listed in **Appendix D**.

Note: *Where applicable, clause 5.9 of the Precinct Plan requires development consent or a permit to ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation that is prescribed by this DCP, except where other requirements of clause 5.9 are met.*

2.3.5 Bushfire hazard management

Objectives

- a. To prevent loss of life and property due to bushfires by providing for development compatible with bushfire hazard.
- b. To encourage sound management of bushfire-prone areas.

Controls

1. Reference is to be made to Planning for Bushfire Protection 2006 in subdivision planning and design and development is to be consistent with Planning for Bushfire Protection 2006, except where varied by controls that follow.
2. Subject to detailed design at development application stage, the indicative location and widths of Asset Protection Zones (APZs) are to be provided generally in accordance with the Bushfire risk and asset Protection Zone requirements figure in the relevant Precinct Schedule.
3. APZs:
 - are to be located wholly within the Precinct;
 - may incorporate roads and flood prone land,
 - are to be located wholly outside of a core riparian zone (CRZ) but may be located within the vegetated buffer (subject to the conditions set out in **Appendix B** and other controls in the clause),
 - may be used for open space and recreation subject to appropriate fuel management,
 - are to be maintained in accordance with the guidelines in Planning for Bushfire Protection 2006,
 - may incorporate private residential land, but only within the building setback (no dwellings are to be located within the APZ),
 - are not to burden public land except where consistent with control 4 below, and
 - are to be generally bounded by a public road or perimeter fire trail that is linked to the public road system at regular intervals in accordance with *Planning for Bushfire Protection 2006*.
4. Vegetation outside core Riparian Protection Area, Native Vegetation Protection Areas and Existing Native Vegetation is to be designed and managed as a 'fuel reduced area'.
5. Where an allotment fronts and partially incorporates an APZ it shall have an appropriate depth to accommodate a dwelling with private open space and the minimum required APZ. The APZ will be identified through a Section 88B instrument.
6. Temporary APZs, identified through a Section 88B instrument, will be required where development is proposed on allotments next to undeveloped land that presents a bushfire hazard. Once the adjacent stage of development is undertaken, the temporary APZ will no longer be required and shall cease.

2.3.6 Site contamination

Objectives

- a. To minimise the risks to human health and the environment from the development of potentially contaminated land; and
- b. To ensure that potential site contamination issues are adequately addressed at the subdivision stages.

Controls

1. All subdivision Development Applications shall be accompanied by a Stage 1 Preliminary Site Investigation prepared in accordance with State Environmental Planning Policy 55 – Remediation of Land and the Contaminated Land Management Act, 1995.
2. Where the Stage 1 Investigation identifies potential or actual site contamination a Stage 2 Detailed Site Investigation must be prepared in accordance with State Environmental Planning Policy 55 – Remediation of Land and the Contaminated Land Management Act, 1995. A Remediation Action Plan (RAP) will be required for areas identified as contaminated land in the Stage 2 Site Investigation.
3. All investigation, reporting and identified remediation works must be in accordance with the protocols of Council's Policy – Management of Contaminated Lands, the NSW EPA's (now DECCW) Guidelines for Consultants Reporting on Contaminated Sites and SEPP 55 – Contaminated Land.
4. Prior to granting development consent, the Consent Authority must be satisfied that the site is suitable, or can be made suitable, for the proposed use. Remediation works identified in any RAP will require consent prior to the works commencing.
5. Council may require a Site Audit Statement (SAS) (issued by a DECCW Accredited Site Auditor) where remediation works have been undertaken to confirm that a site is suitable for the proposed use.
6. Applicants should refer to, and ensure applications are consistent with, Blacktown Development Control Plan.

Note: All applicants should consider and assess contamination hazards on their land in accordance with the Contaminated Land Management Act, 1995 and State Environmental Planning Policy 55 – Remediation of Land, both of which override any controls in this DCP.

2.3.7 Odour assessment and control

Odour is legislated by the *Protection of the Environment Operations Act 1997* and managed by the NSW Government. Currently the only methods of controlling odour impacts are applying buffers around odour generating activities and Industry Best Management Practices.

Prior to the commencement of this DCP the BCC Growth Centre precincts were mostly zoned for rural purposes. The Precincts, and nearby rural areas, contain a number of existing rural uses that have the potential to generate odour and other associated impacts that may affect the amenity of nearby urban areas. While these activities may cease operation at some point in the future (such as when the land is rezoned and developed for urban purposes) the timing of cessation of odour generating land uses is not known nor able to be controlled by Council or the Department of Planning. Developers and buyers of property within the BCC Growth Centre precincts should be aware that their property may be subject to odour impacts from these uses for an indeterminate period of time.

Where land is affected by an odour buffer or adjacent to odour generating activities Council will consider whether the type of development in this area is appropriate and will also consider the need for the applicant to provide additional supporting information with the Development Application.

3.0

**Neighbourhood and
subdivision design**

3.1 Residential Density and Subdivision

The Growth Centres are subject to minimum residential density targets as detailed in the Residential Density Maps in the SEPP. This section provides guidance on the typical characteristics of the residential density target bands.

Net Residential Density means the net developable area in hectares of the land on which the development is situated divided by the number of dwellings proposed to be located on that land. Net Developable Area means the land occupied by the development, including internal streets plus half the width of any adjoining access roads that provide vehicular access, but excluding land that is not zoned for residential purposes. Refer to **Figure 3-1** and Landcom's "Residential Density Guide" and the Department of Planning and Environment's "Dwelling Density Guide" for further information.



Figure 3-1: Example for calculating Net Residential Density of a subdivision application

Net Residential Density is an averaging statistic. The average dwelling density target in the SEPP should be achieved across the identified area with a diversity of lot and housing types. However, this does not mean that all streets offer the same housing and lot mix. Built form intensity should vary across a neighbourhood in response to the place: more intense around centres or fronting parks, less intense in quieter back streets. In lower density areas, there will be a higher proportion of larger lots and suburban streetscapes but there may also be some streets with an urban character. In higher density areas, urban streets with more attached housing forms will be more common but there will also be some suburban streetscapes.

In recognition of different objectives and street characters at varying densities, certain built form controls vary by density bands. Refer to the section Residential Development.

3.1.1 Residential Density

Objectives

- a. To ensure minimum density targets are delivered.
- b. To provide guidance to applicants on the appropriate mix of housing types and appropriate locations for certain housing types.
- c. To establish the desired character of the residential areas.
- d. To promote housing diversity and affordability.

Controls

1. All applications for residential subdivision and the construction of residential buildings are to demonstrate that the proposal meets the minimum residential density requirements of the relevant Precinct Plan and contributes to meeting the overall dwelling target in the relevant Precinct.
2. Residential development is to be generally consistent with the residential structure as set out in the Residential Structure Figure in the relevant Precinct Schedule, the typical characteristics of the corresponding Density Band in **Table 3-1**.

Table 3-1: Typical characteristics of residential net densities

Net Residential Density dw/Ha	Typical Characteristics
10 - 12.5 dw/Ha	• Generally located away from centres and transport. • Predominantly detached dwelling houses on larger lots with some semi-detached dwellings and / or dual occupancies. • Single and double storey dwellings. • Mainly garden suburban and suburban streetscapes. (See Figure 3-2).
15 -20dw/Ha	• Predominantly a mix of detached dwelling houses, semi-detached dwellings and dual occupancies with some secondary dwellings. • Focused areas of small lot dwelling houses in high amenity locations. • At 20dw/Ha, the occasional manor home on corner lots. • Single and double storey dwellings. • Mainly suburban streetscapes, the occasional urban streetscape. (See Figure 3-2).
25 - 30 dw/Ha	• Generally located within the walking catchment of centres, corridors and / or rail based public transport. • Consists of predominantly small lot housing forms with some multi-dwelling housing, manor homes and residential flat buildings located close to the local centre and public transport. • Generally single and double storey dwellings with some 3 storey buildings. • Incorporates some laneways and shared driveways. • Be designed to provide for activation of the public domain, including streets and public open space through the orientation and design of buildings and communal spaces. • Mainly urban streetscapes, some suburban streetscapes. (See Figure 3-2).
40+ dw/Ha	• Generally located immediately adjacent centres and / or rail based public transport • Consists of predominantly residential flat buildings, shop top housing, manor homes, attached or abutting dwellings and multi-dwelling housing • Generally double and multi-storey buildings • Predominantly urban streetscapes with minimal front setback; incorporates laneways and shared driveways. (See Figure 3-2).



Garden Suburban



Suburban



Urban

Figure 3-2: Distinct and coherent streetscapes occur in varying proportions in density bands

3. Residential development in the Environmental Living area, on the **Residential Structure** figure, is to:
- Consist primarily of single dwellings on larger lots, reflecting the environmental sensitivity and visual character of these parts of the Precincts.
 - Emphasise high quality housing design to make the most of the environmental characteristics of the surrounding area.
 - Be designed and located to minimise impacts on flood prone land, and risks to property from flooding.
 - Avoid impacts on Existing Native Vegetation and other remnant native vegetation.
 - Consider relationships to adjoining land uses including public open space and drainage infrastructure.
 - Be designed to respond to constraints from infrastructure corridors such as electricity lines, underground gas pipelines and any Sydney Catchment Authority infrastructure.
 - Consider views to and from the land and surrounding parts of the Growth Centre.
4. Non-residential development in the residential areas is encouraged where it:
- Contributes to the amenity and character of the residential area within which it is located.
 - Provides services, facilities or other opportunities that meet the needs of the surrounding residential population, and contributes to reduced motor vehicle use.
 - Will not result in detrimental impacts on the amenity and safety of surrounding residential areas, including factors such as noise and air quality.
 - Is of a design that is visually and functionally integrated with the surrounding residential area.

Note: *The relevant Precinct Plan permits certain non-residential development within the residential zones. Other parts of this DCP provide more detailed objectives and controls for these types of development.*

3.1.2 Block and Lot Layout

Objectives

- a. To establish a clear urban structure that promotes a 'sense of neighbourhood' and encourages walking and cycling.
- b. To efficiently utilise land and achieve the target dwelling yield for the relevant Precinct.
- c. To emphasise the natural attributes of the site and reinforce neighbourhood identity through the placement of visible key landmark features, such as parks, squares and landmark buildings.
- d. To optimise outlook and proximity to public and community facilities, parks and public transport with increased residential density.

- e. To encourage variety in dwelling size, type and design to promote housing choice and create attractive streetscapes with distinctive characters.
- f. To accommodate a mix of lot sizes and dwelling types across a precinct.
- g. To establish minimum lot dimensions for different residential dwelling types.

Controls

Blocks

- 1. All Residential neighbourhoods are to be focused on elements of the public domain such as a school, park, retail, or community facility that are typically within walking distance.
- 2. Subdivision layout is to create a legible and permeable street hierarchy that responds to the natural site topography, the location of existing significant trees and site features, place making opportunities and solar design principles.
- 3. Pedestrian connectivity is to be maximised within and between each residential neighbourhood with a particular focus on pedestrian routes connecting to public open space, bus stops and railway stations, educational establishments and community/recreation facilities.
- 4. Street blocks are to be generally a maximum of 250m long and 70m deep. Block lengths in excess of 250m may be considered by Council where pedestrian connectivity, stormwater management and traffic safety objectives are achieved. In areas around neighbourhood and town centres, the block perimeters should generally be a maximum of 520m (typically 190m x 70m) to increase permeability and promote walking.

Lots

- 5. Minimum lot sizes for each dwelling type will comply with the minimum lot size provisions permitted by the Sydney Region Growth Centres SEPP, summarised here as

Table 3-2: Minimum lot size by density bands. In certain density bands, variations to some lot sizes may be possible subject to Section 4 of the relevant Precinct Plan in the Sydney Region Growth Centres SEPP.

6. Minimum lot frontages applying to each density band will comply with **Table 3-3:** Minimum lot frontages by density bands. Lot frontage is measured at the street facing building line as indicated in **Figure 3-3**.

Table 3-2: Minimum lot size by density bands

	R2 Low Density Residential						R3 Medium Density Residential			
Minimum Net Residential Target (dwellings/Ha)	11	12.5	15	20	25	30	25	35	40	45
Dwelling House (base control)	360	300	300	300	300	300	300	300	300	300
With BEP	360	300	250	225	225	225	225	225	225	225
As Integrated DA	360	300	250	200	125	125	125	125	125	125
Locational criteria* (BEP or Integrated DA)	N/A	N/A	225	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Studio Dwelling	No minimum lot size as strata development not subject to minimum lot size controls									
Secondary Dwelling	450	450	450	450	450	450	In principal lot			
Dual Occupancy	600	600	500	500	400	300	400	300	250	250
Semi Detached Dwelling	600	600	300	300	250	250	250	250	250	250
Attached Dwelling	X	X	1500*	375	375	375	375	375	375	375
Multi Dwelling Housing	X	X	1500*	1500	375	375	375	375	375	375
Manor Homes	X	X	X	600	600	600	600	600	600	600
Residential Flat Buildings	x	x	X	x	x	x	2000	1000	1000	1000

Notes:

“X” denotes not permissible

* On land zoned R2 with a minimum residential density of 15d/ha, the minimum development lot size for the purposes of a dwelling house can be varied to 225m² in places that satisfy one of the following locational criteria. Attached dwellings and Multi dwelling housing is also permissible on land zoned R2 with a minimum residential density of 15d/ha that also satisfies one of these criteria:

- adjoining land within Zone RE1 Public Recreation or land that is separated from land within Zone RE1 Public Recreation only by a public road;
- adjoining land within Zone B1 Neighbourhood Centre, Zone B2 Local Centre or Zone B4 Mixed Use or land that is separated from land within Zone B1 Neighbourhood Centre, Zone B2 Local Centre or Zone B4 Mixed Use only by a public road;
- adjoining land that is set aside for drainage or educational purposes, or is separated from that land only by a public road; and is within 400m of land in Zone B1 Neighbourhood Centre or Zone B2 Local Centre.

Table 3-3: Minimum lot frontages by density bands

		Net Residential Density Target (dw/Ha)		
		10 to 12.5dw/Ha	15dw/Ha	20 to 45dw/Ha
Minimum Lot Frontages	Front Loaded	12.5m	9m	7m
	Rear Loaded	4.5m	4.5m	4.5m

Note: The combination of the lot frontage width and the size of the lot determine the type of dwelling that can be erected on the lot, and the development controls that apply to that dwelling.

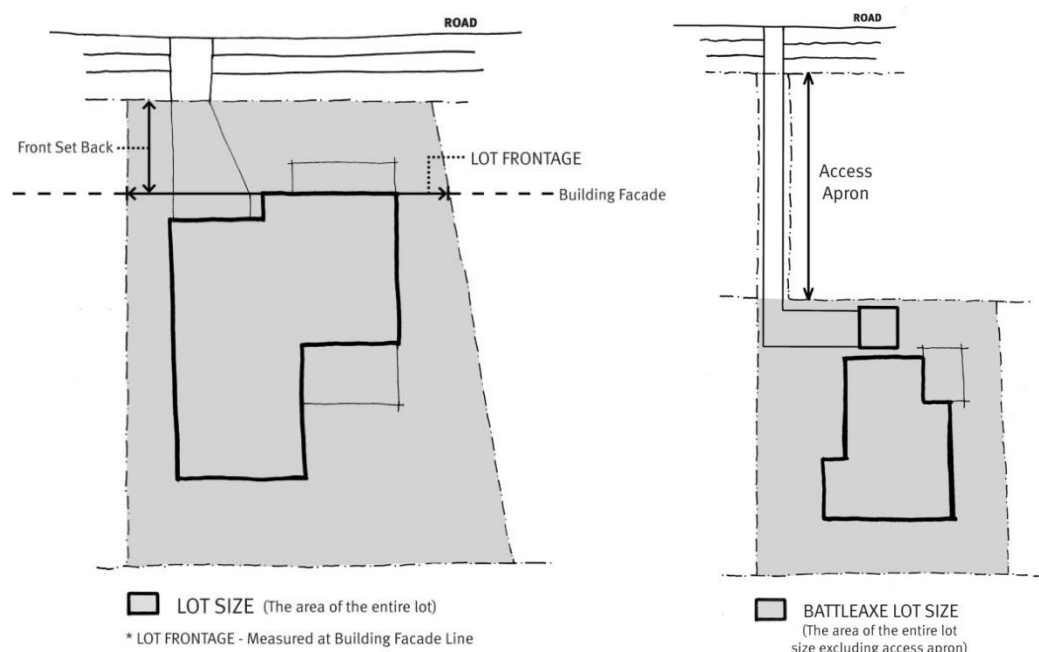


Figure 3-3: Measurement of minimum lot widths and lot area

7. A range of residential lot types (area, frontage, depth, zero lot and access) must be provided to ensure a mix of housing types and dwelling sizes and to create coherent streetscapes with distinctive garden suburban, suburban and urban characters across a neighbourhood.
8. No more than 40% of the total residential lots proposed in a subdivision development application may be of the same lot type. For the purposes of this control, a lot type is primarily determined by lot frontage, but other variables that may be considered are access and configuration. Lot width categories are determined by a range of plus or minus 1.0m. For example, lots between 9.0m and 11.0m are classified as the one type of lot for the purposes of this control. Every DA for subdivision must be accompanied by a Lot Mix table showing the lot types, number and percentage of the overall total. Lots subdivided using Subdivision Approval Pathways B1 or B2 (Integrated Housing) for attached or abutting dwellings are exempt from this control.
9. In density bands $\leq 25dw/Ha$, total lot frontage for front accessed lots greater than or equal to 7m and less than 9m should not exceed 20% of any block length due to garage dominance and on-street parking impacts.
10. Lots should be rectangular. Where lots are an irregular shape, they are to be large enough and oriented appropriately to enable dwellings to meet the controls in this DCP.
11. Where residential development adjoins land zoned RE1 Public Recreation or SP2 Drainage, subdivision is to create lots for the dwelling and main residential entry to front the open space or drainage land.

12. The orientation and configuration of lots is to be generally consistent with the following subdivision principles:
 - Smallest lots achievable for the given orientations fronting parks and open space with the larger lots in the back streets;
 - Larger lots on corners;
 - North to the front lots are either the widest or deepest lots, or lots suitable for residential development forms with private open space at the front. Narrowest lots with north to the rear.
13. Preferred block orientation is established by the road layout on the Indicative Layout Plan in the relevant Precinct Schedule. Optimal lot orientation is east-west, or north-south where the road pattern requires. Exceptions to the preferred lot orientation may be considered where factors such as the layout of existing roads and cadastral boundaries, or topography and drainage lines, prevent achievement of the preferred orientation.
14. An alternative lot orientation may be considered where other amenities such as views and outlook over open space are available, and providing appropriate solar access and overshadowing outcomes can be achieved.

Note: *The combination of the lot frontage width and the size of the lot determine the type of dwelling that can be erected on the lot, and the development controls that apply to that dwelling.*

Zero Lot Lines

15. The location of a zero lot line is to be determined primarily by topography and should be on the low side of the lot to minimise water penetration and termite issues. Other factors to consider include dwelling design, adjoining dwellings, landscape features, street trees, vehicle crossovers and the lot orientation as illustrated at Figure 19.
16. On all lots where a zero lot line is permitted, the side of the allotment that may have a zero lot alignment must be shown on the approved subdivision plan.
17. Where a zero lot line is nominated on an allotment on the subdivision plan, the adjoining (burdened) allotment is to include a 900mm easement for single storey zero lot walls and 1200mm for two storey zero lot walls to enable servicing, construction and maintenance of the adjoining dwelling. No overhanging eaves, gutters or services (including rainwater tanks, hot water units, air-conditioning units or the like) of the dwelling on the benefited lot will be permitted within the easement. Any services and projections permitted under Clause 4.4 (6) within the easement to the burdened lot dwelling should not impede the ability for maintenance to be undertaken to the benefitted lot.
18. The S88B instrument for the subject (benefited) lot and the adjoining (burdened) lot shall include a note identifying the potential for a building to have a zero lot line. The S88B instrument supporting the easement is to be worded so that Council is removed from any dispute resolution process between adjoining allotments.

For more information, refer to the **Department of Planning and Environment Delivery Notes: Zero Lot Boundaries and Building Envelope Plans**.

Subdivision of Shallow Lots

19. Shallow lots (typical depth 14-18m, typical area <200sqm) intended for double storey dwellings should be located only in locations where it can be demonstrated that impacts on adjoining lots, such as overshadowing and overlooking of private open space, satisfy the requirements of the DCP. For lots over 225sqm where development is not Integrated Assessment, the Building Envelope Plan should demonstrate in principle how DCP requirements such as solar access and privacy to neighbouring private open spaces will be satisfied.

Subdivision for Attached or Abutting Dwellings

20. Subdivision of lots for Torrens title attached or abutting dwellings must take into account that construction will be in 'sets'. A 'set' is a group of attached or abutting dwellings built together at the same time that are designed and constructed independently from other dwellings.
21. The maximum number of attached or abutted dwellings permissible in a set is six.
22. The composition of sets needs to be determined in the subdivision design to take into account the lot width required for a side setback to the end dwellings in each set. Examples of lot subdivisions for sets are illustrated in **Figure 3-4**.

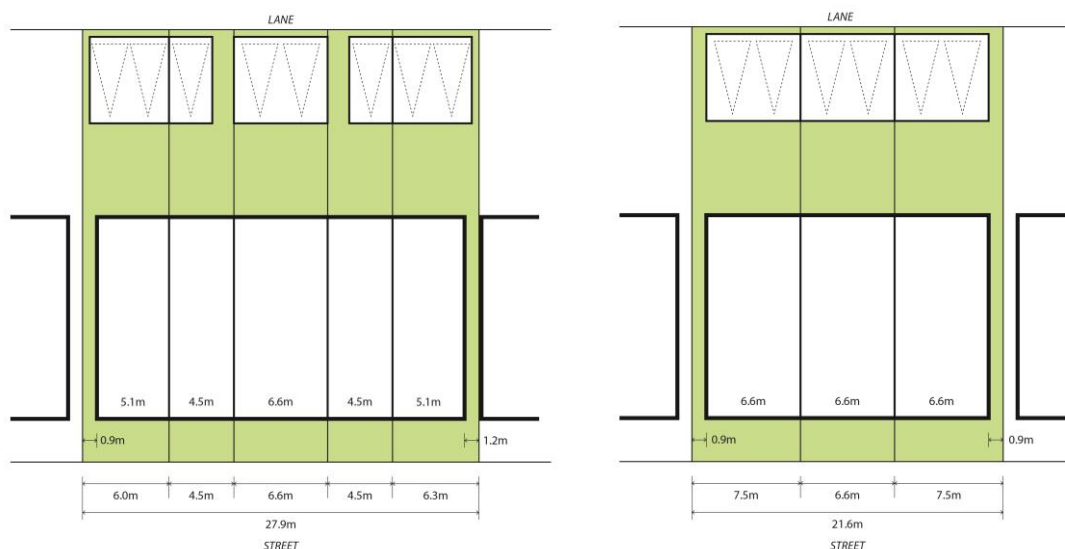


Figure 3-4: Two examples of lot subdivision for 'sets' of attached or abutting terraces.

Residential Flat Buildings

23. A person may not amalgamate two or more adjoining allotments after principle subdivision to create a larger lot that achieves the minimum lot size required for residential flat buildings.

3.1.3 Battle-axe lots

Objectives

- a. To limit battle-axe lots to certain circumstances.
- b. To ensure that where a battle-axe lot without public road or open space frontage is provided, their amenity and the amenity of neighbouring lots is not compromised by their location.
- c. To enable battle-axe shaped lots or shared driveway access to lots fronting access denied roads.

Controls

1. Principles for the location of battle-axe lots are illustrated at **Figure 3-5**.
2. Subdivision layout should minimise the use of battle-axe lots without public frontage to resolve residual land issues.

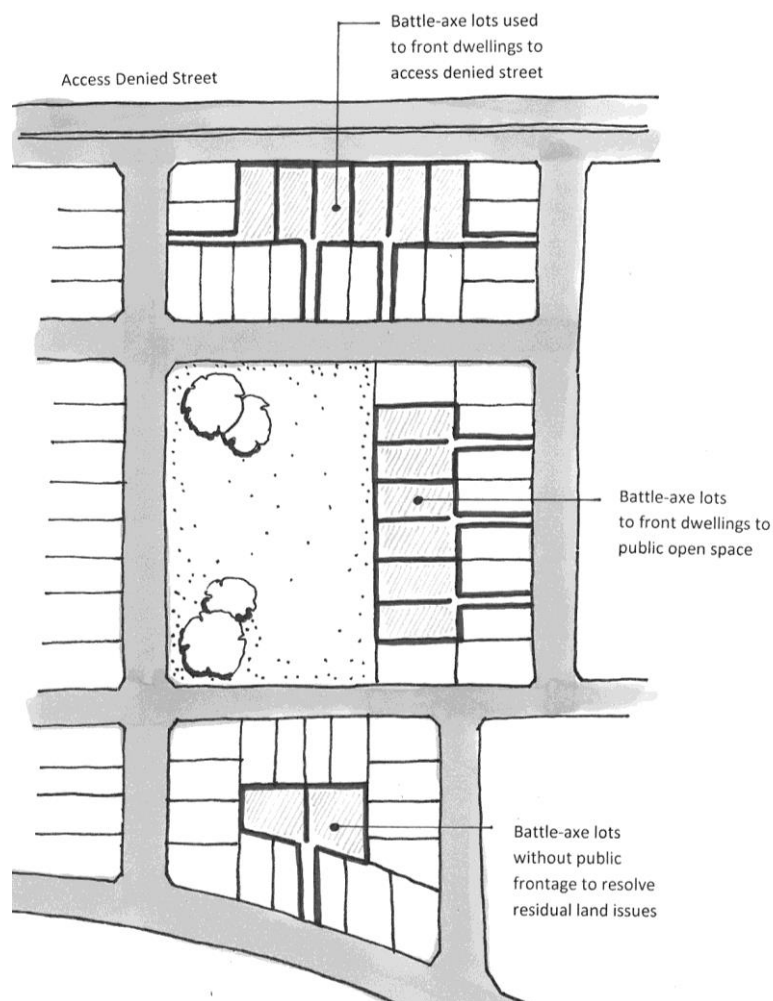


Figure 3-5: Examples of locations of battle-axe lots

3. In density bands 10, 15 and 20dw/Ha, the minimum site area for battle-axe lots without any street or park frontage is 500m² (excluding the shared driveway) and only detached dwelling houses will be permitted.
4. The driveway or shared driveway will include adjacent planting and trees, as indicated in **Figure 3-6**.
5. Driveway design, including dimensions and corner splays, is to be in accordance with Council's Engineering Specifications.

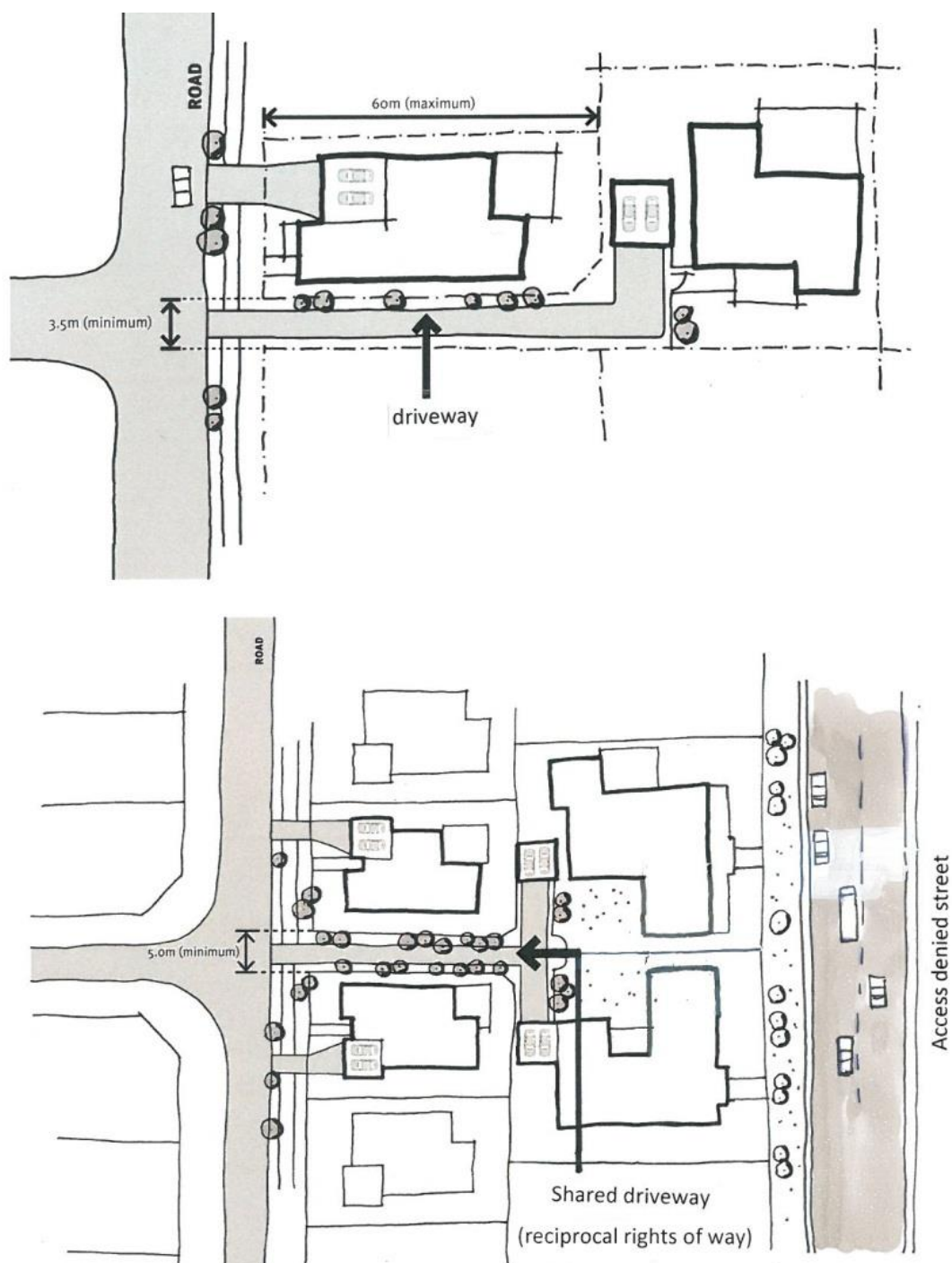


Figure 3-6: Examples of driveways and shared driveways for battle-axe lots

3.1.4 Corner Lots

Objectives

- a. To ensure corner lots are of sufficient dimensions and size to enable residential controls to be met.

Controls

1. Corner lots, including splays and driveway location, are to be designed in accordance with AS 2890 and Council's Engineering Specifications.
2. Corner lots are to be designed to allow dwellings to positively address both street frontages as indicated in **Figure 3-7**.
3. Garages on corner lots are encouraged to be accessed from the secondary street or a rear lane.
4. Plans of subdivision are to show the location of proposed or existing substations, kiosks, sewer man holes and/or vents affecting corner lots.

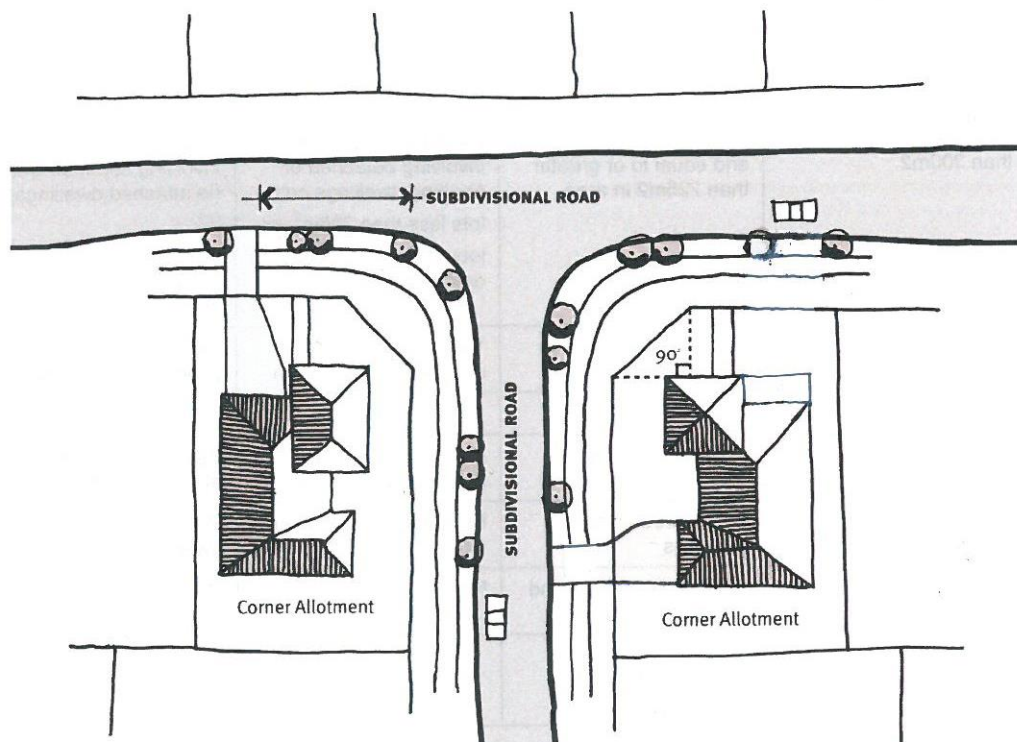


Figure 3-7: Corner lots

3.2 Subdivision Approval Process

Objectives

- To facilitate a diversity of housing sizes and products.
- To ensure that subdivision and development on smaller lots is undertaken in a coordinated manner.
- To ensure that all residential lots achieve an appropriate level of amenity.

Controls

- The land subdivision approval process is to be consistent with the requirements of **Table 3-4**.
- Subdivision of land creating residential lots less than 225m² or lots less than 9m wide shall include a dwelling design as part of the subdivision development application. The dwelling design is to be included on the S88B instrument attached to the lot.

Table 3-4: Subdivision Approval Process

Approval pathway	DA for Subdivision	DA for Subdivision with Building Envelope Plan	DA for Integrated Housing (Integrated Assessment with subdivision prior to construction of dwellings)	DA for Integrated Housing
	<i>Pathway A1</i>	<i>Pathway A2</i>	<i>Pathway B1</i>	<i>Pathway B2</i>
Application	Lots equal to greater than 300m ²	Lots less than 300m ² and equal to or greater than 225m ² in area, and with a width equal to or greater than 9m*.	Dwelling construction involving detached or abutting dwellings on: lots less than 225m ² , or lots with a width less than 9m*.	Dwelling construction involving common walls (i.e. attached dwellings) on: lots less than 225m ² , or lots with a width less than 9m*.
Dwelling plans required	As part of future DA or CDC	As part of future DA or CDC	Yes as part of subdivision application	Yes as part of subdivision application
Dwelling Design 88B restriction required	No	Yes	Yes, only approved dwelling can be built	Yes, only approved dwelling can be built
Timing of subdivision (release of linen plan)	Pre-construction of dwellings	Pre-construction of dwellings	Prior to the issue of the CC	Post-construction of dwellings
Housing Code applicable	Yes	Yes (for 200m ² lots and above)	No	No

*Minimum lot width refer to **Figure 3-3**

- Subdivision applications that create lots smaller than 300m² and larger than or equal to 225m² must be accompanied by a Building Envelope Plan (BEP). An example of a BEP is included at **Figure 3-8**.

The BEP should be at a legible scale (suggested 1:500) and include the following elements:

- Lot numbers, north point, scale, drawing title and site labels such as street names
- Maximum permissible building envelope (setbacks, storeys, articulation zones)
- Preferred principal private open space
- Garage size (single or double) and location
- Zero lot line boundaries

A BEP should be fit for purpose and include only those elements that are necessary for that particular lot. Other elements that may be relevant to show include:

- Special fencing requirements
- Easements and sewer lines
- Retaining walls
- Preferred entry/frontage (e.g. corner lots)
- Access denied frontages
- Electricity kiosks or substations
- Indicative yield on residue or super lots

For further information, refer to the **Department of Planning and Environment Delivery Note: Building Envelope Plans**

4. Applications for subdivision using approval pathways A2, B1 and B2 require a Public Domain Plan (PDP) to be submitted as part of the application. The purpose of the PDP is to demonstrate how the public domain will be developed as a result of future development on the proposed lots. An example of a PDP is included at **Figure 3-9**.

The PDP should be at a legible scale (suggested 1:500) and include the following elements:

- Lot numbers, north point, scale, drawing title and site labels such as street names.
- Indicative building footprints on the residential lots.
- Location of driveways and driveway crossovers.
- Verge design (footpath, landscape).
- Surrounding streets and lanes (kerb line, material surface where special treatments proposed).
- In laneways, indicative provision for bin collection.
- Street tree locations. (Sizes and species list can be provided on a separate plan).
- Demonstrated provision and arrangements for on-street car parking particularly in relation to street tree planting, driveways and intersections.*
- Extent of kerb line where parking is not permitted.*

** In principle, not as public domain works*

Other elements that may be relevant to show include:

- Location and type of any proposed street furniture
- Location of retaining walls in the public domain
- Electricity substations
- Indicative hydrant locations at lane thresholds

Information on landscape treatment within the private lot is not required.

For further information, refer to the **Department of Planning and Environment Delivery Note: Public Domain Plans**.

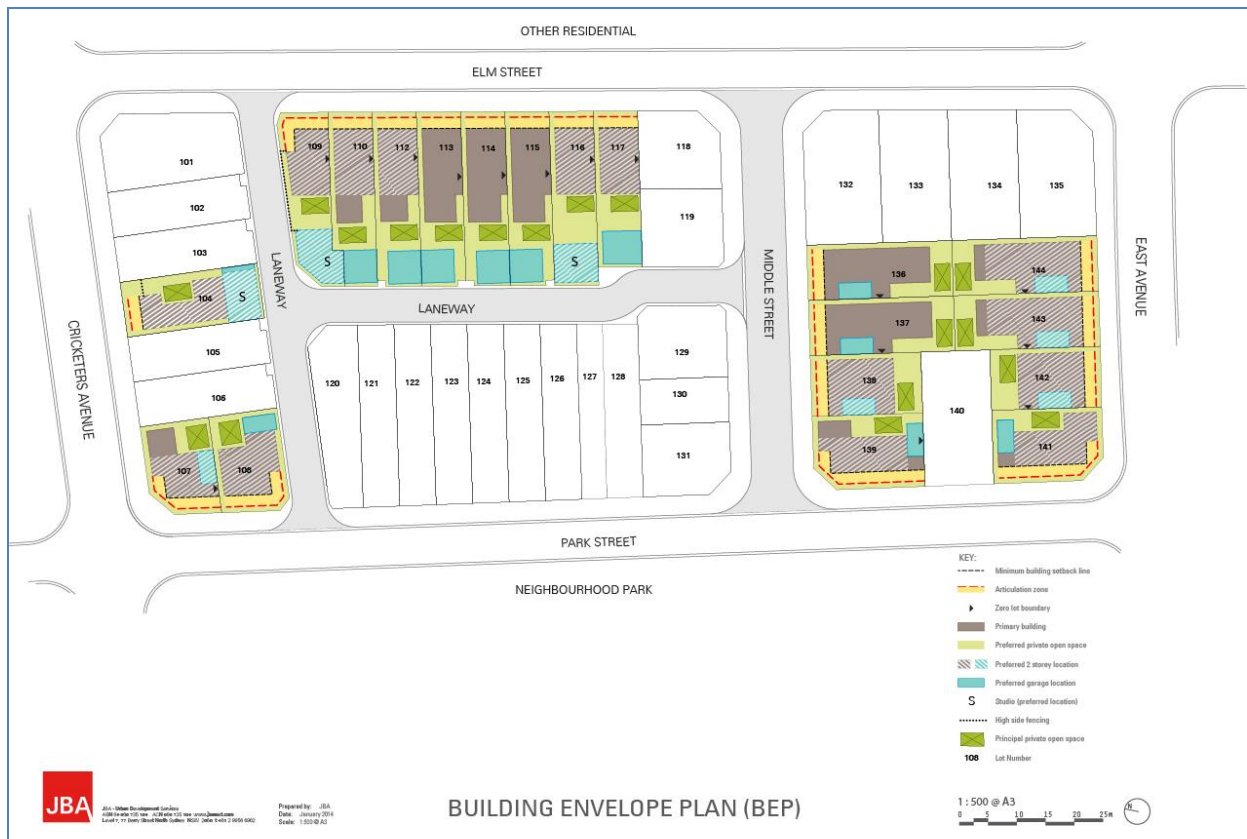


Figure 3-8: Sample of a Building Envelope Plan (BEP)

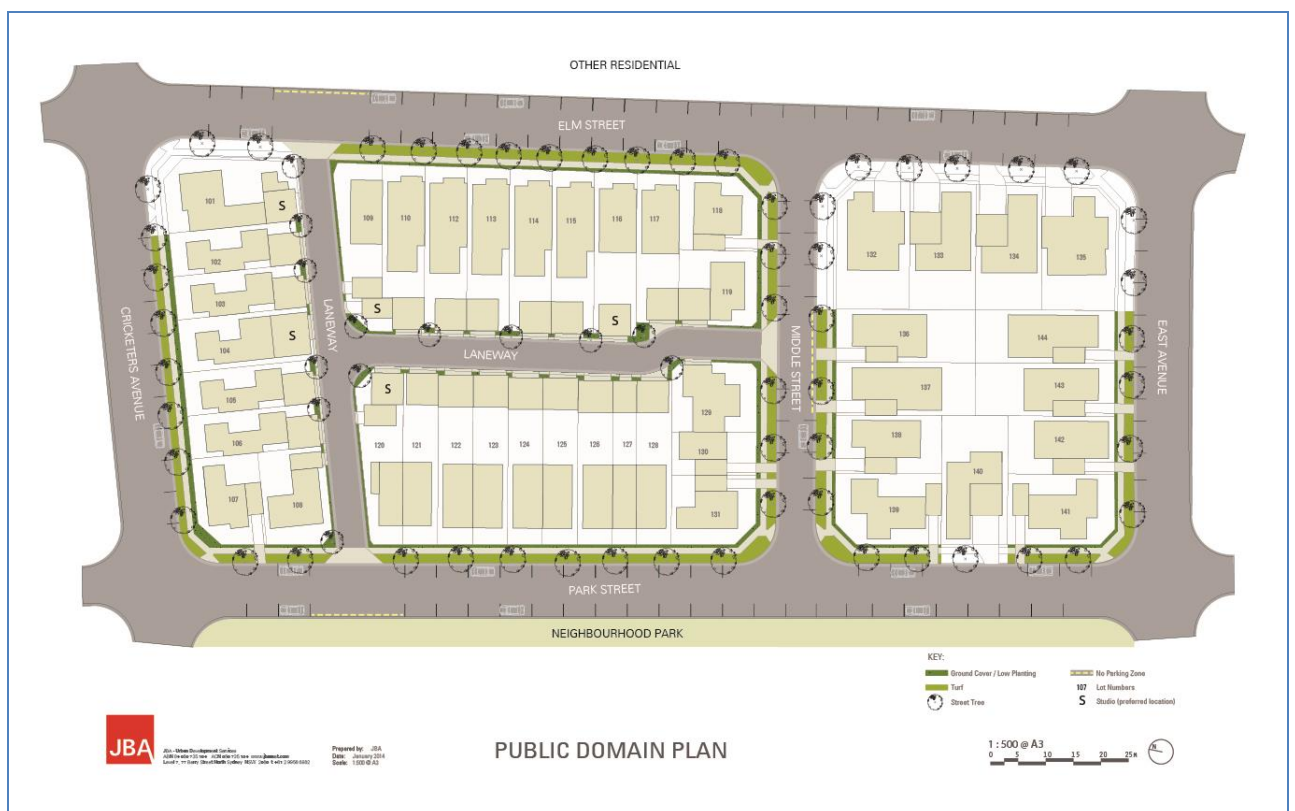


Figure 3-9: Sample of a Public Domain Plan (PDP)

3.3 Construction Environmental Management

Objectives

- a. To ensure that the construction of subdivisions, new buildings and other structures and works is done in an environmentally responsible manner.

Controls

1. A Construction Environmental Management plan is to be submitted to Council or the accredited certifier and approved prior to the issue of a construction certification for subdivision works.
2. The Construction Environmental Management Plan is to detail the methods of ensuring the protection of the environment during construction, monitoring and reporting on construction activities, and procedures to be followed in the event of an incident that is likely to cause harm to the environment.
3. Construction activities are to be undertaken to ensure that water quality, soil stability, trees and vegetation cover, and heritage sites are protected in accordance with the development consent and to maintain the quality of the natural environment.
4. Applicants are to ensure that the management of construction activities is undertaken in accordance with Blacktown Development Control Plan 2006 Part R – Soil Erosion and Sediment Control Guidelines and Part O – Site Waste Management and Minimisation.
5. Preservation of trees and native vegetation during construction is to be in accordance with the development consent issued for the development, and with the native vegetation and tree preservation provisions of the relevant Precinct Plan.

3.4 Movement Network

3.4.1 Street layout and design

Objectives

- a. To establish a hierarchy of interconnected streets that give safe, convenient and clear access within and beyond the Precinct;
- b. To assist in managing the environmental impacts of urban development including soil salinity and stormwater;
- c. To facilitate energy efficient lot and building orientation; and
- d. To contribute to the creation of an interesting and attractive streetscape.

Controls

1. The design of streets is to be consistent with the relevant typical designs in **Figure 3-10 to Figure 3-13** and Council's *Engineering Guide for Development*.
2. The typical designs in **Figure 3-10 to 3-13** are based on minimum dimensions and the design of streets may need to be modified to incorporate water sensitive urban design measures and to ensure appropriate site drainage, in accordance with Council's Water Sensitive Urban Design (WSUD) Development Control Plan.
3. Alternative street designs for local streets and access ways may be permitted on a case by case basis if they preserve the functional objectives and requirements of the design standards.
4. Roads in the relevant Precinct are to be constructed in accordance with the hierarchy shown on the **Precinct road hierarchy** figure in the relevant Precinct Schedule.
5. The locations and alignments of all roads are to be generally in accordance with the locations shown on the **Precinct road hierarchy** figure in the relevant Precinct Schedule.
6. Where any variation to the residential street network indicated at the **Precinct Road Hierarchy** figure, is proposed, the alternative street network is to be designed to:
 - create a permeable network that is based on a modified grid system,
 - encourage walking and cycling and minimise travel distances,
 - maximise connectivity between residential areas and community facilities, open space and centres,
 - take account of topography and site drainage, and accommodate significant vegetation,
 - optimise solar access opportunities for dwellings,
 - provide frontage to and maximise surveillance of open space and drainage lands,

- provide views and vistas to landscape features and visual connections to nodal points and centres,
 - maximise the effectiveness of water sensitive urban design measures, and
 - minimise the use of cul-de-sacs. However, if required, they are to be designed in accordance with Council's Engineering Guidelines.
7. Variation to the residential street network as permitted under control 4 above will only be approved by Council where the applicant can demonstrate to Council's satisfaction that the proposal:
- will not detrimentally impact on access to adjoining properties,
 - provides for the management of stormwater to drain to Council's trunk drainage network, without negative impacts on other properties,
 - will not impede the orderly development of adjoining properties in accordance with the relevant Precinct Plan and this Development Control Plan, and
 - does not restrict the ability to provide water, sewer, electricity and other essential services to adjoining properties.
8. For changes to the proposed road system which Council considers minor, Council will write to affected property owners and consider any comments of those persons before determining the application. Applicants wishing to amend the proposed road pattern are advised to liaise with affected adjoining owners prior to the submission of the Development Application. By obtaining the prior agreement of adjoining owners to proposed road pattern changes, the time required by Council to determine the application may be reduced.
9. For changes to the proposed road system which Council considers major, Council may require a formal application for amendment to the DCP map before determining the application.
10. Where roads are adjacent to public open space or drainage land, verge widths may be reduced to a minimum of 1m, subject to public utilities, bollards and fencing being adequately provided.
11. Except where otherwise provided for in this DCP, all streets and roundabouts are to be designed and constructed in accordance with the minimum requirements set out in Council's *Engineering Guide for Development*. Where a corner lot fronts a roundabout, the driveway shall be set back 10m from the splay.
12. On steep sloped land, roads that are parallel with the terrain may incorporate split pavement configurations at different levels so as to minimise cut and fill, and provide opportunities for landscaping and the preservation of trees. Where split pavements are proposed, they are to comply with the following:
- Split level road pavements will only be considered where other design solutions eg. one way cross falls, road centre line re-grading, retaining walls within lot boundary's and

widening of road reserves to accommodate wider medians etc, cannot achieve the desired outcome.

- The proposed split level pavement must be supported by a Road Safety Audit by an RTA accredited Road Safety Auditor.
 - Split level road pavements should be limited to a maximum road length of 80m, unless otherwise approved by Council's Coordinator Engineering Approvals. A minimum road length may be required to achieve the requirements of safety fencing.
 - Each "split" road carriageway should be a minimum of 5.5m wide. Note; the carriageway width cannot include the central median in order to comply with requirements of Table 3.1 of Councils "*Engineering Guide for development*".
 - Batter slopes within a central median shall comply with Council's Engineering Guide for Developments Section 3.20. No retaining walls are to be erected within the road boundary, especially within the central median, unless prior approval has been obtained from Council's Coordinator Engineering Approvals.
 - Safety Barriers are to be installed in accordance with the requirements of Section 6 of the RTA Road Design Guide. Sign-posting and line-marking are to be provided in accordance with RTA requirements.
 - No narrowing of the carriageway width for traveling and parking lanes or of the footpath (as set out in Table 3.1 of Councils *Engineering Guide for Development*) is permitted in order to reduce the impact of the split carriageway on the total road reserve. Where split carriageways are considered the total road reserve given in Table 3.1 of Councils "*Engineering Guide for Development*" should be considered as the minimum road reserve required not the maximum.
13. Residential roads, i.e. minor collector roads, local streets, access road/paths, and shareways shall be designed for and sign posted at a maximum of 50kph (i.e. traffic management must be considered at the subdivision application, with either road layout or speed reducing devices used to produce a traffic environment which reduces traffic speed).
14. The minimum distance from an access place to a collector road is to be 50m if the junction is on the same side of the road or 40m if staggered on the opposite side of the road. The minimum distance between collector roads is to be 100m if the junction is on the same side or 100m if it is staggered on the opposite side of the road.
15. Where four way intersections are proposed, traffic is to be controlled, where appropriate, by traffic lights, roundabouts, median strips or signage.
16. Any private road is to be designed and built in accordance with Council's *Engineering Guide for Development*. Details must be shown on the engineering design plans and must be submitted prior to the issue of the occupation or subdivision certificate (whichever occurs first).

17. Street trees are required for all streets. Street planting is to:
- use the preferred species listed in **Appendix D**,
 - be consistently used to distinguish between public and private spaces and between different classes of street within the street hierarchy,
 - minimise risk to utilities and services,
 - be durable and suited to the street environment and, wherever appropriate, include endemic species,
 - maintain adequate lines of sight for vehicles and pedestrians, especially around driveways and street corners,
 - provide appropriate shade in summer and solar access in winter, and
 - provide an attractive and interesting landscape character and clearly define public and private areas, without blocking the potential for street surveillance.
 - Despite the requirements of Control 1 above, street trees may be permitted within the road carriageway subject to the findings of a Road Safety Audit.
18. Whilst acknowledging the amenity benefit from trees within the carriageway, applications that propose carriageway trees will be assessed by Council with consideration given to:
- access and manoeuvrability of garbage trucks, street sweepers and cars,
 - the impact of the root system on the carriageway;
 - ongoing maintenance of the tree and carriageway;
 - the relationship with future driveway access points; and
 - Traffic safety
19. Signage, street furniture and lighting is to be:
- designed to reinforce the distinct identity of the development;
 - coordinated in design and style;
 - located so as to minimise visual clutter and obstruction of the public domain; and
 - of a colour and construction agreed by Council.
20. Locating entry signage and the like within a public road reserve is subject to Council agreement.
21. The location and design of signage and street furniture is to be indicated on the Landscape Plan and on engineering construction drawings.
22. Street lighting is to be designed to meet the current Australian Standards AS/NZS 1158 series.
23. Where necessary to ensure that access to residential properties is provided in the early stages of development, Council may consent to the construction and operation of temporary access roads.

24. Temporary access roads are to remain in operation only until such time as the road network has been developed to provide permanent access to all properties.
25. Access places (refer to **Figure 3-13**) may be used where:
- The access place separates residential land from open space or drainage land
 - The road is not a through traffic route (ie it provides access only to residences on it)
 - The maximum number of dwellings serviced by the access place is 10.

Note: *Where an access street has frontage to open space or drainage land, the footpath must be constructed as part of the access street. Where the access street is adjacent to a sub-arterial or arterial road, the footpath is not required.*

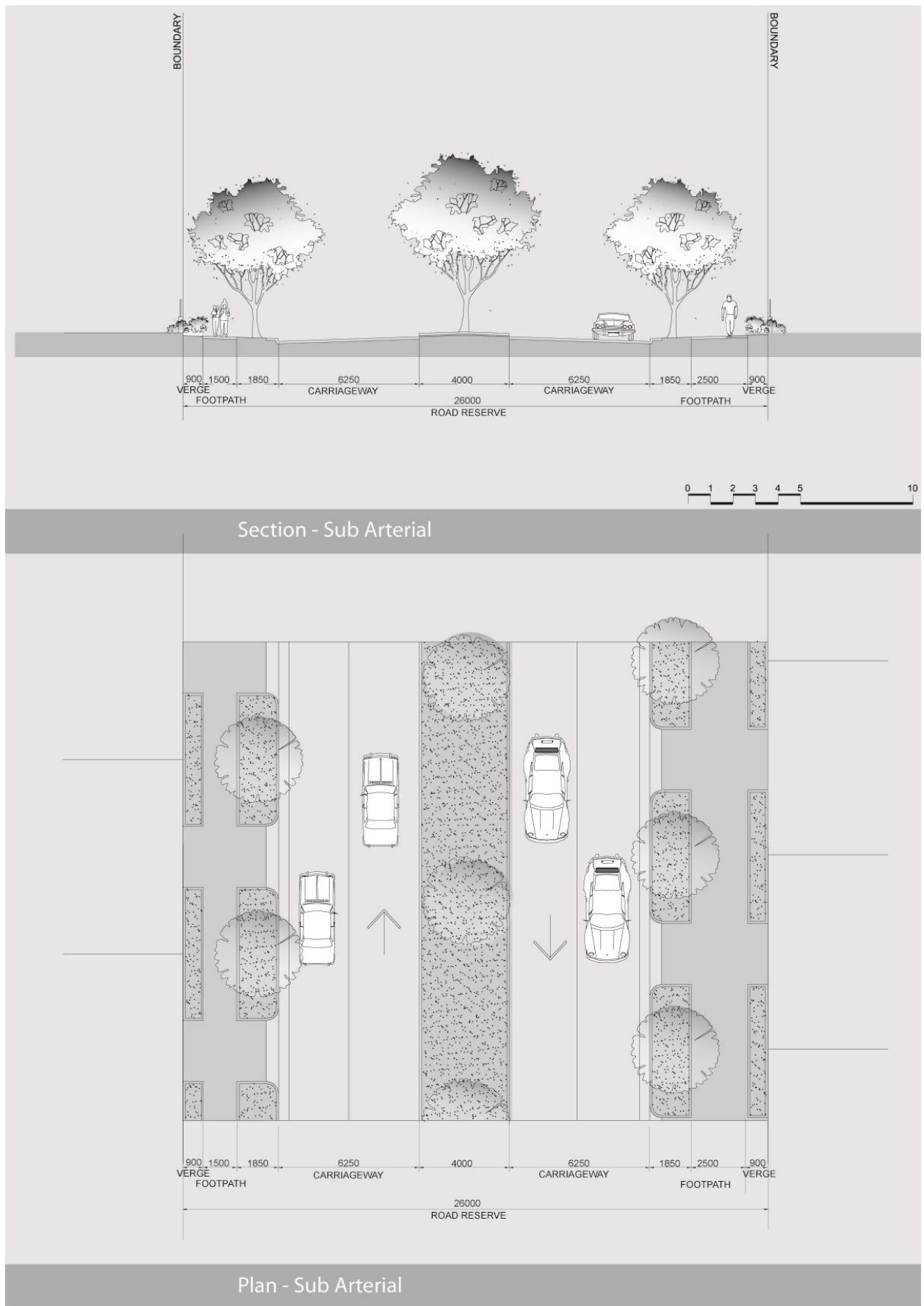


Figure 3-10: Typical sub-arterial road

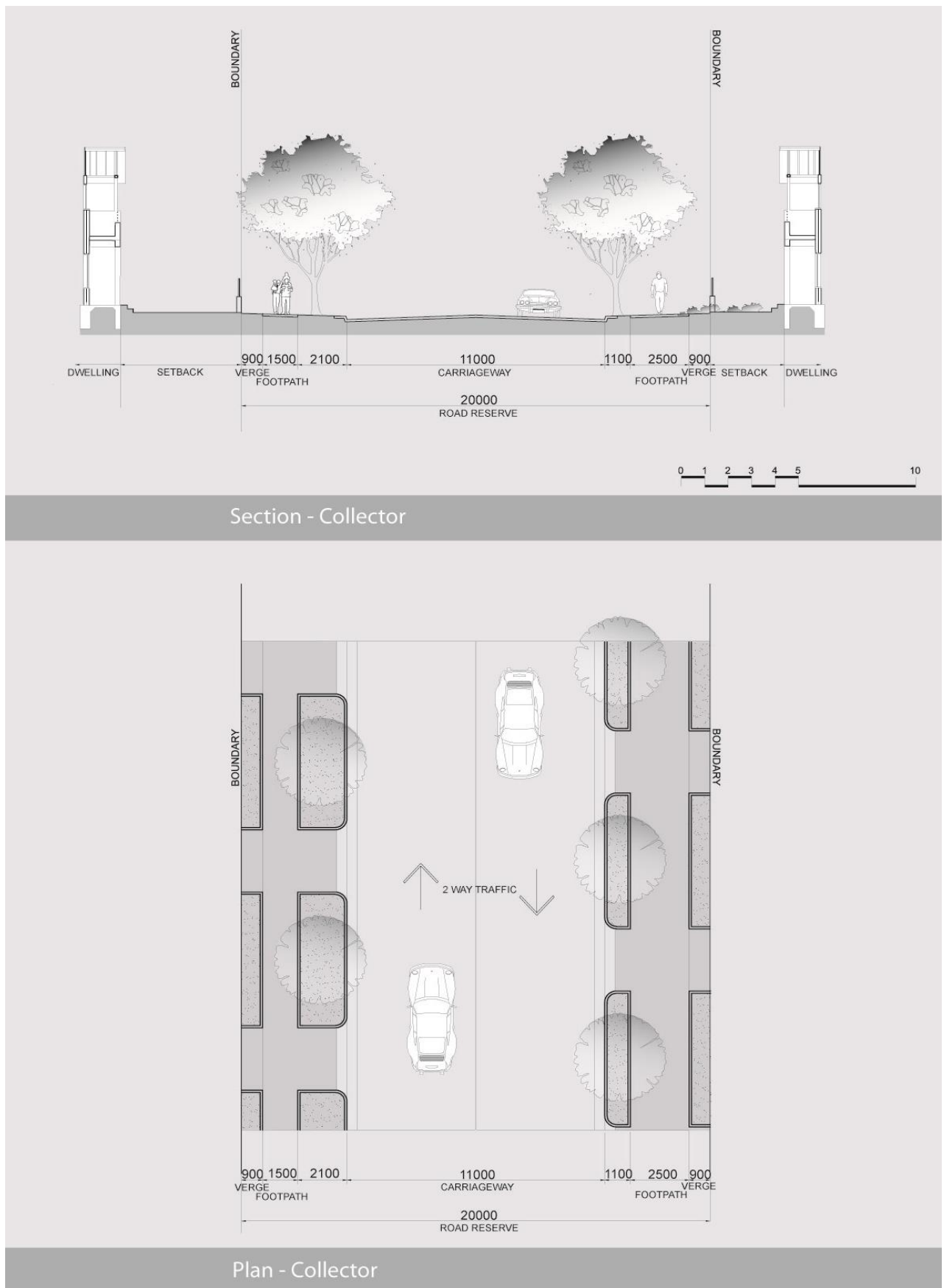


Figure 3-11: Typical collector road

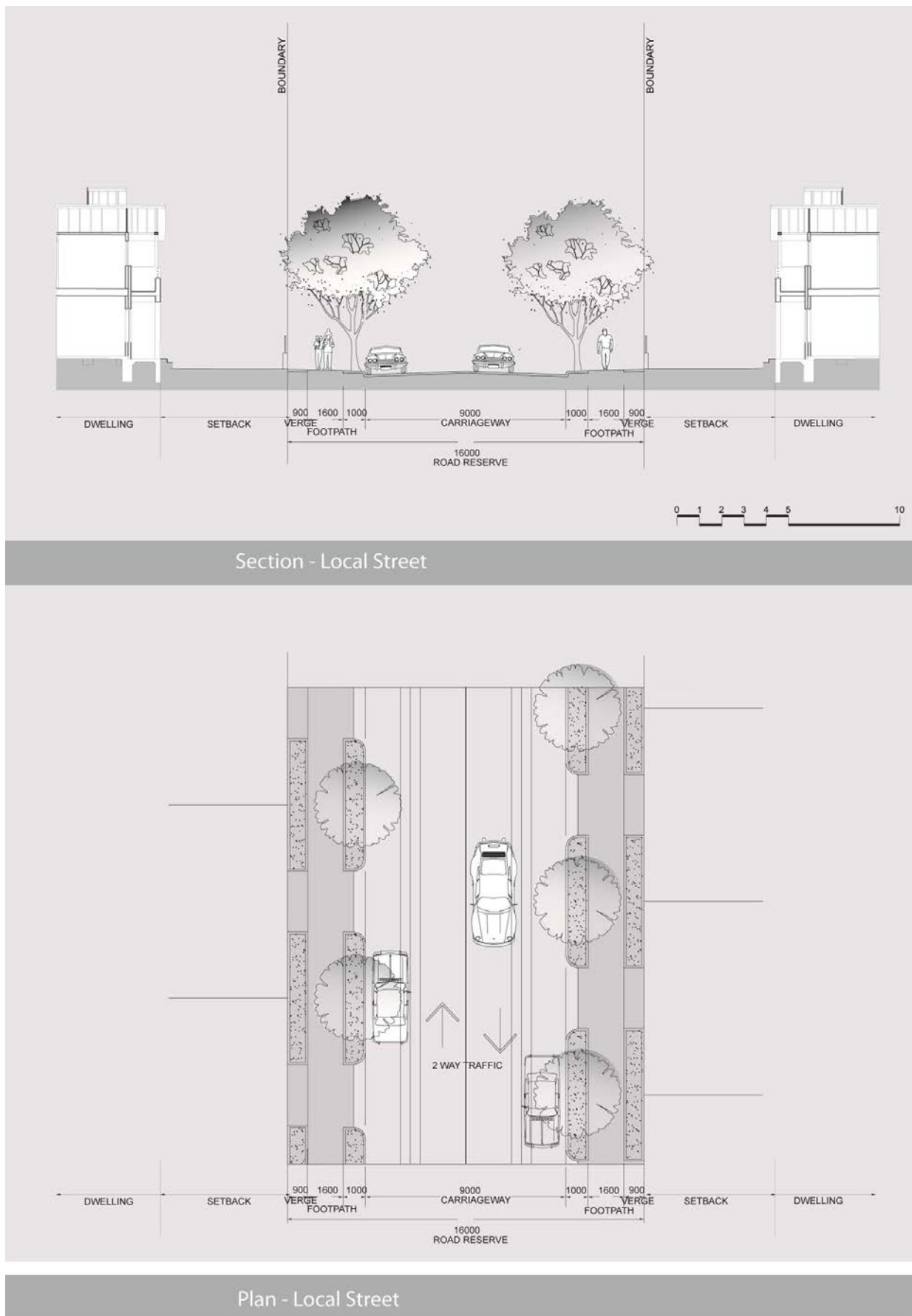


Figure 3-12: Typical local street

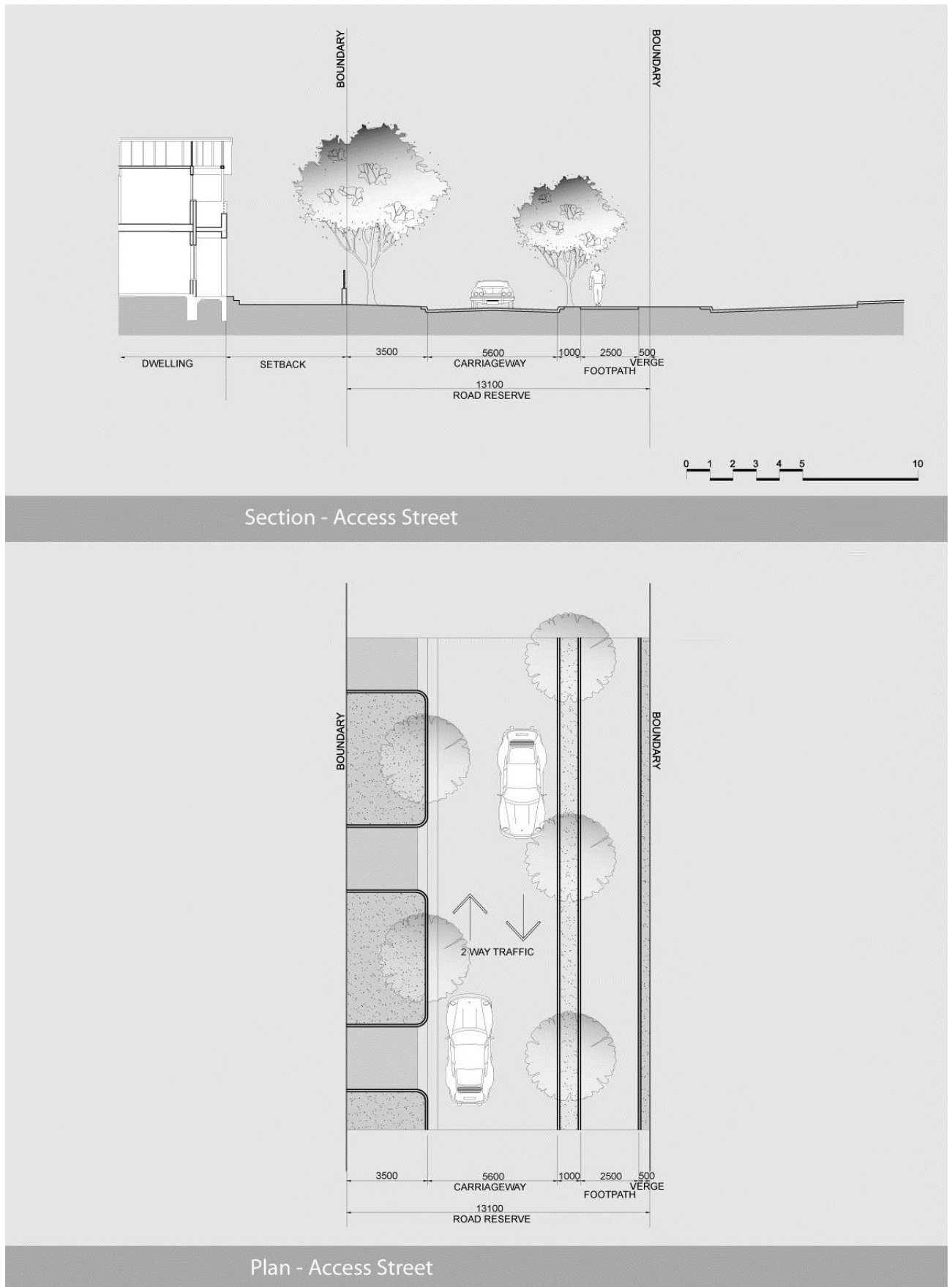


Figure 3-13: Typical access street

3.4.2 Laneways

Laneways are public roads that are shareways, utilitarian thoroughways of the street network that provide rear vehicular access to compact or restricted access lots. The primary purpose of rear laneways is to create attractive front residential streets by removing garages and driveway cuts from the street frontages, improving the presentation of houses and maximising on street parking spaces and street trees. Laneways are a 'sacrificial' network device: while they should be neat and tidy, they should not be confused with streets in width, character or function.

A laneway is a shareway, designed to be shared by all users whether they are pedestrians, cyclists or drivers. Equal priority between all users reinforces the distinctive, slow speed environment for drivers.

In their design and subdivision of lots, laneways should be provided with casual surveillance from some second floor rooms and balconies over garages. Various building forms can provide this casual surveillance along the lane such as studio dwellings, secondary dwellings and rooms of the principal dwelling or lofts over garages. Separate titling of studio dwellings may affect servicing requirements. Generally there will be no underground services in the laneway (except for streetlights) as the studios will be strata titled so power, water, gas, sewer and communications will be located in the front street and reticulated from the front of the allotment through the lot to the rear studio.

Objectives

- a. To provide vehicular access to the rear or side of lots where front access is restricted or not possible, particularly narrow lots where front garaging is not permitted.
- b. To reduce garage dominance in residential streets.
- c. To maximise on-street parking spaces and landscaping in residential streets.
- d. To provide opportunities for affordable housing options.
- e. To reduce vehicular conflict through reduced driveway cross overs and focusing of traffic to known points.
- f. To enable garbage collection.
- g. To facilitate the use of attached and narrow lot housing to achieve overall higher neighbourhood densities.
- h. To create a slow speed shared zone requiring co-operative driving practices for the very low volume and frequency of vehicle movements that is distinctly different in character and materials to residential streets.

Controls

1. The design and construction of laneways is to be consistent with **Figure 3-14** and **Department of Planning and Environment Delivery Note: Laneways**.

2. The laneway is a public "shareway" as the paved surface is for cyclists, pedestrians, garbage collection, mail deliveries, cars etc., with a 10 km speed limit and driveway-style crossovers to the street rather than a road junction.
3. The minimum garage doorway widths for manoeuvrability in this laneway section are 2.4m (single) and 4.8m (double).

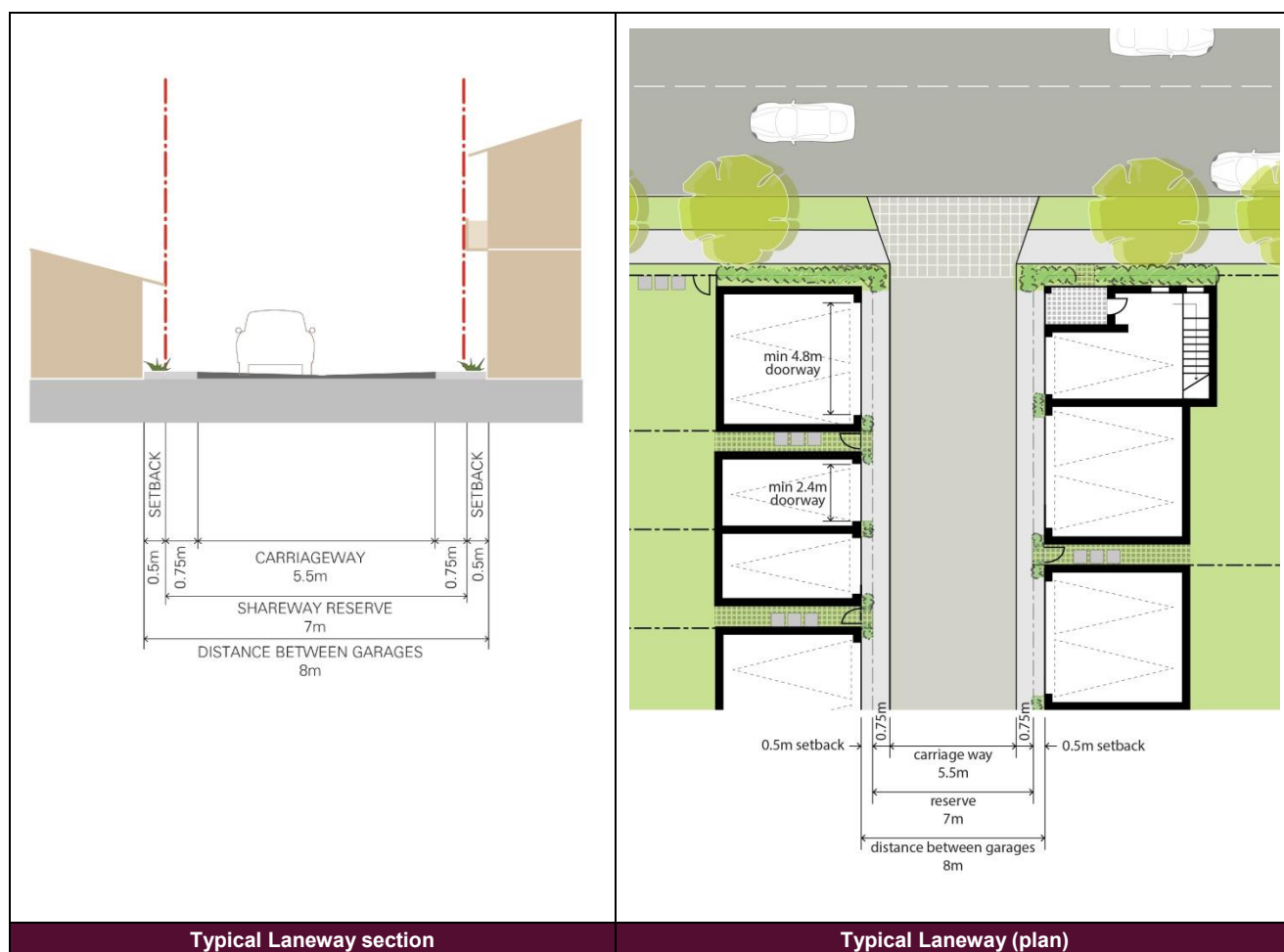


Figure 3-14: Laneway principles

4. The configuration of the laneway, associated subdivision and likely arrangement of garages arising from that subdivision should create ordered, safe and tidy laneways by designing out ambiguous spaces and unintended uses such as casual parking, the storage of trailers, bin stacking etc.
5. The layout of laneways should take into account subdivision efficiency, maximising favourable lot orientations, intersection locations with streets, topography, opportunities for affordable housing, legibility and passive surveillance.
 - Generally, straight layouts across the block are preferred for safety and legibility, but the detailed alignment can employ subtle bends or secondary or studio dwellings over garages to add visual interest and avoid long distance monotonous views. "C" shaped

layouts with the laneway length parallel to the front street can limit the views of laneways from residential streets to short sections. However, if the laneway is used for garbage collection, any bends or intersections are to be sized for garbage truck movements. Suggested layouts are in **Figure 3-15**.

- Lanes on sloping land with significant longitudinal and/or cross falls require detailed design consideration to demonstrate functionality.



Figure 3-15: Sample lane layouts

- Laneways that create a 'fronts to backs' layout (front addressed principle dwellings on one side and rear accessed garages on the other side) are to be avoided.
- All lots adjoining a laneway should utilise the laneway for vehicular/garage access.
- Passive surveillance along the laneway from the upper storey rooms or balconies of secondary dwellings, studio dwellings, principal dwelling or lofts over rear garages is encouraged. Ground floor habitable rooms on laneways are to be avoided unless they are located on external corners (laneway with a street) and face the street to take advantage of the residential street for an address, shown in **Figure 3-16** as lane entry/street corner lots. **Figure 3-16** indicates mid-lane lots and internal corner locations (lane with another lane) where ground floor habitable rooms in secondary dwellings or strata studios (marked 'S') are to be avoided.
- A continuous run of secondary dwellings or strata studios along the lane is to be avoided, as it changes the character, purpose and function of the lane. No more than 25% of the lots adjoining lanes (excluding street corner lots with studio at the lane entry) are to have secondary dwellings or strata studios. See **Figure 3-16**.

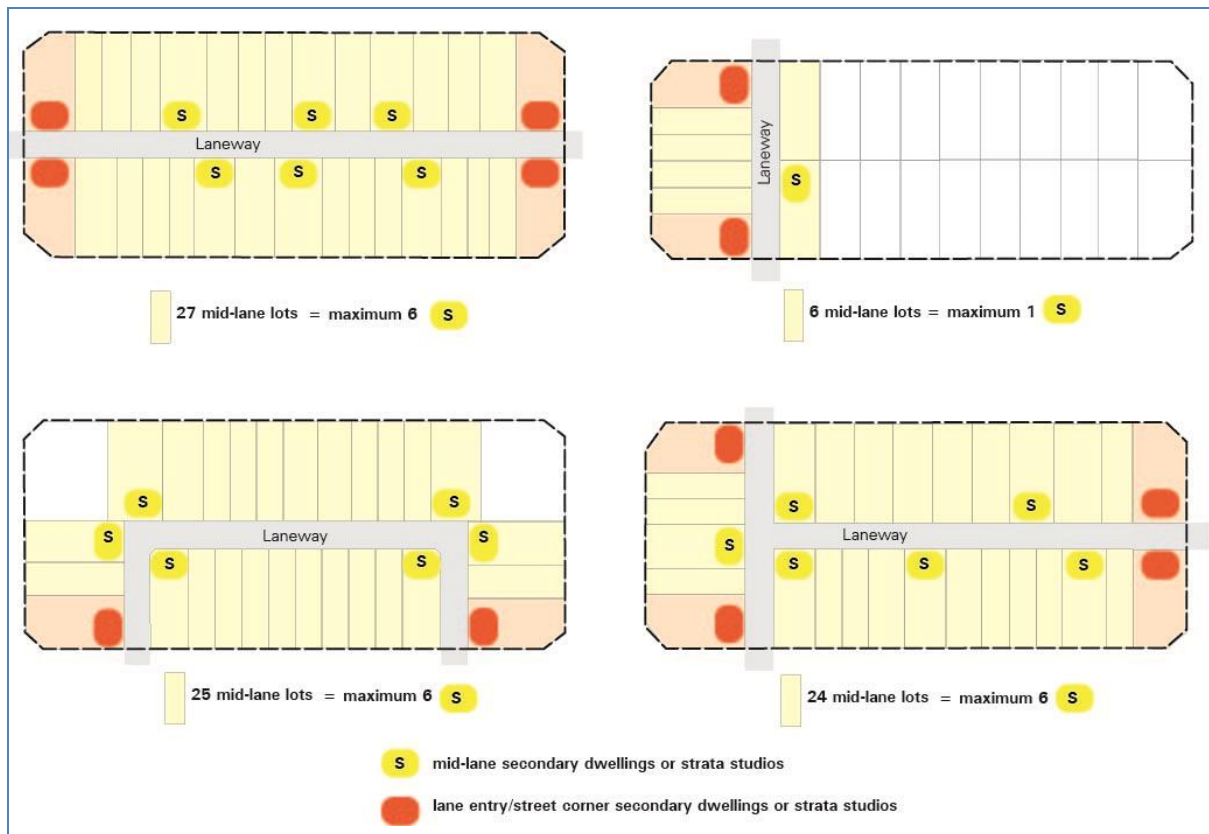


Figure 3-16: Sample laneways showing maximum number of secondary dwellings or strata studios

10. All lot boundaries adjoining the lane are to be defined by fencing or built form. The garage setback to the lane is minimal (0.5m) to allow overhanging eaves or balconies to remain in the lot without creating spaces where people park illegally in front of garages and/or on the laneway. Deeper balconies requiring larger garage setbacks (up to 2m) may be permitted occasionally along the laneway provided the application demonstrates how the setback space will not create an opportunity for illegal parking, such as the presence of a supporting post or bollard.

3.4.3 Shared Driveways

Shared driveways are privately owned and maintained driveways that serve two or more dwellings through a titling arrangement such as a reciprocal right of way or community title. Shared driveways are usually of minimal dimensions for vehicle access to lots with only a single access to the street network. Garbage collection is usually not a function. Shared driveways are a useful subdivision device for a small number of dwellings with otherwise difficult access or unavoidable block configurations, but are not a substitute in blocks designed with significant numbers of dwellings requiring rear access by laneways.

Objectives

- a. To minimise the impact of vehicle access points on the quality of the public domain and pedestrian safety.
- b. To provide safe and convenient access to garages, carports and parking areas.
- c. To clearly define public and private spaces, such that driveways are for the sole use of residents.
- d. To permit casual surveillance of private driveways from dwellings and from the street.

Controls

1. Shared driveways are to be constructed as one of three general types, depending on block geometry and garages to be accessed. Refer to examples in **Figure 3-17**.
2. Shared driveways are to have the smallest configuration possible to serve the required parking facilities and vehicle turning movements.
3. The driveway crossing the verge between the property boundary and the kerb is to have a maximum width of 5.4 metres.
4. The location of driveways is to be determined with regard to dwelling design and orientation, street gully pits and tree bays and is to maximise the available on-street parking.
5. The maximum travelling distance from a public road to a garbage collection area within a shared driveway is 70m. Where garbage collection is required to occur within the shared driveway (i.e. when an alternative collection point is not available), the layout is to be designed such that no reversing movements are required to be undertaken to enable a garage truck to enter and leave in a forward direction. A minimum pavement width of 5m and a turning circle with sweep turning paths overlaid into the design plan shall be submitted to demonstrate compliance with this requirement.
6. Access to allotments in the vicinity of roundabouts and associated splinter islands shall not be provided within 10m of the roundabout.
7. Driveways are not to be within 0.5m of any drainage facilities on the kerb and gutter.

8. Shared driveways are to have soft landscaped areas on either side, suitable for infiltration.
9. Shared driveways must be in accordance with the shareway principles and vehicle manoeuvring requirements of the **Department of Planning and Environment Delivery Note: Laneways**.

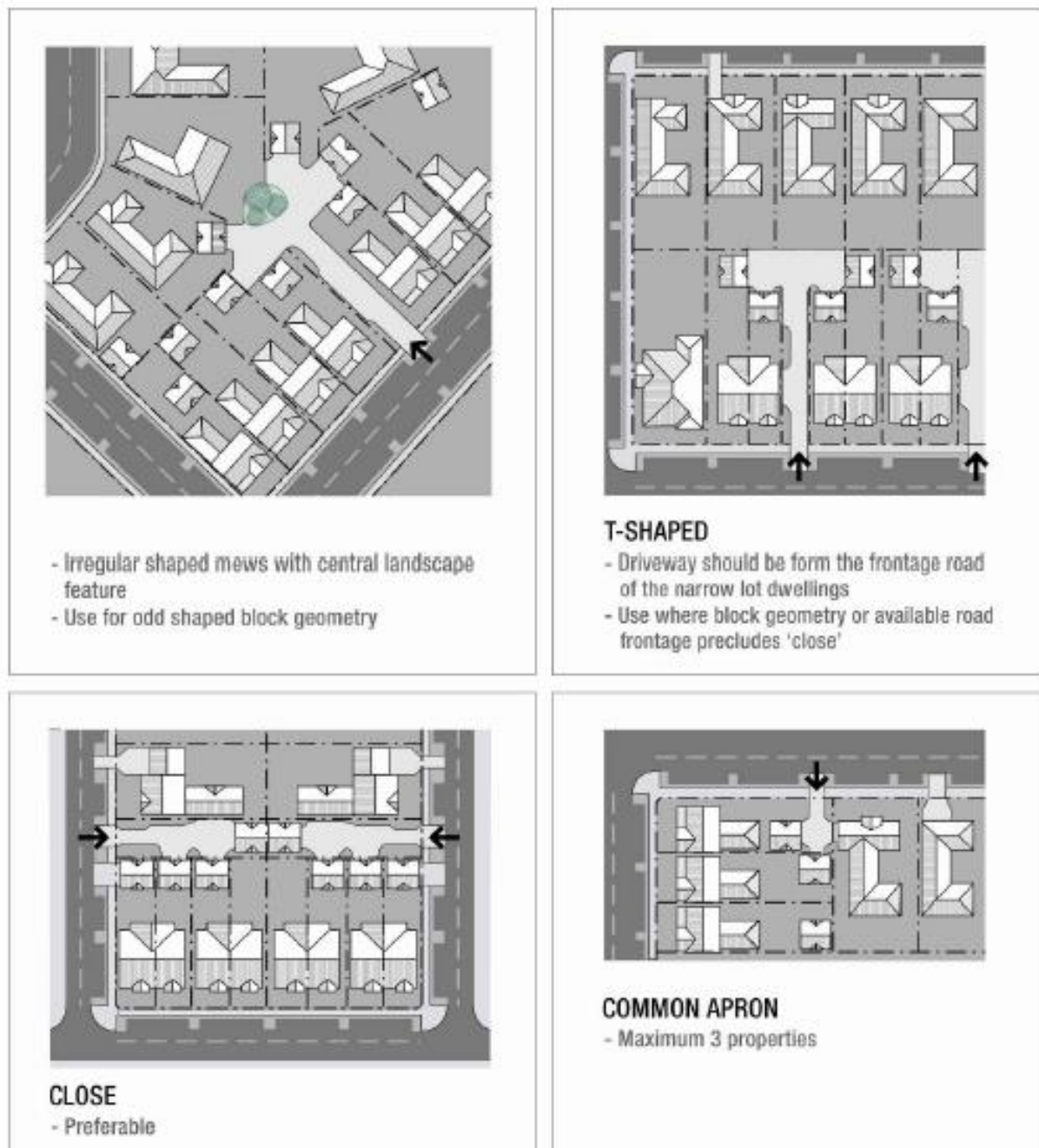


Figure 3-17: Indicative examples of shared driveways

3.4.4 Access to arterial and sub-arterial roads

Objectives

- a. To restrict direct property access to higher order roads to provide for the safe and efficient movement of vehicles on these roads.

Controls

1. Vehicular access to arterial roads and sub-arterial roads shown on the **Precinct Road Hierarchy** figure, in the relevant Precinct's Schedule, may only be made by way of another road.
2. Persons creating allotments adjoining arterial or sub-arterial roads are required to create restrictions on the use of land under Section 88B of the *Conveyancing Act 1919* to legally deny direct vehicular access to allotments from the arterial or sub-arterial road.
3. To enable the development of land, such as in situations where access across adjoining properties is required but not yet able to be provided, Council may allow temporary access to arterial or sub-arterial roads where:
 - the development complies with all other development standards;
 - subdivisional roads generally conform with the road pattern shown on the Indicative Layout Plan; and/or
 - Council is satisfied that the carrying out of the development will not compromise traffic safety.
4. Where Council grants such consent, the temporary access must be constructed to Council's standards and conditions will be imposed that access to the designated road by way of the temporary access shall cease when alternative access becomes available.

Note: Approval from the RTA may also be required for any temporary access to a classified road.

4.0

**Development in the
Residential Zones**

4.1 Site responsive design

4.1.1 Site analysis

Site analysis for each individual lot is an important part of the design process. Development proposals need to illustrate design decisions which are based on careful analysis of the site conditions and their relationship to the surrounding context. By describing the physical elements of the locality and the conditions impacting on the site, opportunities and constraints for development can be understood and addressed in the design.

The Site Analysis Plan should show the existing features of the site and its surrounding area, together with supporting written material. At minimum the Site Analysis Plan must show the following features:

- the position of the proposed building in relation to site boundaries and any other structures and existing vegetation and trees on the site;
- any easements over the land;
- the location, boundary dimensions, site area and North Point of the land;
- location of existing street features adjacent to the property, such as trees, planting, street lights;
- contours and existing levels of the land in relation to buildings and roads; and, whether the proposed development will involve any changes to these levels;
- location and uses of buildings on sites adjoining the land;
- a stormwater concept plan (where required).

4.1.2 Cut and fill

Objectives

- a. To minimise the extent of cut and fill within residential allotments.
- b. To protect and enhance the aesthetic quality of the area by controlling, the form, bulk and scale of land forming operations.
- c. To ensure that fill material is not contaminated and does not adversely affect the fertility or salinity of soil, or the quality of surface water or groundwater.
- d. To ensure that the amenity of adjoining residents is not adversely affected by any land forming operation.

Controls

1. DAs are to illustrate where it is necessary to cut and/or fill land and provide justification for the proposed changes to the land levels.
2. Earthworks shall be undertaken to a maximum of 500mm excavation or fill from the present surface level of the property.

3. Council will assess proposals for excavation or fill greater than 500mm having regard to the visual impact of the proposed earthworks.
4. A Validation Report is required to be submitted to Council prior to the placement of imported fill on site. All fill shall comply with the Department of Water and Energy – “Site Investigation for Urban Salinity” and the DECC Contaminated Sites Guidelines – “Guidelines for the NSW Site Auditor Scheme (2nd edition) – Soil Investigation Levels for Urban Development Sites in NSW”.
5. Earth moved from areas containing noxious weed material must be disposed of at an approved waste management facility, and transported in compliance with the *Noxious Weeds Act 1993*.
6. On sloping sites, site disturbance is to be minimised by use of split level or pier foundation housing designs. Council will consider greater cut for basement garages.
7. Where cut is proposed on the boundary of a lot, retaining walls are to be constructed with side fence posts integrated with its construction (relevant construction details are required with retaining wall approval). Otherwise retaining walls must be located a minimum of 450mm from the side or rear boundary of the lot containing the cut.
8. Retaining walls within residential allotments are to be no greater than 600mm high at any point on the edge of any residential allotment. A combined 1200mm maximum retaining wall height is permissible between residential lots (2 x 600mm). Where terraced walls are proposed the minimum distance between each step is 0.5m. A variation to the retaining wall heights can be considered with supporting justification.
9. The maximum height of voids within individual allotments is 3m, as illustrated in **Figure 4-1**.
10. All retaining walls proposed for the site are to be identified in the development application.

Note: Filling on lots must be either contained within the ‘building footprint’ or no closer than 2 metres from a property boundary up to 500mm in depth.

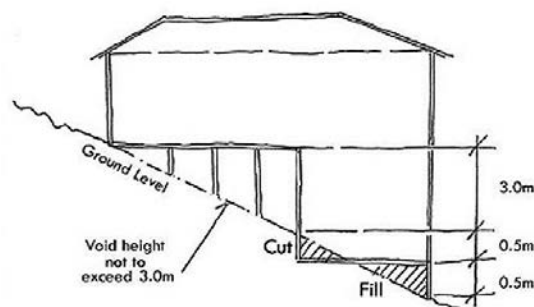


Figure 4-1: Maximum cut and fill within residential lots

4.1.3 Sustainable building design

Objectives

- a. To maximise microclimate benefits to residential lots.
- b. To enhance streetscape amenity.
- c. To minimise energy usage and greenhouse emissions and encourage the adoption of renewable energy initiatives.
- d. To minimise the use of non-renewable resources and minimise the generation of waste during construction.

Controls

1. New residential dwellings, including a residential component within a mixed use building and serviced apartments intended, or capable of being, strata titled are to be accompanied by a BASIX Certificate and are to incorporate all commitments stipulated in the BASIX Certificate.
2. Indigenous species are to make up more than 50% of the plant material mix.
3. The majority of plant species are to be selected from the preferred species listed at **Appendix D**.
4. A landscape plan is to be submitted with every application for multi-dwelling housing and residential flat buildings.
5. The provisions of BASIX will apply with regards to water requirements and usage.
6. The design of dwellings is to maximise cross flow ventilation.
7. Open fireplaces, wood fired heaters and slow combustion stoves are not permitted.
8. The positioning and size of windows and other openings is to take advantage of solar orientation to maximise natural light penetration to indoor areas and to minimise the need for mechanical heating and cooling.
9. Outdoor clothes lines and drying areas are required for all dwellings and can be incorporated into communal areas for multi-dwelling development and residential flat building developments.
10. Design and construction of dwellings is to make use of locally sourced materials where possible.
11. Residential building design is to use, where possible, recycled and renewable materials.

4.1.4 Salinity, sodicity and aggressivity

Objectives

- a. To manage and mitigate the impacts of, and on, salinity.

Controls

1. All development must comply with the Salinity Management Plan developed at the subdivision phase. The actions/works from the Salinity Management Plan must be certified upon completion of the development.
2. Salinity shall be considered during the siting, design and construction of dwellings including: drainage, vegetation type and location, foundation selection and cut and fill activities, to ensure the protection of the dwelling from salinity damage and to minimise the impacts that the development may have on the salinity process.
3. In salinity prone areas materials for pipe infrastructure, foundations and brickwork must have sulphate resistant properties to cope with the saline conditions.
4. Applications for new dwellings must be consistent with any conditions of consent for the subdivision of the land in relation to the management of soil salinity, sodicity and aggressivity, and with the Salinity Management Plan at **Appendix C**.

4.2 Dwelling design controls

Under the provisions of the Precinct Plan, development consent is generally required for all dwellings in all residential zones, except where applications meet the criteria for complying development. This section establishes objectives and controls for the following types of residential accommodation as defined in the Growth Centres SEPP:

- dwelling houses;
- semi-detached dwellings;
- attached dwellings;
- abutting dwellings;
- multi-dwelling housing;
- dual occupancy dwellings;
- manor homes;
- residential flat buildings;
- secondary dwellings; and
- studio dwellings.

Additional controls for attached or abutting dwellings, secondary dwellings, studio dwellings, dual occupancies, multi-dwelling housing, manor homes, residential flat buildings and shop top housing are contained in **Section 4.3**.

It is acknowledged that innovative dwelling designs are evolving particularly on lots <300sqm, and design solutions may be developed that meet the objectives but do not comply with the relevant controls. In density bands $\geq 25\text{dw}/\text{Ha}$, there is the opportunity to vary the dwelling design controls where agreed to as part of an integrated housing development application at subdivision approval. .

Note: Reference should be made to the **Glossary** for descriptions of the various dwelling types, and to the relevant Precinct Plan for statutory definitions of land uses.

4.2.1 Summary of Key Controls

The following **Table 4-1** summarises the types of lots and housing. **Table 4-1** is diagrammatic only and directs readers to the relevant **Table 4-2 to Table 4-6** containing the main development controls.

The key controls should be read in conjunction with the controls in the clauses that follow.

Table 4-1: Summary of lot and dwelling types

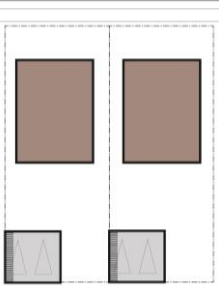
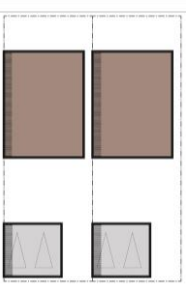
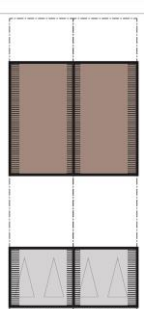
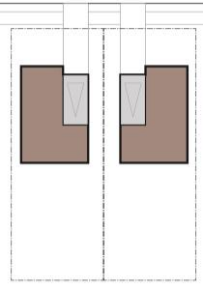
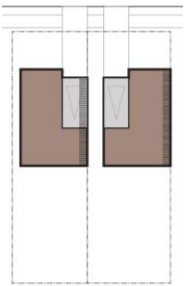
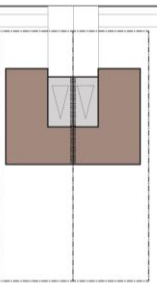
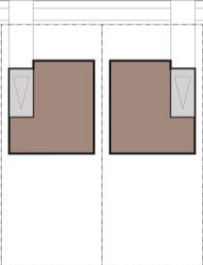
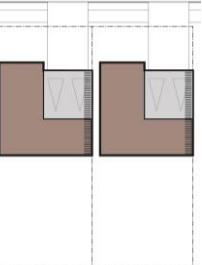
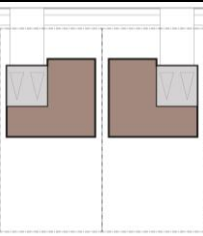
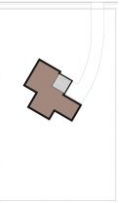
Access	Lot Width	Detached	Zero lot	Abutting/Attached	Controls Table
Rear access	≥4.5m				Table 4-2
	7>9m				Table 4-3
Front access	≥9≥15m				Table 4-4
	>15m				Table 4-5
	Environmental Living Zone				Table 4-6

Table 4-2: Summary of key controls for lots with frontage width $\geq 4.5\text{m}$ for rear accessed dwellings

Element	Control	
Front setback (min)	4.5m to building facade line; 3.5m to building facade fronting open space 3.0m to articulation zone; 2.0m to articulation zone fronting open space.	In density bands $\geq 25\text{dw}/\text{Ha}$ 3m to building facade line, 1.5m to articulation zone.
Side setback (min)	Zero Lot, Attached or Abutting Boundary (benefited lot) Ground floor: 0m Upper floor: 0m	Detached Boundary 0.9m. If lot burdened by zero lot boundary, side setback must be within easement: 0.9m (single storey zero lot wall) 1.2m (double storey zero lot wall)
Maximum length of zero lot line on boundary	Attached/abutting house: 15m (excludes rear loaded garages) upper levels only. No limit to ground floor.	Zero lot house: 15m (excludes rear loaded garages)
Rear setback (min)	0.5m (rear loaded garages to lane)	
Corner lots secondary street setback (min)	1.0m	
Building height, massing and siting	In density areas $\leq 20\text{dw}/\text{Ha}$: 2 storeys maximum (3rd storey subject to clause 4.2.5 (1))	In density areas $\geq 25\text{dw}/\text{Ha}$: 3 storeys maximum
Site Coverage	Upper level no more than 40% of lot area. Refer also clause 5.3(3)	
Soft landscaped area	Minimum 15% lot area. The first 1m of the lot measured from the street boundary (excluding paths) is to be soft landscaped.	
Principal Private Open Space (PPOS)	In density areas $\leq 20\text{dw}/\text{Ha}$: Min 16m^2 with minimum dimension of 3m.	In density areas $\geq 25\text{dw}/\text{Ha}$: Min 16m^2 with minimum dimension of 3m. 10m^2 per dwelling if provided as balcony or rooftop with a minimum dimension of 2.5m.
Solar access	In density areas $\leq 20\text{dw}/\text{Ha}$: At least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June) to at least 50% of the required PPOS of both the proposed development and the neighbouring properties.	In density areas $\geq 25\text{dw}/\text{Ha}$: At least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June) to at least 50% of the required PPOS of: - all affected neighbouring properties and, - at least 70% of the proposed dwellings.
	For alterations and additions to existing dwellings in all density areas, no reduction in the existing solar access to PPOS of the existing neighbouring properties.	
Garages and car parking	Rear loaded garage or car space only for lots of this type. Minimum garage width 2.4m (single) and 4.8m (double). 1-2 bedroom dwellings will provide at least 1 car space. 3 bedroom or more dwellings will provide at least 2 car spaces.	

Table 4-3: Summary of key controls for lots with frontage width $\geq 7\text{m}$ and $< 9\text{m}$ for front accessed dwellings

Element	Control	
Front setback (min)	4.5m to building facade line; 3.5m to building façade fronting open space 3.0m to articulation zone; 2.0m to articulation zone fronting open space 5.5m to garage line and minimum 1m behind the building line	
Side setback (min)	Zero Lot, Attached or Abutting Boundary Ground floor: 0m Upper floor: 0m	Detached Boundary 0.9m. If lot burdened by zero lot boundary, side setback must be within easement: 0.9m (single storey zero lot wall) 1.2m (double storey zero lot wall)
Maximum length of zero lot line on boundary	15m	
Rear setback (min)	4m (ground level) and 6m (upper levels)	
Corner lots secondary street setback (min)	1.0m	
Building height, massing and siting	In density areas $\leq 20\text{dw}/\text{Ha}$: 2 storeys maximum (3rd storey subject to clause 4.2.5 (1))	In density areas $\geq 25\text{dw}/\text{Ha}$: 3 storeys maximum
Site Coverage	Upper level no more than 50% of lot area	
Soft landscaped area	Minimum 15% lot area. The first 1m of the lot measured from the street boundary (excluding paths) is to be soft landscaped.	
Principal Private Open Space (PPOS)	In density areas $\leq 20\text{dw}/\text{Ha}$: Min 16m ² with minimum dimension of 3m.	In density areas $\geq 25\text{dw}/\text{Ha}$: Min 16m ² with minimum dimension of 3m. 10m ² per dwelling if provided as balcony or rooftop with a minimum dimension of 2.5m.
Solar access	In density areas $\leq 20\text{dw}/\text{Ha}$: At least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June) to 50% of the required PPOS of both the proposed development and the neighbouring properties.	In density areas $\geq 25\text{dw}/\text{Ha}$: At least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June) to at least 50% of the required PPOS of: - all affected neighbouring properties and, - at least 70% of the proposed dwellings.
	For alterations and additions to existing dwellings in all density areas, no reduction in the existing solar access to PPOS of the existing neighbouring properties.	
Garages and car parking	Single width garage or car space only. Carport and garage minimum internal dimensions: 3m x 5.5m. 1-2 bedroom dwellings will provide at least 1 car space. 3 bedroom or more dwellings will provide at least 2 car spaces. The garage must be less than 40% of the total area of the front façade.	
Layout	Driveway locations must be paired to preserve on-street parking spaces in front of lots. In density bands $\leq 25\text{dw}/\text{Ha}$, total lot frontage of this lot type not to exceed 20% of the block length due to garage dominance and on-street parking impacts.	

Table 4-4: Summary of key controls for lots with frontage width $\geq 9\text{m}$ and $\leq 15\text{m}$ for front accessed dwellings

Element	Control	
Front setback (min)	4.5m to building facade line; 3.5m to building façade fronting open space or drainage land 3.0m to articulation zone; 2.0m to articulation zone fronting open space or drainage land 5.5m to garage line and 1m behind the building line	
Side setback (min)	Detached boundary: Ground Floor: 0.9m Upper Floor: 0.9m	Lots with a zero lot boundary (side A): Ground Floor: 0m (Side A), 0.9m (Side B) Upper Floor: 1.5m(Side A), 0.9m (Side B)
Length of zero lot line on boundary	11m	
Rear setback (min)	4m (ground level) and 6m (upper levels)	
Corner lots secondary street setback (min)	2.0m	
Building height, massing and siting	2 storeys maximum (3rd storey subject to clause 4.2.5 (1))	
Site coverage	Single storey dwellings: 60% Lot $\leq 375\text{sqm}$, upper level no more than 40% of lot area. Lot $> 375\text{sqm}$, upper level no more than 35% of lot area.	
Landscaped area	Minimum 25% of allotment area	
Principal Private Open space (PPOS)	Minimum 20m^2 with minimum dimension of 4.0m. 50% of the area of the required PPOS (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June)	
Garages and car parking	Lots $\geq 9\text{m}$ and $< 12.5\text{m}$: Where front accessed, single width garages only. Rear lane or side street accessed double garages permitted. Max. carport and garage door width not to exceed 3m (single) or 6m (double)	Lots $\geq 12.5\text{m}$ and $\leq 15\text{m}$: Front or rear accessed single, tandem or double garages permitted Triple garages are not permitted.
	1-2 bedroom dwellings will provide at least 1 car space. 3 bedroom or more dwellings will provide at least 2 car spaces.	

Table 4-5: Summary of key controls for lots with frontage width > 15m for front accessed dwellings

Element	Control
Front setback (min)	4.5m to building facade line 3.5m to building façade fronting open space or drainage land 3.0m to articulation zone 2.0m to articulation zone fronting open space or drainage 5.5m to garage line and 1m behind the building line
Side setback (min)	Ground Floor: 0.9m (Side A), 0.9m (Side B) Upper Floor: 0.9m (Side A), 1.5m (Side B)
Rear setback (min)	4m (ground level) and 6m (upper levels)
Corner lots secondary street setback (min)	2.0m
Building height, massing and siting	2 storeys (3rd storey subject to clause 4.2.5 (1))
Site coverage	Single storey dwellings: 50% Two storey dwellings: 50% at ground floor and 30% at upper floor
Landscaped area	Minimum 30% of the allotment area
Principal Private Open Space (PPOS)	Minimum 24m ² with minimum dimension 4m 50% of the area of the required principal private open space (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June).
Garages and car parking	Front or rear loaded double and tandem garages permitted Maximum garage door width 3m (Single) and 6m (Double) Triple garages are not permitted. 1-2 bedroom dwellings will provide at least 1 car space. 3 bedroom or more dwellings will provide at least 2 car spaces.

Table 4-6: Summary of key controls for lots in the Environmental Living Zone

Element	Control
Front setback (min)	4.5m to building facade line Façade articulation is to be behind the front setback Garage setback 1m behind the building façade line
Side setback (min)	Ground Floor: 1.5m Upper Floor: 1.5m (Side A), 3m (Side B)
Rear setback (min)	10m
Corner lots secondary street setback (min)	4.5m
Building height, massing and siting	2 storeys (3rd storey subject to clause 4.2.5 (1))
Site coverage	Single storey dwellings: 35% Two (or more) storey dwellings: 25% ground floor and 15% upper floors
Landscaped area	Single storey dwellings: Minimum 55% of the allotment area Two or more storey dwellings: Minimum 60% of the allotment area
Principal Private Open Space (PPOS)	Minimum 24m ² with minimum dimension 4m 50% of the area of the required principal private open space (of both the proposed development and adjoining properties) should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice (21 June).
Garages and car parking	Front or rear loaded double and tandem garages permitted Maximum garage door width 3m (Single) and 6m (Double) where garages front a public road. Triple garages permitted where at least one garage door is not visible from the street or where the total width of the garages is less than 50% of the total width of the building façade. 1-2 bedroom dwellings will provide at least 1 car space. 3 bedroom or more dwellings will provide at least 2 car spaces.

4.2.2 Streetscape and architectural design

Growth Centres neighbourhoods will be composed of a variety of streets with different but equally appealing characters and built form intensity. In low density precincts, suburban streetscapes will be most common but there will also be some streets with a more urban village character. In higher density precincts, urban village streets will be more common but there will also be some suburban streetscapes. The objective is to avoid a monoculture of the one type of street which is neither a successful suburban or urban street.

Figure 4-2 illustrates how the designed combination of built form, lot size, setbacks, garaging and landscaping can create distinctive streetscape characters ranging from the low intensity 'garden suburban' character based on landscaped private space around buildings to the built form intensity and public landscapes of urban streets.



Garden Suburban



Suburban



Urban

Figure 4-2: The combination of built form, lot size, garaging and landscaping creates different streetscapes.

Objectives

- a. To ensure that buildings are designed to enhance the built form and character of the neighbourhood by encouraging innovative and quality designs that contribute to unified streetscapes.
- b. To encourage a diversity of house types.
- c. To provide a clear distinction between private and public space and to encourage casual surveillance of the street.
- d. To reinforce significant street intersections particularly on open space and other key strategic areas through articulation of corner buildings.

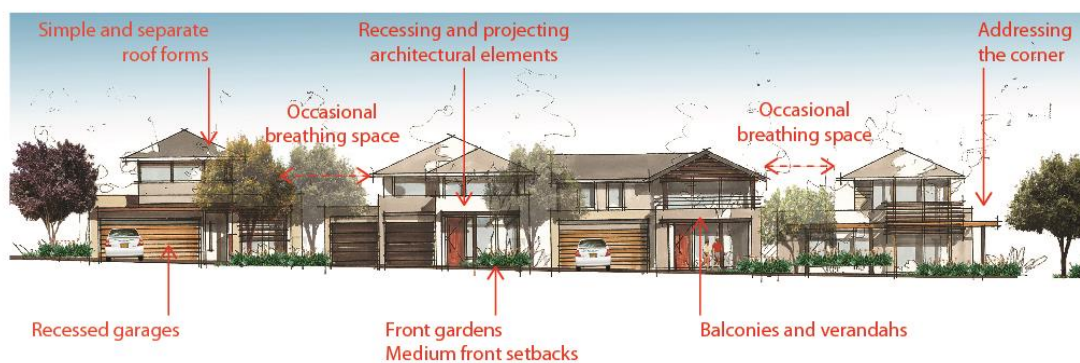
Controls

1. The primary street facade of a dwelling should address the street and must incorporate at least two of the following design features:
 - entry feature or porch;
 - awnings or other features over windows;
 - balcony treatment to any first floor element;
 - recessing or projecting architectural elements;
 - open verandah;
 - bay windows or similar features; or
 - verandahs, pergolas or similar features above garage doors.
2. Corner lot development should emphasise the corner. The secondary street facade for a dwelling on a corner lot should address the street and must incorporate at least two of the above design features. Landscaping in the front setback on the main street frontage should also continue around into the secondary setback.
3. Modulation of the façade should be integral to the design of the building, rather than an unrelated attached element.
4. Eaves are to provide sun shading and protect windows and doors and provide aesthetic interest. Except for walls built to the boundary, eaves should have a minimum of 450mm overhang (measured to the fascia board). Council will consider alternative solutions to eaves so long as appropriate sun shading is provided to windows and display a high level of architectural merit.
5. The pitch of hipped and gable roof forms on the main dwelling house should be between 22.5 degrees and 35 degrees. Skillion roofs, roofs hidden from view by parapet walls, roofs on detached garages, studios and ancillary buildings on the allotment are excluded from this control.
6. Front facades are to feature at least one habitable room with a window onto the street.
7. Carports and garages are to be constructed of materials that complement the colour and finishes of the main dwelling.

8. Streets should be fronted with similar housing types to create a consistent street character. For example, a 'garden suburban' street character will be created where most dwellings are detached on lot widths $\geq 15\text{m}$, perhaps with deeper lots allowing for larger front setbacks and generous landscaping around dwellings. A suburban street character will be created where most dwellings are front loaded, detached or zero lotted on lot widths between 9-15m. An urban street character will be created where most dwellings are zero lotted, attached/abutting on lot widths less than 9m with rear garages. Streetscape design principles are illustrated at **Figure 4-3**.



Garden Suburban streetscape principles



Suburban streetscape principles



Urban streetscape principles

Figure 4-3: Streetscape design principles

4.2.3 Front setbacks

Objectives

- a. To enable the integration of built and landscape elements to create an attractive, visually consistent streetscape.
- b. To encourage simple and articulated building forms.
- c. To ensure garages do not dominate the streetscape.

Controls

1. Dwellings are to be consistent with the front setback controls and principles in **Tables 4-2 to 4-6** and **Figure 4-4**.
2. On corner lots, front setback controls are to be consistent with **Figure 4-6**
3. To achieve a desired streetscape character, the building façade front setback for a series of lots can be more or less than the setbacks shown in **Tables 4.2 to 4.6** where agreed to as part of the preparation of a Building Envelopes Plan or integrated housing development application at subdivision approval and the front setbacks are attached to the lot titles. However, the front setback to garages must be a minimum of 5.5m.
4. Elements permitted in the articulation zone (shown on **Figure 4-4**, **Figure 4-5** and **Figure 4.6**) include those items listed in control 4.4.2 (1).
5. Except for rear loaded garages, the garage line is to have a front set back that is at least 1m behind the building front facade line.

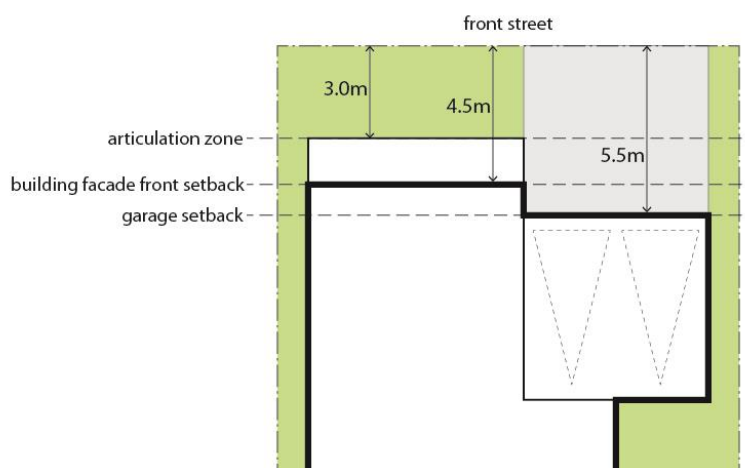


Figure 4-4: Minimum front setback distances

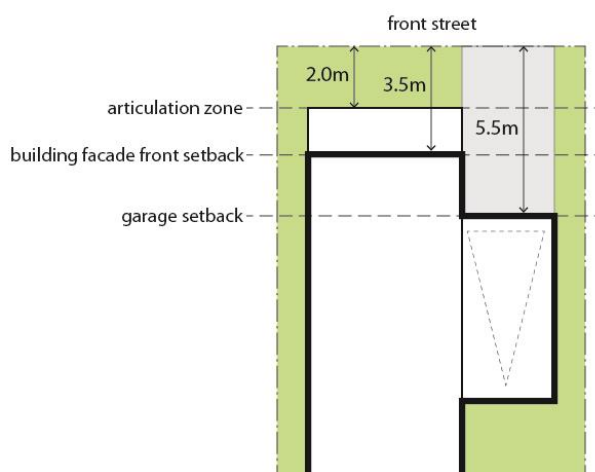


Figure 4-5: Minimum front setbacks for dwellings fronting open space or drainage land

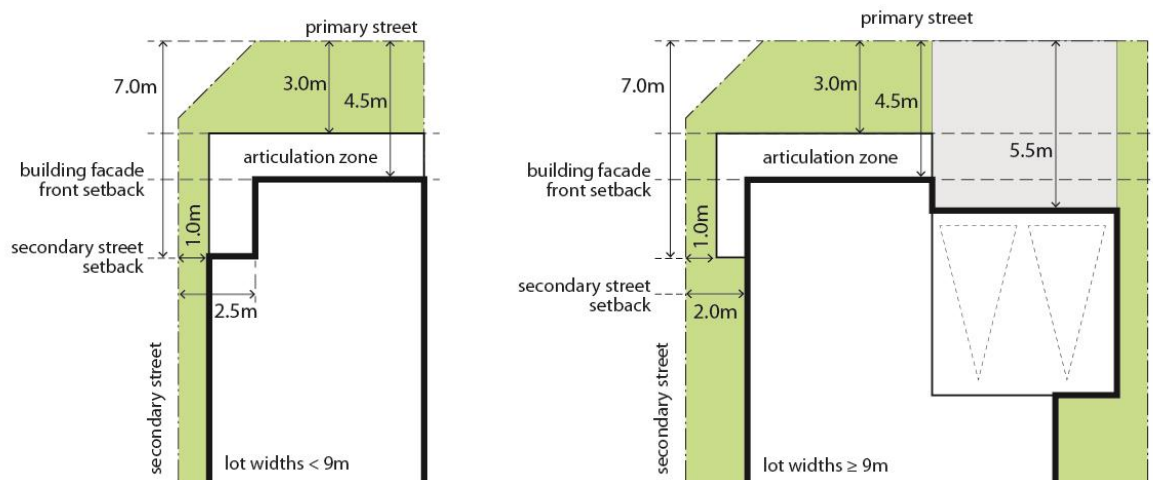


Figure 4-6: Minimum setbacks for corner lot dwellings

4.2.4 Side and rear setbacks

Objectives

- a. To create an attractive and cohesive streetscape that responds to the character areas.
- b. To minimise the impacts of development on neighbouring properties.
- c. To provide appropriate separation between buildings.
- d. To create opportunities for articulation on the side walls.

Controls

1. All development is to be consistent with the side and rear setback controls in the relevant **Tables 4-2 to 4-6** and principles in **Figure 4-7**.
2. The location of a zero lot line (Side A) is to be determined primarily by topography and should be on the low side of the lot to minimise water penetration and termite issues. Other factors to consider include dwelling design, adjoining dwellings, landscape features, street trees, vehicle crossovers and the lot orientation as illustrated at **Figure 4-7**.
3. For attached or semi-detached dwellings the side setback only applies to the end of a row of attached housing, or the detached side of a semi-detached house.
4. Pergolas, swimming pools and other landscape features/structures are permitted to encroach into the rear setback.
5. The minimum setback to dwellings from a side boundary that adjoins Public Recreation or Drainage land shall be:
 - 3m in the R2, R3 and R4 zones.
 - 4.5m in the Environmental Living zone.
6. For dwellings with a minimum 900mm side setback, projections permitted into side and rear setback areas include eaves (up to 450 millimetres wide), fascias, sun hoods, gutters, down pipes, flues, light fittings, electricity or gas meters, rainwater tanks and hot water units.
7. No overhanging eaves, gutters or services (including rainwater tanks, hot water units, air-conditioning units or the like) of the dwelling on the benefited lot will be permitted within the easement. Any services and projections permitted under **Clause 4.2.4 (6)** within the easement to the burdened lot dwelling should not impede the ability for maintenance to be undertaken to the benefitted lot.

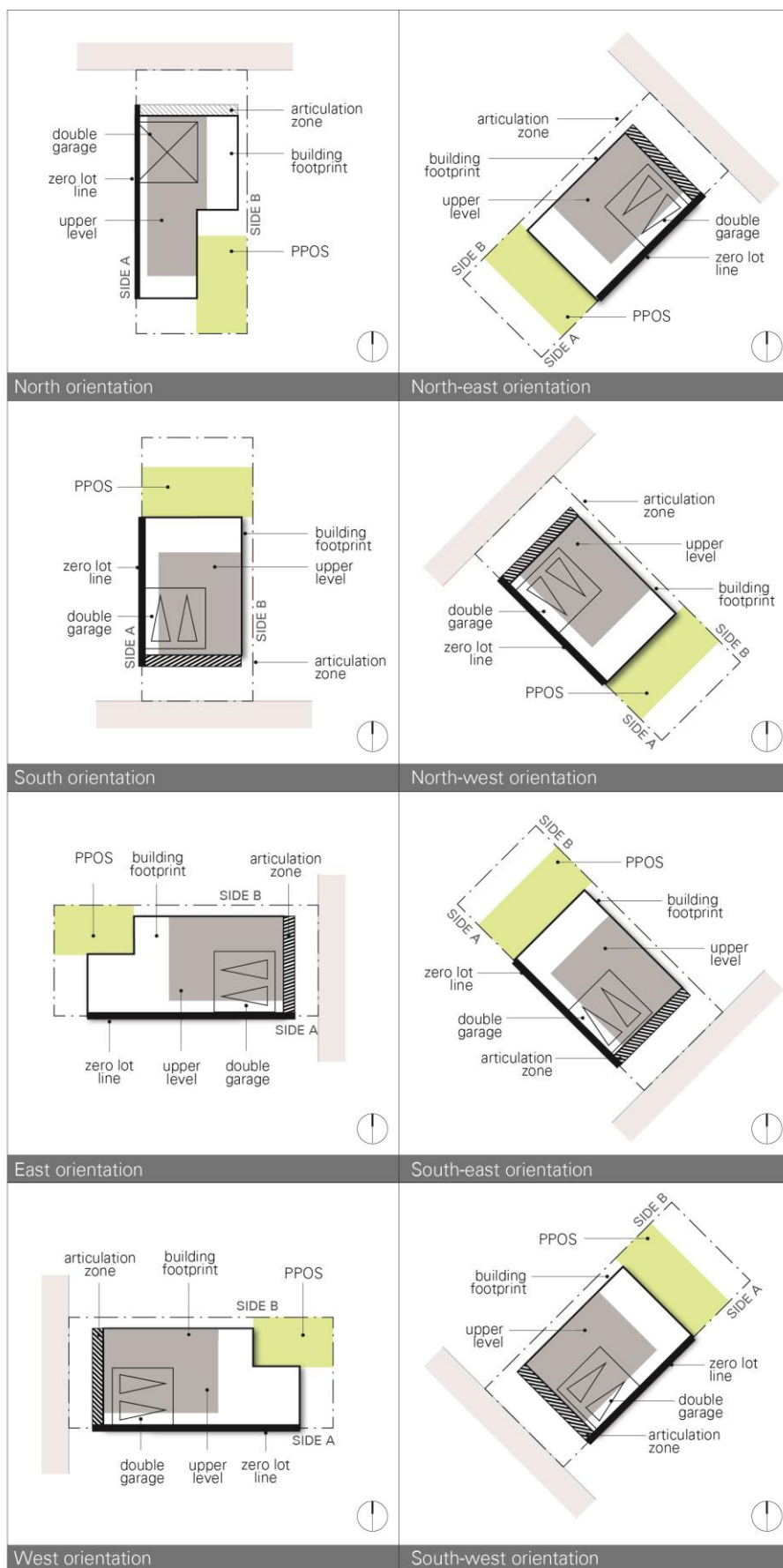


Figure 4-7: Dwelling and open space siting principles for different lot orientations

8. For battle-axe lots without a street facing elevation setbacks are to be determined in the context of surrounding lots, built form and the location of private open space. An example is shown in **Figure 4-8**.
9. The upper floor of dwellings on battle-axe lots must be setback so as not to impact adversely on the existing or future amenity of any adjoining land on which residential development is permitted, having regard to overshadowing, visual impact and privacy.
10. For a battle-axe lot with direct frontage to land zoned for a public purpose or a street facing elevation (such as access denied lots), the front setback controls in **Section 4.2.3** are to apply to the lot boundary adjoining the public purpose zone, and side and rear setbacks are to apply to lot boundaries determined relative to the front setback boundary as shown in **Figure 4-9**.
11. For corner lots $\geq 15\text{m}$ lot width with shallow depths (i.e. approximately square corner lots) the rear setback can be varied to be consistent with the side setbacks in **Tables 4-5 and 4-6** provided the minimum private open space and solar access requirements to the proposed and adjoining properties are met.

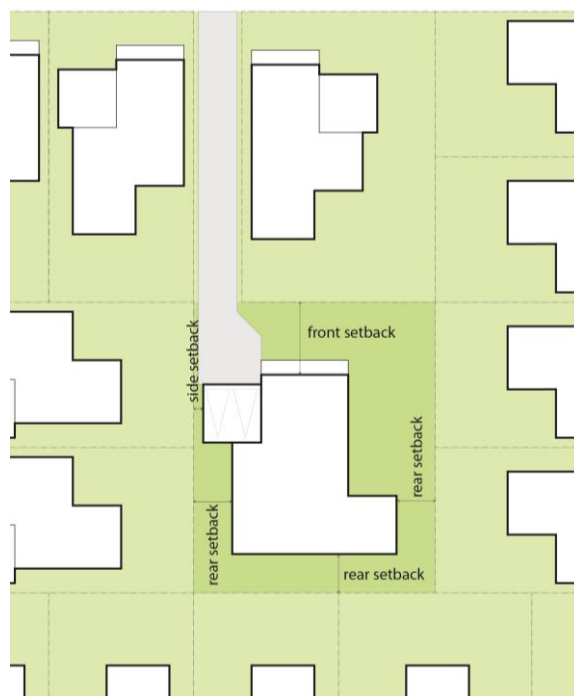


Figure 4-8: Battle axe lot (without any street frontage) example of setbacks

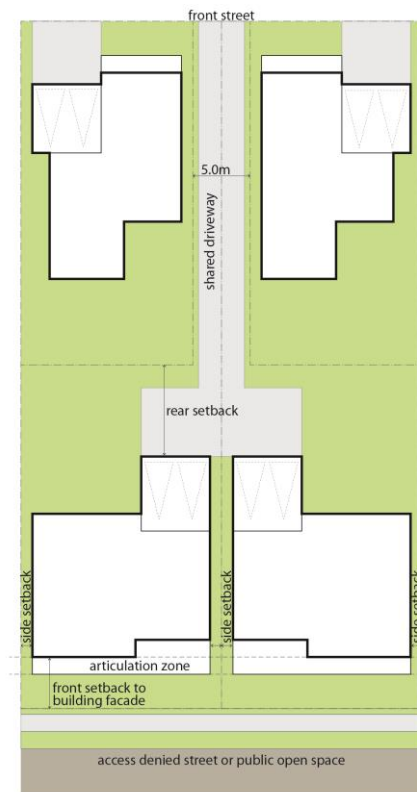


Figure 4-9: Battle axe lot (fronting access denied road) setbacks

4.2.5 Dwelling Height, Massing and Siting

Objectives

- e. To ensure development is of a scale appropriate to protect residential amenity.
- f. To ensure building heights achieve built form outcomes that reinforce quality urban and building design.

Controls

1. Dwellings are to be generally a maximum of 2 storeys high. Council may permit a 3rd storey if it is satisfied that:
 - the dwelling is located on a prominent street corner; or
 - the dwelling is located adjacent to a neighbourhood or local centre, public recreation or drainage land, a golf course, or a riparian corridor; or
 - the dwelling is located on land with a finished ground level slope equal to or more than 15%, and is not likely to impact adversely on the existing or future amenity of any adjoining land on which residential development is permitted, having regard to overshadowing, visual impact and any impact on privacy; or
 - the third storey is within the roof line of the building (i.e. an attic).

Note: Reference should be made to clause 4.3 of the relevant Precinct Plan for statutory height limits.

2. All development is to comply with the maximum site coverage as indicated in the relevant **Tables 4-2 to 4-6**.
3. Site coverage is the proportion of the lot covered by a dwelling house and all ancillary development (e.g. carport, garage, shed) but excluding unenclosed balconies, verandahs, porches, al fresco areas etc.
4. The ground floor level shall be no more than 1m above finished ground level.
5. Dwellings on a battle-axe-lot without public open space or street frontage are to be a maximum of 2 storeys high.

4.2.6 Landscaped Area

Landscaped area is defined as an area of open space on the lot, at ground level, that is permeable and consists of soft landscaping, turf or planted areas and the like.

Objectives

- a. To encourage the use of native flora species and low maintenance landscaping.
- b. To contribute to effective stormwater management, management of micro-climate impacts and energy efficiency.
- c. To ensure a balance between built and landscaped elements in residential areas.
- d. To create the desired street character.

Controls

1. The minimum soft landscaped area within any residential lot is to comply with the controls and principles in the relevant **Tables 4-2 to 4-6**. **Figure 4-10** illustrates areas of a lot that can contribute towards the provision of soft landscaped area and principal private open space.
2. Plans submitted with the development application must indicate the extent of landscaped area and nominate the location of any trees to be retained or planted.
3. Surface water drainage shall be provided as necessary to prevent the accumulation of water.
4. Use of low flow watering devices is encouraged to avoid over watering. Low water demand drought resistant vegetation is to be used for the majority of landscaping, including native salt tolerant trees.

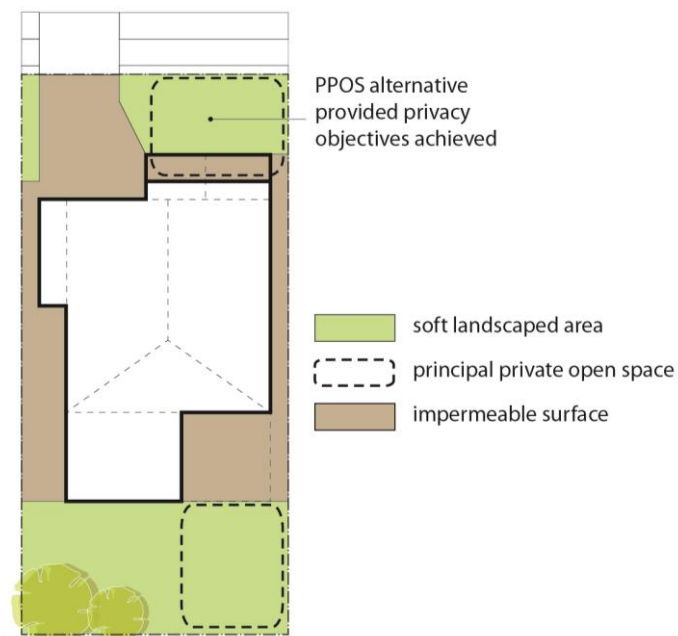


Figure 4-10: Soft landscaped area and principal private open space

4.2.7 Private Open Space

Objectives

- a. To provide a high level of residential amenity with opportunities for outdoor recreation and relaxation.
- b. To enhance the spatial quality, outlook, and usability of private open space.
- c. To facilitate solar access to the living areas and private open spaces of the dwelling.

Controls

1. Each dwelling is to be provided with an area of Principal Private Open Space (PPOS) consistent with the requirements of the relevant **Tables 4-2 to 4-6**.
2. The location of PPOS is to be determined having regard to dwelling design, allotment orientation, adjoining dwellings, landscape features, topography.
3. The PPOS is required to be conveniently accessible from the main living area of a dwelling or alfresco room and have a maximum gradient of 1:10. Where part or all of the PPOS is permitted as a semi-private patio, balcony or rooftop area, it must be directly accessible from a living area.
4. Open space at the front of the dwelling can only be defined as PPOS where this is the only means of achieving the solar access requirements of control 1 above. PPOS at the front of a dwelling must be designed to maintain appropriate privacy (for example raised level above footpath or fencing or hedging) and be consistent with the streetscape design controls in **Section 4.2.2**.

4.2.8 Garages, Site Access and Parking

Objectives

- a. To control the number, dimensions and location of vehicle access points. To reduce the visual impact of garages, carports, and parking areas on the streetscape.
- b. To provide safe, secure and convenient access to parking within garages, carports and parking areas, with casual surveillance of private driveways from dwellings and from the street.
- c. To minimise conflict between pedestrians and vehicles at the junction of driveways and footpaths.
- d. To provide predominantly on-site parking for residents.

Controls

1. 1-2 bedroom dwellings will provide at least 1 car space.
2. 3 bedroom or more dwellings will provide at least 2 car spaces.
3. At least one car parking space must be located behind the building façade line where the car parking space is accessed from the street on the front property boundary.

Note: A car space may include a garage, carport or other hard stand area constructed of materials suitable for car parking and access. The required car parking spaces specified above may be provided using a combination of these facilities, including use of the driveway (within the property boundary only) as a parking space.

4. Vehicular access is to be integrated with site planning from the earliest stages of the project to eliminate/reduce potential conflicts with the streetscape requirements and traffic patterns, and to minimise potential conflicts with pedestrians.
5. Driveways are to have the smallest configuration possible (particularly within the road verge) to serve the required parking facilities and vehicle turning movements and shall comply with AS2890.
6. The location of driveways is to be determined with regard to dwelling design and orientation, street gully pits and trees and is to maximise the availability of on-street parking.

Notes: Section 3.2 requires plans of subdivision to nominate driveway locations and preferred building envelopes. The design of dwellings should refer to the approved subdivision plans and be consistent with the nominated driveway locations to the greatest practical extent.

Controls for driveways and access to corner lots are contained in **Section 3.1.4** and **Figure 3-7**.

7. Driveways are not to be within 1m of any drainage facilities on the kerb and gutter.
8. Planting and walls adjacent to driveways must not block lines of sight for pedestrians, cyclists and motorists.
9. Driveways are to have soft landscaped areas on either side, suitable for water infiltration.
10. Garages are to be designed and located in accordance with the controls in relevant **Tables 4-2 to 4-6**.

11. Garage design and materials are to be consistent with the dwelling design.

For front loaded garages:

12. Single garage doors should be a maximum of 3m wide and double garage doors should be a maximum of 6m wide.
13. Minimum internal dimensions for a single garage are 3m wide by 5.5m deep and for a double garage 5.6m wide by 5.5m deep.
14. Garage doors are to be visually recessive through use of materials, colours, and overhangs such as second storey balconies.
15. Three car garages are only permitted in the Environmental Living and Large Lot Residential zones where:
- At least one of the garage doors is not directly visible from a public road; or
 - One of the car spaces is in a stacked configuration; or
 - The total width of the garage is not more than 50% of the length of the building facade.

For garages accessed from a laneway or shared driveway:

16. Minimum garage door width of 2.4m (single) and 4.8m (double).
17. All garages, site access and parking will be designed in accordance with the **Department of Planning and Environment Delivery Note: Laneways**.

4.2.9 Visual and acoustic privacy

Objectives

- To site and design dwellings to meet user requirements for visual and acoustic privacy, while minimising the visual and acoustic impacts of development on adjoining properties.
- To minimise the impact of noise of other non-residential uses such as parking and sport areas, restaurants and cafes and waste collection and goods deliveries.

Controls

- Figure 4-11** provides guidance to applicants on measures to mitigate the impacts of rail and traffic noise within the Precinct.
- Development will require an acoustic report where it is:
 - adjacent to railway line, arterial or sub-arterial roads; or
 - potentially impacted upon by a nearby industrial / employment area.

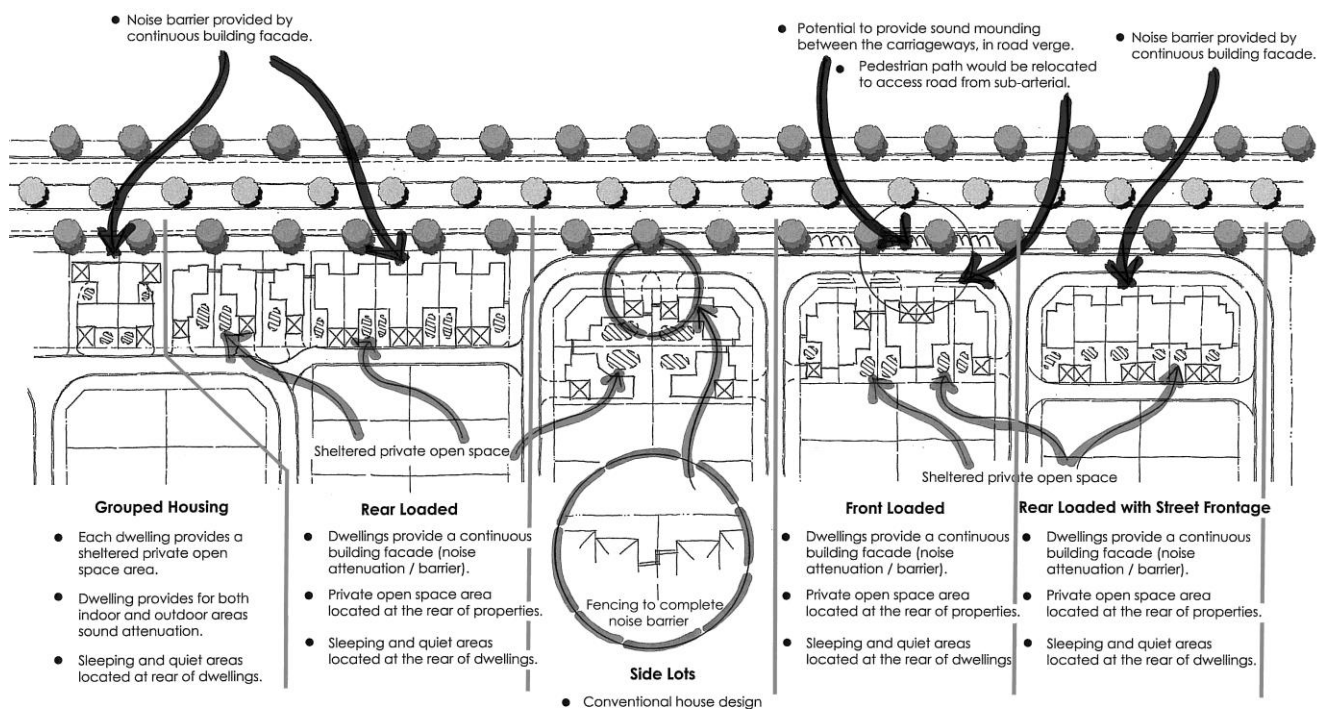


Figure 4-11: Measures to attenuate noise

- Direct overlooking of main habitable areas and the private open spaces of adjoining dwellings should be minimised through building layout, window and balcony location and design, and the use of screening devices, including landscaping.
- Living area windows with a direct sightline to Principal Private Open Space of the habitable room windows in an adjacent dwelling within 9.0 metres are to:
 - be obscured by fencing, screens or appropriate landscaping, or

- be offset from the edge of one window to the edge of the other by a distance sufficient to limit views into the adjacent window; or
 - have sill height of 1.7 metres above floor level; or
 - have fixed obscure glazing in any part of the window below 1.7 metres above floor level.
5. The design of dwellings must minimize the opportunity for sound transmission through the building structure, with particular attention given to protecting bedrooms and living areas.
 6. In attached and semi-detached dwellings, bedrooms of one dwelling are not to share walls with living spaces or garages of adjoining dwellings, unless it is demonstrated that the shared walls and floors meet the noise transmission and insulation requirements of the Building Code of Australia.
 7. No electrical, mechanical or hydraulic equipment or plant shall generate a noise level greater than 5dBA above background noise level measured at the property boundary during the hours 7.00am to 10.00pm and noise is not to exceed background levels during the hours 10.00pm to 7.00am.
 8. Dwellings along main roads, or any other noise source, should be designed to minimize the impact of traffic noise.
 9. The internal layout of residential buildings, window openings, the location of outdoor living areas (i.e. courtyards and balconies), and building plant should be designed to minimise noise impact and transmission.
 10. Noise walls are not permitted.
 11. Development effected by noise from rail or traffic noise is to comply with AS2107-2000 Acoustics: Recommended Design Sound Levels and Reverberation Times for Building Interiors.
 12. Residential development shall aim to comply with the criteria in **Table 4-7**. **Figure 4-12** provides guidance on measures to manage internal noise levels.

Table 4-7: Noise criteria for residential premises impacted by traffic noise

	Sleeping areas	Living areas
Naturally ventilated/ windows open to 5% of the floor area (Mechanical ventilation or air conditioning systems not operating)	LAeq 15 hours (day): 40dBA LAeq 9 hour (night): 35dBA	LAeq 15 hours (day): 45dBA LAeq 9 hour (night): 40dBA
Doors and windows shut (Mechanical ventilation or air conditioning systems are operating)	LAeq 15 hours (day): 43dBA LAeq 9 hour (night): 38dBA	LAeq 15 hours (day): 46dBA LAeq 9 hour (night): 43dBA

Notes:

These levels correspond to the combined measured level of external sources and the ventilation system operating normally.

Where a naturally ventilated/windows open condition cannot be achieved, it is necessary to incorporate mechanical ventilation compliant with AS1668 and the Building Code of Australia.

LAeq 1 hour noise levels shall be determined by taking as the second highest LAeq 1 hour over the day and night period for each day and arithmetically averaging the results over a week for each period (5 or 7 day week, whichever is highest)

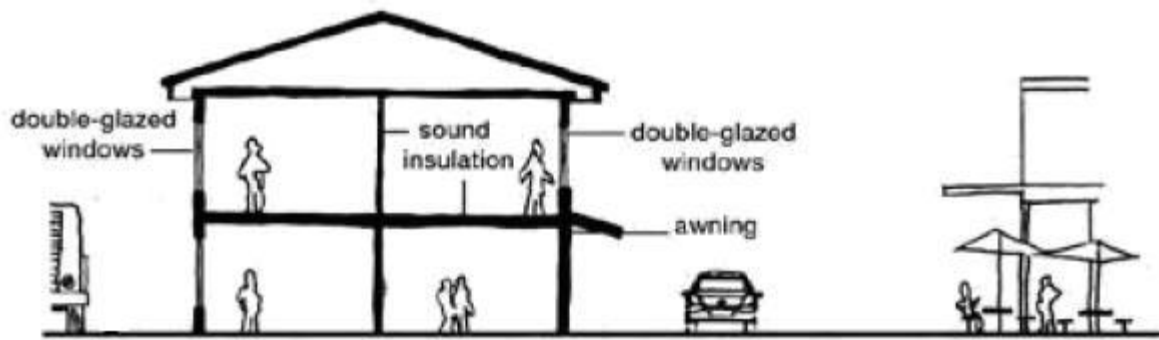


Figure 4-12: Strategies for minimising noise transmission

4.2.10 Fencing

Objectives

- a. To ensure boundary fencing is of a high quality and does not detract from the streetscape.
- b. To encourage the active use of front gardens through provision of a secure area.
- c. To ensure that rear and side fencing will assist in providing privacy to private open space areas.
- d. To ensure that fence height, location and design will not affect traffic and pedestrian visibility at intersections.

Controls

1. Front fencing shall be a maximum of 1m high.
2. Front fences and walls are not to impede safe sight lines for traffic.
3. Side and rear fences are to be a maximum of 1.8m high.
4. Side fences not on a street frontage are to be a maximum of 1m high to a point 2m behind the primary building façade.
5. On corner lots or lots that have a side boundary that adjoins open space or drainage, the front fencing style and height is to be continued along the secondary street or open space/drainage land frontage to at least 4m behind the building line of the dwelling. Principles for corner lots are illustrated at **Figure 4-13**.
6. On boundaries that adjoin open space or drainage land, fencing is to be of a high quality material and finish. The design of the fencing is to permit casual surveillance of the public space by limiting fence height to 1m or by incorporating see through materials or gaps for the portion of the fence above 1m high.
7. Pre-painted steel or timber paling or lapped/capped boundary fencing is not permitted adjacent to open space or drainage land or on front boundaries.
8. Fencing that adjoins mews or rear access ways is to permit casual surveillance.

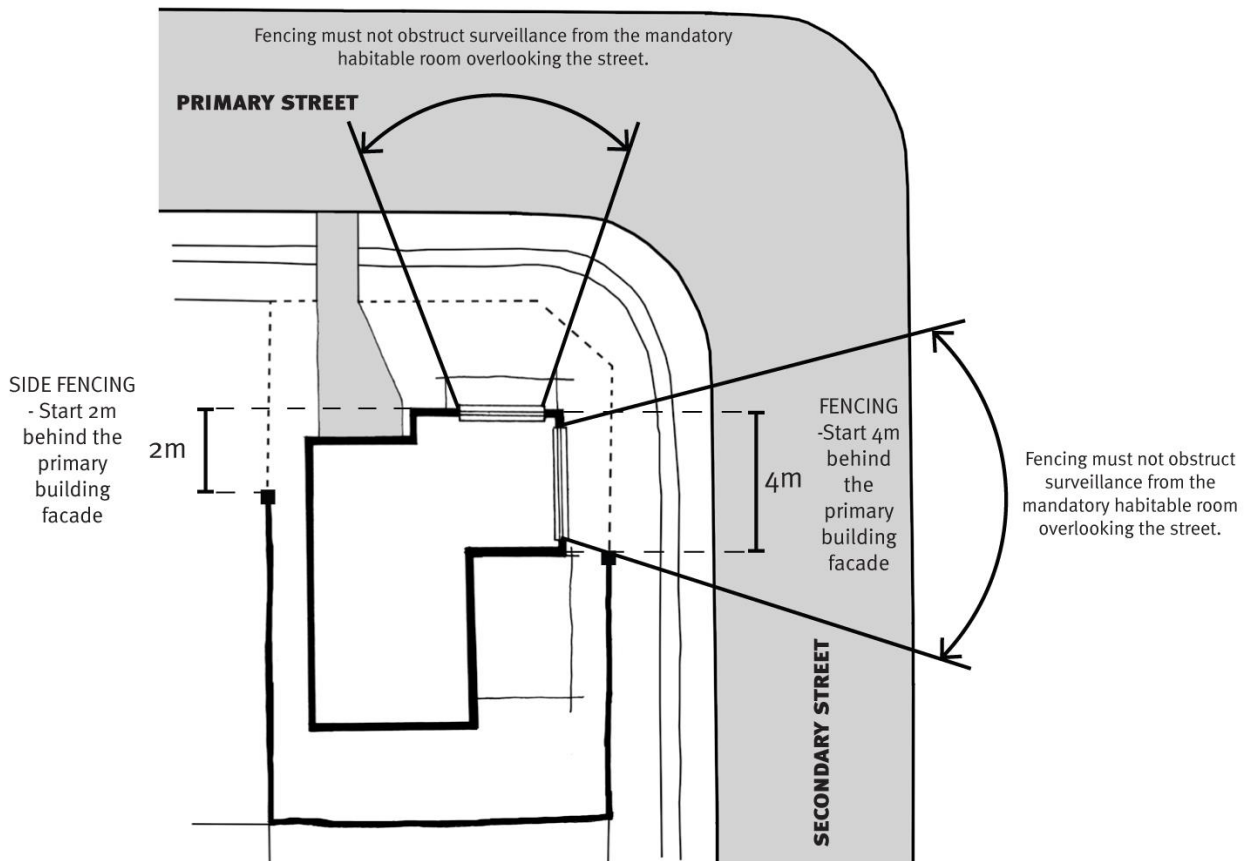


Figure 4-13: Fencing design for corner lots

4.3 Additional controls for certain dwelling types

4.3.1 Residential development adjacent to transmission easements

Objectives

- a. To minimise the visual and amenity impacts of transmission lines on surrounding residential areas.
- b. To provide for passive surveillance of the public lands within and adjacent to the transmission easement.
- c. To maintain the privacy of dwellings adjacent to the easements.

Controls

1. Dwellings are to be set back as far as possible from the transmission easement.
2. Low fencing (that complies with the controls for front fences in **clause 4.2.10**) or fencing that allows surveillance of the public lands within and adjacent to the transmission easement is to be used on the property boundary facing the easement from the front property boundary to a point 4 metres behind the front building facade.
3. Landscaping is to permit views into the easement at ground level.
4. The orientation of dwellings is to permit casual surveillance of the easement, while maintaining the privacy of occupants.
5. The Principal Private Open Space for the dwelling is to be screened from view from the transmission easement, preferably by being located behind the building line.

4.3.2 Attached or abutting dwellings

Additional controls for attached or abutting dwellings are outlined below, and should be read in conjunction with those in **Section 4.2**.

Objectives

- a. To ensure that the development of attached or abutting dwellings creates an architecturally consistent street character.

Controls

1. It is preferred that garages for attached dwellings are located at the rear of the lot. Where attached dwellings have frontage to a collector road, all vehicle access and parking is to be located at the rear of the lot.
2. Attached or abutting dwellings should have a pleasing rhythm and order when seen together as a group, rather than appear as a random arrangement of competing dwellings. Each dwelling should benefit from the unified design of the whole form, a co-ordinated style and base colour palette. Individuality can be added as small details or accent colours, rather than strikingly different forms.

4.3.3 Secondary dwellings, studio dwellings and dual occupancies

Controls for secondary dwellings, studio dwellings or dual occupancies are in part determined by whether the secondary, principal or dual occupancy dwelling is proposed at the time of the application or at some point in the future to be strata subdivided. Strata subdivisions create the need for separate or common property dwelling entries, parking and open space to service each dwelling.

The **Glossary** of this DCP provides further explanation and examples of secondary dwelling, studio dwellings or dual occupancy types. The controls that follow apply to all forms of secondary dwellings, studio dwellings and dual occupancies.

Objectives

- a. To enable the development of a diversity of dwelling types.
- b. To contribute to the availability of affordable housing.
- c. To promote innovative housing solutions that are compatible with the surrounding residential environment.
- d. To provide casual surveillance to rear lanes.

Controls

Controls - Secondary dwellings and studio dwellings

1. Secondary dwellings and studio dwellings are to comply with the controls in **Section 4.2**, except where the controls in this clause differ, in which case the controls in this clause take precedence.
2. Secondary dwellings and studio dwellings are to comply with the key controls in **Table 4-8**.
3. The maximum site coverage control for upper floors in the relevant **Tables 4-2 to 4-6** may be exceeded by the combined upper floor coverage of the secondary or studio dwelling and principal dwelling, providing that:
 - The privacy of the principal dwelling and dwellings on adjoining land is not compromised; and
 - Solar access to the principal private open space of neighbouring lots is not significantly reduced.
4. The maximum gross floor area of a studio dwelling is 75m².
5. The finishes, materials and colours of the secondary dwelling or studio dwelling are to complement the principal dwelling in its construction features.
6. For secondary dwellings, windows and private open spaces must not overlook the private open space of any adjacent dwellings. For studio dwellings, windows and private open spaces must not overlook the private open space of any adjacent dwellings including the principal dwelling. Windows that potentially overlook adjacent lots must either have obscured glazing, be screened or have a minimum sill height of 1.5m above floor level.

7. Secondary or studio dwellings and associated garages may have a zero lot setback to one side boundary and may be attached to another garage/secondary dwelling on an adjoining lot, particularly where the secondary or studio dwelling is associated with an attached or semi-detached dwelling.

Table 4-8: Key controls for secondary dwellings and studio dwellings

Element	Secondary Dwelling	Studio Dwelling (strata)
On-site car parking	No additional car parking space required.	One additional dedicated on-site car parking space. Car parking space to be located behind building facade line of principal dwelling. Car parking space not to be in a stacked configuration.
Principal Private open space	No separate private open space required.	Balcony accessed directly off living space having minimum size of 8.0m ² with minimum dimension of 2m +
Subdivision	Subdivision from principal dwelling not permitted.	Strata title subdivision only from the principal dwelling on the land
Access	Separate direct access to a street, laneway or shared driveway way not required.	Access to be separate from the principal dwelling and is to front a public street, lane or shared private access way or Combined access for the principal dwelling and secondary dwelling to be through communal land as shown on the strata plan.
Services and facilities	No separate services or facilities required.	Provision for separate services, such as mail delivery and waste collection, and an on-site garbage storage area so that bins are not visible from public street or laneway. To be located on a street address that is able to be accessed by garbage collection and mail delivery services. May be serviced from the front residential street via the principal dwelling lot.

8. Where the secondary or studio dwelling is built to a zero lot line on a side boundary, windows are not to be located on the zero lot wall unless that wall adjoins a laneway, public road, public open space or drainage land.
9. Studio dwellings are to have balconies or living areas that overlook laneways for casual surveillance.
10. Rear garages with secondary or studio dwellings may have first level balconies facing the lane provided the balcony remains within the lot boundary. Where 2m deep, overhanging balconies for private open space requirements of studio dwellings are located along a lane, the application must demonstrate how garages setback underneath avoid creating an overly wide lane and ambiguous space opportunities for illegally parked cars, trailers, bins etc.
11. Where a secondary or studio dwelling is built over a rear garage and separated from the upper levels of the principal dwelling, there must be a minimum separation of 5m between the upper floor rear façade of the principal dwelling and the secondary or studio dwelling.
12. Studio dwellings are to be located at the rear of the lot only where the lot has access from a rear lane or secondary street on a corner lot.

13. Studio dwellings must comply with separation controls nominated in Australian Standards and the National Construction Code.
14. Studio dwellings are not permitted where the principal dwelling is an attached dwelling, unless:
 - The studio dwelling is located above a rear loaded garage; and
 - The studio dwelling has direct access to a public road or laneway; and
 - Garbage and mail facilities are accessible by residents and by service vehicles.

Controls – Dual occupancies

1. Dual occupancies are to comply with the controls in **Section 4.2**, except where the controls in this clause differ, in which case the controls in this clause take precedence.
2. The maximum site coverage control for second storeys in the relevant **Tables 4-2 to 4-6** may be exceeded by the combined 2nd storey coverage of both dwellings in a dual occupancy, providing that:
 - The privacy of the principal dwelling and dwellings on adjoining land is not compromised; and
 - Solar access requirements for the principal private open space can be met for the principal dwelling and dwellings on adjoining lots.
3. The design of both dwellings in a dual occupancy development is to be consistent in construction features, finishes, materials and colours.
4. Detached dual occupancy dwellings are not to include zero lot lines for the second dwelling where the second dwelling is located at the rear of the lot.
5. Dual occupancy development is not permitted on a lot that contains an attached dwelling.
6. Dual occupancy dwellings are permitted at the rear of lots (i.e. behind a dwelling that has frontage to a principal street, whether attached or detached to that dwelling) only where:
 - Each dwelling has direct pedestrian and vehicle access to a public road; and
 - Garbage and mail facilities are accessible by service vehicles and by the occupants of the dwellings.
7. Dual occupancy development referred to in control 6 above is preferred to be located on corner lots.
8. For dual occupancies on corner lots, the rear setback can be varied to be consistent with the side setbacks in Section 4.2.4 provided the minimum private open space and solar access requirements to the proposed and adjoining properties are met.
9. Where the dual occupancy dwellings are to be strata subdivided:
 - private open space is to be provided for each dwelling in accordance with the relevant controls in **Tables 4-2 to 4-6**, or
 - shared private open space is to be provided equivalent to 15% of the site area and shown as communal space on the strata plan, and a minimum area of private open space of 10m² with a minimum dimension of 2.5m is to be provided for each dwelling.

10. The minimum landscaped area on a lot containing a dual occupancy development is to be 20% of the site area.
11. Where practical for front loaded driveway access, shared driveway crossings of the nature strip are to be provided to service both dwellings.

4.3.4 Multi dwelling housing

Objectives

- a. To ensure that the design of multi-dwelling housing is consistent with the character of residential areas within the Precinct.
- b. To ensure the quality of multi-dwelling housing is of a high quality and contributes to the amenity of residents.

Controls

1. Multi-dwelling housing sites are to have direct frontage to a public road (i.e. not on battle-axe lots).
2. Multi-dwelling housing is to comply with the controls in **Table 4-9**.
3. Controls for adaptable dwellings (requirement triggered by minimum number of dwellings in development, located elsewhere in DCP) also apply to multi-dwelling housing. Adaptable dwellings are preferably to be single level accommodation at ground level and be located on the street frontage.
4. A landscape plan is to be submitted with every application for multi-dwelling housing.
5. Where a multi dwelling housing development includes a studio dwelling with rear lane vehicle access, the controls for a studio dwelling shall apply.

Table 4-9: Key controls for multi dwelling housing

Element	Controls
Site coverage (maximum)	50%
Landscaped area (minimum)	30% of site area
Principal Private open space (PPOS)	Min 16m ² with minimum dimension of 3m. 10m ² per dwelling if provided as balcony or rooftop with a minimum dimension of 2.5m.
Front setback (minimum)	4.5m to building façade line; 3.0m to articulation zone
Corner lots secondary street setback (min)	2m
Side setback (minimum)	Ground floor 0.9m. Upper floor 0.9m
Rear setback (minimum)	4m (excluding rear lane garages or studio dwellings) 0.5m to rear lane (garages or studio dwellings)
Zero lot line (minimum)	Not permitted on adjacent lot boundaries (except rear lane garages and studio dwellings)
Internal building separation distance (minimum)	5m (unless dwellings are attached by a common wall)
Car parking spaces	1 car parking space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling, plus 1 visitor space per 5 dwellings. Car parking spaces to be behind building line or garages fronting the street to be set back a minimum of 1m from the building setback Where garages front the street, the maximum width of a garage door is 6m and each garage is to be separated by a dwelling façade or landscaped area.
Garages and car parking dimensions (minimum)	Covered: 3m x 5.5m Uncovered: 2.5m x 5.2m Aisle widths must comply with AS 2890.1 1-2 bedroom dwellings will provide at least 1 car space. 3 bedroom or more dwellings will provide at least 2 car spaces.

4.3.5 Controls for residential flat buildings, manor homes and shop top housing

The controls in **clause 4.3.4** do not apply to residential flat buildings, manor homes and shop top housing, unless specifically referenced in the provisions that follow. The following clauses set out the controls for these types of housing. Additional controls for residential flat buildings and shop top housing may be contained in *SEPP 65 – Design Quality of Residential Flat Development*.

Objectives

- c. To establish a high quality residential environment where all dwellings have a good level of amenity.
- d. To encourage a variety of housing forms within residential areas.
- e. To ensure the provision of housing that will, in its adaptable features, meet the access and mobility needs of any occupant.

Controls

1. In density areas of 20dw/Ha and 25dw/Ha, manor homes may only be located on corner lots.
2. Residential flat buildings are to:
 - be located on sites with a minimum street frontage of 30m, and
 - have direct frontage to an area of the public domain (including streets and public parks), and
 - not adversely impact upon the existing or future amenity of any adjoining land upon which residential development is permitted with respect to overshadowing impact, privacy impact or visual impact.
3. All residential flat buildings are to be consistent with:
 - the guidelines and principles outlined in SEPP No. 65 – Residential Flat Development; and
 - the primary controls set out in **Table 4-10**, which take precedence over the above where there is any inconsistency.
4. In all residential flat building developments containing 10 dwellings or more, a minimum of 10% of all apartments are to be designed to be capable of adaptation for access by people with all levels of mobility. Dwellings must be designed in accordance with the Australian *Adaptable Housing Standard* (AS 4299-1995), which includes 'pre-adaptation' design details to ensure visitability is achieved.
5. Where possible, adaptable dwellings are to be located on the ground floor. Dwellings located above the ground level of a building may only be provided as adaptable dwellings where lift access is available within the building. The lift access must provide access from the basement to allow access for people with disabilities.

6. The development application must be accompanied by certification from an accredited Access Consultant confirming that the adaptable dwellings are capable of being modified, when required by the occupant, to comply with the *Australian Adaptable Housing Standard (AS 4299-1995)*.
7. Car parking and garages allocated to adaptable dwellings must comply with the requirements of Australian Standards for disabled parking spaces.
8. A landscape plan is to be submitted with every application for residential flat buildings.

Table 4-10: Key controls for residential flat buildings, manor homes and shop top housing

Element	R2, R3 zones (shop top housing only)	R3, R4 zones (residential flat buildings)	R2, R3, R4 zones Manor home	B1, B2, B3 and B4 zones
Site coverage (maximum)	50% of site area	50%	50% of site area	N/A
Landscaped area (minimum)	30% of site area	30% of site area	30% of site area	N/A
Communal open space	15% of site area where the development includes 4 or more dwellings	15% of site area	Not required.	15% of site area. This control is able to be varied where the applicant demonstrates the development has good access to public open space or where the area of private open space is more than the minimum specified below.
Principal Private open space (PPOS)	Min. 8m ² per dwelling with min. dimension of 2.0m	Min. 10m ² per dwelling with min. dimension of 2.5m	Minimum 16m ² per dwelling with min. dimension of 3.0m; or Min. 8m ² per dwelling with min. dimension of 2.0m if provided as balcony or rooftop.	Min. 8m ² per dwelling with min. dimension of 2.0m
Front setback (minimum)	Determined by ground floor setback	6m Balconies and other articulation may encroach into the setback to a maximum of 4.5m from the boundary for the first 3 storeys, and for a maximum of 50% of the façade length.	4.5m to building façade line. 3m to articulation zone. 5.5m to garage line and 1m behind the building line.	<i>Residential flat buildings:</i> 4.5m to building façade line <i>Shop top housing:</i> 0m for first floor 4m for floors above first floor
Corner lots secondary street setback (minimum)	3m	6m	2m	<i>Residential flat buildings:</i> 4.5m to building façade line <i>Shop top housing:</i> 0m for first floor 4m for floors above first floor
Side setback (minimum)	2m	Buildings up to 3 storeys: 3m Buildings above 3 storeys: 6m	Buildings up to 2 storeys 1.5m	Refer to Other Part of DCP regarding B zonings.

Element	R2, R3 zones (shop top housing only)	R3, R4 zones (residential flat buildings)	R2, R3, R4 zones Manor home	B1, B2, B3 and B4 zones
Rear setback (minimum)	4m (excluding garages)	6m	4m (excluding rear garages)	8m
Zero lot line (minimum)	Not permitted	Not permitted	Not permitted to adjacent lots	Permitted on side boundaries only
Habitable room/balcony separation distance (minimum) for buildings 3 storeys and above	12m	12m	N/a	Refer to Other Part of DCP regarding B zonings.
Car parking spaces	1-2 bedrooms: 1 space (min) 3 bedrooms or more: 2 spaces (min) – may be provided in a ‘stack parking’ configuration. Garages to be set back 1m behind the building line	1 space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling. May be in a ‘stack parking’ configuration. Car parking spaces to be located below ground or behind building line 1 visitor car parking space per 5 apartments Bicycle parking spaces: 1 per 3 dwellings	1-2 bedrooms: 1 space (min) 3 bedrooms or more: 2 spaces (min) – may be provided in a ‘stack parking’ configuration.	1 space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling. May be in a ‘stack parking’ configuration. Car parking spaces to be located below ground or behind the building 1 visitor car parking space per 5 apartments (may be above ground) Bicycle parking spaces: 1 per 3 dwellings
Garage Dominance	N/a	A maximum of two garage doors per 20m of lot frontage facing any one street frontage.	A maximum of two garage doors facing any one street frontage.	N/a
Garages and car parking dimensions (min)	Covered: 3m x 5.5m Uncovered: 2.5m x 5.2m Aisle widths must comply with AS 2890.1			

4.4 Other development in residential areas

The residential zones within the Precinct Plan permit a range of non-residential land uses which, depending on their scale, suitability, location and design, may be compatible with adjoining residential uses. Reference should be made to the Precinct Plan for the permissibility of specific non-residential uses in each zone, including the zoning table in Part 3 and the local provisions in Part 6. For some land uses, the local provisions in Part 6 specify additional requirements that must be met for Council to grant consent to these uses.

The Precinct Plan recognises that allowing non-residential development in the residential zones is appropriate providing controls are in place to minimise the negative impacts of noise, loss of privacy, traffic, parking and other nuisances on local residential amenity.

The controls for non-residential development consist of:

- General requirements, which apply to all non-residential development in residential zones.
- Specific provisions covering land uses such as child care centres, neighbourhood shops, educational establishments and places of public worship, in addition to, or overriding, the general requirements.

Note: *In the event of an inconsistency between the general and specific provisions in this section of the DCP, the specific controls will prevail.*

These controls are not intended to apply to non-residential uses that are carried on in dwellings, such as home occupations and home businesses.

Note: *Council may require the submission of additional information to demonstrate that the development will not adversely affect the existing or future amenity of the surrounding residential area. Such information may include a noise impact assessment, advice on traffic generating potential and parking provision, solar access and evidence that the proposed land use will contribute to the amenity, character and liveability of the residential area in which it is to be located. Applicants should consult with Council prior to submitting a development application to determine specific information requirements.*

4.4.1 General requirements

Objectives

- a. To establish appropriate controls to minimise the adverse effects of non-residential development on surrounding residential development.
- b. To maintain consistency in development standards between non-residential and residential land uses and ensure that buildings are similar in height, bulk and scale to surrounding buildings.
- c. To ensure that non-residential development is appropriately located.
- d. To avoid concentrations of non-residential uses in any particular area where the cumulative impact on residential amenity would be unacceptable.

Controls

1. Site analysis information as required by **clause 4.1.1** is to be submitted with all applications for non-residential development in residential zones.

2. Except as provided for in the specific controls below, non-residential development on residential zoned land is to be located on allotments that have a frontage width of greater than 15 metres.

Note: *The relevant Precinct Plan specifies minimum site area development standards for some non-residential land uses within residential zones.*

1. Non-residential development on residential zoned land is to comply with the requirements of **Section 4.1 and Clauses 4.2.9 to 4.2.10** of this DCP in relation to residential amenity and sustainable building design.
2. For all non-residential development, the controls relating to lots with frontages greater than 15 metres in the following clauses of this DCP apply:
 - **Clause 4.2.3** Front setbacks;
 - **Clause 4.2.4** Side and rear setbacks;
 - **Clause 4.2.5** Dwelling height, massing and siting; and
 - **Clause 4.2.8** Garages, site access and parking.
3. Non-residential development is not permitted on battle-axe allotments.
4. The maximum site coverage of buildings is 60% of the total site area.
5. The minimum landscaped area for non-residential development is 20% of the total site area of the allotment.
6. Provision of car parking for non-residential uses will be assessed by Council on an individual basis but must be sufficient to meet demand generated by staff and visitors.
7. Where there is an inconsistency between the general requirements of this clause and the specific controls in **clauses 4.4.2 to 4.4.5** prevail.
8. Council will have particular regard to the effects of non-residential development in the residential zones. Council will consider whether:
 - the proposed development will be out of character with surrounding residential development, particularly in relation to the height and/or scale of any proposed buildings;
 - the proposed development will contribute to an undesirable clustering of that type of development, or non-residential uses in general, in the area;
 - an undesirable effect on the amenity of the surrounding area will be created;
 - the proposed use will draw patronage from areas outside of the surrounding neighbourhood, and the extent to which that patronage might impact on the amenity of residents through factors such as traffic generation, noise or the overall scale of the non-residential use;
 - a noise nuisance will be created;
 - the development will generate traffic out of keeping with the locality;
 - adequate facilities are provided for the purposes of parking, loading and deliveries;
 - adequate provision is made for access by disabled persons.

9. Non-residential development in residential zones should be similar in bulk, scale, height and siting to the surrounding buildings.
10. Finishes, materials, paving and landscaping are to be consistent with those of surrounding residential development.

4.4.2 Child Care Centres

Introduction

This section summarises controls that are contained within Blacktown Council DCP 2008, Part C. Applicants should refer to Blacktown DCP for comprehensive controls that apply to child care centre developments in the Precinct. Council will use both the provisions of this DCP and those in DCP 2008 to assess applications.

Objectives

- a. To ensure all communities have access to a local child care centre and to minimise travel distances to and from child care facilities.
- b. To provide communities with child care centres that are appropriate in size and scale to the surrounding neighbourhood and to reduce excessive built form within residential streetscapes.
- c. To ensure the appropriate location and operation of child care centres in order to minimise any adverse impact on the amenity of residential areas.
- d. To ensure that child care centres provide a safe, healthy and active environment for children of all ages.

Controls

- The following controls apply to child care centres in residential zones:

Control	Requirements
Distance Separation Requirement	1km from any existing, approved or proposed centre.
Minimum Allotment size	900m ²
Minimum Frontage width	26m
Minimum Lot Depth	
Maximum site coverage	50%
Minimum landscape area	30%
Max no. of storeys	1 storey building or respectively ground floor use only
Floor to ceiling height	Minimum 2.4 metres
Capacity	Max. 40 children - see p.8 Min. 5 places for under 2 year olds - see p.8
Open Space	
Minimum unencumbered indoor play space / licensed child (irrespective of age)	3.25m ²
Minimum unencumbered outdoor play space / licensed child (irrespective of age)	7m ² (excluding landscaping) with min. shaded area of 50%
Play areas	Sandpit: 0.5m ² per child or not less than 12 m ² overall with min. depth of 0.6m
Setbacks (min/m)	
Primary Front (Building)	6m
Primary Front (Landscape setback)	2m
Fronting Open Space	1m
Side (Building)	2m
Rear (Building)	3m
Corner Lots (Street Frontage)	3m
Min. Setback for storage facilities	4m
Car parking spaces	1 space per employee based on the following ratio of primary contact staff to children being provided, as stipulated in the Children's Services Regulation 2004: a) 1:5 in respect of all children who are under the age of 2 years; b) 1:8 in respect of all children who are 2 or more years of age but under 3 years of age; and c) 1:10 in respect of all children who are 3 or more years of age but under 6 years of age 1 designated space for disabled parking/service vehicles located close to the main entrance Possible dwelling component: min. 2 spaces - at least one space needs to be covered
Visitor Car Parking	1 space per 6 children

Site Selection and Location

2. Child care centres are not appropriate on the following land:
 - Land that has direct frontage to an arterial or sub-arterial road (refer to **clause 3.1.4**);
 - opposite “T” intersections or on bends where sight distances are limited and may create dangerous conditions for vehicle entry to and exit from the site;
 - adjacent to entry/exit points onto or directly accessible from roundabouts;
 - on cul-de-sacs;
 - flood liable land or land affected by local overland flooding (refer to **clause 2.3.1**);
 - bushfire prone land (refer to **clause 2.3.5**); or
 - land that requires significant cut or fill, where retaining walls would create a safety hazard for children.
3. In order to limit impact on neighbouring properties child care centres should:
 - Be located in close proximity to other non-residential uses such as schools, neighbourhood halls, churches and formal public reserves;
 - be located in close proximity to transport routes and public transport nodes and corridors.
 - if practical, be located on sites that have minimal common boundaries with residential neighbours;
 - locate play areas as far as possible away from neighbours’ living rooms and bedrooms; and
 - be sited on allotments that can provide sufficient buffering so as to minimise noise and loss of privacy.

Matters for consideration

4. Council will consider the following matters when assessing development applications for child care centres:
 - Whether the development maintains the privacy and amenity of adjoining developments;
 - The extent to which the design of the proposed development is consistent with the desired character of the residential area in which it is located;
 - The appropriateness of the location of the development, including its location in relation to other existing or proposed child care centres;
 - The size of the land where the development is proposed; and
 - The provision of and location within the development site of car parking.

Documents to be Submitted with Development Application

5. Development Applications are to be accompanied by the following, which are to be prepared by an appropriately qualified person or organisation:
- **Acoustic Report** – to address the impact of noise generation from the child care centre on the surrounding area;
 - **Landscape Plan and associated documentation** – to identify existing vegetation and community plant species and the proposed landscaping treatment of the development;
 - **Traffic Report/Statement** - to address the impact of a child care centre on the local road system and address traffic safety issues and address traffic safety issues; and
 - **Location Analysis** – to indicate all existing and proposed child care centres within a 2km radius of the proposed child care facility and to address the locational matters in the controls above.

4.4.3 Educational Establishments and Places of Worship

Objectives

- a. To ensure appropriate provision and equitable distribution of education, establishments and places of public worship within the Precinct.
- b. To ensure that buildings are not out of character with the type, height, bulk and scale of surrounding buildings.
- c. To encourage the appropriate location of facilities to create community focal points, centres of neighbourhood activity and enhance community identity.
- d. To mitigate the impacts of noise, privacy, increased traffic and nuisance on surrounding residential development.
- e. To foster iconic and landmark building design within each Precinct.

Controls

1. Places of worship are to be located within centres or co-located with other community facilities in residential areas so as to create a community focal point, to share facilities such as parking, and to minimise impacts on residential areas.
2. Places of public worship and educational establishments are preferably to be located on land with frontage to a collector road. Corner site are preferred.
3. In assessing applications, Council will consider the following:
 - the privacy and amenity of adjoining developments;
 - the need and adequacy for provision of buffer zones to surrounding residential development;
 - urban design;

- location;
- the size of the land where the development is proposed;
- traffic generation and the impacts of traffic on the road network and the amenity of nearby residents;
- the availability of parking;
- the scale of buildings and their capacity; and
- hours of operation and noise impacts.

4. A traffic and transport report/statement is to accompany the Development Application addressing the impact of the proposed development on the local road system and defining car parking requirements.

Note: Due to the high level of traffic generation and peak nature of traffic volumes accessing these types of land uses, assessment of traffic impacts and pedestrian requirements is required and mitigation measures may need to be incorporated in the design. Such measures may include pedestrian crossings, speed control devices, pedestrian refuges on streets to which the development fronts and the provision of bus and drop off bays. School zones will require additional safety measures such as school crossings, 40 km/h school speed zones and flashing lights in accordance with RTA requirements.

5. A landscape plan and associated documentation is to be submitted with the Development Application identifying existing vegetation and community plant species and/or existing design elements of the site layout, and the proposed landscaping treatment of the development.
6. Car parking spaces shall be provided on site in accordance with **Table 4-11**.

Table 4-11: Car parking requirements for places of public worship and educational establishments

Land use	Parking requirement
Places of Public Worship	1 space per 4 seats Or 1 space per 10m ² of seating area (whichever is greater)
Primary and Secondary Schools	1 space per staff member Plus 1 space per 100 students
Senior High School	1 space per staff member 1 space per 5 students in Year 12
Tertiary and Adult Educational Establishments	1 space per 5 seats Or 1 space per 10m ² of floor area (whichever is greater)

7. For certain uses, the provision of overflow parking may be necessary particularly where such developments incorporate halls used for social gatherings. Overflow parking areas could be provided on open grassed areas and need not be formally sealed or line-marked. Proposed overflow parking areas are to be clearly shown on plans submitted with the Development Application.
8. Development must be designed to minimise the possibility of noise disturbance to the occupants of adjoining or neighbouring dwellings.
9. Development must be designed to minimise the possibility of noise to the occupants of adjoining or neighbouring dwellings.

10. Where it is likely that a development may cause an adverse noise impact on nearby residential areas, an acoustic report will be required to be submitted to council with the Development application,
11. Development must comply with DECCW noise guidelines in clause 4.2.9.
12. Where appropriate buffers should be put in place to limit noise impacts on the surrounding area.
13. Sources of noise such as garbage collection, machinery, parking areas and air conditioning plants are sited away from adjoining properties and screened/ insulated by walls or other acoustic treatment. Noise levels are not to exceed specified limits at the most affected point of the property boundary.
14. The general hours of operation for places of public worship and educational establishments are between 7am and 9pm.
15. Variation to the approved hours of operation may be approved by Council subject to other requirements or a merit assessment.

Note: Legislation covering noise impacts and hours of operation is the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment (Noise Control) Regulation 2000 (Noise Control Regulation)*. Applicants should also refer to the Department of Environment, Climate Change and Water website (<http://www.environment.nsw.gov.au>) for more information regarding noise control.

4.4.4 Neighbourhood Shops

Objectives

- a. To ensure the appropriate provision of retail uses to serve the needs of the local community.
- b. To minimise the impacts of retail activities on surrounding residential areas.
- c. To ensure that retail activities in residential areas do not detract from the function or viability of nearby centres.
- d. To ensure the appropriate location of neighbourhood shops

Controls

1. Neighbourhood shops in the R2 zone may only be developed on an allotment of land with a minimum frontage width of 10 metres or more.
2. Neighbourhood shops in the R2 zone are to be located:
 - adjoining land zoned RE1 or SP2 or that is separated from land zoned RE1 or SP2 only by a public road, or
 - with frontage to a collector road, or
 - within 90 metres of public transport stop, or
 - adjoining an educational establishment or a community facility or separated from an educational establishment or a community facility only by a public road.
3. The minimum site area for neighbourhood shops is 500 square metres.

4. For neighbourhood shops, the controls relating to lots with frontages greater than 10 metres in the following clauses of this DCP apply:
 - **Clause 0** Streetscape and architectural design,
 - **Clause 4.2.3** Front setbacks,
 - **Clause 4.2.4** Side and rear setbacks,
 - **Clause 4.2.5** Dwelling height, massing and siting, and
 - **Clause 4.2.8** Garages, site access and parking.
5. Shops fronts are to encourage active and interactive street frontages that are sympathetic to the streetscape with similar materials to adjoining buildings to be used.
6. Any area of land between the front property boundary and the building alignment, exclusive of approved driveways and parking areas, is to be landscaped to the satisfaction of Council.
7. Address and entry points for any residential use on the same allotment of land are to be separate from the retail use access points and be readily identifiable.
8. Design of the building frontage, front and side setbacks are to include safe and convenient pedestrian facilities such as weather protection, shade, seating and landscaping.
9. On corner sites, shop fronts are to wrap around the corner and zero setbacks are permitted.
10. Entrances are to be visible from the street and well lit.
11. The site should not gain direct access to:
 - A road with clearway or other parking restrictions; or
 - A restricted access road (sub-arterial or arterial).
12. Any proposed development should not to create a traffic hazard. However, corner sites are preferred in terms of reducing potential for impacts on neighbouring properties.
13. At least 3 car parking spaces are required to be provided on site in addition to parking required for the dwelling (if applicable). The design of the building and parking areas is to provide suitable access for deliveries.
14. Bicycle parking must be provided in a location that is secure and accessible with weather protection for employees.
15. Car parking must be clearly signposted to indicate its availability from the street.
16. Plant and equipment (particularly cooling or heating plant), is to be located so as to not cause noise annoyance to neighbours.
17. Waste storage areas must be designed to minimise visual impact and should be screened and properly positioned so as to not to attract pests and cause odour problems for neighbours.
18. All goods storage is to be internal.

4.4.5 Seniors Housing

Objectives

- a. To ensure that the design of seniors housing is consistent with the character of surrounding residential areas.

Controls

19. Applications for seniors housing are to comply with the controls in **clause 4.3.4** of this DCP for multi-dwelling housing.

5.0

Centres Development Controls

5.1 Introduction

This Part of the DCP outlines principles, objectives and design controls to achieve quality, consistency and coordination in the development of the Local and Neighbourhood Centres. It applies to land identified in the **Precinct's Centres** figure in the relevant Precinct's Schedule.

***Note:** Controls specific to certain centres may be contained in the Precinct Schedule and apply in addition to the controls in this part.*

The objectives of the controls in this Part of the DCP are to:

- a. create a vibrant centre that functions as the heart of the community within the relevant Precinct;
- b. establish design principles that achieve high quality coordinated urban design outcomes and high standards of amenity;
- c. Encourage social interaction and the development of places that are safe and desirable for all users;
- d. Provide flexible controls to accommodate change within the Centre's over time;
- e. Ensure that development in the centre takes advantage of access to public transport.

5.2 Development controls

5.2.1 Streetscape and architectural design

Objectives

- a. To achieve high standards of streetscape amenity and building design.
- b. To encourage pedestrian activity in the streets of the Centre and other public spaces.
- c. To clearly define the character of the main street and other elements of the public domain.

Controls - active frontage and street address

1. Active street fronts, built to the street boundary, are required on the ground level of all retail and commercial development fronting the main street and where applicable, public open space, as identified in the **Desired future layout of the Centre** figure in the relevant Precinct's Schedule.
2. Residential, commercial and retail uses on the upper floors are to be designed to overlook streets and other public places to provide casual surveillance.
3. The ground and first floor of all buildings on active street frontages are to be built to the front property boundary (ie. a zero front setback) to define the street edge. If the first floor contains residential uses, internal spaces may be set back where balconies are built to the property boundary.
4. The primary means of pedestrian access to retail, commercial and upper floor residential uses is to be from the street rather than from the rear or internal areas of the building.

5. Vehicle access to basement level parking or parking located behind buildings is not to be from active street frontages.
6. All large format retail premises and decked parking areas are to be sleeved with active uses fronting the street.
7. Blank walls visible from the public domain are to be avoided.
8. Retail shops are to have a variety of shop frontage widths.
9. Restaurants, cafes and the like are encouraged to provide openable shop fronts.
10. On corner sites, active shop fronts are to wrap around the corner and address both street frontages.
11. Developments that have multiple street frontages are to provide entrances to internal/upper floor uses on each street frontage.
12. In mixed-use buildings, separate access from the street is required for retail, commercial and residential uses.
13. Entrances are to be visible to the street and well lit.
14. Only open grill and transparent security shutters (at least 80% open/visually transparent) are permitted to retail and commercial frontages.
15. All buildings on active street frontages are to include awnings above the ground floor for the full length of the street frontage.
16. Parking is to be screened by buildings, from the main street and other streets with active frontages, or be below ground.

Controls – building facades

17. Building facades at street level on active frontage streets are to have a minimum of 80% glazing and be open to the street.
18. Translucent or obscured glazing is not permitted, and signage and advertising material are not obscure glazing.
19. At night, internal lighting is to fall onto the footpath, or under-awning lighting is to be provided.
20. Solid elements are preferably to be finished with rendered masonry, tiles or face brick.
21. Coordinated colour schemes are required, and colours and materials are to be consistent with adjoining buildings and the general character of the street.
22. Façade articulation is encouraged above the ground floor through the incorporation of balconies, openings and other design elements that modulate the façade, providing rhythm and interest.
23. Articulated corners are to be provided to building facades on active street frontages, as identified in the **Desired future layout of the Centre** figure in the relevant Precinct's Schedule. Articulated elements may include verandahs, awnings, upper level balconies, use of materials or roof designs that accentuate the corner. Articulation elements are to address both street frontages.

24. Design of corner buildings on the ground floor is to facilitate free pedestrian movement. Open corners at ground level are encouraged.
25. Building height, massing, materials and parapet/roof expression should be used to accentuate corner elements.

Controls – Landscape design and public spaces

26. Council is to prepare a public domain landscape and urban design plan for centres which establishes:
 - Preferred materials, colours and finishes for paving of footpaths and other public spaces,
 - Preferred street tree species,
 - Specifications for street furniture including seating, lighting, signage.
27. Development applications within the centre that propose works in public streets to be undertaken by the developer are to be consistent with the public domain landscape and urban design plan.
28. All signage and advertising is to be designed in a co-ordinated manner (refer to **clause 5.2.3** for detailed controls).
29. Parks and plazas are to act as a focal point for the Local Centre and community activities and are to be designed to ensure adaptability and flexibility in use and function over time.
30. Plant selection should take into account the following:
 - species which complement remnant native vegetation,
 - level of on-going maintenance,
 - potential impacts on road and footpath pavements,
 - focus on hardy, drought tolerant, easily maintained species,
 - scale in relation to the function of the area, and
 - contribution to the character of the local centre.
31. Street tree and open space planting is to provide generous shade for pedestrians in summer and allow for sunlight penetration to street level in winter.
32. All paving materials must conform to relevant standards for durability, non-slip textures, strength and surface treatment to withstand use by light automobiles, service vehicles, pedestrians and bicycles.
33. Paving materials should also be certified colour stable for a period of at least 20 years to ensure a reasonable match to existing paving when damaged sections are replaced.
34. All paved areas should be adequately drained and follow 'best practises' in installation, including sub-surface preparation and stormwater management.
35. All paved areas must be properly designed to facilitate use by the elderly and disabled.

Controls – solar access and weather protection

36. Parks and plazas are to receive sunlight on a minimum of 50% of their site area between 11am and 2pm on June 21st.
37. Building envelopes are to allow for north-south streets to receive 2 hours sunlight between 9am-3pm on June 21st on a minimum of 50% of the eastern or western footpaths; and
38. Building envelopes are to allow for east-west streets to receive 1 hour of sunlight between 9am-3pm on June 21st on a minimum of 50% of the southern footpaths.
39. Continuous awnings are required to be provided along the ground floor street frontage on active street frontages in accordance with **Figure 5-1** and all buildings fronting public open space or squares.
40. Awnings should be a minimum height of 2.7m (3.2m desirable) above footpath level and generally consistent in form with adjacent awnings.
41. The front fascia of the awning is to be set back a minimum of 500mm from the kerb of the street carriageway, including at street corners.
42. Awnings are generally to project horizontally from the building façade and be horizontal along the length of the façade. Stepped awnings are appropriate on sloping streets.
43. The design of awnings is to be consistent with adjoining buildings. Awnings that are significantly different in terms of materials, finishes and dimensions will not be permitted.
44. Under awning lighting is to be provided to enhance pedestrian amenity and safety.

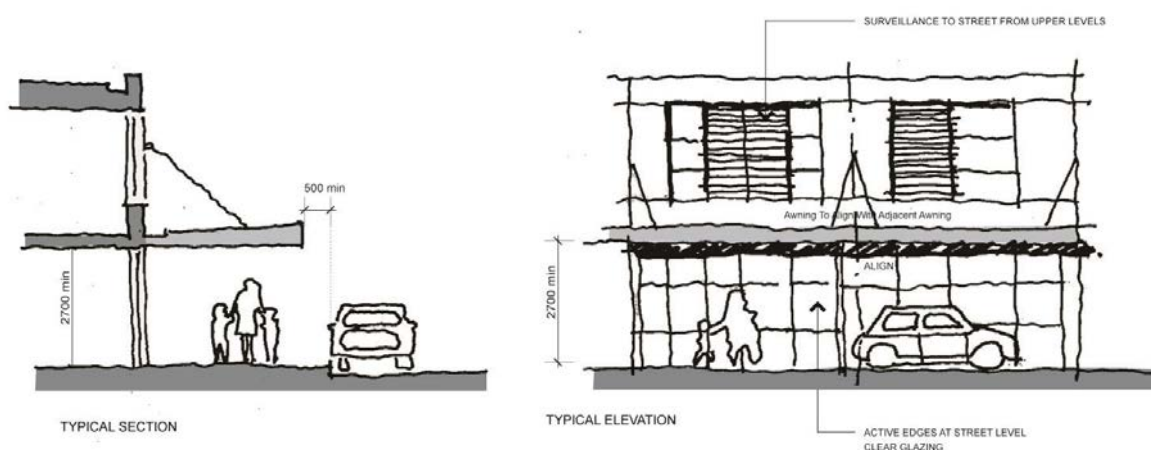


Figure 5-1: Awnings

5.2.2 Building bulk, scale and design

Objectives

- a. To ensure a high standard of building design.
- b. To ensure that buildings are appropriate to the scale and character of the centre.
- c. To provide for appropriate air circulation and solar access, and to maintain view corridors to and through the centre.

Controls

1. The maximum allowable depth of residential building envelopes is 22m (max 18m glass line to glass line).
2. Floors above the second floor are to be set back a minimum of 4 metres from the boundary of the property with any public street.
3. Larger upper floor setbacks from the street may be required to:
 - achieve adequate solar access at street level;
 - maintain the privacy of dwellings;
 - maintain view corridors; or
 - minimise the bulk of the building.
4. Zero side setbacks are required on the ground floor and first floor and the side wall shall contain no windows or other openings (except where the side setback is to a public street, where the façade controls in **clause 5.2.1** apply).
5. Zero side setbacks are permitted for the upper floors providing the side wall contains no windows or other openings (except where the side setback is to a public street, where the façade controls in **clause 5.2.1** apply).
6. Where windows, balconies or other openings are to be provided on upper floors, the minimum side setback for upper floors is 6 metres from the side property boundary and the minimum separation distance between habitable rooms or balconies is 12 metres.
7. For floors above the fourth floor, the minimum separation distance between buildings is to be 18 metres.
8. Buildings are to include distinctive roof forms that contribute to the architectural design of a building. Elements such as parapets, skillion roofs and eaves should be utilised where appropriate.
9. Roof forms should not result in excessive bulk or overshadowing.
10. All plant and lift over-runs are to be concealed within roof forms to minimise visual impact.
11. The use of roof areas for private / communal open space and gardens is encouraged. Such spaces should be designed to minimise privacy impacts on neighbours.

12. For development in close proximity to a rail corridor, balconies and windows are to be designed so as to prevent objects being thrown onto Railcorp's facilities (refer to the relevant Building Code of Australia standards and the Railcorp Electrical Standards).
13. Ground floors are to have a minimum floor to ceiling height of 3.3 metres.
14. First floor commercial and retail spaces are to have a minimum floor to ceiling height of 3.0 metres.

5.2.3 Signs

Objectives

- a. To ensure that signs and advertising structures are unobtrusive and coordinated in their appearance and design, and complement buildings and the streetscape.
- b. To limit the purposes for which signs may be erected to those that identify businesses and buildings.

Controls

1. Signs are permitted within centres where they advertise the business carried on at a particular property or identify the name of a building.
2. Signs that advertise particular products, whether they are for sale within the premises or not, are not permitted.
3. Signs are to be designed and located to:
 - Be visually interesting and have a high level of design quality,
 - Be integrated with the architecture and structure of the building on which they are located;
 - Be consistent with the scale of the building or the property on which they are located.
 - Consider existing signs on the building, adjoining buildings or elsewhere in the streetscape, and not obscure views of existing signs or the potential for signs to be viewed on adjoining premises;
 - Not cover glazed surfaces;
 - Project minimally from the building.
4. Signs are not to be supported from, hung from or placed on other signs.
5. The preferred locations for business or building identification signs are shown on **Figure 5-2** and include:
 - Fascia signs, located on the front or side fascia of an awning;
 - Under-awning signs;
 - Flush wall mounted signs (e.g. above windows or doors);
 - Projecting wall signs, where there is no awning or the fixture of the sign to the awning is not appropriate due to the style of the awning.
6. Awning fascia signs are not to project within 500mm of the kerb.
7. The minimum clearance from the footpath to the bottom of any sign (apart from flush mounted wall signs) is 2.4 metres.
8. Projecting wall signs and under-awning signs are to be perpendicular to the building façade and horizontal.
9. Above awning signs are not permitted.

10. Flush mounted building identification signs are permitted above the first floor on the building parapet only where they are integrated with the design of the building and where they do not project more than 100mm from the building. The maximum area of the sign face is 3m².
11. The maximum number of signs on each façade of any retail or commercial tenancy is three, and only one sign of each type (fascia, under-awning, projecting wall or flush mounted) is permitted on each façade.
12. Under-awning or projecting wall signs are to be a minimum of 3.5 metres apart.
13. Signs are not to project beyond the dimensions of the structure to which they are affixed or obscure windows or other openings.
14. Free standing signs (signs that are not affixed to a building) are not permitted on active street frontages.
15. Internal illumination is the only acceptable method of illumination for any sign.
16. Flashing, animated or bright neon signage is not permitted.
17. All buildings are to have clearly displayed and legible street numbering.
18. The location of signs is not to obscure views of traffic signs or traffic signals, or have the potential to cause confusion with traffic signs or signals (e.g. signs that look like traffic signals or stop signs located near a public road).

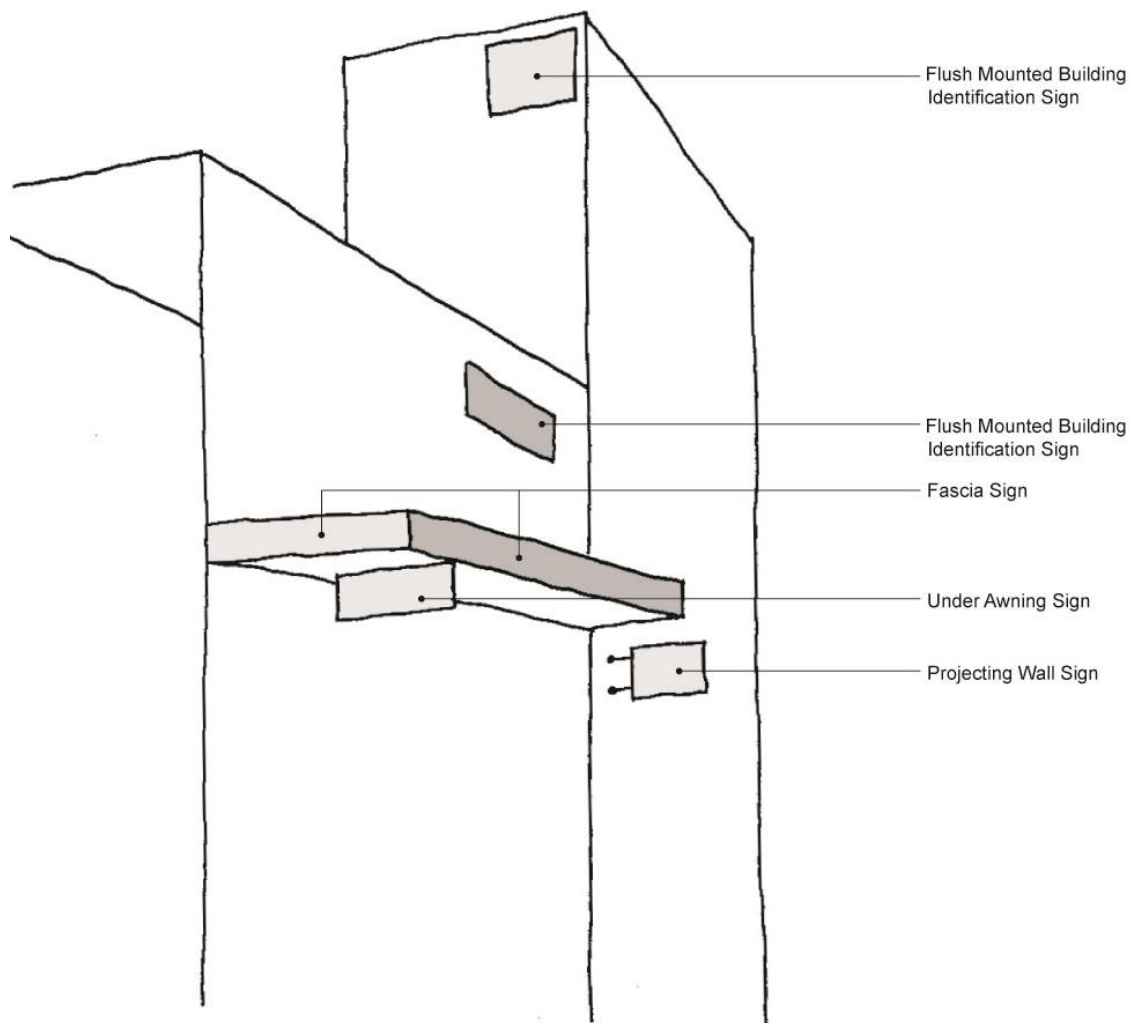


Figure 5-2: Preferred locations for signs

5.2.4 Acoustic and visual privacy

Objectives

- a. To ensure that appropriate standards of amenity and privacy are maintained for residents in the centre.
- b. To ensure that noise sources such as road and rail traffic do not impact on the amenity of residents or detract from the character of the centre.

Controls

1. Development in the centres must comply with DECCW's noise attenuation requirements and the controls for visual and acoustic privacy in **clause 4.2.9**.
2. A combination of the following measures is to be used to mitigate the impacts of rail or road traffic noise within centres:
 - setbacks and service roads;

- internal dwelling layouts that are designed to minimise noise in living and sleeping areas;
- changes in topography;
- higher than standard fencing constructed with a suitably solid mass; and
- locating courtyards and principal private open space areas that will comply with the criteria in **clause 4.2.9** away from the noise source.

5.2.5 Safety, surveillance and maintenance

Objectives

- a. To provide for a safe and attractive local centre with high levels of activity and amenity.
- b. To ensure that the design quality and amenity of the centre is maintained.

Controls

1. The principles of Crime Prevention through Environmental Design (CPTED) in **Appendix E** are applicable to all development within centres.
2. Balconies, terraces and other private open spaces are to be oriented to public open spaces to optimise casual surveillance.
3. The design of all buildings, fences and landscape elements shall take sight lines, both horizontal and vertical, into consideration to minimize blind spots and promote a sense of security.
4. All streets, alleys, bike paths and pedestrian walkways must be adequately lit at all times.
5. Lighting is to be installed on all circulation routes and major pedestrian thoroughfares.
6. Large open areas such as parking lots and public open spaces are to be floodlit.
7. Lights should be positioned so that they highlight landmarks and other special building features.
8. Lighting fixtures must be sturdy, durable, vandal resistant and easily maintained.
9. Fixtures visible from the public domain should be mounted at a height of at least 2.7 metres, and their appearance should complement the architectural and landscape character of the location.
10. The installation of lighting should take into account and minimise its impacts on surrounding commercial premises and residential properties.
11. Durable and easily cleaned materials should be selected in all areas exposed to the public, and all masonry surfaces to a height of 3 metres should be protected with an approved anti-graffiti treatment.
12. Fencing and street plantings should be designed to achieve a balance between screening and security/surveillance.
13. Traffic calming measures are to be installed to ensure pedestrian safety.
14. Safety features such as tactile surfaces and handrails are to be provided in appropriate locations.

5.2.6 Site servicing

Objectives

- a. To ensure that servicing of premises within the centre is efficient.
- b. To minimise the amenity impacts of servicing activities including loading/unloading, waste storage and collection.

Controls

1. Services and structures such as transformers, waste collection, storage and deposit areas, and loading bays are generally to be located to the rear of the property. Where this cannot be achieved services must be integrated into the overall design of buildings and landscaping of the street front through screening measures.
2. Service areas are not permitted on active street frontages.
3. The following controls relate to the screening of services:
 - All services, transformers, storage and deposit areas, and wheeled rubbish bins must be effectively screened from view.
 - Screening walls or plant masses shall be at least 2.4 metres high.
 - All screening shall be designed to allow free and easy access to the facilities, as required to permit maintenance and checking by all relevant parties, including service authorities, Council officials, tenants and property owners.
 - Screening wall materials and plants shall be selected which have no adverse impacts on the operation of the facilities.
4. Service access is permitted from rear lanes, side streets and right of ways for the use of parking, loading docks and waste collection areas.
5. Adequate space should be provided for the unloading and loading of service vehicles.
6. Structures shall be painted according to the required standards of the relevant service authority, in colours that limit their visual impact.
7. All air conditioners must be located in areas where any noise and dripping condensation will have minimal impact on the public domain. No roof or wall mounted air conditioners shall be visible from public areas.
8. Television antennas and other telecommunication devices are not to be visible from the street.

5.2.7 Traffic circulation, parking and access

Objectives

- a. To ensure that vehicular traffic (including cars, public transport and service vehicles) is able to access the Centre, including retail destinations, service areas and railway stations or other transport interchanges.
- b. To minimise conflicts between the pedestrian oriented areas of the centre and those areas required for vehicular traffic.
- c. To minimise the land area required for car parking and to encourage the efficient utilisation of car parking for multiple purposes.

Controls

1. The pattern of vehicle movement and access to car parking is to be in accordance with the diagram at the **Traffic circulation and parking within the centre** figure in the relevant Precinct's Schedule.
2. On-site car and bicycle parking is to be provided in accordance with the standards set out in **Table 5-1**.

Table 5-1: Car parking requirements in centres

Land use	Car parking requirements
Commercial/office premises	1 space per 40m ² GFA
Retail shops/showrooms (less than 200m ² GFA)	1 space per 30m ² GFA
Retail shops/showrooms (greater than 200m ² GFA)	1 space per 22m ² GFA
Restaurants/cafes	1 space per 10m ² of dining area 1 space per 3 employees
Residential development	Refer to clause 4.3.5

3. Opportunities for shared parking provision for complementary uses within centres are to be provided. In particular, shared parking provision to cater for rail commuters and retail uses is encouraged. Where centres are located adjacent to train stations, Council will request applicants for major retail developments to discuss parking arrangements with Railcorp.
4. In mixed developments, dedicated on site parking is to be provided for the residential component of the development in accordance with the controls in **clause 4.3.5**.
5. Rear lanes and right of ways are to be used to provide access to parking areas, loading docks and waste collection areas. Lanes will need to accommodate heavy vehicles where access to loading areas and waste collection is required.
6. On-street parking is to be provided on all streets to create a buffer between pedestrian and street traffic and promote casual surveillance.
7. Basement, semi-basement or decked parking is preferred over large expanses of at-grade parking.

8. At grade or decked parking areas are to be located behind building lines. Notwithstanding this, Council will consider transitional arrangements for parking where an application is supported by a staging plan that indicates compliance with the above desired parking location principles upon ultimate development.
9. Outdoor parking areas are to be screened and landscaped to minimise their visual dominance within the centre.
10. At grade car parks must contain shade tree plantings so that trees shade 50% of the car space surface area within 10 years.
11. Bicycle parking is to be in secure and accessible locations. Bicycle parking for employees is to have weather protection.
12. The parking area per vehicle is to be in accordance with AS 2890:1.

6.0

Employment Lands Subdivision and Development Controls

6.1 Land to which this Part applies

This Part applies all land to which a Precinct Plan with Employment Land zones applies. The Employment Land zones are:

- IN1 – General Industrial
- IN2 – Light Industrial
- B5 – Business Development
- B7 – Business Park

This part does not apply to land zoned IN2 – Light Industrial under the Riverstone Precinct Plan. Controls for that land are located in Schedule Two – Riverstone Precinct of this DCP.

Note:

**The extension to the Riverstone Industrial Area within the Riverstone Precinct has been excluded from this Part due to the existing character of the area. The land is highly fragmented, adjoins residential land and has characteristics which the objectives and controls in this Part do not take into consideration. Controls for industrial development in the Riverstone Precinct are included in Schedule Two.*

***Where applicable, additional development controls for employment lands to which this Part does apply are contained within the relevant Precinct's Schedule.*

6.2 Subdivision

6.2.1 Lot Subdivision

Objectives

- a. To allow for a range of allotment sizes that caters for a diversity of land uses and employment opportunities within the Precinct.
- b. To ensure allotments are oriented and aligned to enable buildings to appropriately address streets and the public domain.

Controls

1. Lots are to be relatively regular in shape, although lot sizes should also be diverse to meet a range of land uses. These may range from those requiring wide street frontages and a minimum depth to those that require less frontage but a greater depth. Irregular shaped allotments with narrow street frontages should be avoided.
2. Lots should be orientated and aligned:
 - so that future buildings can face the arterial, sub-arterial, collector and local streets to increase visual surveillance and to avoid streetscapes with loading docks and long blank walls;
 - to facilitate solar efficiency;
 - to encourage building design that has frontage to landscaped areas and riparian corridors.
3. Access to lots shall be sited to ensure unimpeded sight lines for exiting vehicles.
4. Subdivisional roads should incorporate a road hierarchy that will accommodate the anticipated traffic volumes and vehicle types and be practical and legible for users.
5. Where a residue lot is created, the applicant must demonstrate that future development of that residue lot can meet the controls in this DCP.

6.2.2 Strata or Community Title

1. Where a Strata or Community Title subdivision is proposed, any space for parking or other purposes forming part of a sole occupancy unit required by Council must be included in the same strata lot as the unit.
2. All landscaping, access areas and directory board signs not forming part of an individual unit are required by Council to be included in any strata plan of subdivision as common property.

6.2.3 Battle Axe Lots

1. The minimum allotment dimensions for battle axe lots must be in accordance with **Figure 6-1**.
2. There shall be a maximum of two lots per battle axe handle. Side access onto the battle-axe handle from adjoining lots will not be permitted.
3. All battle axe handles should be provided with a minimum concrete carriageway of 7m.
4. For a shared battle axe handle a concrete pedestrian path of 1.2m wide that is set 1m off from the adjacent kerb face on one side of the handle is to be provided.
5. A 1.2m high safety fence is to be provided between the face of kerb and the concrete path to prevent any incursion by pedestrians into the path of vehicles.
6. A minimum 8m x 8m splay must be provided at each end of the handle. Larger splays will be required where truck-turning movements cannot be accommodated within this minimum splay. A truck swept path plan must be provided at subdivision DA stage to assist Council officers in determining the required minimum splay required.
7. Drainage within battle axe handles must be managed by stormwater treatment devices to Council's satisfaction.
8. Land within battle axe handles that is not required for vehicle or pedestrian carriageways is to be landscaped.

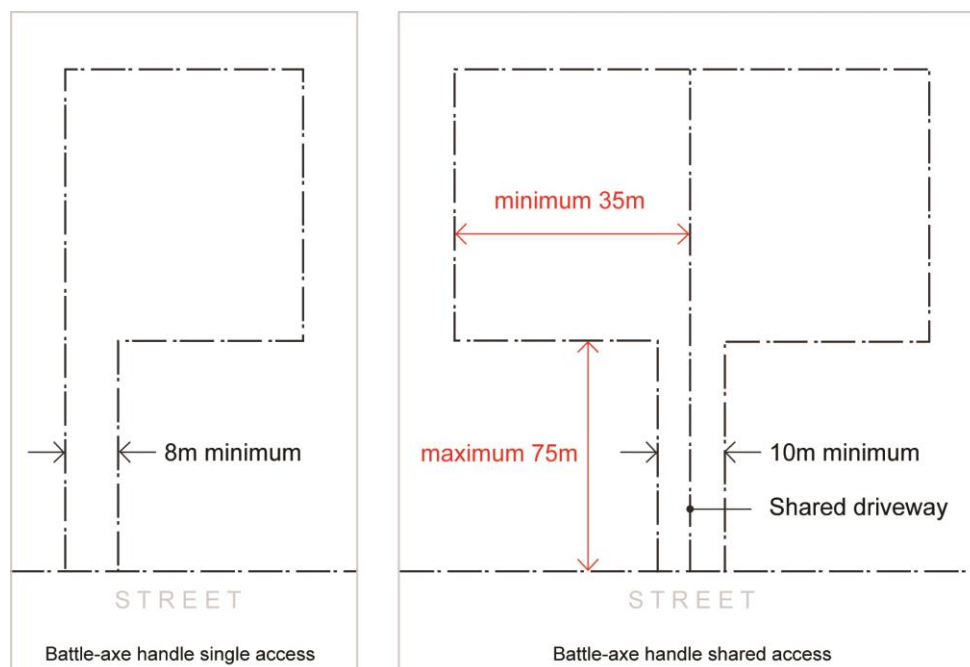


Figure 6-1: Battle axe lot dimensions

6.3 Landscape Design

Objectives

- a. To ensure a balance between built form and landscaped elements
- b. To encourage landscaping as a means of screening industrial development.
- c. To enable landscaping to contribute to energy efficiency water management and amenity for employees.
- d. To encourage a high standard of landscape design that enhances the streetscape and amenity of the zone.

6.3.1 Streetscape and Allotment Frontages

1. The streetscape design is to integrate vertical elements (trees, light poles and allotment signage) to provide consistency of elements and materials across the zone.
2. Service lids and above ground structures are to be minimised in street frontages. Service lids are to be located adjoining pavement or kerbs to avoid small areas of turf or planting beds.
3. Street tree planting is to be implemented at the subdivision stage to ensure plantings are visually consistent in height, spread and form across the zone.
4. In the Business Development zone, a minimum 7m wide landscape area must be provided along the street front, except where zero setback controls apply.
5. The selection of plant species for street tree planting must be in accordance with **Appendix D Prescribed Trees, Preferred Species and Street Trees**.

6.3.2 Allotment Landscape

1. A Landscape Plan must be prepared in accordance with **Appendix F** of this DCP for all new industrial subdivisions and new buildings.
2. Landscaped areas are required between buildings (ie. within the building separation zone).
3. Allotment landscape design is to be integrated with site planning and building design to:
 - reduce the perceived scale of built form from the street;
 - reduce visual impact and the extent of continuous building facades.
 - highlight architectural features and complement façade articulation;
 - identify site and building entries, car park entries and parking areas, in coordination with signage;
 - mitigate adverse site conditions through buffering of western sun, provision of shade, wind protection, and screening of poor views;
 - maximise northern sun exposure; and

- integrate usable and attractive external seating and amenity areas for staff incorporating paved areas, soft landscape, and shade planting (and canopies where necessary).
4. Allotment landscape should incorporate hard and soft landscape elements in pavements, retaining walls, low walls and terracing, trees, garden bed planting, turfed areas and irrigation.
 5. Indigenous species from the area are encouraged for all landscape plantings however, non native species may be considered in limited use to external courtyard areas to achieve seasonal climate management. Trees should be a minimum height of one metre at the time of planting. Mass plantings may use a variety of sizes including viro tubes.
 6. The allotment landscape is to be provided with an automatic trickle irrigation system installed below mulch level. The system is to be supplied by rainwater collected from the site.
 7. Landscaped areas are to be separated from vehicular access areas by an appropriate edge, preferably a raised kerb.
 8. Landscaped areas are to be separated from storage areas by an appropriate edge, preferably low walls. Signage and management strategies are to be put in place to ensure that storage activities do not impact on, or extend into, landscaped areas. No storage is allowed in landscaped areas.

6.3.3 Landscaping of Car Parking Areas

1. Landscaping of car parking areas is to comply with **Table 6-1** below:

Table 6-1: Landscape car parking

Large canopy tree plantings	Maximum intervals of 25m (9 parking bays)
Tree plantings	Minimum 2m bay of deep soil condition
Car parking bays	Raised kerb barrier (rounded adjoining accessways) and native groundcover planting.

2. Allotment car parking areas are to be effectively landscaped to:
 - reduce their visual impact;
 - reduce heat generation and glare from hard paved surfaces;
 - provide shade for parked vehicles; and
 - maximise potential for soft drainage (non-piped) to soft landscaped areas or collection zones.
3. Car park lighting design is to be coordinated with the preferred tree layout.
4. Dividing zones between parking bays should be landscaped as applicable to specific site conditions:
 - where pedestrian access will generate desire lines across the dividing zone, pedestrian trafficable wearing surface is required (eg. stabilised gravel);
 - where pedestrian access is not required and some infiltration drainage may be provided, mass planted landscape areas (requiring flush kerb edge and wheel stops to car parking bays) must be provided; and
 - where a major drainage role is envisaged and pedestrian access is not required, a gravel surfaced trench with collection pipework draining to on site storage or stormwater must be provided.
5. Clearly defined and appropriately surfaced pedestrian access links from parking areas to building entry points must be provided, incorporating kerb crossing ramps as required.
6. Car park landscaping is to be provided with an automatic trickle irrigation system installed below mulch level. Irrigation services provision must be implemented before car park surfacing. The system is to be supplied by the rainwater tanks on site.
7. Retaining wall elements must be no greater than 3m in height. All retaining walls must be screened by vegetation.

6.3.4 Communal Areas

1. Provision of communal areas must comply with **Table 6-2** below. Communal areas must include soft landscaping.

Table 6-2: Communal Area provision

Zone	Communal Area as % of total site area
B7 Business Park	5%
IN1 General Industrial	1%
B5 Business Development IN2 Light Industrial	3%

2. Each development shall be provided with at least 1 communal area for the use and enjoyment of employees and visitors to that development. The area shall be suitably landscaped and accessible from the main office component of the development.
3. Small pockets of open space designed to enhance the appearance of the development will not be counted in the communal area allocation, neither will car parking areas, manoeuvring areas, or landscaped setback areas.
4. In locating communal areas, consideration should be given to the outlook, natural features of the site, and neighbouring buildings.
5. Communal areas shall be embellished with appropriate landscaping, shade, paving, tables, chairs and the like.
6. Communal areas shall be relatively flat and not contain impediments which divide the area or create physical barriers which may impede use.
7. Solar access to communal open spaces is to be provided. Communal areas must receive a minimum of 2 hours direct sunlight between 11am and 3pm on the 21st of June.
8. Appropriate shading is to be provided, preferably using trees, so that communal spaces are useable during summer.

6.4 Built Form and Streetscape

6.4.1 Setbacks

Objectives

- a. To achieve attractive streetscapes by ensuring that buildings present an acceptable scale and bulk when viewed from the public domain.
- b. To provide appropriate setbacks to the proposed use and characteristics of the location of the land.
- c. To define building envelopes within each allotment by specifying minimum setbacks.

Controls

1. All buildings erected in industrial areas are to be set back a minimum of 7.5m from the front property boundary unless otherwise specified in a Precinct's Schedule.
2. No building or hardstand area (concrete or bitumen pavement) other than a public utility undertaking shall be erected within any setback.
3. All setback areas should be landscaped and maintained in accordance with the landscape provisions in **clause 6.3**.
4. Pedestrian access should be provided to all landscaped setback areas for maintenance and security purposes.

6.4.2 Building Design and Siting

Objectives

- a. To activate streets and the public domain with building frontages.
- b. To provide a variety of building orientations and create defined streetscapes that respond to site conditions.
- c. To ensure that building design enhances the existing and future desired built form character by encouraging innovation and quality architectural design.

Controls

1. Blank building facades facing the primary street frontage are not permitted.
2. The built form and architecture of buildings located at street corners should enhance its location and positively respond to and emphasise the street corner.
3. Building orientation and siting should respond to natural elements such as topography, wind and sunlight.
4. The layout and orientation of buildings should be in a manner that minimises lengthy or deep areas of car parking along the street front.

5. Buildings should provide variety to facades by the use of projecting upper storeys over building entries, upper storey display windows, emphasising street corners and varying roof forms.
6. Buildings should provide effective sunshading for windows, wall surfaces and building entries, (other than loading docks) by the use of design elements such as overhanging eaves and awnings, undercrofts, colonnades and external sunshading devices including screens.
7. Building design should be integrated with landscape elements.
8. The bulk and scale of the building should minimise impact on district views.
9. Building facades should be articulated by elements such as:
 - external structures, finishes, etchings and recessed patterns;
 - decorative features, textures and colours;
 - locating offices and highlighting entries within front facades;
 - emphasised customer entries and service access doors;
 - protrusions and penetrations in building elements.
10. Buildings with dual street frontage should be designed to ensure:
 - the building addresses the primary street frontage; and
 - distinctive identifying architectural elements are incorporated to provide sufficiently interesting and varied facades;
11. The building design should consider the amenity of any landscaped or communal areas in adjoining properties;
12. The location of roller shutters, loading docks and other building openings should be so that they do not detract from the overall appearance of the building. Where possible, roller shutters and the like should not be located on the primary street frontage;
13. Roof design should be visually interesting and provide for natural lighting, and compatibility with the overall building design. Where visible from a public area, all rooftop or exposed structures (lift motor rooms, plant rooms etc), must be suitably screened and integrated with the building.

6.4.3 External Building Materials and Colours

Objectives

- a. To enhance the visual quality of development through the selection of appropriate materials and colours.
- b. To encourage the use of materials that minimise impact on the environment.
- c. To ensure that any reflective materials are used with sensitivity to neighbouring development, vehicular traffic and public domain areas.
- d. Create identifiable, attractive and safe entrances to buildings.

Controls

1. External finishes should be constructed of durable, high-quality and low maintenance materials.
2. External finishes should contain a combination of materials and/or colours.
3. Any wall visible from the public domain must be finished with a suitable material to enhance the appearance of that façade.
4. Building materials should be selected to minimise reflection
5. The following should be considered in the choice of building materials in all developments:
 - energy efficiency;
 - use of renewable resources;
 - maintenance cost and durability;
 - recycled or recyclable materials;
 - non-polluting; and
 - minimal PVC content.
6. Where concrete roofs are proposed for the purpose of additional parking, parapeted edges are preferred with appropriate screening to conceal roof top car parking.
7. Materials that are likely to contribute to poor internal air quality and those containing Volatile Organic Compounds (VoCs) should be avoided.
8. Applicants are required to submit with all Development Applications a materials sample board detailing external colours and finishes.

6.4.4 Entrance Treatment

Objectives

- a. To create clear and legible entries that address the street.

Controls

1. Entries to buildings should be clearly visible, well sign posted and lit to pedestrians and motorists.
2. Architectural features are to be provided at ground level giving an entrance element to the building and addressing the primary street frontage.
3. All entrance treatments, such as directory boards, must be located on private property, with appropriate positive covenants and restrictions on title to ensure the ongoing management of such treatments.
4. No third party advertising will be permitted on any entrance treatment facility.

6.4.5 Ancillary Buildings, Storage and Service Areas

Objectives

- a. To ensure that ancillary buildings, storage and service areas are considered part of the overall design, and do not detract from the amenity and appearance of the development.
- b. To ensure that site facilities are functional and accessible and are easy to maintain.
- c. To ensure that site facilities are thoughtfully integrated into the development and are visually and physically unobtrusive.
- d. To minimise the impact of service access on pedestrians and industrial, commercial and retail frontage.
- e. To minimise the visual and acoustic impact of site servicing.

Controls

1. Ancillary buildings and storage sheds are to be located behind the setback lines and be consistent with the design of the main building.
2. Details of any proposed ancillary buildings, open storage and services areas must be submitted with all Development Applications.
3. Storage areas should be located within the confines of the primary building. Appropriate screening must be provided where this can not be achieved.
4. Above ground open storage areas visible from the public domain are not permissible.
5. Above ground open storage areas should not compromise truck or vehicle manoeuvring and car parking areas.
6. Vehicular access to loading facilities is to be provided from secondary and tertiary streets.

7. Rubbish and recycling areas must be provided in accordance with Part O Site Waste Management and Minimisation of Blacktown DCP 2006. These areas must:
 - be integrated with the development;
 - minimise the visibility of these facilities from the street; and
 - be located away from openable windows to habitable rooms.
8. Barrier free access is to be provided to all shared facilities.
9. Provide at least one shower and changing facility that is accessible to the building users.
10. The following information must be provided at Development Application stage for outdoor storage areas:
 - Size of outdoor storage area
 - Maximum storage height
 - Types of goods, materials and equipment being stored outdoors; and
 - Details on landscaping and screening structures.
11. Sunken loading docks should be avoided.
12. A minimum 225mm clearance is required between finished floor level and finished ground level.
13. Above ground water tanks must not be located forward of the front facade of the primary buildings. They should not be visible from the public domain and must be suitably screened. Details (including elevations) of all water tanks must be submitted with the DA.

6.5 Ecologically Sustainable Development

Objectives

- a. To improve energy efficiency through the design and siting of buildings;
- b. To ensure that developments are environmentally sustainable in terms of energy and water use, and management of waste and discharge.
- c. To encourage the utilisation of materials and construction techniques with low energy inputs in their production for construction energy systems.

Controls

1. A **Site Water Management Plan** must be prepared in accordance with **Appendix F**.
2. Development Applications are required to demonstrate consideration of:
 - measures that will reduce waste and conserve water through water recycling;
 - measures to minimise run-off and stormwater generation;
 - implementing total water cycle management by including measures that reduce consumption of potable water for non-potable uses, minimise site run-off and promote stormwater re-use;
 - utilising recycled materials and renewable building resources;
 - promoting biological diversity through appropriate retention, planting and maintenance of indigenous flora of the area;
 - implementing a waste management strategy that promotes the overall reduction of waste levels.
 - and promoting the achievement of the 60 percent waste reduction target for New South Wales; and
 - implementing energy conservation measures that include reducing energy consumption and increasing inherent energy efficiency through design and materials selection, and adopting energy management plans.
3. Development Applications are required to demonstrate that consideration has been given to promoting ecologically sustainable transport by complementing and reinforcing the development and use of the existing and planned integrated public transport, pedestrian and cycling networks servicing the site.
4. Roof stormwater should be collected in tanks or street level reticulation which would serve as a retention system. The water in the retention system would be available for use for non-potable uses such as the watering of landscaped areas and use in toilet and hot water systems.
5. Consideration should be given to the feasibility of any measures to substitute grid-source power with environmentally sustainable alternatives such as tri-generation (green transformers), co-generation (i.e. recovery of waste energy) or photovoltaics.
6. New commercial buildings must achieve a minimum 4 star Green Star rating from the Green Building Council of Australia. Refer to the 'Green Star – Office As Built v3 Technical Manual'.

7. New industrial and light industrial buildings must achieve a minimum 4 star Green Star rating from the Green Building Council of Australia from such time that an Industrial Tool has been adopted.
8. Development shall incorporate water efficient fixtures such as taps, showerheads, and toilets. The fixtures must be rated to at least AAA under the National Water Conservation Rating and Labelling Scheme. Where the building or development is water intensive (ie. high water user), specific water conservation objectives must be resolved with Council.
9. Appropriate use of energy efficient materials during construction is to be demonstrated.
10. Development should incorporate energy efficient hot water systems, air-conditioning, lighting and lighting control systems

6.6 Fencing, Signage and Lighting

Objectives

- a. To use fencing to define boundaries and provide security, as well as contribute to streetscape and amenity of the zone.
- b. To enhance pedestrian safety, security and amenity within the precinct.
- c. To ensure that signage and lighting supports the visual appearance of the building and the visual appeal of the zone.

6.6.1 Fencing

Controls

1. Low feature walls are encouraged at entry driveways. These walls should be used for retaining purposes, as garden beds or as landscaped features and should be integrated into the overall design of the development.
2. Front and side boundary fences forward of the building line shall consist of an open wrought iron palisade style fence, finished in either dark green or black.
3. Side fencing behind the building line may comprise chain wire mesh or similar open style fence, plastic coated in dark green or black.
4. Pre-painted solid metal fencing and other solid fencing is not permissible.
5. Fencing must be set back 1m from the front property boundary.
6. Fencing should be sited so it does not impede sightlines for drivers.
7. Fencing along boundaries should not exceed a height greater than 3m, measured from finished ground level.
8. Pedestrian fencing within the road reserve is to be RTA Type 1, without embellishment and black in colour.
9. The use of timber fencing or bollards within public reserves or roads is not permitted.

6.6.2 Signage and Lighting

Controls

1. Signage is to relate to the use occurring on the respective property, and should identify the relevant business name.
2. Business identification signage should be attached to the wall of the main building and be designed to complement the architectural style of the building. Free standing signs will only be permitted where signs are integrated with the landscaping and visual character of the site and surrounding area.
3. Directional signs for car parking areas, loading docks, delivery areas and the like should be located close to the main access of a development site. The design, colouring, type and scale of signage within individual properties should be consistent with signage across the zone as a whole.
4. Signage is only to display corporate logos and company names and is not to occupy more than 10% of any façade or wall of a building, unless it can be demonstrated that characteristics of the site or the building require a larger area of signage.
5. Details of all signage, including free standing, fascia, and wall signs must accompany Development Applications.
6. The design and lux of any internal or spot lighting shall be designed to avoid off-site or traffic safety impacts.
7. No form of moving or flashing signage or lighting is permitted.
8. Signage is not to have a detrimental impact on the visual character of the site or surrounding area.

6.7 Access and Parking

6.7.1 Vehicular Access

Objectives

- a. To ensure that vehicles can enter and exit premises in a safe and efficient manner in a forward direction.
- b. To minimise the impact of vehicle access points on the quality of the public domain and pedestrian safety.
- c. To provide off-street manoeuvring, loading and docking facilities that are adequate for the operational needs of the activity and use.

Controls

1. A site specific **Traffic Impact Report** must be prepared in accordance with **Appendix F** of this DCP.

Industrial Areas

2. Applicants are required to submit plans and details of proposed vehicular access and circulation for Council's approval with the Development Application. Details must specifically relate to vehicular movement, layout and turning circles.
3. Adequate vehicular entrance to and exit from the development is to be provided and designed in order to provide safety for pedestrians and vehicles using the site and adjacent roadways. In some cases combined ingress and egress will be permitted.
4. Vehicular ingress and egress to the site must be in a forward direction at all times.
5. Driveway crossovers accessed by heavy vehicles should be a minimum of 9m wide, when measured at the kerb alignment.
6. Turning circles will not be permitted to encroach upon any building.
7. Adequate space is to be provided within the site for the loading, unloading and fuelling (if applicable) of vehicles. These areas are to be screened from the road.
8. All parking areas and access roadways must be provided with a drainage system comprising surface inlet pits. Details of pipe sizes (with calculations) and drainage layouts (including discharge points) must be submitted with the Development Application.

B5 Business Development and B7 Business Park Areas

9. Vehicular access should be designed to avoid conflicts with pedestrians.
10. Adequate space shall be provided within any development site for the loading and unloading of service vehicles. The standard of loading facilities required will depend upon the nature of the development and the uses to be carried out.

11. Council may require the provision of parking for courier vehicles. Loading facilities should be located at the rear of developments.
12. Vehicular movements associated with loading facilities and customer/employee parking should be separated and all pedestrian movements should be segregated from vehicular movements to avoid possible conflict and congestion.
13. Ingress to and egress from a site should be located where they will cause least interference with vehicular and pedestrian movement on public roads. Direct access will not be permitted off arterial and sub-arterial roads. Access to parking areas will not be permitted in close proximity to traffic signals, intersections or where sight distance is inadequate.
14. The potential for on-street queuing should be eliminated by the provision of sufficient standing areas on-site for vehicles entering the car parking and loading areas.
15. Provision is to be made for all vehicles to enter and leave a site in a forward direction.

6.8 Car parking

Objectives

- a. To provide an appropriate level of on-site car and bicycle parking provision in the Precinct.
- b. To minimise the visual impact of on-site parking.
- c. To integrate parking facilities with the overall site planning and landscape.
- d. To encourage the use of other modes of transport including bicycles and public transport.

Controls

1. The provision of car parking must comply with the **Table 6-3** unless otherwise specified in the relevant Precinct Schedule.
2. Refer to Sections 5.4 to 5.7 of Part A (Introduction and General Guidelines) of Blacktown DCP for general guidelines and principles for car parking, including design, materials, signs and monetary contributions.
3. Safe and secure 24 hour access to car parking areas is to be provided for building users.

Table 6-3: Specific land use requirements for car parking

Zone	Car Parking Requirements	Bicycle Parking Requirements
IN2 (Light Industrial) IN1 (General Industrial)	Buildings 7500sq m or less - 1 space per 75sq.m GFA Buildings greater than 7500sq.m – 1 space per 200sq.m GFA only for the area in excess of 7500sq.m where there is a specific end user which would not demand a higher rate and where employee parking is adequately catered for. 1 space per 40sq.m GFA of Office Component	Employees: 1 bicycle locker or other suitable form of secure bicycle accommodation is to be provided per 200m ² GFA
B7 (Business Park)	1 space per 40sq.m GFA	
B5 (Bulky Goods Retailing)	1 space per 45sq.m GFA	

At-grade parking

1. At-grade parking areas are to be located so as to minimise visual impacts from the street, public domain and communal open space areas, using site planning and appropriate screen planting or structures.
2. Parking areas are to be located generally behind front building lines.
3. In the Business Park and Business Development zones, parking areas must not be located within the front setback area.

Industrial Areas

4. The car parking area should be located immediately behind the minimum setback area and in front of any activity on the site.
5. The car parking area should be accessible to all parts of the industrial development which it serves.

6. The use of stack parking is not favoured and may only be permitted in special circumstances.
7. Parking facilities for commercial vehicles should be designed in accordance with Australian Standard 2890.2 to accommodate the largest type of truck which could reasonably be expected to park on the site.
8. Sufficient spaces should be provided for disabled parking. All developments providing 50 parking spaces or more must provide at least 2% or part thereof of those spaces for disabled drivers, clearly marked and signposted for this purpose and located as close as possible to the building's entrance.
9. All parking areas shall be constructed of hard-standing, all-weather material, with parking bays and circulation aisles clearly delineated.

6.9 Waste Management

Objectives

- a. To maximise opportunities for re-use through source separation and on-site storage.
- b. To minimise waste generation and maximise re-use and recycling
- c. To minimise waste generation through design, material selection and building practices.
- d. To ensure efficient storage and collection of waste and quality design of facilities.

Controls

General

1. A **Waste Management Plan** must be prepared in accordance with **Appendix F** of this DCP.
2. Facilities to allow on-site source separation and re-use of materials on-site should be provided.
3. Waste collection should be provided on-site at the street frontage with clear access to facilitate pick up.
4. The siting of any stockpile must take into account environmental factors such as slope, drainage, location of watercourses and native vegetation.
5. Sufficient space must be provided for the storage of garden waste and other waste materials on site.
6. Re-use of stockpile materials on-site should be facilitated.
7. Sufficient space for storage of recyclables and garbage should be provided on-site.
8. Adequate space should be provided for the temporary storage of recyclables, garbage and compostable materials in each unit.
9. Waste cupboards should be designed and located so as to be accessible, useable and cater for change of use.
10. The area or room allocated for garbage and recycling is to be of a sufficient size to store Council's standard bins in an efficient manner.

11. Garbage and recycling areas/rooms must be accessible to all users and have unobstructed access to Council's standard bins in an efficient manner.
12. Areas for the storage of bulky waste (eg. clean up materials) should be provided.
13. Volume reduction equipment should be specified in the Development application.
14. Where the development is large or where the site characteristics warrant, multiple garbage and recycling areas should be provided.
15. External space for compostable materials should be provided and located separate to the garbage and recycling room.
16. Composting facilities should be purpose built and be incorporated into the landscape plan for development.
17. The siting of composting facilities should take into account the potential impact on neighbouring properties.
18. Composting facilities should be adequately signposted to indicate availability of composting facilities on-site.

6.10 Safety and Surveillance

Objectives

- a. To ensure personal safety for workers and visitors to the development.
- b. To ensure design minimises the opportunity for crime and maximises opportunities for passive surveillance.

Controls

- 1. A **Crime Risk Assessment Report** must be prepared in accordance with **Appendix G** of this DCP, for each development that involves the erection of new buildings, or new or modified landscaping works.
- 2. Buildings should be designed to overlook public domain areas and provide casual surveillance.
- 3. Building entrances should be orientated towards the street to ensure visibility between entrances, foyers, car parking areas and the street.
- 4. Appropriate lighting should be provided to all cycle and pedestrian paths, bus stops, car parks and buildings.
- 5. Development should provide clear sight lines and well-lit routes between buildings and the street, and along pedestrian and cycle networks within the public domain.
- 6. Consideration should be given to the use of landscape elements so as to not compromise the perceived level of safety.

6.11 Additional Land Use Controls

6.11.1 Neighbourhood Shops

Objectives

- a. To enable the provision of neighbourhood shops in business and industrial zones which serve the daily convenience needs of the local workforce, or for the benefit of the local workforce and businesses.

Controls

1. Development Applications must demonstrate that the size, function and proposed use serves the daily convenience needs of the workforce in the zone, or is for the benefit of the local workforce and businesses.
2. Neighbourhood shops must not detrimentally affect the viability of any other centre within a business zone.

6.11.2 Child Care Centres

Objectives

- a. To enable the provision of child care centres to address the needs of the local workforce within the zone.

Controls

1. Due to the nature of the usage, such developments should be sited on allotments which provide buffering from adjoining developments so as to minimise possible conflicts such as noise and invasion of privacy.
2. In order to ensure or protect the privacy of staff and children adequate noise abatement, site landscaping and fencing may be required. Such landscaping is to be in keeping with adjoining developments.

6.11.3 Sex Services Premises

Objectives

- a. Introduce planning controls to ensure that brothels are not placed in inappropriate locations so that they do not give offence to the community or result in a loss of amenity or create adverse social and environmental impacts.
- b. To implement a distance separation between brothels and other incompatible land uses.
- c. Protect sensitive uses such as schools, churches, parks, shops and other community uses by limiting the development of brothels to industrial areas.
- d. Nominate relevant criteria that Council must have regard for in determining Development Applications for brothels.
- e. To impose conditions of consent and operation to prevent adverse impacts on adjacent land such as noise, safety, offensive visual impact and anti-social activity.

Controls

1. In accordance with Section 79C of the *Environmental Planning and Assessment Act 1979*, Council will consider the following matters when assessing development applications for the purposes of a brothel:
 - The potential cumulative impact of like uses in a neighbourhood;
 - Whether the operation of the brothel is likely to cause disturbance in the neighbourhood when taking into account other brothels operating in the neighbourhood or other land uses within the neighbourhood involving similar hours of operation;
 - Whether the brothel is not in keeping with or is likely to substantially alter the character of its locality; and
 - Whether the brothel is likely to put at risk members of the community or its clientele or service providers.
2. A brothel may not be located outside the area shown on the **Permissible Brothel Locations** figure in the relevant Precinct's Schedule or:
 - Within a straight line distance of 300 metres of land zoned for residential, commercial or public open space purposes.
 - Adjacent to any property used or partly used for residential purposes; or
 - Near or within view from any school, church, hospital, child care centre, community facility, public open space or any place regularly frequented by children.
3. Design must incorporate the principles of Crime Prevention Through Environmental Design (refer to **Appendix E**).
4. Access to a brothel is to be discreet. The brothel will be accessed via a separate entrance to prevent staff and clients causing a disturbance to other premises within the same complex.

5. Parking is to be provided on site at a rate of 1 space per employee, 1 space per room and 1 space for a manager. Stacked parking is not acceptable.
6. Parking areas must be located, designed and lit to maximise safety of workers and clients.
7. The operator is to contract a security firm to conduct regular patrols of the site and its surrounds between the hours of 5.00 p.m. and one hour after closing to ensure acceptable behaviour of patrons at and leaving the premises and to restrict possible theft and vandalism within the immediately surrounding industrial area. The firm is also to be on call to deal with any incidents which may occur at or around the site.

Note: *Written evidence of these arrangements is to be provided to Council prior to the satisfaction of any deferred commencement consent conditions. Security measures will be reviewed over the 12 month period of consent and Council shall have the right to require a variation in the security arrangements as a result of this review.*

8. Flashing signs or lights, or signs which include colours or designs which may distract passing motorists or include offensive or suggestive material will not be permitted.
9. Signs shall only be illuminated if it will not cause nuisance to any adjoining properties nor interfere with the amenity of the neighbourhood.
10. Only one sign will be permitted per premises, indicating the name of the operator, the name of the premises and that entry is prohibited to underage persons.
11. Emission of sound from the premises shall be controlled at all times to the satisfaction of Council. Particular regard must be had to patrons leaving the premises.
12. Consideration will be given to the impact of brothels given activities with similar operating hours in the area. This would include massage parlours, adult bookshops and other restricted premises, licensed premises, pubs/hotels, nightclubs and other like uses.

Notes:

All brothel operators wishing to establish, make alterations or change uses for the purposes of a brothel or restricted premises must submit a DA for Council's consideration.

Approved operators must notify Council of any change in operations such as hours of operation and number of employees. If changes are significant then it may be necessary to submit a new application.

All development consents granted to brothel applications shall be initially limited to a period of 12 months. Approvals may be required to submit evidence regarding satisfactory security measures.

If Council is satisfied that the brothel has operated in an orderly manner and with limited impact upon surrounding and nearby land uses, it shall, upon the submission of a request for an extension to the consent prior to the 12 month expiration date, grant a development consent.

Council may also impose conditions of consent relating to the hours of operation. This will also be the subject of review after 12 months. After the 12 months, if the approved hours of operation are causing a disturbance in the neighbourhood, then Council may further restrict operating hours.

Where consent is granted, a specified operator will be nominated on the consent. Should the operator change, Council must be notified prior to the new operators commencing. This will be required as a condition of consent. If the numbers of sex workers, or hours of operation are proposed to be changed, a new Development Application will be required to be submitted.

Appendix A

Glossary

Note: definitions for terms are also included in the Dictionary contained within the Growth Centres SEPP, and in the event of any inconsistency, the definition in the Growth Centres SEPP takes precedence over the definitions in this DCP.

“Abutting Dwelling” is a building containing one dwelling, on a single block of land, that is designed and constructed on a zero lot line immediately adjacent to another dwelling on a different lot that is also built to the zero lot line and is structurally independent of any other dwelling. See **Figure 1**.

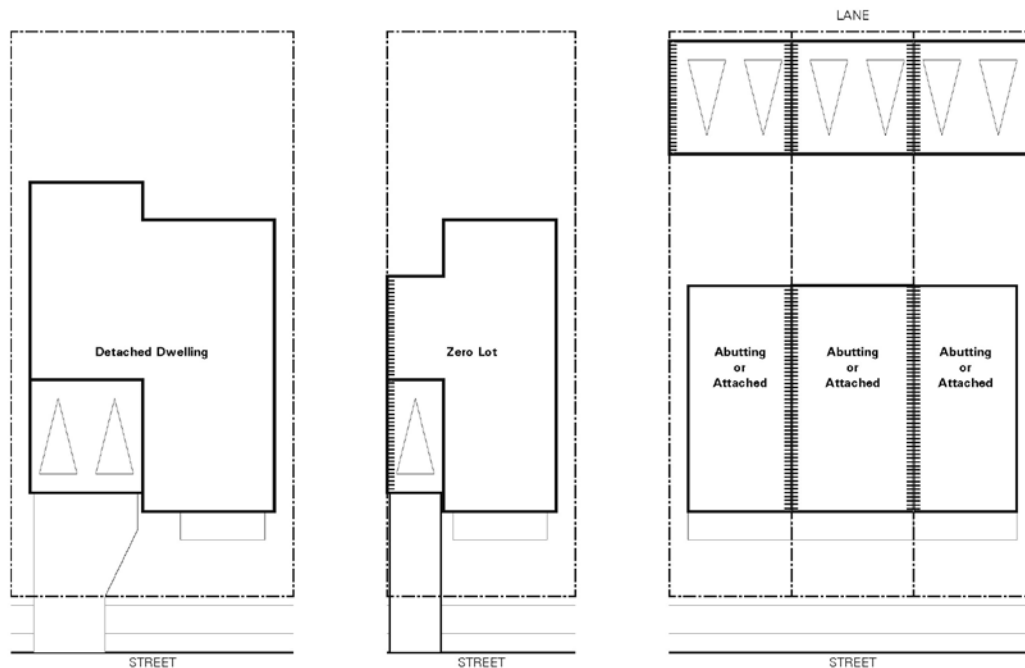


Figure 1: Detached, Zero Lot Line, Abutting and Attached Dwellings

“Access Streets and Laneways” provide local residential access to a small number of dwellings and serve a shared vehicular-pedestrian-cyclist use. They are intended to encourage a safe, low vehicle speed environment in which the residential function is dominant. Access streets function at the lowest level of the road hierarchy. They generally have development on one side and are located along drainage or open space reserves or along access-denied roads. The construction and dedication of access streets is the responsibility of the developer.

“Articulation zone” includes verandahs, porches, awnings, shading devices, bay windows, pergolas and the like. A carport is not considered part of the activation zone.

“Active Frontages” are defined as one or a combination of the following:

- entrance to retail;
- shop front;
- glazed entries to commercial and residential lobbies;

- café or restaurant if accompanied by an entry from the street;
- active office uses, such as reception, if visible from the street; and
- public building if accompanied by an entry.

“Alex Avenue Precinct Plan” means Appendix 3 to *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*.

“Attic” means a room within the main roof space of a building that has a 1.5m minimum wall height at edge of the room, a minimum 30 degree ceiling slope and does not incorporate or access a balcony.

“Attached dwellings” are 3 or more dwellings or separate allotments that are joined by at least one party wall. See **Figure 1**.

“Arterial roads” are roads marked as such on the **Precinct Road Hierarchy** figure in the relevant Precinct Schedule. They are major roads that carry the majority of inter-regional traffic. Vehicular access from adjacent land is denied to ensure both the efficiency of the road and the safety of road users.

“Building footprint” means the area of land measured at finished ground level that is enclosed by the external walls of a building.

“Collector roads” are roads marked as such on **Figure 3-11** of this DCP. They are the main internal roads that carry local traffic through the residential neighbourhoods to the sub-arterial and arterial roads, and provide access to major attractors within the precinct such as retail, commercial and educational facilities.

“Detached Dwelling” is a building containing one dwelling, on a single block of land, that is not attached to any other dwelling. See **Figure 1**.

Dual Occupancy means two dwellings on a single allotment of land. The dwellings may be attached to each other or separate and detached.

Dual occupancy housing includes:

- the alteration or addition to an existing dwelling-house erected on an allotment so as to create two dwellings;
- the erection of another detached dwelling-house in addition to one already erected on an allotment, but only if not more than two dwellings will be created as a result of the development being carried out;
- the erection of a single building containing two dwellings on one allotment.
- the erection of two detached dwellings on one allotment. The dwelling may or may not be strata subdivided. See **Figure 2**.

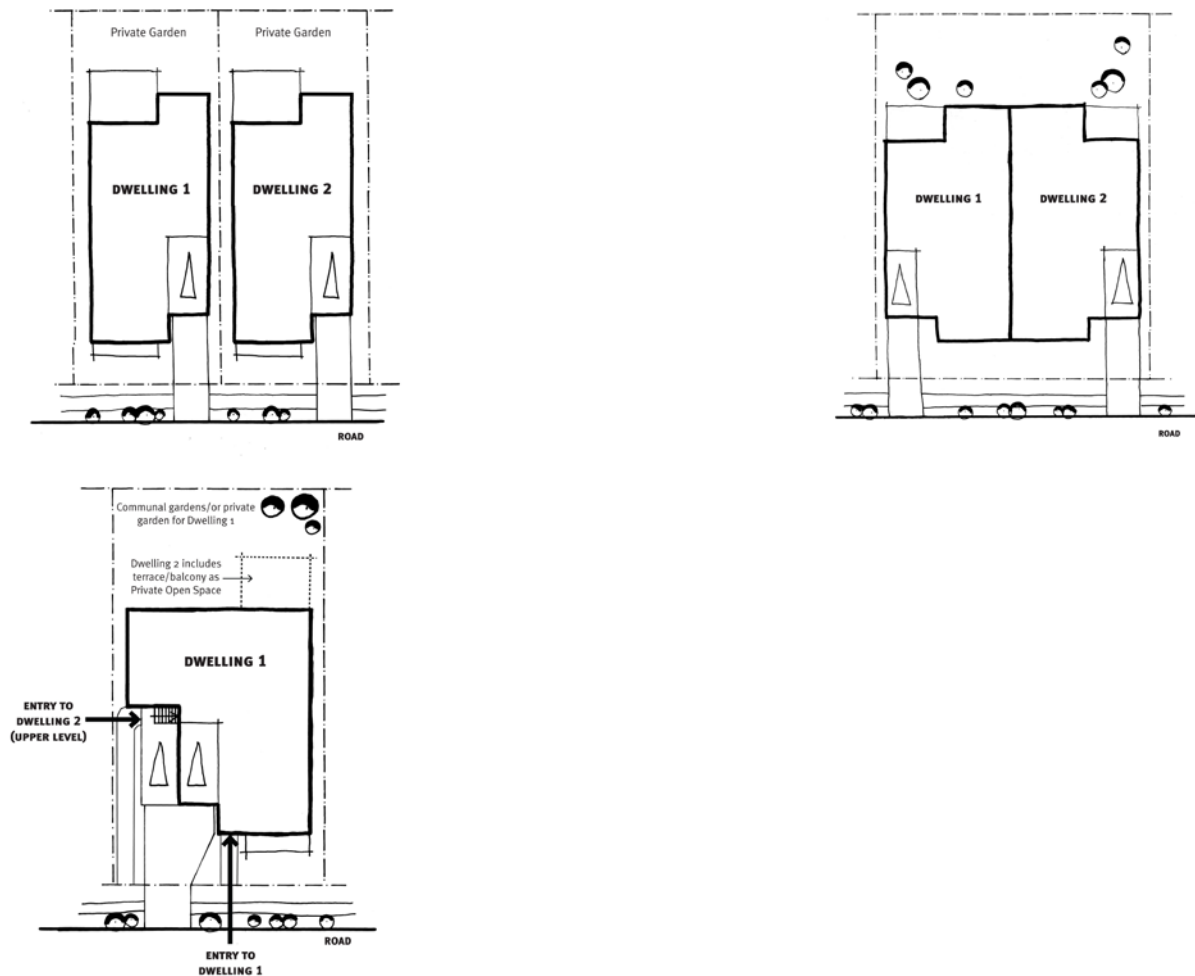
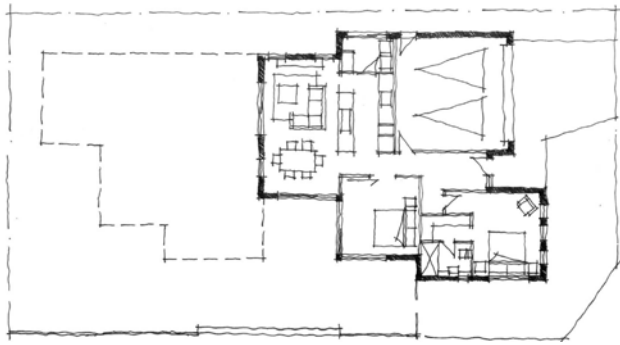


Figure 2: Dual Occupancy Dwellings - detached; attached; two storey

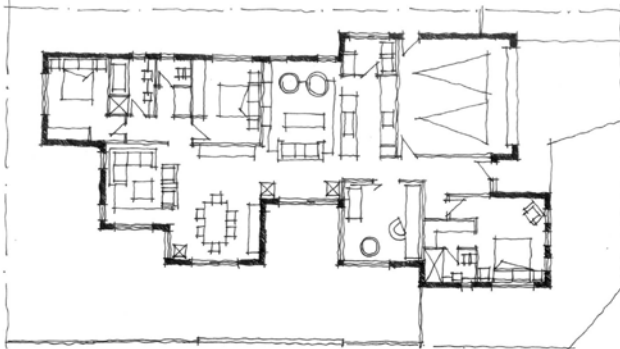
“Dual Occupancy – Lifehouse Dwellings” - The life house is a housing initiative that is designed to facilitate the changing lifestyle needs of the home buyer. When built, the Lifehouse can respond to the current need of the resident. In time, as the residents’ needs change, the dwelling can grow/downsize according to their needs, without them having to go through the expense of relocating. See **Figure 3**.

Lifehouse dwellings:

- can only occur on corner lots where eventual dual access will be possible to both dwellings;
- can be built on a single level, on split level or on as two storey dwellings. The development of Stage 2 must comply with separation controls nominated in Australian Standards and the Building Code of Australia (BCA), enabling the final dual occupancy division of Stage 3 to progress without major works.
- must have all stages of the development designed and approved as part of the initial DA regardless of the proposed staging of construction and subdivision.



Phase 1: establish the home



Phase 2: grow to suit occupant



Phase 3: downsize and strata subdivide to suit occupant (Optional)

Figure 3: Lifehouse Dwelling (single level)

“Flood Planning Levels (FPLs)” are the combinations of flood levels (derived from significant historical flood events or floods of specific AEPs) and freeboards selected for floodplain risk management purposes, as determined in management studies and incorporated in management plans. Flood planning area is the area of land below the FPL and thus subject to flood related development controls. The concept of flood planning area generally supersedes the ‘flood liable land’ concept in the 1986 Manual. Flood Prone Land is land susceptible to flooding by the PMF event. Flood Prone Land is synonymous with flood liable land.

“Habitable room” means any room or area used for normal domestic activities, including living, dining, family, lounge, bedrooms, study, kitchen, sun room, home entertainment room, alfresco room and play room.

“Non-habitable” room spaces of a specialised nature not occupied frequently or for extended periods, including bathrooms, toilets, pantries, walk-in wardrobes, corridors, lobbies, photographic darkrooms and clothes drying rooms.

“Landscaped area” means any part of a site, at ground level, that is permeable and consists of soft landscaping, turf or planted areas and the like. It does not include driveways, parking areas, hard paved drying yards or other service areas, swimming pools, tennis courts, undercroft areas, roofed areas (excluding eaves <450mm to fascia board), outdoor rooms, balconies, rooftop gardens, terraces, decks, verandahs and the like.

“Local roads” are roads marked as such on **Figure 3-12** of this DCP. The function of the subdivisional roads, which may include minor loop roads and culs-de-dac, is to provide access to residential properties.

“Manor Home” means a means a 2-storey building containing 4 dwellings, where:

- (a) each storey contains 2 dwellings, and
 - (b) each dwelling is on its own lot (being a lot within a lot within a strata scheme or community title scheme), and
 - (c) access to each dwelling is provided through a common or individual entry at ground level,
- but does not include a residential flat building or multi-dwelling housing.

“Outdoor room”, also known as an ‘alfresco room’ is a semi enclosed space (at least 1 side open) located adjacent a living / dining / kitchen area of a dwelling that sits within the main roof line of a dwelling.

“Principal dwelling” means the largest dwelling house on a lot, measured by gross floor area.

“Principal private open space” means the portion of private open space which is conveniently accessible from a living zone of the dwelling, and which receives the required amount of solar access.

“Private open space” means the portion of private land which serves as an extension of the dwelling to provide space for relaxation, dining, entertainment and recreation. It includes an outdoor room.

“Riparian Corridor” means the core riparian zone and vegetated buffer as shown in the ILP.

“Secondary Dwellings” - Secondary dwellings are dwellings that are separate to the principle dwelling, have a separate access and have a maximum internal floor area of 110m².

Secondary dwellings must form a part of the DA submission for the main dwelling. A secondary dwelling that has its own separate access and parking can be strata subdivided at the time of DA approval or after the dwelling has been established.

Types of secondary dwelling:

- On grade studio unit (at ground level – See **Figures 4 and 5**) within the principle dwelling lot. This is only permitted within detached dwelling lots;
- Above garage (See **Figures 6 and 7**). This is only permitted on dwelling lots that have garages with rear access.

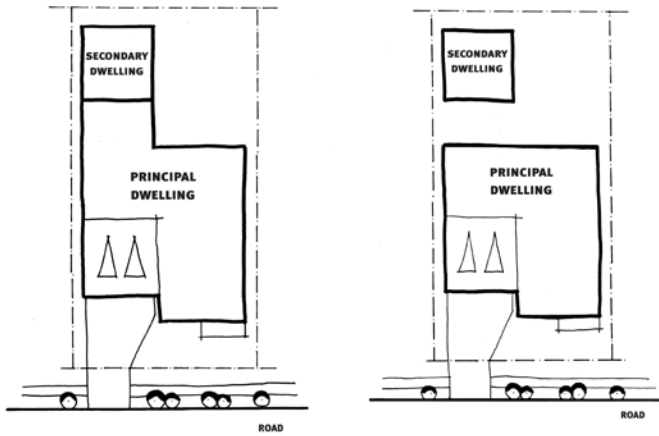


Figure 4: Secondary Dwelling (at ground level)



Figure 5: Indicative example of a secondary dwelling - on ground level

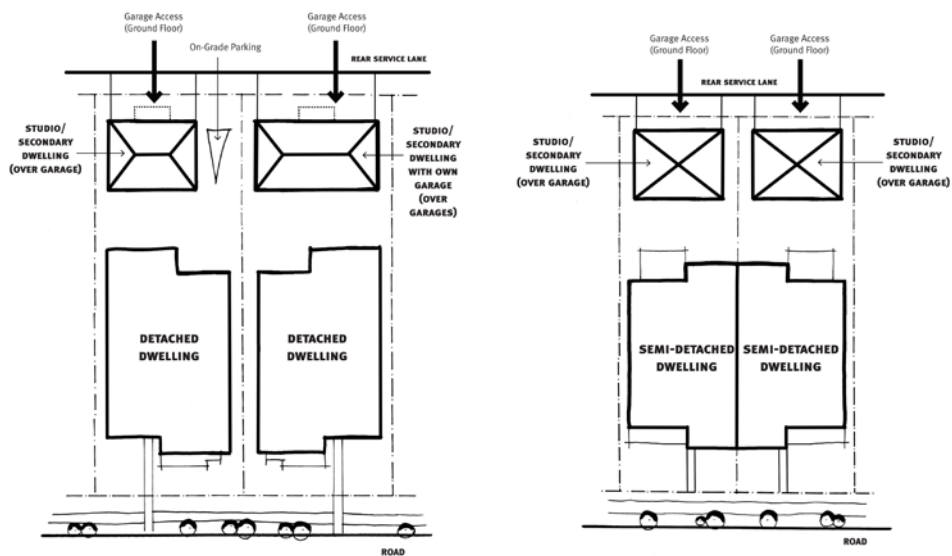


Figure 6: Secondary or Studio Dwellings (above garages)

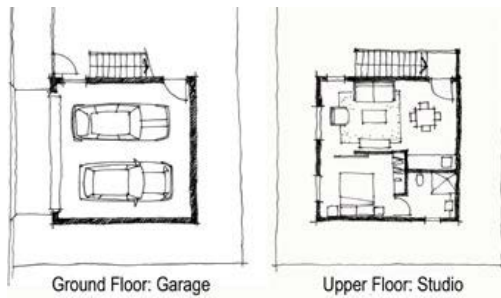


Figure 5: Indicative example of a secondary dwelling above a garage

“**Semi-detached dwellings**” is defined in the Dictionary to the Growth Centres SEPP. They comprise two dwellings that share one common wall. The external appearance should have continuance of material and style so the two dwellings combine to appear as one large house.

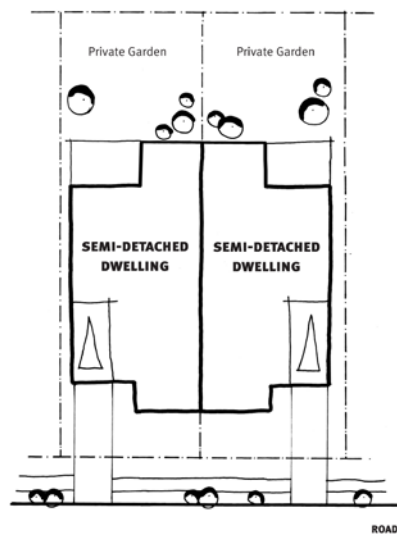


Figure 8: Semi-Detached Dwelling

“**Site cover**” refers to the percentage of the site area that is occupied by the building footprint, including any outdoor room and garages.

“**Studio Dwelling**” means a dwelling that:

- (a) Is established in conjunction with another dwelling (the *principal dwelling*), and
- (b) Is on its own lot of land, and
- (c) Is erected above a garage that is on the same lot of land as the principal dwelling, whether the garage is attached to, or separate from, the principle dwelling (refer to **Figures 6 and 9**).

but does not include a demi-detached dwelling.

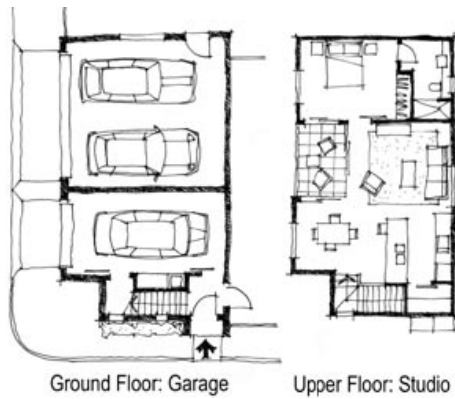


Figure 9: Indicative example of a studio dwelling above a garage

“Sub-arterial roads” are roads marked as such on the **Precinct Road Hierarchy** figure in the relevant Precinct Schedule and as shown on **Figure 3-10** of this DCP. Sub-arterial roads link regional and local traffic routes. Access from private properties is generally denied to these roads (except in special circumstances) for reasons of traffic safety and to maintain the capacity and efficiency of the road system. Council is normally responsible for the acquisition and construction of sub-arterial roads.

“Town Centre Streets” are roads marked as such on the **Precinct Road Hierarchy** figure in the relevant Precinct Schedule. They are specially designed to create a pleasant and comfortable pedestrian environment. Amenity and safety is to be maintained through wide shaded footpaths, traffic calming measures and pedestrian crossings.

“Walking Distance” is typically 400m or a 5 minute walk.

“Zero Lot Line Dwelling” is a building containing one dwelling, on a single block of land, that is constructed with an exterior wall on one of its side boundaries but is not attached or abutting to any other dwelling. See **Figure 1**.

Appendix B

Riparian Protection Area Controls

1.0 Introduction

1.1 Land to which these Controls Apply

This Appendix applies the land that contains, or is adjacent to, a riparian protection area, as defined in this DCP.

1.2 Purpose of this Appendix

The purpose of this Appendix is to set the outcomes and requirements for permissible development on land containing a riparian protection area in the North West Growth Centre Precincts to which the Blacktown Growth Centre Precincts DCP applies.

1.3 Structure of this Appendix

This Appendix is structured as follows:

Section 1:	provides an introduction to the Appendix.
Section 2:	outlines the controls for preferred development
Section 3:	outlines the controls for alternative development.
Section 4:	establishes the desired outcomes for riparian protection areas.
Section 5:	outlines the controls for the riparian protection area.
Section 6:	provides maintenance, monitoring and completion procedures.

2.0 OUTCOMES

2.1 Outcomes for Category 1 Watercourses

The following outcomes must be achieved for all waterfront land relating to Category 1 watercourses as identified in the Blacktown Growth Centre Precincts DCP, as demonstrated in **Figure 1** below:

- Outcome 1:** To maintain and improve the natural functions of the watercourse and its aquatic and terrestrial qualities and provide a continuous, vegetated riparian corridor for the movement of flora and fauna species.
- Outcome 2:** To maintain and improve the viability of native riparian vegetation.
- Outcome 3:** To provide a continuous, viable Core Riparian Zone (CRZ) which emulates the native vegetation communities in the area to facilitate a stable watercourse, while allowing limited opportunities for vegetated dry basins in a manner that does not reduce the function of the CRZ.
- Outcome 4:** To provide a protecting Vegetated Buffer (VB) either side of the CRZ, to protect the environmental integrity of the CRZ from weed invasion, micro-climate changes, litter, trampling and pollution by emulating the native vegetation communities in the area, while allowing limited passive recreation, open space and water quality treatment that does not reduce the function of the CRZ.
- Outcome 5:** To recognise that the riparian protection areas are located within urban contexts and provide, in addition to their environmental benefits, valuable amenity, character, landscape and open space benefits to the people who live, work and play in the local area.
- Outcome 6:** Any realigned watercourse must meet all of the above outcomes.

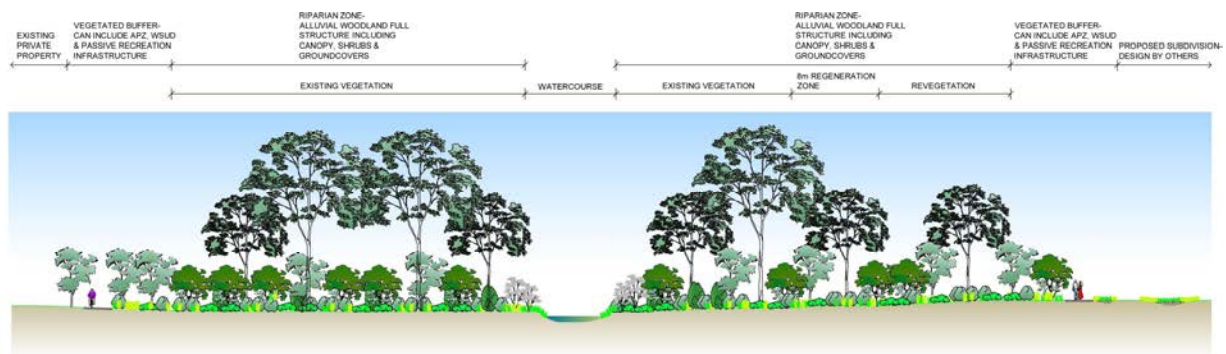


Figure 1: Illustration of a Category 1 watercourse that achieves the outcomes of these controls

Source: GHD

2.2 Outcomes for Category 2 Watercourses

The following outcomes must be achieved for all waterfront land relating to Category 2 watercourses as identified in the Blacktown Growth Centre Precincts DCP, as demonstrated in **Figure 2** below:

- Outcome 1:** To maintain and improve the natural functions of the watercourse and its aquatic and terrestrial qualities and provide a continuous, vegetated riparian corridor for the movement of flora and fauna species.
- Outcome 2:** To maintain and improve the viability of native riparian vegetation.
- Outcome 3:** To provide a continuous, viable CRZ which emulates the native vegetation communities in the area to facilitate a stable watercourse, while allowing limited opportunities for vegetated dry basins in a manner that does not reduce the function of the CRZ.
- Outcome 4:** To provide a protecting VB either side of the CRZ, to protect the environmental integrity of the CRZ from weed invasion, micro-climate changes, litter, trampling and pollution by emulating the native vegetation communities in the area, while allowing limited passive recreation, open space and water quality treatment in a manner that does not reduce the function of the CRZ.
- Outcome 5:** To recognise that the riparian protection areas are located within urban contexts and provide, in addition to their environmental benefits, valuable amenity, character, landscape and open space benefits to the people who live, work and play in the local area.
- Outcome 6:** Any realigned watercourse must meet all of the above outcomes.

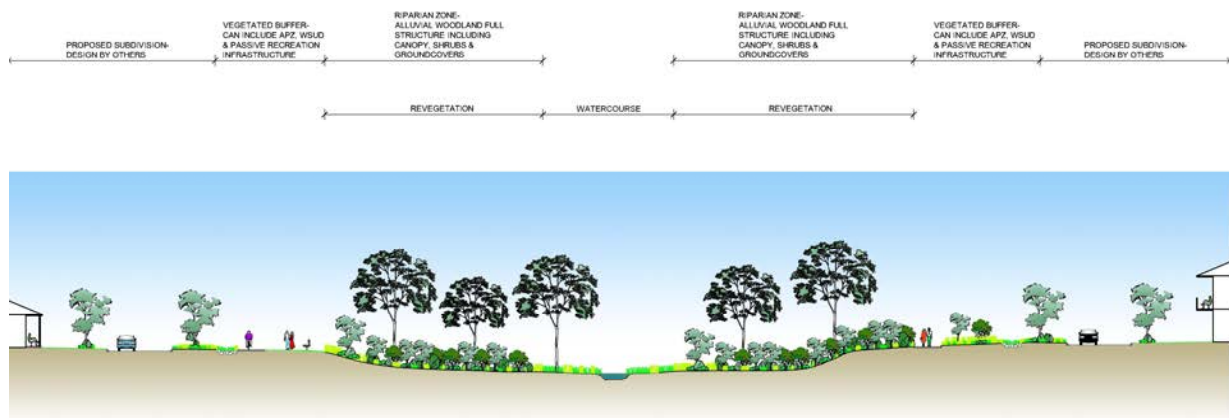


Figure 2: Illustration of a Category 2 watercourse that achieves the outcomes of these controls

Source: GHD

2.3 Outcomes for Category 3 Watercourses

The following outcomes must be achieved for all waterfront land relating to Category 3 watercourses as identified in the Blacktown Growth Centre Precincts DCP, as demonstrated in **Figure 3** below:

- Outcome 1:** To retain, maintain and restore where possible the natural functions of the watercourse including bed and bank stability to protect local water quality.
- Outcome 2:** Where the natural functions of a stream are proposed to be retained and restored, a continuous, viable CRZ which emulates the native vegetation communities in the area is to be provided to facilitate a stable watercourse.
- Outcome 3:** Where it is not possible to retain the natural functions of a stream, an engineered solution to the watercourse will be considered subject to the proposed development satisfactorily demonstrating minimal impacts on downstream riparian protection areas.

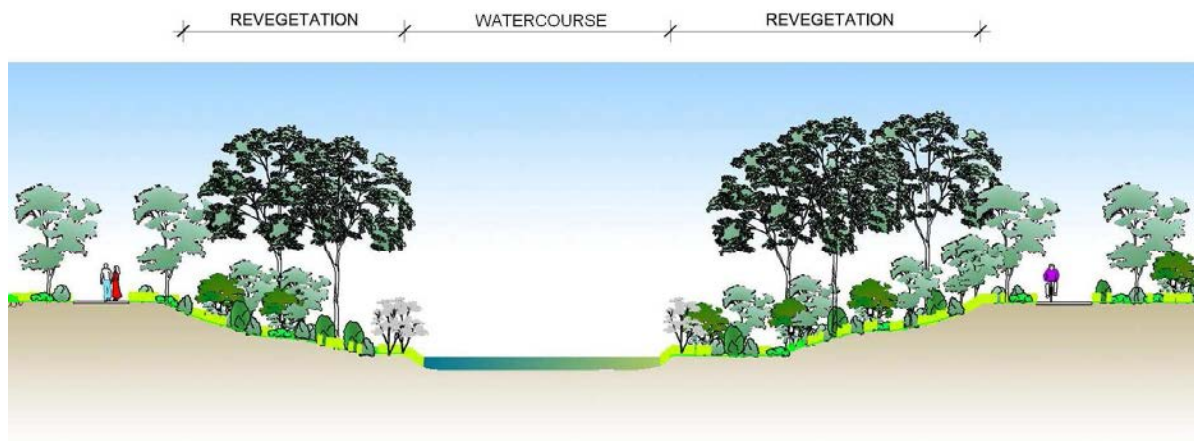


Figure 3: Illustration of a Category 3 watercourse that achieves the outcomes of this Strategy

Source: GHD

3.0 Controls for Preferred Development

- (1) This section applies to development on land containing a riparian protection area that is generally consistent with the Indicative Layout Plan in the relevant Precinct Schedule in this DCP. This section applies to the land adjacent to the riparian protection area only. Section 5.0 contains controls for development within the riparian protection area.
- (2) Development to which this section applies will, in most circumstances, consist of roads, drainage or open space.
- (3) For those areas where residential, commercial or industrial land immediately abuts a riparian protection area (as shown on the Indicative Layout Plan), development shall be located and designed to achieve a satisfactory interface with the riparian protection area. Consideration must be given to issues such as surveillance of the riparian protection area, built form and design, landscaping, activation of interfaces, where appropriate, and protection from bushfire threat.
- (4) Council may consider additional areas of residential, commercial or industrial land immediately abutting a riparian protection area as being generally consistent with the Indicative Layout Plan (and therefore being preferred development) where the development is designed to achieve a satisfactory interface with the riparian protection area. The considerations in sub-clause (3) above will apply.
- (5) Where a proposed development is not generally consistent with the Indicative Layout Plan, Section 4.0 shall apply. Minor variations from the Indicative Layout Plan may be considered to be generally consistent with the Indicative Layout Plan (refer to sections 1.4 and 2.1 of Part A of this DCP).

Note: The relevant Precinct Plans may include provisions enabling development that is permitted to be carried out in an adjoining zone to be carried out in land that is identified as a riparian zone (refer to clause 5.3 Development near zone boundaries in the relevant Precinct amendment to SEPP (Sydney Region Growth Centres) 2006. This provision exists to enable minor zone boundary anomalies to be corrected when subdivision and/or development occurs. In the case of development that would encroach into a riparian protection area, such development would only be acceptable where the outcomes for the relevant riparian zone in Section 2 above are still achieved.

Note: Where a Plan of Management (pursuant to Division 2 of Part 2 of Chapter 6 of the Local Government Act) is prepared for open space adjacent to a riparian protection area, the Council shall ensure that the Plan of Management has regard to and complements the riparian objectives of the adjoining land. For all other land adjoining riparian protection areas (including road verges), consideration should be given to a landscape strategy that will not detrimentally affect the riparian protection area.

4.0 Controls for Alternative Development

- (1) This section applies to development on land containing a riparian protection area that is not consistent with the Indicative Layout Plan in the relevant Precinct Schedule to this DCP. This section applies to the land adjacent to the riparian protection area only. Section 5.0 contains controls for development within the riparian protection area.
- (2) Development to which this section applies must be designed in a manner that ensures the orderly and coordinated development of the land and to achieve a sustainable outcome for the riparian protection area.
- (3) To reduce fragmentation, new lots in the Riparian Protection Area must include the full width of the riparian protection area within the Precinct. Where the full width of the riparian protection area extends outside of the precinct, the centerline of the watercourse shall form the boundary of the new lots. Fencing will not be permitted on this boundary. See clause (13) in Section 5.0 for more controls relating to fencing in riparian protection areas.
- (4) Residential development is restricted to single detached dwellings on lots with a minimum area of 1000 m² and minimum frontage (width) of 20 metres.
- (5) Dwellings are to be located wholly outside the riparian protection area as shown in **Figure 4** below.
- (6) Non-residential development, including all structures and open space areas proposed on land zoned RE2 are to be principally located outside of the riparian protection area. See clause (3) in Section 5.0 for more controls relating to land uses within the vegetated buffer of the riparian protection area.

- (7) Where the full width of the riparian corridor is contained within the precinct, a perimeter road including pedestrian and cycle paths shall be provided on the opposite side of the riparian protection area to the developable area of the lot. Where the full width of the riparian protection area extends outside of the precinct, local open space shall be located at intervals of no less than 600m along the riparian corridor to provide opportunities for public access to land adjacent to the riparian protection area. Pedestrian and cycle paths shall be located within these local open space areas and shall connect the local open spaces to each other.
- (8) Buildings in the developable area of the land containing a riparian protection area must either be set back the required distance from the riparian protection area or be designed and constructed in accordance with the Planning for Bushfire Protection guidelines. See clause (4) in Section 5.0 for more controls relating to asset protection zones within the vegetated buffer of the riparian protection area.
- (9) Fencing between developable area and riparian protection area is permitted, subject to the fencing being designed to prevent pet or weed invasion into the riparian protection area. Signage shall be placed on the fencing to discourage access into the riparian protection area by people for recreational purposes or other purposes not associated with the maintenance of the riparian protection area.

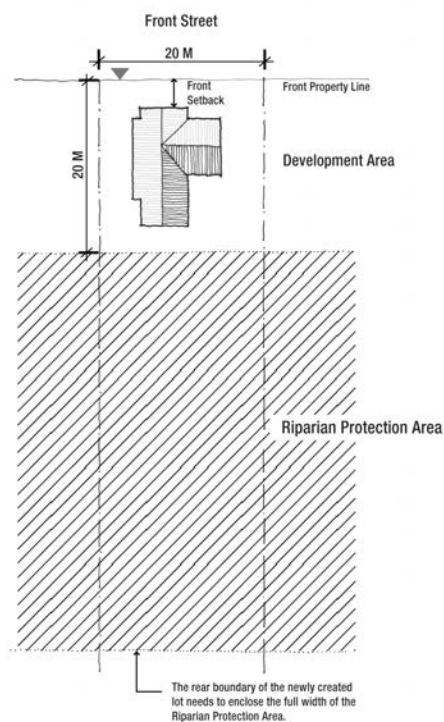


Figure 4: Location of Dwellings Adjacent to Riparian Protection Areas

5.0 Controls for the Riparian Protection Area

- (1) Development on land to which this section applies must achieve the outcomes identified in Section 2.0 and comply with the requirements of this Section.
- (2) The CRZ and the VB are to remain, or become vegetated, with local native vegetation (trees, shrubs and groundcover species). Non-local native vegetation may be considered by Council if it is demonstrated that the proposed planting scheme will not compromise the achievement of the outcomes identified in Section 4.0.
- (3) Passive recreation use, or open space uses (eg walking and cycle paths, seating, interpretive signage) cannot exceed 40% of the area of the VB and must be designed to ensure no reduction in the function of the CRZ.

The maximum 40% area should generally be located along the outer edge of the VB, however where landform or design dictates, the 40% area may meander through the VB. Where the 40% area meanders towards the CRZ it should generally come no closer than 4m to the outer edge of the CRZ, unless the applicant can demonstrate that the outcomes for the riparian protection area will be achieved. Consideration should be given to the location of the watercourse within the CRZ when determining the proximity of the 40% area to the CRZ. The 40% area shall be applied on an individual DA basis and shall not be accumulated across DAs. Consideration should be given to aligning the location of the 40% area with the design of the VB on adjoining land where already developed or where there are approved plans.

- (4) An Asset Protection Zone (APZ), or any part of an APZ, must not be located within the CRZ. An APZ will only be permitted within the VB where it can be demonstrated that it achieves the functions of the VB, does not result in an increased maintenance burden and where the planting scheme is compatible for both riparian functions and minimising bushfire risk. Consideration may be given to a planting scheme in a VB that has a reduced fire load in certain locations where sensitive land uses, such as schools, retirement villages, etc, are adjacent to the riparian protection area, subject to the planting scheme and ongoing vegetation management measures continuing to achieve the functions of the VB and maintaining a reduced fuel load.
- (5) Constructed wetlands are not permitted within the CRZ. Constructed detention basins will only be permitted within the CRZ where it can be demonstrated that it achieves the functions of the CRZ, are vegetated dry basins only and designed in compliance with the relevant guidelines.
- (6) Where works or development are proposed within a riparian protection area, a Vegetation Management Plan (VMP) that outlines the criteria for the establishment and management of a riparian protection area and will be required to be prepared and submitted to the Council for assessment and approval prior to the issuing of a construction certificate. The VMP shall be undertaken in accordance with the relevant guidelines.
- (7) A Works Plan (WP) is to be approved for any development that requires works in a riparian protection area prior to the commencement of works. The WP shall be undertaken in accordance with the relevant guidelines.
- (8) The design and construction of watercourse crossings and ancillary works, such as roads, should consider the potential impacts of the crossing structure on the riparian protection area. In order to minimise the effects of structures on the hydrologic, hydraulic and geomorphic functions of a watercourse, crossings should be designed and constructed in order to maintain the integrity of the existing channel as well as being sympathetic with the ecological values of the watercourse and its riparian protection area. Bed level crossings or bridges which fully span the watercourse channel provide the best opportunities for maintaining natural channel functions. However, alternative structures such as box culverts which can achieve the riparian functions will also be considered.
- (9) The design and construction of stormwater outlets should aim to be 'natural', yet provide a stable transition from a constructed drainage system to a natural flow regime. The design and construction footprint and extent of disturbances within the riparian protection area should be minimised while still achieving the intended discharge function.
- (10) The design and construction of works and activities within a watercourse should aim to be as 'natural' as possible. A watercourse 'rehabilitation' design philosophy rather than a 'construction' philosophy should be applied. The design and construction footprint, and the extent of disturbances within the riparian protection area should be minimised while achieving the desired function and outcome. In order to minimise the impacts of in-stream works on the hydrologic, hydraulic and geomorphic functions on a watercourse, all works and activities should be designed and constructed to maintain the integrity of the existing channel, as well as being sympathetic with the ecological values of the watercourse and its riparian protection area.
- (11) When considering the placement of utilities in or across watercourses the design and construction footprint and the extent of disturbances proposed in the watercourse and riparian protection area should be minimised.

- (12) Any path (including cycleways and accessways) design and construction must be in accordance with the relevant guidelines. In particular:
- Paths should be located beyond the CRZ (except for direct crossings).
 - Paths should be located so as to avoid, or minimise, disturbance of any *Endangered Ecological Community* or any threatened species.
 - Paths that intrude into an existing vegetated area of a CRZ for a crossing should, where possible, be elevated with a minimum underside clearance of 300mm and with a natural ground surface beneath, and designed to pass light and moisture sufficiently to allow the growth of groundcover vegetation beneath the structure. In areas affected by flooding up to the 1 in 100 year flood extent the elevation needs to also meet any flooding requirements.
 - Paths and related structures, that traverse watercourses or riparian protection areas should not adversely affect watercourse and floodplain flows, exacerbate flooding or prevent adequate rainfall and daylight reaching the watercourse and riparian vegetation (e.g. bridges or view platforms that result in extensive periods of shadow).
 - Access to watercourse/foreshore edges may be provided occasionally by branch paths. Access and viewing points must be designed so they do not adversely affect any of the bio-physical functions of the CRZ.
- (13) Fencing within the riparian protection area is to be minimised. Where fencing is required it is to be designed to allow terrestrial and aquatic fauna to pass. Open post and rail style fencing is preferred.

Note: A Controlled Activity Approval is required for all works within the riparian protection area, unless a precinct-wide exemption is granted through the approval of a Waterfront Land Strategy for the precinct.

Note: Where a Plan of Management (pursuant to Division 2 of Part 2 of Chapter 6 of the Local Government Act) is prepared for open space within a riparian protection area, the Council shall ensure that the Plan of Management has regard to and complements the riparian objectives of the adjoining land.

6.0 Maintenance, Monitoring and Completion

- (1) A maintenance period will commence from the date of practical completion of the works.
- (2) Applicants must undertake a program of monitoring and reporting during the maintenance period that demonstrates how the development on land to which this strategy applies is achieving the requirements of any development consent and the outcomes and requirements of this strategy. Copies of monitoring reports shall be provided to the Principal Certifying Authority (PCA) at least once a year. If the PCA is not the Council, the PCA will make available any such reports to Council and DWE.
- (3) The PCA will undertake inspections of the waterfront land under maintenance at least once a year and will advise the applicant in writing within 28 days of the date of the inspection whether the outcomes and requirements are or are not being achieved.
- (4) The maintenance period will end on the date at which the PCA is satisfied that the outcomes stated in Part 4 of this strategy have been achieved, or 5 years from the commencement of the maintenance period, whichever comes first. The maintenance period may extend beyond the 5 year period only where the PCA has informed the applicant that the outcomes and requirements are not being achieved in accordance with (3) above.
- (5) For the purposes of this section, the PCA will be satisfied that the environmental outcomes have been met where the works have been undertaken and maintained in accordance with the Vegetation Management Plan.
- (6) At the end of the maintenance period the applicant must provide a final written report to the PCA which demonstrates completion of the development and maintenance period in accordance with the requirements of their development consent and this strategy.
- (7) Applicants must provide the PCA with a Certification of Maintenance Practical Completion to current recommended practices and consistent with this strategy. The certificate must be prepared by persons suitably experienced and qualified in such certification for all stages.

Appendix C

Salinity Management Guidelines

Contents

1	Introduction	1
1.1	Background.....	1
1.1.1	Proposed Development.....	1
1.1.2	Salinity Risk Maps.....	1
1.1.3	Geology.....	2
1.2	The Causes of Urban Salinity	2
1.3	Effects of Salinity in an Urban Environment.....	3
2	Salinity Hazard Assessment	5
2.1	Salinity Risk Map	5
3	Salinity Management Guidelines	6
3.1	Introduction	6
3.2	General Measures	6
3.3	Groundwater Management	8
3.4	High Risk Areas	9
3.5	Site Design	9
3.6	Residential and Other Buildings.....	11
3.7	Measures for Specific Assets.....	13
4	References.....	16

The Department would like to acknowledge Douglas Partners Pty Ltd and Sydney Environmental and Soil Laboratory, Blacktown City Council and Landcom for sections of this document taken from the Salinity Management Report for Second Ponds Creek (1998).

1 Introduction

This Salinity Management Plan contains background information, salinity risk mapping and management recommendations to control the effects of urban dryland salinity for proposed residential development within the Blacktown Growth Centre Precincts in the North West Growth Centre.

This Management Plan is based on findings of a SMEC study for the Alex Avenue Precinct and the approach taken in the Salinity Management Plan prepared for the adjacent Second Ponds Creek release area. This plan includes:

- general information on the causes and effects of urban salinity;
- findings and conclusions from SMEC's Land Capability and Contamination Study for Alex Avenue (2007).
- Recommendations, measures and general guidelines for site development and construction, covering water management, site development and buildings.

The aim of this Plan is to present practical recommendations about how to manage and, where possible, mitigate the existing saline conditions on site, so as to:

- limit any impact of salinity on roads, buildings, vegetation, underground services, water courses and storages; And
- limit the impacts of development in the precinct on the processes of salinity and the impacts of salinity on the environment.

1.1 Background

1.1.1 Proposed Development

Planning for North West Growth Centre is expected to provide for up to 71,000 new homes, developing progressively over the next 25 to 30 years, together with essential facilities and open space. The Precincts will be supported by Town Centres and smaller neighbourhood centres will provide local retail and community services. Several infrastructure upgrades are planned including new road crossings and the Richmond rail line upgrade which will improve regional links to surrounding areas.

1.1.2 Salinity Risk Maps

A review of the Department of Natural Resources Map of Salinity Potential in Western Sydney (2002) indicated that the site is located in an area of Moderate Salinity potential. The majority of the area was given a Moderate Salinity Classification. Creek lines were classified as having High Salinity Potential.

This is taken into account in the Salinity Hazard Assessment for individual Precincts and discussed in **Section 2** of this Management Plan.

1.1.3 Geology

The subsurface conditions encountered in the boreholes comprise topsoil, fill, silty clays and weathered shale. Details are as follows:

FILL/TOPSOIL: Present in all boreholes to depths of 0.2 to 3.0 metres.

SILTY CLAYS: Present in all boreholes to depths of 1.0 and 6.5 metres. The strengths vary between firm to stiff and very stiff.

WEATHERED SHALE: Present in all boreholes to the depth of auger refusal of between 1.4 to 8.6 metres.

1.2 The Causes of Urban Salinity

Soils containing salts occur naturally in western Sydney due to underlying geological formations. In undisturbed areas the salts are generally stored below the plant root zone where they have minimal impact. The development of Western Sydney has disturbed the soil profile, altered hydrological processes and, in some areas, led to concentrations of salts on soil surfaces, in building materials, and waterways. Some Precincts are located within an area that is predisposed to developing salinity issues.

Although saline soils and groundwater are a natural part of the Australian landscape, land management practices are now increasingly recognised as significant contributors to the expansion of salt affected areas. In particular, urban salinity is increasingly occurring around populated areas due to clearing and site development.

Salinity occurs when salts found naturally in the soil or groundwater are mobilised. Capillary rise and evaporation concentrate the salt on, and close to, the ground surface. Urban salinity becomes a problem when the natural hydrogeological balance is disturbed by human interaction. This may occur in urban areas due to changes to the water balance, increases in the volume of water into a natural system altering subsurface groundwater flows and levels, exposure of saline soils, and removal of deep rooted vegetation reducing rates of evapotranspiration. Even small changes in sensitive areas can result in the balance being irrecoverably altered and salinisation occurring.

Some building methods may also contribute to the process of urban salinity. In particular, compacted surfaces and filling can restrict groundwater flow and result in a concentration of salt in one area. Cutting into slopes for building can result in saline soils or ground water being exposed and intercepted. The use of imported fill material may be an additional source of salt or the filling may be less permeable, preventing good drainage. These issues may also result in problems with the design and construction of roads. In particular, the building of embankments and the compaction of layers can interfere with groundwater flow. Also the inappropriate positioning, grading and construction of drains can result in surface and groundwater mixing and stagnant pools forming that evaporate leaving salt encrusted ground.

Salinity issues may also arise as the result of cumulative impacts. A common example is from the gradual removal of vegetation across a site, which can contribute to a change in the hydrological regime from reduced evapotranspiration, a consequential rise in the ground water table, and subsequent salinity problems. Where vegetation is gradually removed the water table rises as a result of a smaller volume of water being used by the plants, allowing salts to be mobilised. Of more relevance in an urban landscape is the potential for an increase in

water inputs into the hydrological regime. These increased inputs commonly come from watering of gardens and playing fields, infiltration of storm water and sewage and other service leakage.

These inputs may seem minor on their own but their cumulative effects over time produce an elevated groundwater table and eventually high levels of salinity.

Figure 1 (from "Good Housekeeping to Manage Urban Salinity" by the Department of Infrastructure Planning and Natural Resources) illustrates the urban salinity process and identifies situations where salinity problems can develop due to inappropriate planning and design.

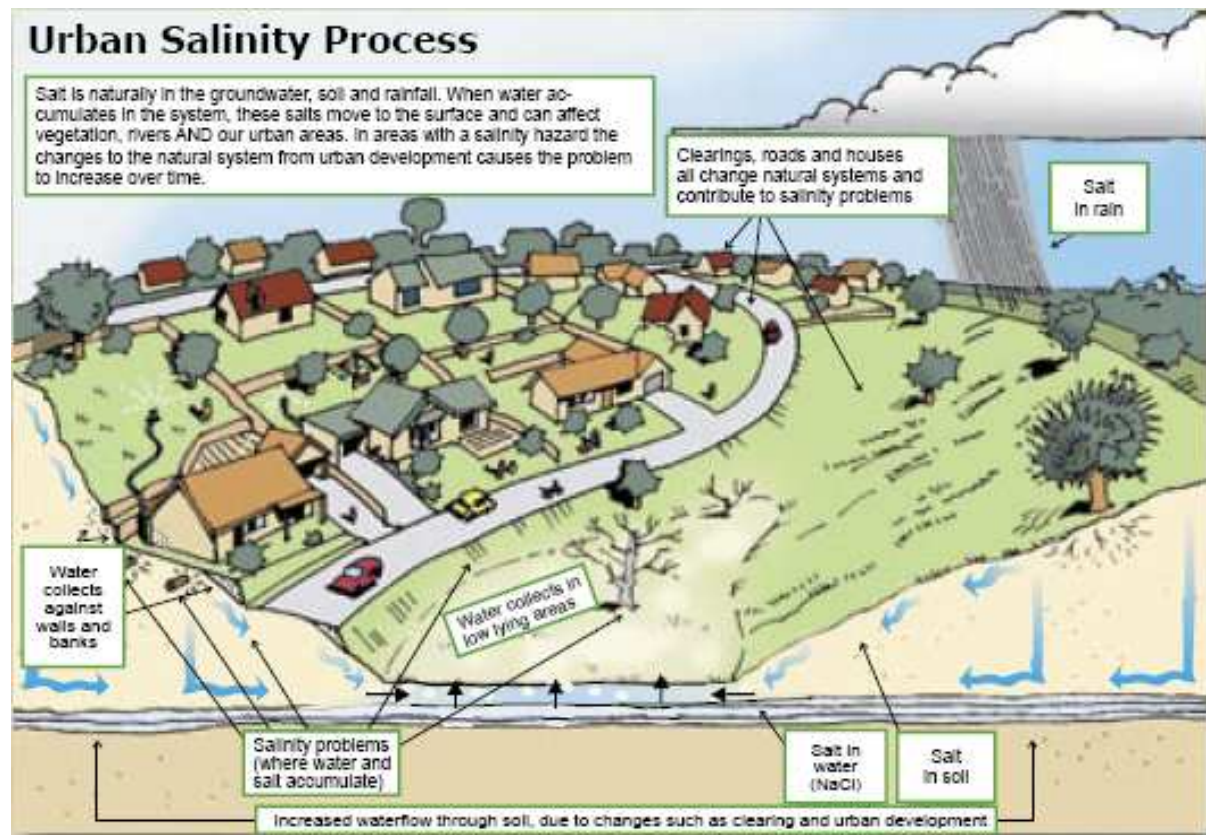


Figure 1: The Urban Salinity Process (DIPNR)

1.3 Effects of Salinity in an Urban Environment

Excess salinity in an urban environment can result in significant problems. It can manifest itself in a number of ways.

The effects of salinity can be observed in damage to building materials, infrastructure including pipework and roads and in death or poor health of vegetation. The effect of urban salinity is the result of both physical and chemical actions of the salt on concrete, bricks and metals. Salt moves into the pores of concrete and bricks and becomes concentrated when the water evaporates and can result in breakdown of materials and corrosion. Evidence of this may include crumbling, eroding or powdering of mortar or bricks, flaking of brick facing and cracking or corrosion of bricks.

High levels of salinity can result in damage to and even death of plants. Signs that vegetation is under stress from salinity include the discolouration and wilting of leaves and the death of less salt tolerant plant species. It may also be hard to establish lawns in areas that are subject to high salinity.

High levels of salinity may also affect soil structure, chemistry and productivity. This can reduce plant growth which in turn alters soil structure, chemistry and nutrient levels. As soils become more saline, plants and micro-organisms decline and soil structure deteriorates.

Water logging may also occur following a decline in nutrient levels. Over time, the alteration of soil structure can lead to the formation of gullies and other forms of soil erosion.

Salinity may also result in the corrosion of steel pipes, structural steel and reinforcement and can damage underground service pipes resulting in significant financial costs.

While limited groundwater was observed during the site investigations, these conditions may potentially change in periods of heavy downpour. Damage to pipes has the potential to exacerbate the problem by further recharging the aquifer.

Salinity can also have a significant effect on buildings and associated infrastructure where cutting and filling exposes buildings/structures to elevated salinity levels. This may include:

- degradation of bricks, concrete, road base and kerbing materials leading to expansion, cracking, strength and mass loss;
- corrosion of reinforcement and loss of structural integrity;
- rising/falling damp; and
- non-structural impacts, such as efflorescence on bricks.

These impacts can be prevented, minimised, or mitigated by the implementation of appropriate management measures as outlined in the Salinity Management Plan in **Section 3**.

2 Salinity Hazard Assessment

The SMEC Land Capability and Contamination Study for Alex Avenue provides the results for soil samples analysed in the Alex Avenue Precinct. These results are based on limited sampling and the findings summarised in this section are indicative only of salinity conditions in the precinct. Further detailed salinity assessment investigation is required across much of the precinct to confirm salinity conditions and to identify appropriate management measures.

Surface soils across the site area were classified as non to slightly saline. Salinity levels generally increased with depth, with subsurface salinity levels still predominantly non to slightly saline, although a number of moderately saline locations exist from 1.0 metres below ground level. One location (AA4-1) was classified as very saline.

2.1 Salinity Risk Map

A **Salinity Risk Map** is shown in the relevant Precinct's Schedule and is divided into two general areas:

- Level 1 Areas: The salinity of the area is considered typical of western Sydney. Precautionary measures may be considered.
- Level 2 Areas: The salinity risk of the area is considered typical for creek line and floodplain areas in Western Sydney. This area has a moderate risk of being affected by salinity and precautionary measures should be taken.

In addition, areas of mild to moderately aggressive soils are indicated on the map. Precautionary measures must be taken and these are discussed in **Section 3.4**.

Note: Studies are by no means detailed or comprehensive. Maps are an indication only and site specific studies at the DA stage are required to determine salinity conditions and appropriate management measures.

3 Salinity Management Guidelines

3.1 Introduction

The Salinity Management Guidelines contain:

- general measures to consider across the site;
- measures applying to high risk areas;
- appropriate management strategies for the management of groundwater, site design and urban development;
- measures to be taken at various stages of development; and
- strategies and measures for specific works.

3.2 General Measures

The following general measures apply to all development within the Blacktown Growth Centre Precincts. Where there is an inconsistency, the specific controls in the following sections take precedence. All development should be in line with the Western Sydney Salinity Code of Practice 2004.

Note that the practices for managing salinity will differ depending on the type of land use that is proposed on the site. For example, practices for land zoned Open Space and Recreation will require different approaches than practices within the Local Centre and residential zones.

1. Filling areas are to be graded, revegetated and adequate surface drainage infrastructure installed as soon as practical to avoid excessive infiltration, minimise salt leaching and soil erosion.
2. Drainage infrastructure in vulnerable areas is to be installed as soon as practical to avoid excessive water infiltration, ponding of water on-site and salt leaching.
3. Watering or irrigation practices are to be managed to avoid excessive infiltration and water logging.
4. Pipes used for stormwater drainage should be sealed to minimise the risk of leakage.
5. Concrete of suitable strength and reinforcement cover is to be used for drainage structures and wherever contact with water and increased soil moisture is expected.
6. Exposure and disturbance of subsoil material must be reduced by minimising cut and fill.
7. Natural drainage patterns are to be maintained as far as practical.
8. Imported soil should be tested for salinity to avoid importing saline soils to the site.
9. Native plant species with minimal water requirements, tolerant to EC levels of 4000 μ S/cm to be selected for revegetation or plantings.

10. Drainage, sewerage and water infrastructure is to be regularly maintained and repaired to prevent leakages.
11. Groundwater extraction does not occur on the site.
12. Design and construction to be carried out in accordance with relevant Australian Standards, Building Codes and current 'Industry Best Practice' in regard to urban salinity.
13. Any imported fill must have its salinity levels tested and must not exceed a level of 2 deci-siemens per centimetre. Soils exceeding this level must not be imported onto the site.
14. Reversing or mixing the soil profile when undertaking cut and fill activities must be avoided. Soils must be replaced in their original order.
15. Native vegetation must be retained or restored on site where possible.
16. In seepage and discharge areas or areas with a high potential sulphate resistant building materials must be used.
17. In areas with sodic or saline B Horizons disturbance to the soil should be reduced and the exposure of building materials to the corrosive elements in these soils minimised. Appropriate construction techniques such as suspended slab or piling to encourage ventilation and prevent soil moisture from being forced up the walls of the structure should be used.
18. In case of all building materials the manufacturer's advice must be complied with regarding durability and correct use.
19. Sulphate resistant materials should be used for underground surfaces and roads or pavings.
20. Roads must have well designed sub surface drainage.
21. Roads and shoulder areas must be designed to drain surface water such that there is no excessive concentration of runoff or ponding which may result in water logging or additional recharge or groundwater. Road shoulders must also be sealed.
22. Surface drains should be provided along the top of batter slopes or greater than 2.5 metres height to reduce the potential for concentrated flows of water flows slopes which may cause scour. Well graded subsoil should be provided at the base of all slopes where there are road pavements below the slope to reduce the risk of water logging.
23. The addition of salts in the materials, fill or water used during construction must be limited.
24. A waterproof seal must be used on roads to minimise evaporation and the concentration of salt.
25. Road alignments should not intercept known salt affected or water logged areas.
26. Roads should not be designed in a manner that impedes the sub-soil flow or creates hydraulic pressure causing groundwater discharge.

27. Natural drainage patterns and infiltration rates must be maintained as far as practicable.
28. Drainage should not be designed to discharge to groundwater or salinity affected areas that is likely to cause increased water logging adjacent to the road or that concentrated surface runoff.
29. Detention basins and other measures must not leak and cause localised damp soil conditions or recharge to the groundwater.
30. Stormwater detention structures and other measures must be constructed with impermeable liners and avoid the infiltration of water into the surrounding landscape or groundwater above that which would naturally occur. If using a clay lining the possibility that on site clays may be saline should be investigated before they are used for this purpose. In there situations an impermeable geotech fabric may be preferable.
31. Materials and waters used in the construction of roads and fill embankments should be selected to contain minimal or no salt. Where it is difficult a capping layer of either topsoil or sandy materials should be placed to reduce capillary rise, act as a drainage layer and also reduce the potential for dispersive behaviour in the sodic soils.
32. Batter slopes should be compacted with control of the moisture content to optimum moisture content plus 2 per cent or otherwise over-filled, compacted and then trimmed back to the final alignment to minimise infiltration through the exposed filling betters and the potential resulting flushing of salts from the filling. If the later is to be carried out, the outer zone (3 metres) of the fill should be placed at optimum moisture content plus 2 per cent.

3.3 Groundwater Management

The key to controlling salinity is to minimise the concentration of salinity by evaporative processes. Care should also be taken to avoid raising the groundwater tables, as this is likely to result in an increased surface expression of salinity and may lead to water logging and groundwater infiltration into underground infrastructure.

Some general measures to reduce the volume of discharge into the aquifer and reduce risk of rising groundwater tables are:

1. Avoid over-watering of lawns, parks and other landscaped areas.
2. Minimise the number of shallow open pools that can readily dry out;
3. Plant native vegetation that utilises rainfall efficiently and minimise lawn areas on land not required for recreational uses. Landscape with native trees, shrubs and grasses that require little irrigation.
4. Appropriate design, construction and maintenance of water supply, sewage and stormwater pipes to avoid leaking.
5. Ensure an appropriate ratio of hard (impermeable) and permeable surfaces to avoid rainwater runoff infiltrating the ground in large volumes at any given location.

6. Direct runoff from paved areas into lines stormwater drains rather than along grassed channels as necessary.
7. Line or locate any ponds higher in the landscape to avoid recharge where proximity to the water table is likely to create groundwater mounding.
8. Avoid or minimise the use of on site stormwater detention.
9. Ensure any trunk stormwater detention infrastructure is appropriately designed and constructed.
10. Ensure adequate surface drainage for all development, including proper geotechnical assessments of planned drainage basins, artificial wetlands and recreational waterbodies.

3.4 High Risk Areas

In areas identified as having a high salinity risk on either the Salinity Hazard Map or site specific studies or for development in close proximity to creek lines the following measures must be taken:

1. Detailed sampling and testing of soils and groundwater is required to confirm current salinity conditions and identify any risks that may be posed by development, as part of the design of subdivisions. A salinity assessment report is to be submitted with subdivision DA's in high risk areas.
2. Reduced development densities are to be considered to reduce pressure on groundwater in catchment areas.
3. unless site specific testing shows otherwise and/ or other management measures can be shown to achieve sufficient protection, floor slabs are to:
 - be elevated above ground level; and
 - have a minimum concrete strength of 32MPs.
4. existing riparian corridors are to be maintained and revegetated.
5. detailed salinity investigations are to be undertaken prior to development or the installation of infrastructure and the recommended management measures are to be implemented.

3.5 Site Design

Control methods for management of salinity during site development should start with adherence to careful stripping and separation of non-saline topsoil from slightly and moderately saline subsoils. Soils must be replaced in the original order where possible to avoid bringing salts to the surface.

The A and top of the B (i.e. B1) horizon are generally not saline and should be recovered and stockpiled separately. The lower B (i.e. B2) and C horizons are generally the more saline layers and where exposed need to be covered with say 100 - 200 mm of B1 then 100 - 200 mm of topsoil (A) for landscape finishes. Building platforms should be capped with 100 - 200 mm of B1 horizon non saline subsoil.

Precautionary measures in subdivision design to reduce the potential for salinity problems include:

1. avoiding water collecting in low lying areas, along shallow creeks, floodways, in ponds, depressions, or behind fill embankments or near trenches on the uphill sides of roads. This can lead to water logging of the soils, evaporative concentration of salts, and eventual breakdown in soil structure resulting in accelerated erosion;
2. roads and the shoulder areas should be designed to be well drained, particularly with regard to drainage of surface water. There should not be excessive concentrations of runoff or ponding that would lead to water logging of the pavement or additional recharge to the groundwater. Road shoulders should be included in the sealing program;
3. surface drains should generally be provided along the top of batter slopes of greater than 2.5 m height to reduce the potential for concentrated flows of water down slopes possibly causing scour. Well graded subsoil drainage should be provided at the base of all slopes where there are road pavements below the slope to reduce the risk of water logging;
4. where possible materials and waters used in the construction of roads and fill embankments should be selected to contain minimal or no salt. This may be difficult for cuts and fills in lower areas where saline soils are exposed in cut or excavated then placed as filling. Under these circumstances where salinisation could be a problem, a capping layer of either topsoil or sandy materials should be placed to reduce capillary rise, act as a drainage layer and also reduce the potential for dispersive behaviour in the sodic soils;
5. to minimise infiltration through the exposed filling batters and the potential resulting flushing of salts from the filling, it is suggested that the batter slopes be specifically compacted to the requirements as described above but with control of the moisture content to OMC + 2% or otherwise over-filled, compacted and then trimmed back to the final alignment. If the latter is to be carried out, the outer zone (say 3 m wide) of the filling should be placed at OMC + 2%;
6. gypsum should be mixed into filling containing sodic soils and cuts where sodic soils are exposed on slopes to improve soil structure and to minimise erosion potential;
7. consideration could be given to planning to use deeper infrastructure service lines, deeper than say 1.2 m, to promote subsurface drainage by incorporating slotted drainage pipes fitting into the stormwater pits in lower areas where pipe invert levels are within about 1 m of existing groundwater levels. This is probably likely to be more appropriate where good drainage can be planned as in certain situations poorly graded subsoil drainage and water collecting in pits may make things worse raising the water table and increasing the risk of salinisation;
8. salt tolerant grasses and trees should be considered close to the creek and in areas of moderate and greater salinity to reduce soil erosion and to stabilise the soils and creek banks as well as maintain the existing evapotranspiration and groundwater levels. Reference should be made to an experienced landscape planner or agronomist. Advice from landscape technologists is that a wide range of indigenous and native species are available that will tolerate the anticipated level of salinity.

3.6 Residential and Other Buildings

Figure 3 presents diagrammatically a selection of salinity management tips for domestic dwellings.

The extent of measures adopted during construction in particular the concrete and masonry requirements should depend on the particular level of salinity of aggressivity at the actual site. Based on measurements and observations to date, it is anticipated that extreme salinity protection measures, such as increased durability concrete, barrier membranes, pier and beam, etc will not be required over most of the building areas. Nevertheless, for the construction of buildings on moderately or more saline sites, the following controls are to be implemented:

1. Soil from building sites in areas suspected to be more than slightly saline ($EC_e > 4$ dS/m) should be sampled, tested and classified for soil salinity and aggressivity. This should preferably be carried out by a geotechnical consultant at the same time the site is classified for soil reactivity (shrink – swell behaviour as described in Australian Standard 2870 – 1996 Residential slabs and footings). The salinity classification would involve limited additional testing of soil or water samples for pH, electrical conductivity, total dissolved solids (TDS), sodicity, and possibly sulphates and chlorides.
2. On moderately or more saline sites, a thick layer of sand (say 100 mm minimum) followed by a membrane of thick plastic should be placed under the concrete slab to act as a moisture barrier and drainage layer to restrict capillary rise under the slab. Alternatively concrete grade of at least N25 and minimum 45 mm reinforcement cover should be adequate in moderately saline areas increasing to N32 and 50 mm cover respectively for very saline (EC_e from 8 to 16 dS/m) areas.
3. The need for higher than normal strength concrete and use of sulphate resistant cement should be considered in potentially highly saline ($EC_e > 16$ dS/m) or aggressive areas in order to reduce the risk reinforcement corrosion in concrete slabs. A minimum of 55 mm of concrete cover on slab reinforcement, proper compaction and curing concrete are also suggested to produce a dense low permeability concrete.
4. As an alternative to slab on ground construction, suspended slab or pier and beam construction should be considered, particularly on sloping sites as this will minimise exposure to potentially corrosive soils and reduce the potential cut and fill on site which could alter subsurface flows.
5. Other measures that can be considered to improve the durability of concrete in saline environments should be considered. These include reducing the water cement ratio (hence increasing strength), minimising cracks and joints in plumbing on or near the concrete, reducing turbulence of any water flowing over the concrete and using a quality assurance supplier.
6. It is essential that in all masonry buildings that a brick damp course be properly installed so that it cannot be bridged either internally or externally. This will prevent moisture moving into brick work and up the wall.
7. As there are various exposure classifications and durability ratings for the wide range of masonry available, reference should be made to the supplier in choosing suitable bricks of at least exposure quality. Water proofing agents can also be added to mortar to further restrict potential water movement.

8. In high salinity areas, bricks that are not susceptible to damage from salt water should be used. These are generally less permeable, do not contain salts during their construction and have good internal strength so that they can withstand any stress imposed on them by any salt encrustation.
9. As indicated on **Figure 3**, service connections and stormwater runoffs should be checked to avoid leaky pipes which may affect off site areas lower down the slope and increase groundwater recharge resulting in increases in groundwater levels.

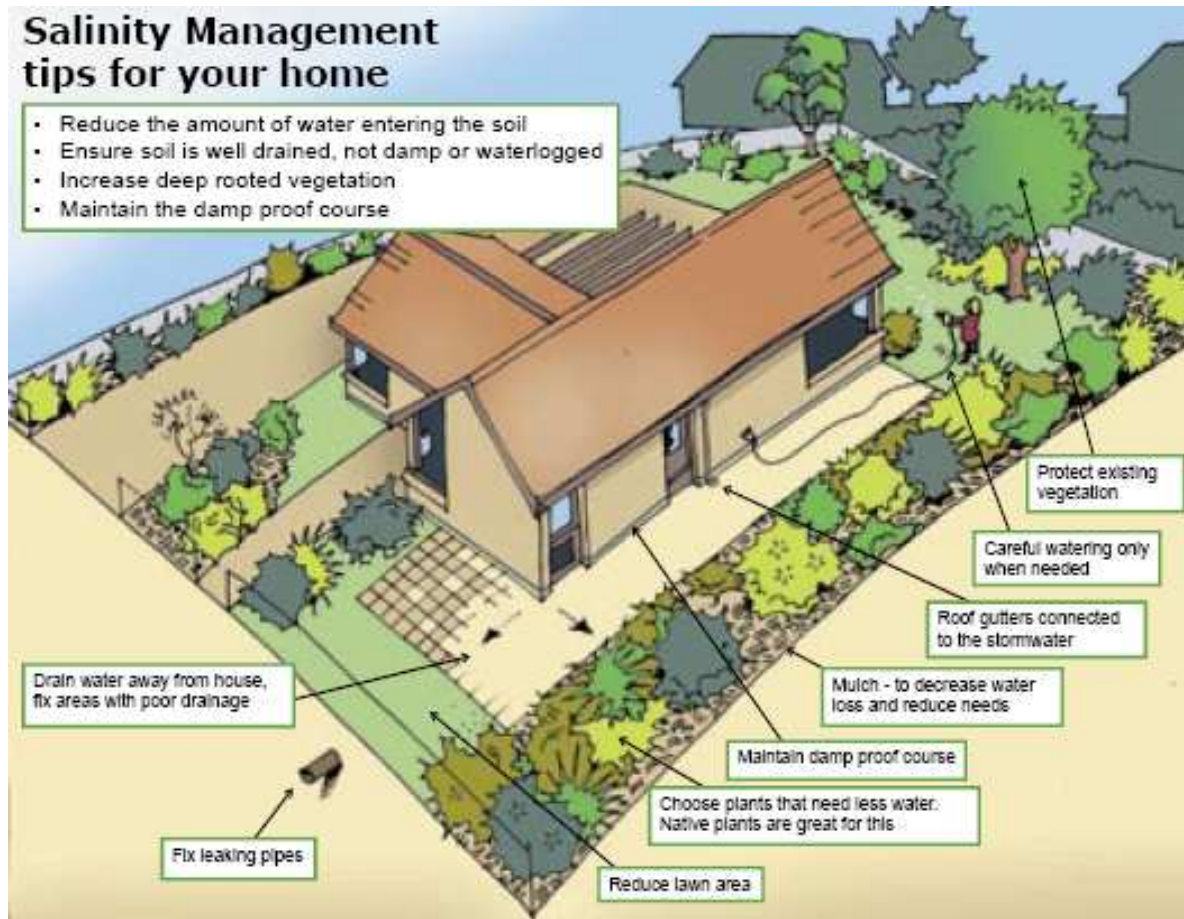


Figure 3: Salinity Management at Home (DIPNR)

3.7 Measures for Specific Assets

Table 1 summarises salinity management measures that are to be applied to the planning, design and construction of specific categories of assets in the Alex Avenue Precinct.

Table 1: Salinity management measures for specific assets

Asset	Stage	Measure
Infrastructure and Utilities (Road Pavement, Drainage, Pipes, Structures, Pits, Substations, Duct Crossings, Sewer and Water Pipes)	Precinct Planning	- Consider appropriate site selection to prevent structural degradation; and - Avoid low lying areas and areas near creek lines.
	DA	- Design and size drainage infrastructure to reduce the intensity of local and regional flooding. - Ensure appropriate embankment designs. - Design systems to avoid the interception of surface flow or groundwater recharge.
	DA/construction	- Avoid the use of materials such as clay and brass for piping. - Ensure sufficient clearance to groundwater. - Install appropriate subsoil drainage. - Use materials of appropriate strength and cover for reinforcement. - Avoid the disturbance of natural drainage patterns where possible. If this is not possible then realign drainage lines as close to natural patterns as possible.
	Post-development	Maintain and repair to minimise leakages.
Landscaping and Existing Vegetation	DA/Construction/ Post Development	- Retain and/or establish the use of native salt-tolerant species, especially if deep rooted to minimise irrigation requirements. - Line waterbodies to minimise groundwater discharge. - Avoid overwatering of lawns, gardens and parklands. - If possible, use 'smart' sprinkler systems or subsoil drip/capillary action systems and maintain them regularly. - Carry out site specific investigations into the potential impacts of recycled water use and implement the recommendations of these studies. - Ensure that existing riparian corridors are maintained.

Miscellaneous (Floor Slabs, Masonry Walls, Foundations, Carparks)	DA/Construction	▪ Ensure sufficient clearance to groundwater or install subsoil drainage. ▪ Avoid disturbance of the natural drainage pattern. ▪ Damp proof courses and vapour barriers are to be properly installed where applicable and maintained to ensure they are not breached by later additions. ▪ Use admixtures for waterproofing and corrosion prevention. ▪ On ground level, provide a sand/gravel layer of sufficient depth under the slab. ▪ Install appropriate membranes under slabs and ensure that they are extended to the outside face of the external edge beam up to the finished ground level. ▪ Use concrete of appropriate strength and cover for reinforcement. ▪ For floor slabs, ensure that concrete is of the appropriate strength and cover for reinforcement and are properly cured. The following requirements apply: ▪ minimum strength of 25MPs where the slab is at ground level ▪ cover must be at a reinforcement height of: ▪ 50mm from unprotected ground ▪ 30mm from a membrane in contact with the ground ▪ 50mm for strip footings and beams irrespective of the use of a damp proof membrane ▪ Ensure that damp proof course consists of adequate material and is correctly placed. ▪ Ensure that exposure class masonry units are used below any damp proof course, including for strip footings, and that appropriate mortar and mixing ratios are used. ▪ Select foundation type and material in according with Australian Standards with consideration of soil aggressivity. ▪ Allow for sufficient corrosion of steel or install the appropriate protective systems. ▪ Use permeable paving where practical.
---	-----------------	--

Earthworks (Excavations, Cut and Fill, Re-contouring and Stockpiling)	Construction	▪ Revegetate and provide surface drainage as quickly as practical ▪ Install adequate erosion controls such as silt fences during excavation and until site stabilisation. ▪ Avoid excavation intersecting the groundwater, where possible. ▪ Ensure imported fill is non/slightly saline. ▪ Place cut materials in the original in-situ order, or if this is not possible, bury the most saline soil underneath less saline soil. ▪ Monitor runoff from stockpiles and conduct the appropriate tests to determine whether gypsum should be added. ▪ Ensure that stockpiles have adequate controls in place for erosion, covering and stabilisation.
--	---------------------	---

4 References

Douglas Partners Pty Ltd and Sydney Environmental and Soil Laboratory. 1998. Salinity Management Report for Second Ponds Creek. Report to Blacktown City Council and Landcom.

DPNR. 2002. Salinity Potential in Western Sydney.

SMEC Testing services. SMEC Land Capability and Contamination Report. Report to the Growth Centres Commission. Alex Avenue, Schofields, 16407/3816B, August 2007.)

Western Sydney Regional Organisation of Councils (WSROC). 2003. Western Sydney Salinity Code of Practice

Appendix D

Prescribed Trees and Preferred Species

1 Prescribed Trees and Preferred Species

1. A prescribed tree is identified as:
 - having more than 4 metres in height and having a trunk diameter of more than 200 millimetres when measured at height of 1 metre from the ground.
 - a tree identified as one of the species listed in **Table 1**.
2. Consent is not required:
 - for clearing species listed in **Table 2** or any other species which have been declared as noxious plants under the *Noxious Weeds Act 1993*;
 - for the removal of torn limbs or dead wood, such as individual branches, but not including whole trees, or
 - for pruning of less than 10% of the canopy or root system up to once every growing season and only of branches less than 100 millimetres in diameter, or
 - for pruning of more than 10% but less than 25% of the canopy, where the work will be undertaken by a suitably qualified person and Council has been notified of the work, and up to once every growing season, or
 - when inserting root barriers, when this will result in less than 10% of the root system being removed and up to once every growing season,
3. Pruning of prescribed trees is only acceptable if:
 - all work complies with the Australian Pruning Standards AS 4373-1996, and
 - any pruning will not result in harm to the health of the tree.

Table 1: Preferred Species

Scientific Name	Common Name	Mature Height	Mature Spread	Native
Prescribed Trees				
Acer buergeranum	Trident Maple	6m	3m	X
Agonis flexuosa	Willow Myrtle	14m	6m	√
Angophora floribunda	Rough Barked Apple	20m	6m	√
Banksia integrifolia	Coastal Banksia	20m	6m	√
Casuarina glauca	Swamp She-Oak	15m	5m	√
Corymbia maculata	Spotted Gum	30m	8m	√
Eucalyptus amplifolia	Cabbage Gum	30m	5m	√
Eucalyptus crebra	Narrow Leafed Red Ironbark	30m	8m	√
Eucalyptus microcorys	Tallow-wood	40m	8m	√
Eucalyptus moluccana	Grey Box	30m	8m	√
Eucalyptus tereticornis	Forest Red Gum	40m	4m	√
Fraxinus 'Raywoodii'	Claret Ash	20m	8m	X
Jacaranda mimosifolia	Jacaranda	20m	8m	X
Melaleuca linarifolia	Snow In Summer	10m	4m	√

Scientific Name	Common Name	Mature Height	Mature Spread	Native
Melaleuca nodosa	Ball Honeymyrtle	4m	2.5m	√
Melaleuca stypheloides	Prickly Paperbark	10m	3m	√
Melia azedarach	White Cedar	15m	5m	X
Sapium sebiferum	Chinese Tallow Tree	7m	3m	X
Shrubs				
Agapanthus orientalis	Agapanthus	0.75m	0.4m	X
Acemena smithii 'Hedge Master'	Lilly Pilly	2m	1m	√
Anigozanthos flavidus	Tall Kangaroo Paw	2m	1m	√
Banksia spinulosa	Hairpin Banksia	3m	2m	√
Brunoniella australis	Blue Trumpet	0.3m	0.4m	√
Bursaria spinosa	Tasmanian Christmas Bush	10m	6m	√
Callistemon linariifolius	Narrow-leaved Bottlebrush	3.5m	2m	√
Crinum pedunculatum	Crinum Lily	2.5m	2.5m	√
Dietes bicolor	Fortnight Lily	1.0m	0.75m	X
Doryanthes excelsa	Gynea Lily	3m	2m	√
Dodenea viscosa	Giant Hop Bush	3m	3m	√
Gardenia augusta	Common Gardenia	1.5m	1.0m	X
Grevillea poorinda "Royal Mantle"	Grevillea	1.5m	1.5m	√
Hakea sericea	Silky Hakea	6m	3m	√
Kunzea ambigua	Tick Bush	2.5m	2m	√
Micromyrtus ciliata	Fringed Heath Myrtle	0.15m	1.5m	√
Phormium tenax "Purpureum"	NZ Purple Flax	1.0m	1.0m	X
Thryptomene saxicola	Rock Thryptomene	1m	0.5m	√
Westringia fruticosa	Coastal Rosemary	2.0m	1.5m	√
Ground Cover				
Aspidistra elatior	Cast Iron Plant	1m	0.8m	X
Brachycome multifida	Cut Leaf Daisy	0.3m	1m	√
Dichondra repens	Kidney Weed	0.1m	0.3m	√
Grevillea 'Bronze Rambler'	Grevillea cultivar	0.3m	0.4m	√
Hardenbergia violacea	Purple Coral Pea	climbs to 1.5m	1.5m	√
Trachelospermum jasminoides	Star Jasmine	climbs to 6m	1.5m	X
Viola hederacea	Native violet	0.2m	0.5m	√

Scientific Name	Common Name	Mature Height	Mature Spread	Native
Wahlenbergia gracilis	Australian Bluebell	0.3m	0.25m	√
Grasses				
Aristida ramosa	Wire Grass	0.5m	0.5m	√
Danthonia tenuoir	Wallaby Grass	0.3m	0.3m	√
Imperta cylindrica	Cogon Grass	0.5m	0.5m	√
Liriope muscari	Turf Lily	0.6m	0.5m	X
Microlaena stipoides var. stipoides	Microlaena	0.5m	0.3m	√
Ophiopogon japonicus	Mondo Grass	0.35m	0.3m	X
Pennisetum alopecuroides	Fountain Grass	1m	1m	√
Poa labillardieri	Poa	0.4m	0.25m	√
Themeda australis	Kangaroo Grass	1m	0.3m	√
Sedges/Rushes				
Carex appressa	Tall Sedge	1m	0.5m	√
Dianella caerulea	Flax Lily	0.5m	0.3m	√
Dianella revolute	Flax Lily	1m	1m	√
Gahnia aspera	Saw Sedge	1m	0.4m	√
Isolepis nodosa	Nobby Clubrush	1m	1m	√
Lomandra longifolia	Mat Rush	0.7m	1m	√
Lomandra multiflora	Many Flowered Mat Rush	0.7m	0.7m	√
Juncus usitatus	Common Rush	1m	0.4m	√
Turf				
Cynodon dactylon	Couch (improved types)	-	-	X

Note: It is important to note that this plant list is indicative only to provide a guide on the range of suitable plants for the region with consideration of functional, aesthetic, salt tolerance and horticultural requirements. The selection of species is expected to vary over time as a result of species availability, site conditions, and plant viability.

2 Undesirable species

Table 2: Undesirable Species

Scientific Name	Common Name
Bambusa	Bamboo
Eriobotrya	Loquat
Ficus Elastica	Rubber tree
Ligustrum	Large and small leaf Privet
Musa	Banana plant
Toxicodendron Succedaneum	Rhus or Wax tree
Morus	Mulberry
Arecastrum romanzoffianum Schefflera	Umbrella tree
Persea	Avocado
Ailanthus	Tree of heaven
Lagunaria Patersonia	Norfolk Island hibiscus
genus Cotoneaster	Cotoneaster
genus Erythrina	Coral tree
Cinnamomum camphora Ligustrum spp.	Camphor Laurel
Pinus radiata, Pinus elliotii	Radiata Pine
genus Salix	Willow
Mangifera Indica	Mango tree

Appendix E

Crime Prevention Through Environmental Design

Crime Prevention through Environmental Design

Objectives

- To implement principles of design that eliminate opportunities for crime
- To ensure that the siting and design of buildings and spaces decreases the opportunities for committing crime through casual surveillance.
- To assist Council in assessing development applications that may have significant impacts on the community.
- To create well designed and defensible environments that contribute to public safety (both real and 'perceived').
- To ensure that development encourages people to use streets, parks and other public places without fear of personal risk.
- To encourage a sense of community ownership of open and public spaces through the adequate and continuing maintenance of the built environment and the appropriate design of publicly accessible areas.

Controls

	Performance Criteria	Design Requirements
a. <u>Fencing</u>	• Fence design should maximise natural surveillance from the street to the building and from the building to the street, and minimise the opportunities for intruders to hide.	1. Fences should not inhibit surveillance of the communal areas, pathways and footpath by occupants of the building. Both the height of the fence in relation to the building, as well as the nature of the construction materials need to be considered. 2. Front fences should preferably be no higher than 1 metre. Where a higher fence is proposed, it will only be considered if it is constructed of open materials e.g. spaced pickets, wrought iron etc. 3. If noise insulation is required, install double-glazing at the front of the building rather than a high solid fence (greater than 1 metre).
b. <u>Blind Corners</u>	• Avoid blind corners in pathways, stairwells, hallways and car parks.	1. Pathways should be direct. All barriers along pathways should be permeable including landscaping, fencing etc. 2. Consider the installation of mirrors to allow users to see ahead and around corners. 3. The installation of glass or stainless steel panels in stairwells can also assist in this regard.

	Performance Criteria	Design Requirements
c. <u>Communal/Public Areas</u>	Provide natural surveillance for communal and public areas.	- Position active uses or habitable rooms with windows adjacent to main communal/public areas, e.g. playgrounds, swimming pools, gardens, car parks etc. - Communal areas and utilities e.g. laundries and garbage bays should be easily seen. - Where elevators or stairwells are provided, open style or transparent materials are encouraged on doors and/or walls of elevators/stairwells. - Waiting areas and entries to elevators/stairwells should be close to areas of active uses, and should be visible from the building entry. - Seating should be located in areas of active uses. - Supermarkets and other stores that provide shopping trolleys should provide an incentive scheme for their return or a retrieval service.
d. <u>Entrances</u>	Provide entries that are clearly visible and avoid confusion.	- Entrances should be at prominent positions. - Design entrances to allow users to see into the building before entering. - Entrances should be easily recognisable through design features and directional signage. - Minimise the number of entry points – no more than 6 to 8 dwellings should share a common building entry. - If staff entrances must be separated from the main entrance, they should maximise opportunities for natural surveillance from the street. - Avoid blank walls fronting the street. - In industrial developments, administration/offices should be located at the front of the building.
e. <u>Site and Building Layout</u>	Allow natural observation from the street to the dwelling, from the dwelling to the street, and between dwellings.	- For single dwellings and dual occupancies, orientate the main entrance towards the street or both streets if located on a corner. - For townhouses/villas/multiple units, ensure part of the building addresses the street or both streets

	Performance Criteria	Design Requirements
		if located on a corner. - Position habitable rooms with windows at the front of the dwelling. - Garages and carports should not dominate the front façade of the building. - Access to dwellings or other uses above commercial/retail development should not be from rear lanes. - Offset windows, doorways and balconies to allow for natural observation while protecting privacy.
f. <u>Landscaping</u>	- Avoid landscaping which obstructs casual surveillance and allows intruders to hide. - Avoid large trees/shrubs and buildings works that could enable an intruder to gain access to the dwelling or to neighbouring dwellings. - Use vegetation as barriers to deter unauthorised access.	- Avoid medium height vegetation with concentrated top to bottom foliage. Plants such as low hedges and shrubs, creepers, ground covers and high canopied vegetation are good for natural surveillance. - Trees with dense low growth foliage should be spaced or raised to avoid a continuous barrier. - Use low ground cover or high canopied trees, clean trunks, to a height of 2m around children's play areas, car parks and along pedestrian pathways. - Avoid vegetation, which conceals the building entrance from the street. - Prickly plants can be used as effective barriers. Species include bougainvilleas, roses, succulents, and berberis species. - Avoid large trees, carports, skillion extensions, fences, and downpipes next to second storey windows or balconies that could provide a means of access.
g. <u>Lighting</u>	Providing lighting to enable natural surveillance, particularly in entrances/exits, service areas, pathways and car parks.	- Use diffused lights and/or movement sensitive lights. - Direct these lights towards access/egress routes to illuminate potential offenders, rather than towards buildings or resident observation points. - Lighting should have a wide beam of illumination,

	Performance Criteria	Design Requirements
	Ensure lighting does not produce glare or dark shadows.	which reaches to the beam of the next light, or the perimeter of the site or area being traversed. - Avoid lighting spillage onto neighbouring properties as this can cause nuisance and reduce opportunities for natural surveillance. - As a guide areas should be lit to enable users to identify a face 15 metres away. - Illuminate possible places for intruders to hide. - Use energy efficient lamps/fittings/switches to save energy. - Leave some lights on at night or use sensor lights. - Locate additional lighting below awnings to provide adequate illumination to the footpath areas.
h. <u>Building Identification</u>	Ensure dwellings are clearly identified by street number to prevent unintended access and to assist persons trying to find the dwelling.	- Each individual dwelling should be clearly numbered. - Unit numbers should be clearly provided on each level. - Each building entry should clearly state the unit numbers accessed from that entry. - Street numbers should be at least 7cm high, and positioned between 1m and 1.5m above ground level on the street frontage. - Street numbers should be made of durable materials preferably reflective or luminous, and should be unobstructed (e.g. by foliage). - Location maps and directional signage should be provided for larger developments.
i. <u>Security</u>	- Provide an appropriate level of security for individual dwellings and communal areas to reduce opportunity for unauthorised access. - Use security hardware	- Install intercom, code or card locks or similar for main entries to buildings including car parks. - Install quality locks on external windows and doors. - Install viewers on entry doors to allow residents to see who is at the door before it is opened. - Main entry doors for buildings should be displayed

	Performance Criteria	Design Requirements
	and/or personnel to reduce opportunities for unauthorised access.	requesting residents not to leave doors wedged open. 5. <i>Australian Standard 220</i> - door and window locks should be installed in all dwellings. 6. Consider installing user/sensor electronic security gates at car park entrances, garbage areas and laundry areas etc, or provide alternative access controls. 7. Entry to basement parking should be through security access via the main building. 8. External storage areas should be well secured and well lit. 9. If security grills are used on windows they should be operable from inside in case of emergencies. 10. Ensure skylights and/or roof tiles cannot be readily removed or opened from outside. 11. Consider monitored alarm systems. 12. Provide lockable gates on side and rear access. 13. Consider building supervisors or security guards.
j. <u>Ownership</u>	- Design dwellings and communal areas to provide a sense of ownership. - Create the impression that the place is well looked after and well "cared for".	1. To distinguish dwellings or groups of dwellings use design features e.g. colouring, vegetation, paving, artworks, fencing, furniture etc. Physical and/or psychological barriers, e.g. fences, gardens, lawn strips, varying textured surfaces can be used to define different spaces. 2. Ensure the speedy repair or cleaning of damaged or vandalised property.
k. <u>Maintenance</u>	- Create the impression that the place is well looked after and well "cared for". - Use materials that reduce the opportunity for vandalism.	1. Ensure the speedy repair or cleaning of damaged or vandalised property. 4. Provide for the swift removal of graffiti. 5. Provide information advising where to go for help and how to report maintenance or vandalism problems. 6. Strong, wear resistant laminate, impervious glazed ceramics, treated masonry products, stainless

	Performance Criteria	Design Requirements
		steel materials, anti-graffiti paints and clear over sprays will reduce the opportunity for vandalism. Flat or porous finishes should be avoided in areas where graffiti is likely to be a problem. 7. Where large walls are unavoidable, consider the use of vegetation or anti-graffiti paint. 8. Alternatively, modulate the wall, or use dark colours to discourage graffiti on vulnerable walls. 9. External lighting should be vandal resistant. High mounted and/or protected lights are less susceptible to vandalism. 10. Communal/street furniture should be made of hardwearing vandal resistant materials and secured by sturdy anchor points or removed after hours.
I. <u>Mixed Land Uses</u>	Where permitted, provide appropriate mixed uses within buildings to increase opportunities for natural surveillance, while protecting amenity.	1. Locate shops and businesses on lower floors and residences on upper floors. In this way, residents can observe the businesses after hours while the residences can be observed by the businesses during business hours. 2. Encourage 'Multiple uses' of land to encourage activity that complements casual surveillance. 3. Incorporate car wash services, taxi ranks and shop kiosks etc within car parks.
m. <u>Spaces</u>	Spaces should be clearly defined to express a sense of ownership and reduce illegitimate use/entry.	1. Physical and/or psychological barriers, e.g. fences, gardens, lawn strips, varying textured surfaces, can be used to define different spaces.
n. <u>Public Facilities</u> (ATMs telephone, help points, bicycle storage etc)	Locate public services in areas of high activity.	1. Locate public facilities in highly visible locations that are well lit and, where possible, near activities with extended trading hours e.g. restaurants, convenience stores. 2. Locate public facilities away from possible places to hide, e.g. fire exits. 3. Design ATMs to incorporate mirrors or reflective materials so that users can observe people

	Performance Criteria	Design Requirements
		behind. 4. Provide directional signs to key services and landmarks, e.g. railway station, taxi ranks, library etc.
o. <u>Shopfront</u>	Allow for natural surveillance and a suitable streetscape appearance.	1. Shopfronts should remain consistent with or improve on the existing streetscape 2. Ensure surveillance between the shopfront and the street by retaining clear sight lines and limiting promotional material on windows. 3. Avoid displaying merchandise on the footpath.
p. <u>Building Materials</u>	Use building materials, which reduce the opportunity for intruder access.	1. Use toughened or laminated glass at ground floor. 2. Roller shutters should be in the form of an opaque or clear security grille rather than a solid material.
q. <u>Hours of Operation</u>	Provide adequate security to buildings with extended hours of operation.	1. Allocate security guards to patrol the surrounding areas of the building, and instruct patrons when they leave the building to be mindful of residential uses in close proximity and to keep noise levels down.

Car Parks

These requirements apply to commercially operated car parks, Council and commuter car parks, and to car parks associated with retail, commercial, industrial and other uses.

	Performance Criteria	Design Requirements
a) <u>Lighting</u>	Provide adequate lighting.	1. Illuminate all external edges and access points to car parks during opening hours of the car park. 2. To allow for the adjustment of driver and pedestrian vision, lighting intensity to covered or underground car parks should be graded. Brighter light should be used at entrance and pedestrian access ways and dimmer light should be used elsewhere. 3. Lighting should be sufficiently bright to enable a car park user to see into the rear seat of a parked car before they enter the car.
b) <u>Materials</u>	Use materials that enhance natural surveillance within the car park.	1. Encourage the use of transparent materials for walls and doors. 2. Paint the ceilings and walls of the car park in light colours to enhance brightness. 3. Reflective film can be used on windows overlooking car parks. Potential intruders will not know if they are being observed during daylight hours.
c) <u>Security Grills</u>	Allow natural observation.	1. Consider the installation of open style security grills to individual parking spaces rather than separate garaging. 2. Where feasible include security grills from underground car parks to the street to provide some surveillance.
d) <u>Site and Building Layout</u>	- Design car parks to allow for natural surveillance and ensure clear sight lines throughout the parking area. - Ensure ease of access and safety within the car park.	1. Avoid large expanses of car parks. Where large expanses of car parks are proposed, provide surveillance such as security cameras. 2. Access to lifts, stairwells and pedestrian pathways should be clearly visible. 3. Avoid hidden recesses. 4. Locate disabled parking spaces in highly visible and convenient areas.

	Performance Criteria	Design Requirements
		5. Locate car parks in areas that can be observed by adjoining uses. 6. Minimise the number of entry and exit points. 7. Pedestrian corridors should be created for large developments. 8. Where possible, locate entry/exit points in close proximity and close to the car park operator or shops, cafes etc. 9. Staff car park should be separated and secured.
e) <u>Security</u>	• Provide security and reduce opportunity for unauthorised access.	1. Use security devices, such as an intercom or remote lock facility in multi level car parks where appropriate. 2. For larger developments, locate a help point on each parking level and/or allocate security staff. 3. For a multi level car park, use only a limited area of the car park outside peak hours. 4. Consider the installation of boom gates or similar devices at entrances and exits of the car park.
f) <u>Signage</u>	• Ensure that parking areas are clearly identified by signage to prevent unintended access and to assist persons trying to find their car.	1. Provide signage that is clearly visible, easy to read and simple to understand. 2. Use strong colours, standard symbols and simple graphics for signs. 3. Upon entering the car park provide both pedestrians and drivers with a clear understanding of direction to stairs, lifts and exits. 4. In multi-level car parks, use creative signage to distinguish between floors to enable users to easily locate their cars. 5. Advise users of security measures that are in place and where to find them e.g. intercom systems. 6. Provide signs at the car park advising users to lock their cars. 7. Where exits are closed after hours, ensure this information is indicated at the car park entrance.

Appendix F

Lodgement requirements

Matrix of Development Application Lodgement Requirements

Table 1 below provides an indicative checklist of the lodgement requirements for all development applications. For the specific documents required for a DA see **Table 2** and **3** below or contact Blacktown City Council.

Table 1: Matrix of Lodgement Requirements

Key: ✓ Required

Document	Subdivision DA	Building DA
A4 Notification Plan	✓	✓
Building Plans		✓
Bushfire Evacuation Plan	✓	✓
Completed DA form	✓	✓
Crime Risk Assessment Report (Safer by Design Evaluation)		✓
Landscape Plan	✓	✓
Materials Sample Board of external colours and finishes		✓
Noise and Vibration Impact Assessment		✓
Photomontages		✓
Scale model		✓
Shadow Diagrams		✓
Site Analysis Plan	✓	✓
Site Water Management Plan		✓
Statement of Environmental Effects	✓	✓
Subdivision Plans	✓	
Traffic Impact Report	✓	✓
Tree Survey Plan/Arborist Report	✓	✓
Waste Management Plan		✓

Lodgement Requirements for Development Applications

Table 2 below provides a description of the lodgement requirements for all development applications.

Table 2: Lodgement requirements for DAs

Lodgement Requirement	Description
A4 Notification Plan	Site plan and elevations must be shown in an A4 document.
Building Plans (or subdivision plans – see below)	Building Plans must show dimensioned floor plans, elevations of all facades, including a schedule of external finishes, colours and textures, sections showing heights and finished ground levels.
Completed DA form	Signed by the owner(s) of the development site. This is to be lodged with the applicable DA fee.
Site Analysis Plan	Site Analysis Plan must cover the relevant factors listed below: Site analysis should include plan and section drawings of the existing features of the site, at the same scale as the site and landscape plan, together with appropriate written material. Information may include but is not limited to: • Site dimensions, site areas, north point • Location of site in relation to shops, community facilities and transport • Form and character of adjacent and opposite buildings in the streetscape, including both sides of any street that the development fronts. • Location and use of any existing buildings or built feature on the site. • Location and important characteristics of adjacent public, communal and private open spaces • Location, use, overall height (storeys, metres) and important parapet/datum lines of adjacent buildings • Location and height of existing windows and balconies on adjacent properties facing the site • Location, height and characteristics of adjacent walls and fences • Location of natural features including watercourses, major trees on and other significant vegetation on site, on adjacent properties and street trees, identified by size and botanical or common names • Topography, showing spot levels and contours 0.5metre intervals for the site, adjoining streets and land adjoining the site • Views to and from the site • Prevailing winds • Orientation and overshadowing of the site and adjoining properties by neighbouring structures and trees • Geotechnical characteristics including salinity and groundwater conditions of the site and suitability of development • Pedestrian and vehicular access points (existing and proposed) • Location of utility services, including electricity poles, stormwater drainage lines, natural drainage, kerb crossings and easements • Location of any infrastructure easement of rights of way • Significant noise sources on and in the vicinity of the site, particularly vehicular traffic, train, aircraft and industrial operations noise • Assessment of site contamination , proposed remediation strategy and a statement from a recognised expert that the site can be remediated and made suitable for the proposed uses. As a minimum, the Plan should show the site location, boundary dimensions, site area, north point, existing vegetation and trees, location and uses of existing adjoining buildings, existing site levels to Australian Height Datum (AHD) and services.

Lodgement Requirement	Description
Statement of Environmental Effects	The Statement of Environmental Effects must demonstrate how the proposal meets all relevant objectives and provision of Marsden Park Industrial Precinct DCP 2008 and should set out measures to be taken to mitigate any likely adverse impact of the proposal.
Subdivision Plans (or building plans – see above)	Subdivision Plans must show: • Lot numbers • Lot sizes and dimensions • Lot orientation • Road names/numbers • Road layout • Road widths and locations • Locations of any traffic calming • Existing and proposed levels to AHD • Existing and proposed drainage • Drainage calculations including overland flow. • Any details of existing and proposed easements and services affecting or benefiting the subject land.

Table 3 below provides a description of the lodgement requirements for certain development applications.

Table 3: Lodgement requirements for specific DAs

Lodgement Requirement	Description	Required for
Bushfire Assessment	A Bushfire Assessment should be prepared in accordance with <i>Planning for Bush Fire Protection 2006</i>	DAs where the site is located on Bushfire Prone Land
Contamination Assessment	A Contamination Assessment should be prepared in accordance with SEPP 55 – Remediation of Land	DAs where the site has known contamination or has not been investigated for contamination.
Crime Risk Assessment Report (Safer by Design Evaluation)	A Crime Risk Assessment Report must be prepared for each development to demonstrate how it addresses the objectives and controls outlined in Appendix E Crime Prevention through Environmental Design of this DCP. The report should also demonstrate consistency with Safer by Design Guidelines (2002).	
Drainage Plan		
Erosion and Sediment Control Plan		
Groundwater Assessment		
Landscape Plan	Information on the Landscape Plan should include: (a) north point; (b) scale; (c) contours and spot levels; (d) all parks and streets (e) main structures on the site (buildings, car parking, driveways and services areas,	All Building DAs.

Lodgement Requirement	Description	Required for
	walls, fences, paved areas, storage areas etc); (f) drainage structure and above ground water storage tanks; (g) existing trees to be removed or retained; (h) proposed planting areas; (i) proposed turfed areas; (j) plant species schedule including botanical and common names; (k) details of seating and other outdoor furniture including bins, bollards and signs; (l) details of paving, fencing, wall and edge treatments; (m) lighting; (n) irrigation systems and water requirements; (o) sections and/ or elevations where necessary to describe special features or alterations in levels; and (p) name and contact details of the landscape architect. The plan should identify: (q) Maintenance responsibilities of the landscaped areas should be defined whether by private or Council. (r) Any public open space areas to be maintained by Council need to be designed in accordance with Council's maintenance requirements. All streetscape designs within the Landscape Plan must be in accordance with RTA guidelines.	
Materials Sample Board of external colours and finishes	A materials sample board must be submitted detailing external colours and finishes.	For Building DAs within the B5 Business Development, B7 Business Park and R3 Medium Density Residential Zones.
Noise and Vibration Impact Assessment	A Noise and Vibration Impact Assessment and Management Plan (NVIAMP) must be prepared by a suitably qualified consultant. It must provide an assessment of noise and vibration impacts and identify necessary mitigation measures to minimise the potential environmental impacts from noise and vibration generated by the proposed development.	For Building DAs adjacent to B
Photomontages	Colour photomontages of the proposed development in its context must be submitted.	Building DAs where Council deems it necessary.

Lodgement Requirement	Description	Required for
Salinity Assessment	A Salinity Assessment must be prepared outlining what actions are proposed to minimise the impact of: - development on the saline environment. Such measures could include minimising/decreasing recharge to saline groundwater tables and waterlogged/evaporation areas by appropriate drainage, strategic tree planting and soil management strategies - the saline environment on development. Such measures could include drainage around buildings, fill rather than cut where practical, the use of building techniques and materials to resist saline attack, and moisture exclusion to prevent salt damage.	Subdivision DAs that involve physical works, including road works, pipes and drainage works or other earthworks. Building DAs where the subdivision salinity assessment requires further assessment at the building stage.
Scale model	A scaled model at either 1:100 or 1:200 of the proposed development should also include reference to adjoining properties.	Building DAs in the B7 Business Park zone where Council deems it necessary.
Shadow Diagrams	Shadow diagrams for 9am, 12 noon and 3pm at December 21, June 21 and March 21 shall be prepared for the B7 Business Park Zone only. For commercial and light industrial sites, shadow diagrams must be prepared demonstrating that communal areas receive 2 hours of solar access between 11am and 3pm on June 21. Such diagrams should be prepared by an appropriate professional, be based on a survey of the site and buildings on adjoining sites and include details of finished ground levels.	
Survey Plan		
Tree Survey/Arborist Report	The Tree Survey Plan/Arborist Report must identify existing trees, trees to be removed and trees to be retained.	Subdivision and Building DAs where Trees are proposed for removal.
Traffic Impact Report	Must address the traffic impacts of the proposal on the local road network within the precinct and assessing the adequacy of on-site parking.	Subdivision and Building DAs where the proposed development will generate a traffic impact.
Waste Management Plan	A Waste Management Plan must be submitted in accordance with Blacktown DCP 2006, Part O (Site Waste Management and Minimisation). The plans and/or accompanying documents (include the waste management plan) should include details of: - The volume and type of waste generated during construction and demolition - How waste is to be stored on site - Method of disposal of recyclable and residual waste - Ongoing management - Bin type, number, size - Location and design of waste storage areas/rooms (residential and commercial)	Building DAs where the proposed development will generate waste.

Lodgement Requirement	Description	Required for
	• Method and frequency of collection • Details of Garbage chutes, where applicable • Location of collection points for bin servicing • Responsibility for movement of bins from storage areas to collection points and retrieved after collection. • Responsibility for ensuring the system is maintained in a clean condition free of odour and vermin • Details on how contamination of the recycling will be minimised • Details of collection truck vehicle manoeuvring The WMP must demonstrate and achieve a diversion in the amount of waste generated by the development that is the subject of each application, going to landfill.	
Water Management Plan	A Water Management Plan must investigate, where feasible, provide for the integrated management and use of water. The Water Management Plan should demonstrate that other water sources have been considered including: • an integrated water collection and recycling system for capturing and recycling of roof water; • the reuse of grey water on site; • the capture and re-use of stormwater from the site; • Where possible, treating and re-using any water generated by the development; and • controlling the quality of waste water and stormwater from the site.	Building DAs within the B5 Business Development, B7 Business Park and R3 Medium Density Residential Zones.