



North Kellyville Precinct

*Development Control Plan
March 2018*

March 2018

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1.0

Introduction



1.0 INTRODUCTION

1.1 Name of this Plan

This Plan is known as the North Kellyville Precinct Development Control Plan 2018 (DCP 2018). It has been prepared pursuant to the provisions of Section 74(C)(2) of the *Environmental Planning & Assessment Act 1979*.

This DCP was adopted by the Chief Executive Officer of the Growth Centres Commission (GCC) under delegation from the Director-General of Planning on (28 November 2008) and came into force on (19 December 2008). This DCP applies to all development on the land shown at **Figure 1**.

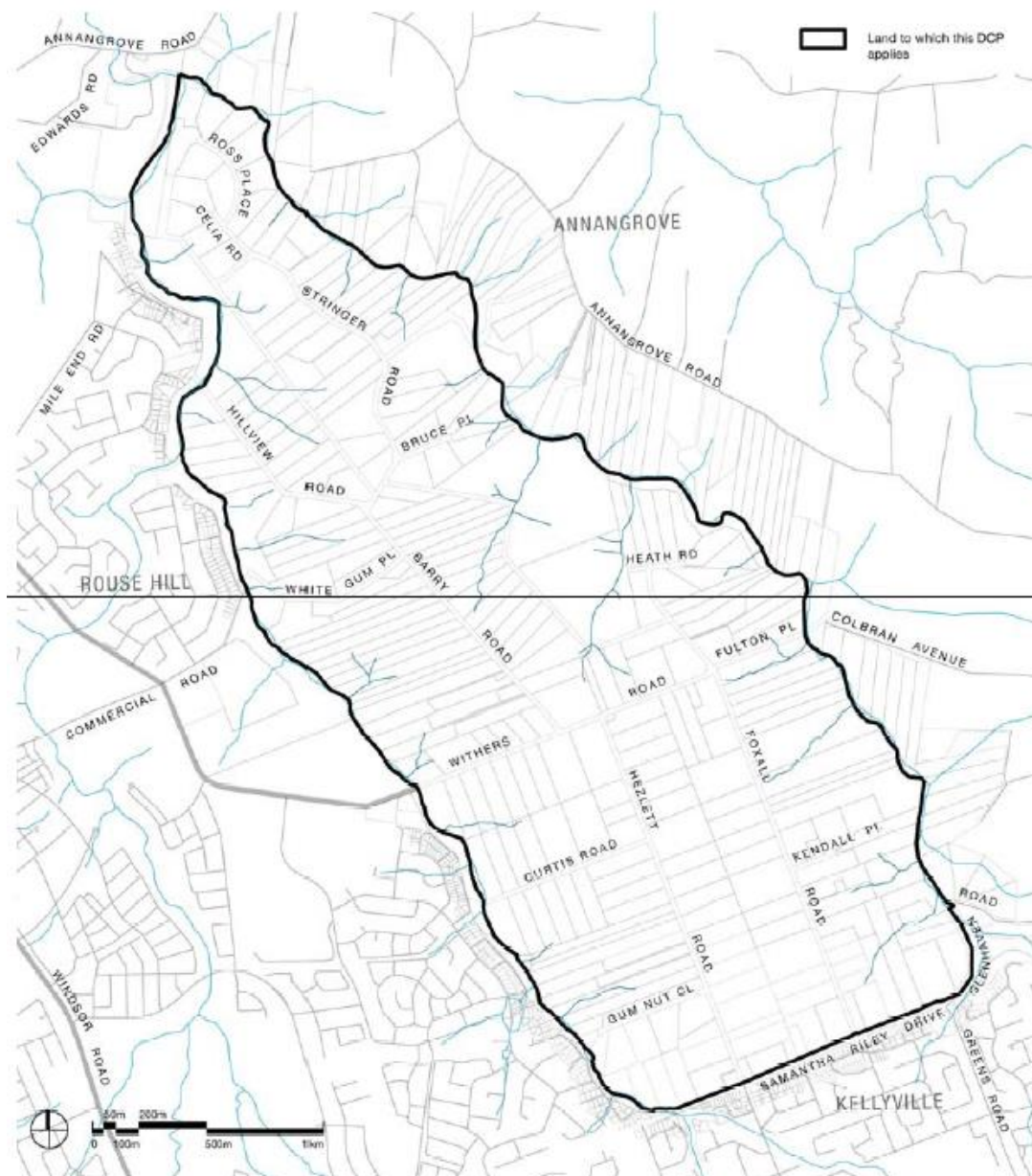


Figure 1. Land to which this DCP applies

1.2 The Purpose of this DCP

The purpose of this DCP is to:

- a. Communicate the planning, design and environmental objectives and controls against which Council will assess future Development Applications (DAs);
- b. Consolidate and simplify the planning controls to ensure the orderly, efficient and environmentally sensitive development of the North Kellyville Precinct as envisaged by the North West Sector Structure Plan and refined by the North Kellyville Precinct Indicative Layout Plan;
- c. Promote high quality urban design outcomes within the context of environmental, social and economic sustainability;
- d. Clearly set out the processes, procedures and responsibilities for the involvement of the community and key stakeholders in the development of land;
- e. Ensure that development will not detrimentally affect the environment and ensure that satisfactory measures are incorporated to ameliorate any impacts arising from the proposed development;
- f. Encourage innovative and imaginative design with particular emphasis on the integration of buildings and landscaped areas that add to the character of neighbourhoods; and
- g. Provide safe and high quality environments for the residents, workers and visitors of North Kellyville.

1.3 Relationship to other Plans

This section should be read in conjunction with *State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Amendment No. 3)* and other relevant State planning policies. This DCP should also be read in conjunction with the following State and Hills Shire Council (HSC) policies and/or guidelines:

- *Environmental Planning and Assessment Act 1979* (NSW) (as amended)
- *Environmental Planning and Assessment Regulation 2000* (NSW) (as amended)
- *Local Government Act 1993* (NSW) (as amended)
- *Threatened Species Conservation Act 1995* (NSW) (as amended)
- Relevant SEPPs
- Relevant REPs
- The Hills DCP 2012 Part B Section 5 - Residential Flat Buildings
- The Hills DCP 2012 Part B Section 6 - Business
- The Hills DCP 2012 Part C Section 1 - Parking
- The Hills DCP 2012 Part C Section 2 - Signage
- The Hills DCP 2012 Part C Section 3 - Landscaping
- The Hills DCP 2012 Part C Section 6 - Flood Controlled Land
- *Planning for Bushfire Protection 2006* (NSW Rural Fire Service 2006) (as amended)

- Guidelines for the Management of Contaminated Sites (BHSC 2000)
- Making Access for all (BHSC 2002)
- Safer By Design Guidelines (BHSC 2002)
- Western Sydney Salinity Code of Practice (WSROC March 2003)
- Design Guidelines Subdivision/Development (THSC 2011)
- Specification for the Construction of Footpath & Gutter Crossings (THSC 2010)
- Floodplain Development Manual (Department of Planning, Infrastructure and Natural Resources 2005)
- Better Urban Living – Guidelines for Urban Housing in NSW (Urban Design Advisory Service 2000)
- Growth Centres – Development Code (Growth Centres Commission 2006)
- Order to Confer Biodiversity Certification on the State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (December 2007)

In the event of any inconsistency between this DCP and any other DCP or policy of Council, this DCP will prevail to the extent of the inconsistency.

1.4 Structure of this Plan

This DCP is structured as follows:

Section 1 Introduction

sets out the administrative provisions of the DCP.

Section 2 Vision and Character

relates to the overall layout and vision for the future development of the Precinct as well as the Precinct wide controls for residential density, town centres and employment areas, the provision of Precinct wide infrastructure and staging.

Section 3 Land Development

relates to the street network including road design standards, the public transport network and the pedestrian and cycleway network, and design standards for the public realm including paving, street trees and lighting, as well as subdivision and lot development for large lots within the environmental living zone, detached housing, multi dwelling housing and residential flat buildings.

Section 4 Residential Development

relates to built form development controls for detached housing, multi dwelling housing, residential flat buildings, large lots, architectural and streetscape design, private open space and landscaping, site access and parking, cut and fill, safety and surveillance, solar access and visual and acoustic privacy.

Section 5 Special Area Controls

outlines the objectives, key controls and design principles relating to areas that require further design attention including North Kellyville Local Centre, Hezlett Road Neighbourhood Centre and Stringer Road Neighbourhood Centre.

Section 6 Managing the Environment

relates to general environmental issues that apply across the entire North Kellyville Precinct including stormwater and construction management, waste management, site facilities and servicing, riparian corridors, floodplain and watercycle management, soils and salinity, aboriginal heritage, european archaeological heritage, bushfire hazard management, tree retention and biodiversity, and contamination management.

Appendix A Glossary

contains the definitions for a number of specific terms used in this DCP that are not defined within the SEPP.

Appendix B List of Preferred Planting Species

Appendix C Environmental Management Plan

1.5 Development

Development falls into a number of categories,: Exempt Development, Complying Development, Local Development and Integrated Development.

1.5.1 Exempt Development

Minor development in NSW often does not require any planning or construction approval. This is called **exempt development** because it is exempt from planning approval. Before you start building it is important to determine whether you are going to need planning approval. **Division 1 General Exempt Development Code** of the *State Environmental Planning Policy (Exempt and Complying Development Codes SEPP) 2008* details when planning approval is not required. The Codes SEPP can be found on the State Governments legislation website at: www.legislation.nsw.gov.au.

***Note:** Specifying a type of development as exempt development does not authorise the contravention of any condition of development consent applying to the land on which the exempt development is carried out, nor does it remove the need for any approval that may be required under other legislation.*

1.5.2 Development allowed only with Consent

COMPLYING DEVELOPMENT

If what you want to build falls outside of what is considered to be exempt development, it may fall into the category of **complying development**. Complying development is a combined planning and construction approval. Complying development is a fast track, 10-day approval process where a building meets all of the predetermined standards. *The State Environmental Planning Policy (Exempt and Complying Codes) 2008* contains the General Housing Code which covers complying developments.

There are 2 types of pre-determined standards that must be met for Complying Development to occur:

1. Land Based Requirements – These are requirements that apply to the general locality and the specific site as some land is excluded from Complying Development due to its constrained nature. An example of a “Land Based Exclusions” is work on an item of heritage significance.
2. Development Standards – These are standardised requirements for the proposed building work such as the size, type and location of the building.

The simplest way to find out whether any Land Based Exclusions exist and therefore rule out Complying Development on your property is to obtain a planning certificate from Council (referred to as a 149(2) Certificate). This document will explicitly state whether or not Complying Development can occur and it will also provide a comprehensive list of planning matters and constraints affecting the land. Although this is not compulsory, it is recommended as it will alleviate the need to answer some complicated questions. Alternately, you can ask our staff whether and land based requirements apply to your land.

- Notes:** - Section 76A (6) of the EP&A Act 1979 (NSW) provides that certain development, such as designated development, or development requiring the concurrence of another body, or development on land comprising, or on which there is, a heritage item, cannot be complying development.
- Under section 76A of the EP&A Act 1979 (NSW), development consent for the carrying out of complying development may be obtained by the issue of a complying development certificate.
 - Specifying a type of development as complying development does not authorise the contravention of any condition of development consent applying to the land on which the complying development is carried out, nor does it remove the need for any approval that may be required under other legislation.
 - See also clause 5.8 of Appendix 2 of the SEPP which provides that the conversion of fire alarms is complying development in certain circumstances.

LOCAL DEVELOPMENT

The majority of applications are Local Development and require the lodgement of a standard development application.

1.6 Advertising & Notification Procedures

The purpose of this section is to establish a clear process for public participation in the development assessment process. The notification procedures outlined below aim to balance the public's right to participate in the development assessment process whilst minimising delays in the processing of low impact development applications.

MANDATORY ADVERTISING/NOTIFICATION

Planning legislation requires some developments to be advertised in a local newspaper and/or notified to adjoining property owners and relevant public authorities. These types of developments are generally larger scale and/or require approval from one or more public authorities.

Applications which require advertising/notification under legislation are identified below and, if applicable are required to pay an advertising fee at the time of lodgement in accordance with Council's Fees and Charges:

- Nominated Integrated Development
- Threatened Species Development
- Class 1 or Class 2 Aquaculture Development
- Designated Development
- State Significant Development

NOTIFICATION OF DEVELOPMENT APPLICATIONS

Written notification to owners of adjoining and adjacent properties will be undertaken for local development that is permissible with consent except for where identified in in Section 3.4 Circumstances Where Notification is not Required.

Council may also notify additional landowners in the vicinity of a development site, if it is considered the application may have a greater impact. In determining whether to extend or limit the extent of notification the following factors may be considered:

- Siting and design
- Views
- Visual and acoustic privacy
- Access
- Overshadowing
- Public interest
- Topography
- Solar access
- Drainage
- Landfill
- Traffic generation

NOTIFICATION TIMEFRAMES

The notification period for local development is to be a minimum period of 14 days however may be reduced to 7 days in special circumstances. The period of time may also be extended depending on the circumstances of the case. Timeframes for Mandatory Advertised Development is specified in legislation however is generally 30 days, commencing on the day after which the notice of the application is first published in a newspaper. Any notification period shall not include the last week of December and the first week of January in any year.

CIRCUMSTANCES WHERE NOTIFICATION IS NOT REQUIRED

No notification of adjoining and adjacent properties is required for the following types of development applications, if the proposal complies with all applicable development controls (LEP, DCP & other relevant policies) and/or it is considered by Council that the development is unlikely to have a detrimental impact on those properties:

- New rural sheds ancillary to residential use
- New rural fencing
- New tennis courts ancillary to residential use
- Strata subdivisions
- Subdivisions to adjust property boundaries where no additional lots are created
- Where the development site does not adjoin a residential property

Where a development application is not notified by Council in accordance with the above provisions, adjoining and adjacent property owners will be sent a courtesy letter advising that an application has been received that is in accordance with the requirements of the development control plan. The letter will state Council will not be formally notifying or inviting submissions for the application which will be determined within the requirements of the Environmental Planning and Assessment Act, 1979 no sooner than 14 days from the date of the letter.

CONCILIATION CONFERENCES

If more than 10 submissions are received relating to a development application during a formal notification period, Council will host a conciliation conference. All conferences are chaired by the Mayor or the Mayor's nominee.

1.7 Development Application Process

The Hills Shire Council is the consent authority in respect of approvals to develop land (except complying development where private certification of development can occur). The development application process is summarised in

Table 1.

Initial discussions with Council's Duty Town Planner, Duty Building Surveyor or Duty Subdivision Officer, will help determine whether your proposal is permitted under State Environmental Planning Policy Sydney Region (Growth Centres 2006 and the type of application required.

The Duty Town Planner, Duty Building Surveyor or Duty Subdivision Officer are available during business hours

within the Customer Service Centre or on the following phone numbers:

Duty Town Planner (02) 9843 0469

Duty Building Surveyor (02) 9843 0470

Duty Subdivision Officer (02) 9843 0374

VARIATIONS TO DEVELOPMENT CONTROLS

Council may grant consent to a proposal that does not comply with the controls, 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 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.

DEVELOPER DESIGN GUIDELINES

In addition to the provisions of this DCP, a developer may implement and administer further building and landscape design guidelines so as to ensure a high quality built product. Such guidelines are not to be inconsistent with this DCP. To assist residents and their designers, a developer may also implement a Design Review Committee to review development proposals for compliance with the Design Guidelines prior to their formal submission to Council.

REVIEW

The Growth Centres Commission may review this DCP from time to time to ensure that the State Government's objectives for the North Kellyville Precinct continue to be met.

PRE-LODGE MENT

Initial discussions with Council's Duty Town Planner will help determine whether your proposal is permitted under State Environmental Planning Policy (Sydney Region Growth Centres 2006 (Amendment No 3) and the type of application required.

For small-scale development an informal pre-lodgement meeting with the Duty Town Planner at Council's Customer Service Centre should be held to identify relevant issues. It is not necessary to book an appointment. Single residential developments and ancillary construction issues should be discussed with Council's Duty Building Surveyor and subdivision and engineering related enquires directed to Council's Duty Subdivision Officer.

Generally, developments comprising of anything other than a two-lot subdivision or application for detached dwellings require a formal pre-lodgement meeting.

A formal pre-lodgement meeting is required prior to the submission of all major development applications for the following types of development:-

- subdivision proposals;
- residential flat buildings;
- multi dwelling housing;
- integrated housing;
- attached housing;
- seniors housing;
- child care centres;
- retail/business premises;
- development proposals which exceed \$1 million in development costs;
- designated development; and
- telecommunications facilities.

Applicants are required to demonstrate that an appropriate planning process has been undertaken. To ensure that this process is recognised, applicants are required to attend a pre-lodgement meeting to discuss concept plans and any other issues relevant to the site before formal lodgement of the development application.

Meetings are held on a weekly basis and are attended by Senior Officers of Council's Environment and Planning Group from a discipline relevant to the assessment of the application. Arrangements for a pre-lodgement meeting can be made at the Customer Service Centre of Council's Administration Building or by telephoning 9843 0555.

The applicant must prepare a Site Analysis and preliminary concept plans (such as a site plan, floor plan, elevations, survey plan, access and car parking details etc) for consideration at the pre-lodgement meeting. The preliminary plans are to include an Isometric raised plan of proposal for residential flat buildings and attached and multi dwelling housing developments. Relevant consultants and advisors used by the applicant should also attend these meetings.

Table 1: Development Application Process

Process	Matters to be considered
Consultation with adjoining property owners should be considered	Consider their opinions
Mandatory consultation with Council on draft proposal	Discussion with Duty Town Planner, Duty Building Surveyor, Duty Subdivision Officer or formal Pre-lodgement
Finalise Application and consult with relevant authorities e.g. RTA, Sydney Water	Does proposal comply with the SEPP (Sydney Region Growth Centres) 2006 (Amendment No 3)

Lodge Development Application with Council	Pay Fees
Notification occurs – Refer to Section 1.6 for details	Council notifies adjoining property owners
Assessment of application against relevant planning instruments and DCPs, and consideration of submissions	Conciliation conference may be required
Development/Subdivision determination (Consent/Refusal)	
Development work can commence if all conditions are complied with and Construction Certificate obtained	Pay Section 94 Contributions to Council
Final Plan of subdivision released upon Completion of construction and compliance with all conditions of consent	

1.8 Information required for a Development Application

All development applications must be accompanied by a completed Application Form for Development Consent / Construction Certificate and/or Other Approval.

OWNERS CONSENT

The consent of all owners of the property must be lodged with the development application. If the owner is a Company or Owners Corporation, its Common Seal must be stamped over the signature/s, otherwise the Managing Director must sign and clearly indicate the A.C.N.

DEVELOPMENT APPLICATION FEES

All relevant fees must be paid upon lodgement of the Development Application.

STATEMENT OF ENVIRONMENTAL EFFECTS

A Statement of Environmental Effects (SEE) is the written covering documentation, which must accompany your development application. Details must include:

- a description of the site including a property description;
- a description of the proposed development including all proposed works;
- details of compliance with the State Environmental Planning Policy (Sydney Region Growth Centres) 2006 and any of its amendments;
- a description of how the development controls have been achieved or provide written justification to vary any development standard contained in the DCP; and
- details of how the development satisfies the provisions of Section 79C of the *EP&A Act 1979* (NSW).

The following plans, studies, assessments and/or reports may also be required to accompany a development application. All plans shall include the name and contact telephone number of the person who prepared the plans.

A list of minimum requirements to be submitted for each application is provided in the Matrix of Lodgement Requirements.

Eight (8) copies of all plans and documentation required with an application are to be submitted with a development application, unless otherwise specified within this DCP.

1.8.1 Documentation

The following documentation is required in addition to the Development Application Form mentioned above. Refer **Table 2** for the matrix showing lodgement requirements for various developments.

Table 2. Matrix of Lodgement Requirements

	Subdivision in the E4 Zone	Subdivision in other zones	Dwelling house	Dual Occupancy and Semi-detached dwellings	Attached dwellings and Multi Dwelling Housing	Residential Flat Building	Commercial/Retail Premises	Child Care Centre	Home Business	Signage	Open Space and landscape	Special Uses	Heritage Item	Telecommunication Facilities
Access Report					✓	✓	✓	✓						
Architectural Plans	✓	✓	✓	✓	✓	✓	✓	✓	✓	■	✓	■	✓	■
BASIX Certificate			✓	✓	✓	✓								
Building Envelope Plan		■												
Bushfire Assessment	✓	■												
Contamination Assessment	✓	✓	■	■	■	■	■	■	■		■	■	■	
Crime Risk Assessment Report	■	■			✓	✓	✓				✓			
Economic Analysis							■	■						
Effluent Management Plan	✓	■												
Emergency Evacuation Plan	✓	✓												
Erosion and Sedimentation Control Plan	✓	✓	✓	✓	✓	✓	✓	✓				■	■	
Fuel Management Plan	✓	✓												
Geotechnical Assessment	✓	✓	■	■	■	■	■	■	■		■	■	■	
Indigenous Archaeological Assessment	✓	✓												
Landscape Plan	■	■	✓	✓	✓	✓	✓	✓	■		✓	■	✓	
Landscape Management Statement	■	■			■	■								
Model					■	✓	■						■	
Noise Impact Analysis (Acoustic Report)		■			■	■	✓	✓	■		■	■	■	
Noise Management Plan								✓						

	Subdivision in the E4 Zone	Subdivision in other zones	Dwelling house	Dual Occupancy and Semi-detached dwellings	Attached dwellings and Multi Dwelling Housing	Residential Flat Building	Commercial/Retail Premises	Child Care Centre	Home Business	Signage	Open Space and landscape	Special Uses	Heritage Item	Telecommunication Facilities
(Child Care Centres)														
On-site Detention (OSD) Plan			■	■	■	■						■		
Photo Montage					✓	✓	✓						■	✓
Public Domain Plan		■												
Preliminary Engineering Drainage Plans			■	■	✓	✓	✓					■	■	
Schedule of external materials			✓	✓	✓	✓	✓	✓				■	✓	■
Shadow Diagrams			✓	✓	✓	✓	✓	✓	■			■	■	
Signage Plan							✓	✓	✓	✓		■	■	
Site Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Site Survey or Analysis Plan		✓	✓	✓	✓	✓	✓	✓				✓	✓	✓
Statement of Environmental Effects	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Streetscape Perspective			■	■	✓	✓	✓	✓		■		■	✓	■
Tree Management Plan	✓	■	■	■	■	■	■	■			✓	■	■	■
Traffic Report	■	✓				✓	✓							
Waste Management Plan	■	✓	✓	✓	✓	✓	✓	✓	✓	■		■	■	
Vegetation Management Plan	✓	✓												

Key : ✓ - Required

■ - Possibly required – Pre lodgement discussion required

ACCESS REPORT

An Access Report shall be prepared by a registered access consultant demonstrating compliance with the *Disability Discrimination Act 1992*(Cth) and relevant Australian Standards such as AS1428.1-2001, AS1428.2-1992, AS1428.3-1992 and AS1428.4-2002.

A certification prepared by a registered access consultant must confirm that units identified as 'adaptable' in Multi Dwelling Housing and Residential Flat Buildings are capable of being modified.

ARCHITECTURAL PLANS

Floor Plan

- The internal layout of all buildings is to be illustrated on floor plans. Floor plans are to contain dimensions and floor areas for each room, window locations and other relevant internal building details.

Cross Section

- At least one longitudinal and one transversal cross section should be provided for buildings and/or open spaces indicating the relationship the natural ground with existing and proposed levels.

Elevation Plan

- The external appearance of all aspects (north, south, east, west) of a building are to be illustrated on the elevations to a minimum scale of 1:200.

Details of the relationship of elevations to natural ground level indicating:

1. Existing and proposed levels;
2. Proposed cut and fill; and
3. Fencing details fronting public streets.

BASIX CERTIFICATE

Submission of a current BASIX Certificate is required for any development to which BASIX applies. See www.basix.nsw.gov.au for further information.

BUILDING ENVELOPE PLAN

Development applications for subdivision of lots less than 300m² and equal to or greater than 225m² in area, and with a width equal to or greater than 9m require a building envelope plan. Refer to Section 3.7 Subdivision Approval Process.

BUSHFIRE ASSESSMENT

Development applications for land identified as bush prone in accordance with the Council's Bushfire prone land Map will be prepared in accordance with *Planning for Bushfire Protection 2006* (NSW Rural Fire Service 2006).

The Bushfire Assessment must include the following:-

- Review the capability of the site to provide a safe development in accordance with *'Planning for Bushfire Protection 2006'*;
- Review the potential to carry out hazard management over the landscape;
- Review the evacuation capability of the area; and
- Provide advice on the adequacy of the design/construction to meet the requirement of *Planning for Bushfire Protection 2006*.

CONTAMINATION ASSESSMENT

A geotechnical site contamination assessment will be required for sites specifically shown in Section 6.5 in this DCP as contaminated.

A geotechnical site contamination assessment shall be prepared by a suitably qualified consultant. An assessment is required to identify whether the site is suitable for its intended purpose, including human occupation and any remediation measures. A review of the Land Capability and Contamination Assessment North Kellyville Precinct prepared by Douglas Partners will be required as part of the assessment.

CRIME RISK ASSESSMENT REPORT

Certain developments due to their size, function or location may require the submission of a Crime Risk Assessment report and will be referred to NSW Police for comment. These types of developments include, but are not limited to:

- transport facilities;
- residential flat buildings, attached dwellings and multi dwelling housing developments (50 or more dwellings);
- large mixed use developments (50 or more dwellings);
- major shopping centre developments;
- new industrial complexes (multiple units/ major works);
- new schools and hospitals;
- child care centres;
- large sport facilities;
- clubs and hotels; and
- service stations, convenience stores and other high risk businesses.

A Crime Risk Assessment report should detail design and other measures to be incorporated into the development

to reduce the potential for crime. To assist in preparation of a Crime Risk Assessment report applicants should refer to Hills Shire Council's Designing Safer Communities: Safer by Design Guidelines (June 2002).

ECONOMIC ANALYSIS

An Economic Impact Analysis is to be prepared by a suitably qualified consultant. The Assessment should describe the extent of the trade area, the impact on the adopted hierarchy of centres and economic justification for the proposal. It must provide justification for the amount of floor space proposed at any one time in the event that the amount of floor space proposed exceeds the amount outlined in the North Kellyville Precinct Retail & Commercial Floor Space Demand Report (January 2008) prepared by Hill PDA.

EFFLUENT MANAGEMENT PLAN

An Effluent Management Plan must be prepared for any development applications within 100 m of a defined riparian zone that is not connected to general town sewerage. The Effluent Management Plan will:

- assess site suitability for effluent disposal;
- identify site constraints that limit the installation of an effluent treatment system;
- identify the standards for effluent treatment to be achieved and recommend appropriate systems to achieve the required treatment standard.

EMERGENCY EVACUATION PLAN

An emergency evacuation plan must be prepared for those developments where the access and egress of persons may be threatened by a bushfire event, recommended by the NSW Rural Fire Service or Council.

The Emergency Evacuation Plan will include:

- identify the ability for areas to be evacuated within acceptable time frames;
- define an integrated procedure for the evacuation of residents from premises in the event of an bushfire event;
- identify appropriate evacuation assembly points and protected safe havens; and
- provide for the evacuation and care of infirm or elderly residents.

EROSION AND SEDIMENTATION CONTROL PLAN

Erosion and Sediment Control Plans shall be prepared in accordance with "Managing Urban Stormwater – Soils and Construction", produced by the NSW Department of Housing. An Erosion and Sediment Control Plan shall include:-

- locality of the site, north point and scale;
- existing contours with catchment boundaries;

- description and location of vegetation;
- staging of works to minimise disturbance;
- movement of water onto, through and off the site;
- location of specific controls;
- maintenance of the controls;
- rehabilitation/maintenance of the works area; and
- location of topsoil stockpile to be reused on-site.

FUEL MANAGEMENT PLAN

The fuel management plan is to be prepared for lots where existing vegetation is required to be managed by several registered proprietors, strata corporation or community association or cluster style developments that jointly share asset protection zones. This plan may also be required for land that is:

- subject to occupation by residents or designated as private property;
- intended for imminent development; i.e. Village style development;
- regularly managed land due to neighbouring responsibilities; or
- special habitat management that is subject to prescriptive burning requirements to maintain a desired level of habitat diversity.

The Fuel Management Plan will address the main priorities of fuel management planning, i.e.:

- the protection of lives and property; and
- the protection of the ecological (plants and animals) and environmental elements (soil, water and air) of the landscape.

In determining priorities for fuel management, the land managers have a clear community obligation to protect life and property, as well as valuable natural assets.

The Fuel Management Plan will identify:

- hazard reduction (burning and physical removal) to protect life and property;
- hazard reduction (burning and physical removal) to protect the broad range of vegetation resources and assets from the effects of uncontrolled wildfire; and
- infrastructure works that allow fuel management to occur (e.g. construction and maintenance of fire trails).

GEOTECHNICAL ASSESSMENT

A geotechnical assessment shall be prepared by a suitably qualified consultant registered with the Institute of Engineers, Australia or similar professionally recognised affiliation. An assessment is required to:

- identify that an acceptable level of risk is achieved with respect to the likelihood of movement, landslip or other geotechnical hazard adversely affecting the proposed subdivision or development or being caused by the proposed subdivision or development;
- provide lot classifications in accordance with AS2870 – 1996; and
- provide pavement design in accordance with BHSC Shire Council standards.

INDIGENOUS ARCHAEOLOGICAL ASSESSMENT

An Indigenous Archaeological Assessment will be prepared to assess the impact of proposed development on areas identified as of Aboriginal archaeological significance in Part 6.2 of this DCP. The Indigenous Archaeological Assessment shall provide details of the ongoing management of areas of Aboriginal archaeological significance, including a conservation management plan outlining how these areas will be conserved. The assessment shall be prepared in consultation with relevant local Aboriginal groups.

LANDSCAPE PLAN

A landscape plan to a minimum scale of 1:200 and accompanying documentation is to be prepared by a suitably qualified landscape architect or horticulturalist. Details to be provided include: -

- site boundaries and dimensions surveyed;
- north point, scale (1:200 desirable);
- existing and proposed levels;
- all existing trees, grassed areas, landscape features and main structures on the site (buildings, car parking, driveways, walls, fences, paving, storage areas, elements contributing to the significance of a heritage item etc.);
- a schedule of proposed planting, including botanic name, common name, expected mature height and staking requirements;
- details indicating a minimum of 300mm of good quality topsoil to all garden beds;
- details indicating a minimum of 150mm of good quality topsoil to all open space areas;
- all garden bed areas to be clearly defined by brick, concrete or timber edging with its top edge finishing flush with the surface of adjacent grass areas; and
- name and contact telephone number of the person who prepared the plans.

Also, where relevant, the landscape plan should address:

- outdoor recreation, seating or lunch areas for commercial and retail developments or the like;
- all proposed structures – buildings, fences, boundary lines, retaining walls and parking spaces;
- overland drainage proposals and on-site detention;
- landscape treatment of building setbacks including mounding and screen planting;
- planting proposed for privacy screening;
- delineation of the principle area of private open space for each dwelling;

- provision for rain gardens;
- outline of all hard paved areas and materials to be used (including communal streets, driveways and paths) and identification of purpose. Consideration should also be given to the most likely routes taken by pedestrians, and sited accordingly;
- details of landscaping to garbage bin storage or standing areas;
- lighting for vehicle areas, cycle and pedestrian paths, and security;
- location of underground services;
- the requirements of other authorities such as water, electricity, telecommunications and gas, should be considered in the development of the landscape proposal.
- protection of high conservation value vegetation and threatened flora and fauna habitat and hollow bearing trees.
- protection and restoration of designated riparian zones.
- fuel management for asset protection purposes.
- maximum tree density and understorey cover to the standard of the required asset protection zones.
- planting of key endemic foraging species for threatened fauna.
- planting of regional significant flora species.

LANDSCAPE MANAGEMENT STATEMENT

A Landscape Management Statement is to accompany the landscape plan for all developments other than where only private open space is proposed. The Landscape Management Statement is to provide the intended management and maintenance principles for non-private, community or common open space, including grassed areas, ornamental and native planting, water features, play equipment, outdoor furniture and other facilities.

MODEL

A scale model at either 1:100 or 1:200 of the proposed development shall be prepared. The model shall show development on immediately adjoining properties.

NOISE IMPACT ASSESSMENT (ACOUSTIC REPORT)

A noise assessment or acoustic report shall be undertaken by a suitably qualified acoustic consultant (e.g. a member of the Australian Acoustical Society, the Institute of Engineers Australia, The Association of Australian Acoustical Consultants or a person with other appropriate professional qualifications). An acoustic report is often required where:

- new development is proposed that will create significant noise;
- a new noise-sensitive development is proposed in an area where existing noise sources are present; and/or
- a new development will generate a significant amount of traffic.

An acoustic report should include:

- description of the extent of the noise impact and all noise sources (e.g. number of vehicle movements, plant & equipment used etc);
- determination of the background noise levels for day and night;
- assessment of intrusive noise for the worst affected premises and for worst case situations;
- times of day/days of week of operation;
- site plan (with dimensions) not necessarily to scale;
- existing noise climate background (La90) and ambient (Laeq);
- noise criteria, relevant guidelines or policy that has been applied and site specific noise goals;
- sound Power Level of all noise sources (Octave bands);
- prediction methods with formulae;
- predicted overall noise levels at all relevant receiver points (Laeq);
- comparison of predicted results to the noise goals; and
- recommendations for noise control and attenuation.

NOISE MANAGEMENT PLAN (CHILD CARE CENTRES)

A Noise Management Plan provides details of the operational requirements of the childcare centre, including:

- aim of the plan;
- hours of operation of the centre;
- maximum numbers of staff and children at the centre at any one time;
- day to day activities proposed at the centre;
- proposed hours of the day that the outdoor play area will be used by the children, including the maximum number of children at one time;
- proposed supervision of the children;
- proposed signage for noise minimisation;
- proposed parent communication regarding noise issues;
- actions to be taken to ensure that parents, staff and children minimise noise coming from the centre; and
- actions to be taken to alleviate offensive noise.

ON-SITE DETENTION (OSD) PLANS

OSD Plans are to be prepared in accordance with the Upper Parramatta River Catchment Trust OSD Handbook by a suitably qualified consultant possessing one of the following accreditations:

- National Professional Engineer Register in Civil Engineering (Institute of Engineers Australia);
- Surveyors Certificate of Accreditation in OSD and Drainage Design (Institution of Surveyors of NSW and the

Association of Consulting Surveyors NSW); or

- Accreditation as a certifier under the *EP&A Act 1979* (NSW) in the relevant discipline.

PHOTO MONTAGE

The photo montage must indicate the appearance of the proposed development within the context of existing development and shall be no greater than A3 in size.

PUBLIC DOMAIN PLAN

Applications for subdivision using approval pathways A2, B1 and B2 require a Public Domain Plan (PDP) to be submitted as part of the application. Refer to Section 3.7 Subdivision Approval Process.

PRELIMINARY ENGINEERING DRAINAGE PLANS

Preliminary engineering plans indicating the proposed drainage design and infrastructure are to be prepared by a qualified drainage engineer. The plans shall include the following information:

- existing and proposed contours and levels (Australian Height Datum);
- catchment plan including boundaries of the site and adjacent properties and any areas not able to drain to the OSD system;
- storage/flow calculations;
- location and invert and surface level of all proposed pits, pipes and storage chambers;
- High Early Discharge Control pit and orifice detail including levels and location;
- proposed lawful point of discharge; and
- location and extent of any floodway, overland flow path or drainage easements through the site.

SCHEDULE OF EXTERNAL MATERIALS

A schedule of the proposed external colours, including a sample of materials and finishes, description and location of colour/material in relation to the development, at a size no greater than A3. Details of alternative materials considered and reasons as to why proposed materials were selected are to be disclosed.

SHADOW DIAGRAMS

Shadow diagrams shall be submitted for all development which exceeds one storey in height. In some instances it may be appropriate for shadow diagrams to be submitted for buildings of only single storey height. Details to be shown on plans include:

- shadows cast by the proposal during mid-winter and summer (ie 21 June and 21 December);
- shadows cast during the early morning, middle of the day and afternoon (9.00am, 12 noon and 3:00pm);
- the impact of the proposal on adjoining residential properties and their open space areas, and open space areas of each dwelling within the proposed development; and
- consideration of shadows from existing trees.

For the purpose of overshadowing requirements, fence lines are not included in shadow calculations.

SIGNAGE PLAN

A plan drawn to scale with the following information:

- site dimensions and area;
- location of the proposed sign;
- a diagram of the sign, including:
 - dimensions and area
 - height
 - construction materials
 - colour
 - wording, logos, symbols.

For illuminated signs, the following additional information is required:

- the type of illumination;
- a light spill diagram; and
- the hours of illumination.

SITE PLAN

This plan is to convey the design concept and layout of the proposal. Details to be shown include:

- a scale of 1:100 or 1:200, a title, and north point;
- the site coverage depicting building envelopes, car parking, driveways and all other built features;
- the location of open space areas;
- a schedule of calculations including site area, site coverage, floor areas and associated floor space ratios and private open space/landscape areas;
- the dimensions and area of site;
- the distance to all boundaries from buildings and car parking areas;
- the internal layout of buildings;
- the access and car parking arrangements including number of car parking spaces;
- the dimensions of all car parking spaces and driveway widths;
- any existing trees (and a notation to indicate whether they are to be removed or retained);
- the location of service/ancillary facilities;
- the location and general description of any adjoining developments;
- building height and internal site levels;

- changes in levels – proposed spot levels and/or contours at 1m intervals;
- the original ground level;
- the proposed finished ground level; and

SITE SURVEY/ANALYSIS PLAN

The purpose of this plan is to identify the opportunities and constraints presented by the development site. The plan must be prepared by a registered surveyor to a minimum scale of 1:200. The extent and level of detail of the analysis will depend on the application. Details to be shown are sourced from the Australian Model Code for Residential Development, include: -

A. The Site

- Site Dimensions:
 - length
 - width
 - area
- Topography:
 - existing spot levels and/or contours at one metre intervals
 - natural drainage
 - any contaminated soils or filled areas
 - any natural or man-made artefacts of archaeological significance
- Services:
 - easements
 - connections to drainage and utility services
- Existing Vegetation:
 - location
 - height
 - spread of established trees
 - species
 - existing threatened flora species
 - existing threatened fauna habitat
 - hollow bearing trees for hollow dependent fauna
 - all trees greater than 100 mm dbh
 - significant foraging species as identified by Council and or Consulting Ecologist
- Fuel Management Zones:
 - asset protection zones
 - fuel reduction methods (hand removal, mechanical or managed landscaping)
 - understorey conservation zones for threatened flora and fauna habitat (maximum 20% of understorey by

cover)

- tree removal for creating discontinuous canopies (2-5 m separation)
- maximum Tree Density
- Micro Climates:
 - orientation
 - prevailing winds
- The area of any land containing protected native vegetation as shown on the relevant SEPP maps.
- The location of existing buildings and other structures
- Heritage features
- Fences
- Property boundaries
- Pedestrian and vehicle access
- Infrastructure
- Views to and from the site
- Overshadowing by neighbouring structures
- Heritage features and items including archaeology contributing to significance – curtilage, views, archaeological features, outbuildings, garden elements etc
- Demonstration of how allotment/dwelling locations and dimensions respond to topography, site constraints and achieve solar orientation
- An indication of how social and environmental issues have been considered in the design

B. The Surrounds

Investigation of the surrounds should identify:

- Neighbouring buildings/developments:
 - location
 - height
 - use
 - type of construction materials
- Privacy
 - any adjoining private open space
 - windows overlooking the site (particularly those within 9m of the site)
 - location of any facing doors and/or windows
- Walls built to the site's boundary:
 - location
 - height

- materials
- Difference in levels between the site and adjacent properties at their boundaries
- Views and solar access enjoyed by neighbouring properties
- Street frontage features:
 - poles
 - trees
 - kerb crossovers
 - bus stops
 - other services
- The built form and character of adjacent development including::
 - architectural character
 - front fencing
 - garden styles
- Heritage features of surrounding locality and landscape
- Direction and distance to local facilities:
 - local shops
 - schools
 - public transport
 - recreation and community facilities
- Public open space:
 - location
 - use
- Adjoining bushland or environmentally sensitive land
- Source of nuisance:
 - flight paths
 - noisy roads or significant noise source
 - polluting operations

STREETSCAPE PERSPECTIVE

A streetscape perspective shall be provided as a colour perspective of the proposed building(s) and streetscape and be no greater than A3 in size.

TRAFFIC AND CAR PARKING STUDY

A traffic and car parking study must be prepared by a suitably qualified consultant. The traffic report must address the following:

- the existing traffic environment including recent traffic volume counts;

- the traffic expected to be generated as a result of the proposed development;
- the cumulative impact of the proposed development and any other nearby developments on the surrounding road network;
- the need for traffic improvements to the road network as a result of the proposed development;
- the impact of the proposal on intersections that access arterial/sub-arterial roads;
- a detailed assessment of the proposed access arrangements including the suitability of the sight distance and any other relevant safety issues; and
- an assessment of the proposed parking provision and layout.

TREE MANAGEMENT PLAN

A Tree Management Plan is to be prepared by a qualified arborist. The Tree Management Plan shall be accompanied by a site plan clearly indicating which trees are to be retained and those to be removed. The Tree Management Plan shall include:

- a tree survey, including a site plan indicating the location of all trees on the site and the location of trees on adjoining properties located within close proximity of the development site. All trees should be numbered;
- a schedule of all trees including species identification, dimensions, whether they are to be retained or removed and a rating of the condition of all trees, their health, aesthetic value and life expectancy as a basis for ascertaining their value for retention;
- justification for removal of any trees;
- the design measures incorporated to allow trees to be retained and definitions of tree protection zones;
- the design and construction techniques to be used to minimise the impact on trees to be retained. These measures must demonstrate that the on-going health of the tree has been considered;
- details indicating the position of trees in relation to proposed roads and building platforms;
- identification of hollow bearing trees and identify retention priority (High, Medium and Low quality) based on hollow dimensions and hollow dependent fauna habitat requirements;
- a hollow retention strategy for any hollow bearing trees that balances the needs of hollow dependent fauna against the needs of providing a safe tree within or adjacent to buildings or services; and
- an artificial hollow replacement strategy at a ratio of 2 artificial hollows to every 1 hollow removed on securely protected trees using a mix of nest box designs for a variety of fauna including microbats.

VEGETATION MANAGEMENT PLAN (VMP)

Any subdivision within land zoned E4 (Environmental Living) and E3 (Environmental Management) will be required to be accompanied by an VMP that is consistent with the details specified in Appendix C - Environmental Management Plan of this DCP and integrated with the required Landscape Plan, Bushfire Assessment, Sedimentation & Erosion Control Plan and Effluent Management Plan.

The recommendations of the VMP will be imposed as conditions of any consent that may be issued.

WASTE MANAGEMENT PLAN (WMP)

A WMP is to be prepared in accordance with the requirements identified in BHSC DCP Appendix A Waste Management Plan.

A WMP demonstrates appropriate project management and construction techniques that minimise waste including the following:

- re-use of topsoil and disposal of any excess to an approved site;
- green waste re-use in landscaping either on-site or off-site;
- the re-use of materials such as bricks, tiles, plasterboard, windows, window frames, doors, joinery and concrete re-use on-site as appropriate, or recycled off-site;
- the recycling of plumbing, fittings and metal elements
- the location of on-site storage facilities for material to be reused on-site, or separated for recycling off-site; and
- the destination and transportation routes of all materials to be either recycled or disposed of off-site.

A WMP is to provide the following information:

- Construction and Demolition details
 - types of waste to be produced;
 - quantities of waste likely to be produced;
 - re-use or recycling methods for waste either on-site or off-site;
 - location of on-site storage facilities for waste materials;
 - contractor and destination of all waste materials;
 - demonstrate that waste going to landfill is not recyclable or is hazardous; and
 - a Waste Data File (a file containing the WMP together with records - waste receipts or dockets) of recycling and disposal of demolition and construction materials must be kept by the person/s responsible for the site.
- Design of Facilities and On-going Management
 - type of future use for the development;
 - types of waste to be generated;
 - estimated volume of waste to be generated per week;
 - location (on plans) and description of on-site storage and/or treatment facilities for waste; and
 - destination for waste produced.

For assistance with preparation of a Waste Management Plan, please contact Council's Waste Management Project Officer on 9843 0505.

1.9 Assessment of Applications

In assessing development proposals, Council will have regard to:

1. Section 79C of the EP & A Act, 1979;
2. SEPP (Sydney Region Growth Centres) 2006 (Amendment No.3)
3. Relevant State or Sydney Regional Environmental Planning Policies;
4. How the development satisfies the aims and objectives and any relevant provisions of BHLEP 2005;
5. Conformity with this DCP;
6. Conformity with other Council Policies and guidelines;
7. Submissions received as a result of the notification/advertising process; and
8. Any other legislation applying to the land or to the type of development proposed.
9. Developments that fail to comply with the statutory provisions of the *EP&A Act 1979* (NSW), any relevant SEPPs or SREPs, or the objectives stated within this DCP are unlikely to be granted development consent.

1.10 Amendments

The North Kellyville Development Control Plan has subsequently been amended as shown in **Table 3** below:

Table 3: DCP Amendment

Section	Description of Amendment	Date Amended DCP Adopted	Date Amended DCP came into force	Former file reference
3 & 4	Subdivision and Residential Controls (Housing Diversity Package)	13/08/2014	19/08/2014	
Various	Amend notification and advertising requirements to reflect The Hills Development Control Plan 2012 and minor administrative corrections	26/04/2016	24/05/2016	FP142
Various	Minimum Lot Size Development Control Plan (Main Body)	30/11/2016	30/11/2016	
Various	Amendments relating to shop top housing and mixed use developments and other administrative changes	13/12/2016		11/2016/PLP
2	Amendments relating to the construction and dedication of local roads.	08/06/2021	06/07/2021	FP171
3	Amendments relating to the restriction of battle-axe allotments.	22/02/2022	22/04/2022	3/2021/PLP

2.0

Vision and Character



2.0 VISION AND CHARACTER

This section of the DCP contains objectives and development controls relating to the overall layout and vision for the future development of the Precinct.

2.1 Vision and Development Objectives

NORTH KELLYVILLE VISION

The vision for North Kellyville is the creation of vibrant neighbourhoods that provide a range of dwelling types and opportunities for social interaction for a diverse population in centres, parks and community facilities. The North Kellyville Precinct will be characterised by a mix of housing types, interconnected neighbourhoods, a compatible mix of land uses, active streets, and environmentally responsive development.

The North Kellyville Precinct has been planned to achieve the Growth Centres Commission target of providing 4,500 dwellings in a manner that is responsive to the environment, which promotes community interaction within and outside the Precinct and which is economically viable.

There will be three centres which will become the focal points for social interaction, community uses and retailing. An integrated public transport, cycle and pedestrian network will facilitate improved access within the Precinct and to the surrounding areas, particularly to Rouse Hill Regional Centre. The interface of the built form and the design of the public domain will create an attractive place to live.

The Precinct will provide a mix of traditional lot sizes. Residential yield will be increased in areas that can be easily serviced for infrastructure, facilities and public transport, whilst lower housing yield will be appropriately located around the edges of the Precinct to enable development to be more responsive to the natural features of the site.

North Kellyville will provide an amenable setting for residential living in The Hills Shire area due to its natural landscape features. Bound by Smalls and Cattai Creek, the Precinct is surrounded by high value remnant native vegetation along the creek lines, providing a bushland backdrop for large lot residential living. This is enhanced by the topography, with land sloping gently towards Smalls Creek and more steeply towards Cattai Creek. The ridge which runs between Smalls and Cattai Creek provides rural landscape views to the east and views to the urban areas and Blue Mountains to the west, providing key locations for medium density development and parks. Development will also be responsive to the natural landscape character by preserving usable open space amenity.

OBJECTIVES

- a. To accommodate the future population, in a manner which responds to environmental constraints.
- b. To create strong social, pedestrian, transit, cycleway and vehicular links with surrounding areas.

- c. To protect and enhance existing natural features and resources.
- d. To create opportunities for the development of a variety of housing types and densities.
- e. To encourage higher densities along public transport nodes and areas of high amenity.
- f. To promote economically viable development.
- g. To create a layout plan that will assist an equitable and manageable development process.
- h. To provide three centres as focal points for walkable neighbourhoods.

2.2 Indicative Layout Plan

The Indicative Layout Plan (ILP) (**Figure 2**) illustrates the broad level development outcomes for the North Kellyville Precinct. It outlines the development footprint, land uses, open space, heritage item, major transport linkages and location of community facilities and schools.

OBJECTIVES

- a. To ensure development of the Precinct is undertaken in a co-ordinated manner consistent with the North West Sector Structure Plan and the North Kellyville Indicative Layout Plan.

CONTROLS

1. All development is to be undertaken generally in accordance with the Indicative Layout Plan, subject to compliance with the objectives and development controls set out in this DCP.
2. Where variation from the ILP is proposed, the applicant is to demonstrate that the proposed development is consistent with the Vision and Development Objectives for the Precinct set out in **Section 2** and the Objectives and Controls in **Sections 3, 4 and 5** of this DCP and the North Kellyville Precinct Plan Appendix 2 of the State Environmental Planning Policy (Sydney Region Growth Centres 2006 (Amendment No 3)).

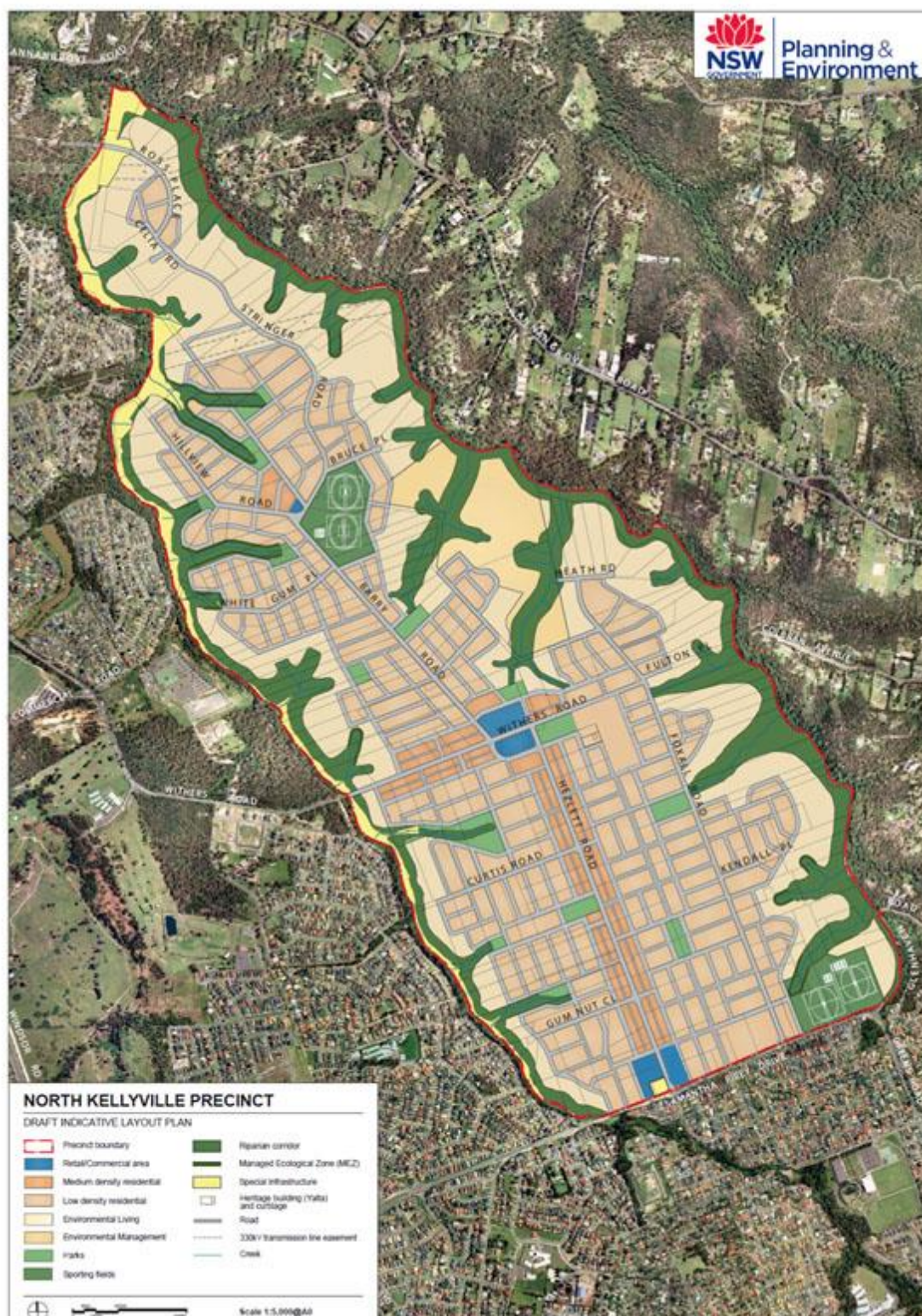


Figure 2 North Kellyville Precinct Indicative Layout Plan

2.3 Character Areas

Character Areas reflect the desired built form and landscape character of the area based on the physical and visual qualities of the natural landscape. They aim to give a distinct identity and sense of place for different areas within North Kellyville through specific built form, landscape and public domain controls.

2.3.1 Centres

North Kellyville Local Centre

The North Kellyville Local Centre is located along Withers Road, between the Hezlett Road and Barry Road intersections. The centre will provide the retail and community focus for the North Kellyville Precinct, featuring a mix of retail, commercial, community, educational, recreational and residential uses.

Based on the North Kellyville Precinct Retail & Commercial Floorspace Demand Report (January 2008) undertaken by Hill PDA, the neighbourhood centre will provide a maximum of up to 15,000m² of retail and commercial uses. It is envisaged that the neighbourhood centre will contain two supermarkets, a range of specialty shops, and commercial space (shop front and shop top).

Shopping will be focussed around a traditional 'Main Street' setting rather than an internalised shopping mall, with fine grained specialty shops lining the supermarkets so that an active street edge is presented to the public domain. In order to maintain a pleasant main street character, a bypass route linking Hezlett Road and Barry Road, around the southern part of the local centre, will divert traffic away from the main local centre street. A pleasant and comfortable pedestrian environment will be created through wide shaded tree-lined footpaths, active traffic calmed streets and a maximum 40km/hr speed limit.

Other uses envisaged include a multi-purpose community centre, child care centre and medical centre.

A primary school will be located adjacent to the local centre, contributing to the life and activity of the centre.

The local park for the centre is on the south-east side of the intersection of Hezlett Road and Withers Road. A multi-purpose community centre will be located within the park. This park will provide the passive recreational focus for the centre whilst retaining some existing remnants of Turpentine trees.

The form of the buildings in the local centre will be urban and compact in character with no front or side setbacks. Ground floor premises will be characterised by shops, restaurants, cafes, and commercial uses that encourage street interaction and contribute to vitality of the streets and public spaces. Commercial uses and/or apartments will be located on the upper floors. A street edge of 2 storeys will form well framed streetscapes and a neighbourhood centre presence. Buildings up to 3 storeys in total height are permitted.

Outside of the core retail area development will become more residential in character with residential flat buildings

or multi dwelling housing. Seniors living is encouraged in close proximity to the town centre, to provide residents with convenient access to services and public transport.

The public domain of the centre is to be characterised by framed streetscapes containing regularly spaced trees in hard verges and tree wells, and high quality paved wide footpaths capable of holding outdoor café seating, bus shelters, street furniture and public art.

Hezlett Road Neighbourhood Centre

The Hezlett Road Neighbourhood Centre is located at the southern entry to the Precinct at the intersection of Hezlett Road and Samantha Riley Drive. The centre provides a convenience retail focus for the Precinct.

The centre will provide convenience retail and grocery shopping to passing traffic and residents on either side of Samantha Riley Drive, without undermining the retail offered at North Kellyville Local Centre or Wrights Road retail centre.

Based on the North Kellyville Precinct Retail & Commercial Floorspace Demand Report undertaken by Hill PDA, the neighbourhood centre will provide up to a maximum of 3,000m² of retail and commercial uses. It is envisaged that it will comprise one small supermarket (1,500m² maximum) and a small range of specialty shops such as a newsagency, bakery, pharmacy, and may include a service station.

The form of the buildings will be urban and compact in character with no front or side setbacks except where adjoining existing/future low density residential development. Ground floor premises will be characterised by shops, restaurants and cafes that will encourage street interaction and contribute to the life of the streets and public spaces. Commercial uses and apartments will be located on the upper floors.

The existing substation will be screened with landscaping and surrounded by parking areas, creating a more pleasant interface and not detracting from the character of the neighbourhood centre.

The centre will be surrounded by development that is more residential in character with either residential flat buildings or multi dwelling housing.

Development around the existing substation could potentially comprise car parking and/or a service station. Public art and landscape elements such as sandstone walls, seating areas and bus shelters are encouraged at the north west intersection of Hezlett Road and Samantha Riley Drive to improve the visual character of the southern entry to the North Kellyville Precinct.

A park will be located along Hezlett Road north of the centre to provide for passive recreational uses for the neighbourhood centre.

Stringer Road Neighbourhood Centre

Stringer Road Neighbourhood Centre is located at the junction of Stringer Road, Barry Road and Hillview Road, opposite the northern sporting fields.

The centre will provide small-scale retail and community uses for local residents and passing traffic. It will provide up to 1,000m² retail floorspace, comprising 3-4 shops, ideally cafes and restaurants, encouraging activity around the northern sporting fields and serving the needs of the local community. Retail uses will be located on the ground floor of mixed-use buildings with residential uses above, addressing Stringer Road and the northern sporting fields.

The centre will be surrounded by medium density residential buildings in the form of multi dwelling housing and small lot housing.

2.3.2 Smalls Creek

The Smalls Creek Character Area is a residential area that will take advantage of the gentler slopes along Smalls Creek. In comparison to Cattai Creek, the gentler slopes along Smalls Creek have greater development potential with good access to Smalls Creek and the riparian corridors, which will be publicly accessible. This location will also provide views over urban areas and the Blue Mountains to the west. On the eastern side of the Smalls Creek Character Area along Hezlett Road, rural landscape views to the east may be achievable.

The Smalls Creek Character Area has been divided into two areas (north and south) bisected by Withers Road, which respond more specifically to the topography and landscape features of that area.

Lower residential densities in this character area will be located in the northern section of the Smalls Creek Character Area (north of Withers Road) due to the steeper slopes.

Higher residential densities in this character area will be located in the area south of Withers Road, due to gentler slopes and its proximity to Rouse Hill Regional Centre and Hezlett Road. Small lot/attached housing will be encouraged along Hezlett Road and bus stops.

Smaller lots are encouraged along the riparian corridors to take advantage of the amenity of Smalls Creek and its tributaries. Small lot/attached housing is also encouraged along Hezlett Road and Withers Road to take advantage of this main transport route and its links to areas outside of the Precinct, such as Rouse Hill Regional Centre. All other areas will be characterised by detached housing.

Riparian corridors are one of the key elements in the open space network in this character area, which will be characterised by linear parks that provide opportunities for passive recreation, such as walking tracks, cycle ways and picnic areas, as well as visual amenity.

2.3.3 Ridge

The Ridge Character Area is a suburban residential area located along the ridgeline where land is gently inclined. The Ridge Character Area provides an east-west transition between the gentler slopes along Smalls Creek Character Area and the steeper slopes and denser vegetation in the Environmental Living Character Area. It has good access to main roads and provides views overlooking rural landscapes to the east, and urban areas and the Blue Mountains to the west.

The area will have a predominantly low residential density, characterised by one to two storey detached housing with wider setbacks. The Ridge Character Area has been divided into two areas, bisected by Withers Road and the North Kellyville Local Centre, with the northern area slightly steeper than the southern area.

The southern side of the Ridge Character Area will feature a primary school located adjacent to the North Kellyville Local Centre and No. 45 Hezlett Road, a local heritage listed item. The school will be located around the northern and eastern boundary of Yalta House. One storey dwellings will be permitted around this property.

The open space network in this area will be characterised by a number of neighbourhood parks. In particular, there will be a hill top park located between Hezlett Road and Foxall Road which takes advantage of view overlooking the Precinct and its surrounds. A sporting field will be located on the northern side of this character area at the intersection of Barry and Stringer Roads.

The public and private domain features include informal native and non-native planting that requires little watering, and attracts native flora and fauna. Verges in the public streetscape are soft landscaped, containing low level ground cover and multiple tree species spaced evenly apart, and often in clusters.

2.3.4 Environmental Living

This low density residential area is located around the western and eastern edges of the Precinct, in areas adjoining Smalls Creek and Cattai Creek. Steep slopes along Cattai Creek have limited development potential; therefore a significant amount of remnant vegetation has been left largely untouched, providing a unique bushland setting for residential living. The eastern boundary has a rural aspect towards Annangrove, Kenthurst and Glenhaven. Views along the western boundary of this character area will be largely internal towards the ridge.

The area will be characterised by large lots detached homes backing onto creeks and native vegetation with high conservation value. The built form will generally be characterised by one to two storey buildings with generous setbacks on all sides, where the scale, bulk and appearance of development is designed to integrate with the vegetation and steep slopes.

Community title schemes, with narrower lots reduced front and side setbacks, will be permitted where the community association manages the land constrained by slopes, non-certified native vegetation and /or riparian corridor.

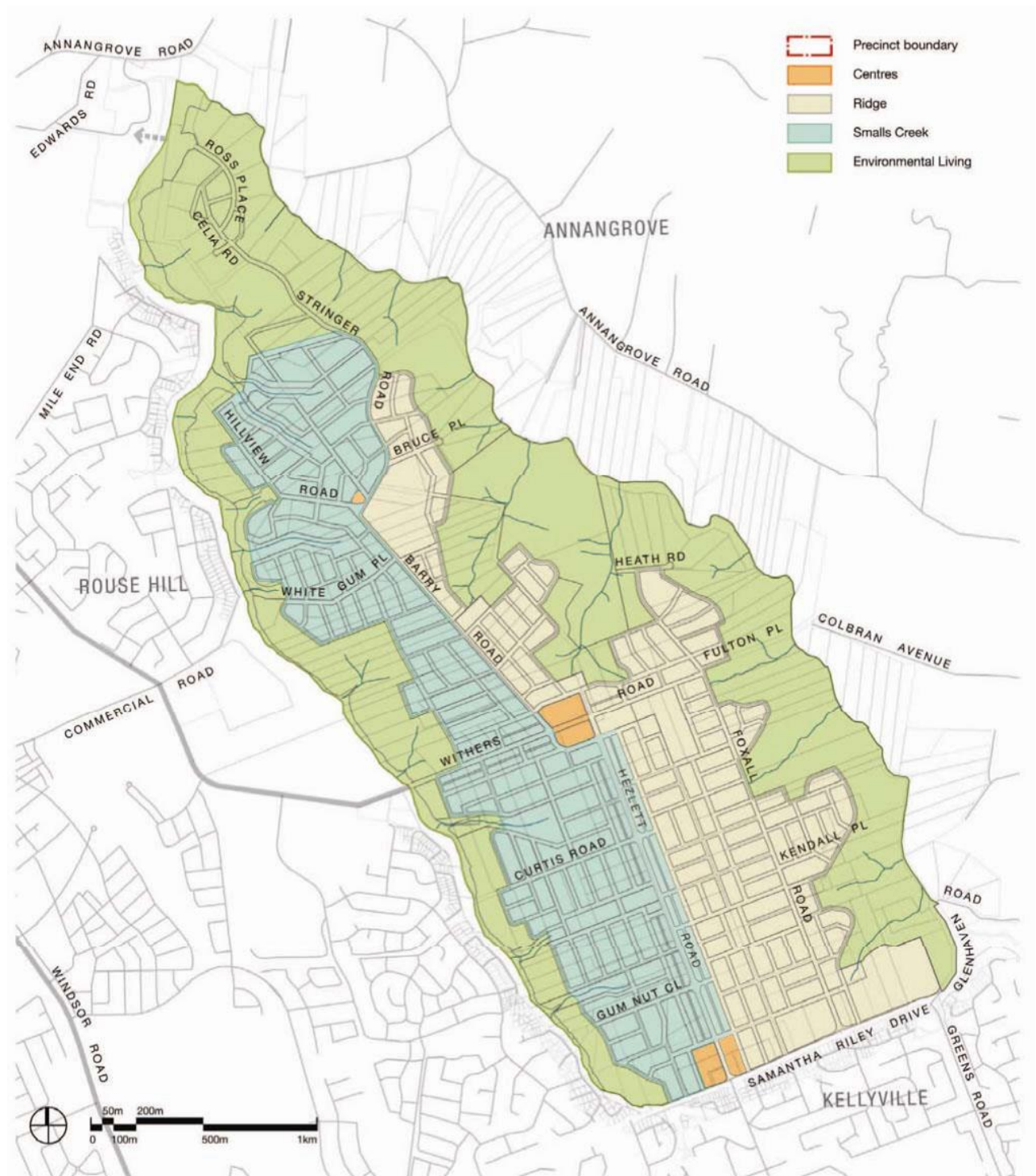


Figure 3. North Kellyville Character Areas

2.4 Residential Density and Subdivision

The Growth Centres are subject to minimum residential density targets as detailed in the Residential Density Maps in the State Environmental Planning Policy (Sydney Region Growth Centres) 2006. This section provides guidance on the typical characteristics of residential density target bands.

Net Residential Density means the net developable area in hectares of the land to 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 rezoned for residential purposes. Refer to **Figure 4** and Landcom's "Residential Density Guide" and the Department of Planning and Environment's "Dwelling Density Guide" for further information.



Figure 4 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 band. Refer to the section Residential Development.

2.4.1 Residential Density

The Growth Centres Commission has established a target of 4,500 dwellings for North Kellyville, which is forecast to achieve a population of approximately 14,200 people at completion. **Table 4** describes the net residential density targets for each of the residential land use zones.

Table 4. Net Residential density targets

Zone	Density Targets dw/ha
	Minimum
Zone R1	12.5
Zone R2	10
Zone R3	20
Zone E3	N/A
Zone E4	N/A

Objectives

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

Controls

- 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.
- Residential development is to be generally consistent with the residential structure as set out in the **Residential Structure Figure** in the relevant Precinct Schedule, and the typical characteristics of the corresponding Density Band in **Table 5**.

Table 5. Typical Characteristics of Residential Net Densities

Net Residential Density dw/Ha	Typical Characteristics
10 - 12.5 dw/Ha	<ul style="list-style-type: none">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 5).
15 -20dw/Ha	<ul style="list-style-type: none">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.

	<ul style="list-style-type: none"> • Single and double storey dwellings. • Mainly suburban streetscapes, the occasional urban streetscape. (See Figure 5).
25 - 30 dw/Ha	<ul style="list-style-type: none"> • 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 5).
40+ dw/Ha	<ul style="list-style-type: none"> • 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 5).



Garden Suburban



Suburban



Urban

Figure 5 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 provides more detailed objectives and controls for these types of development.*

3. LAND DEVELOPMENT

3.1 Network and Design

3.1.1 Street Network, Design and Hierarchy

OBJECTIVES

- a. To provide a hierarchy of interconnected streets that gives safe, convenient and clear access within and beyond the Precinct.
- b. To ensure that the hierarchy of the streets is clearly discernible through variations in carriageway width, on- street parking, incorporation of water sensitive urban design measures, street tree planting, and pedestrian amenities.
- c. To provide an acceptable level of access, safety and convenience for all street and road users within the North Kellyville Precinct, whilst ensuring emergency access and egress, acceptable levels of amenity, and minimising the negative impact of traffic.
- d. To provide a legible and permeable movement network for pedestrians and cyclist along streets and paths to points of attraction within and adjoining any development.
- e. To facilitate the orientation of lots and dwellings to front public and private open spaces.
- f. To enhance the outlook, setting and amenity of subdivisions adjoining open space and other public areas.
- g. To promote passive surveillance of publicly accessible areas thereby increasing safety.
- h. To ensure sufficient carriageway and verge widths are provided to allow streets to perform their designated functions within the street network and to accommodate public utilities and drainage systems.
- i. To encourage the use of streets by pedestrians and cyclists, and to allow cars, buses and other users to proceed safely without unacceptable inconvenience or delay.
- j. To provide blocks that can accommodate a range of densities and lot sizes with appropriate solar orientation.
- k. To facilitate a subdivision pattern that will reinforce the character areas.
- l. To allow for pedestrian, cyclist and vehicle accessibility.

CONTROLS

Road Hierarchy

1. The street network and road hierarchy is to be provided generally in accordance with **Figure 6** and **Table 6**.
2. Despite any other provision of this Development Control Plan, where a local road or proposed local road is shown in this Development Control Plan on an allotment or allotments to which a development application relates and the applicable contributions plan does not require or authorise a monetary contribution towards the acquisition of that land or the construction of the road or associated asset relocation, water management devices, footpaths, street tree planting, traffic management devices and treatment, the development must include the dedication of that part of the allotment identified as local road or proposed local road to the Council free of cost together with the construction of the road and associated asset relocation, water management devices, footpaths, street tree planting, traffic management devices and treatment on any and all road frontages.

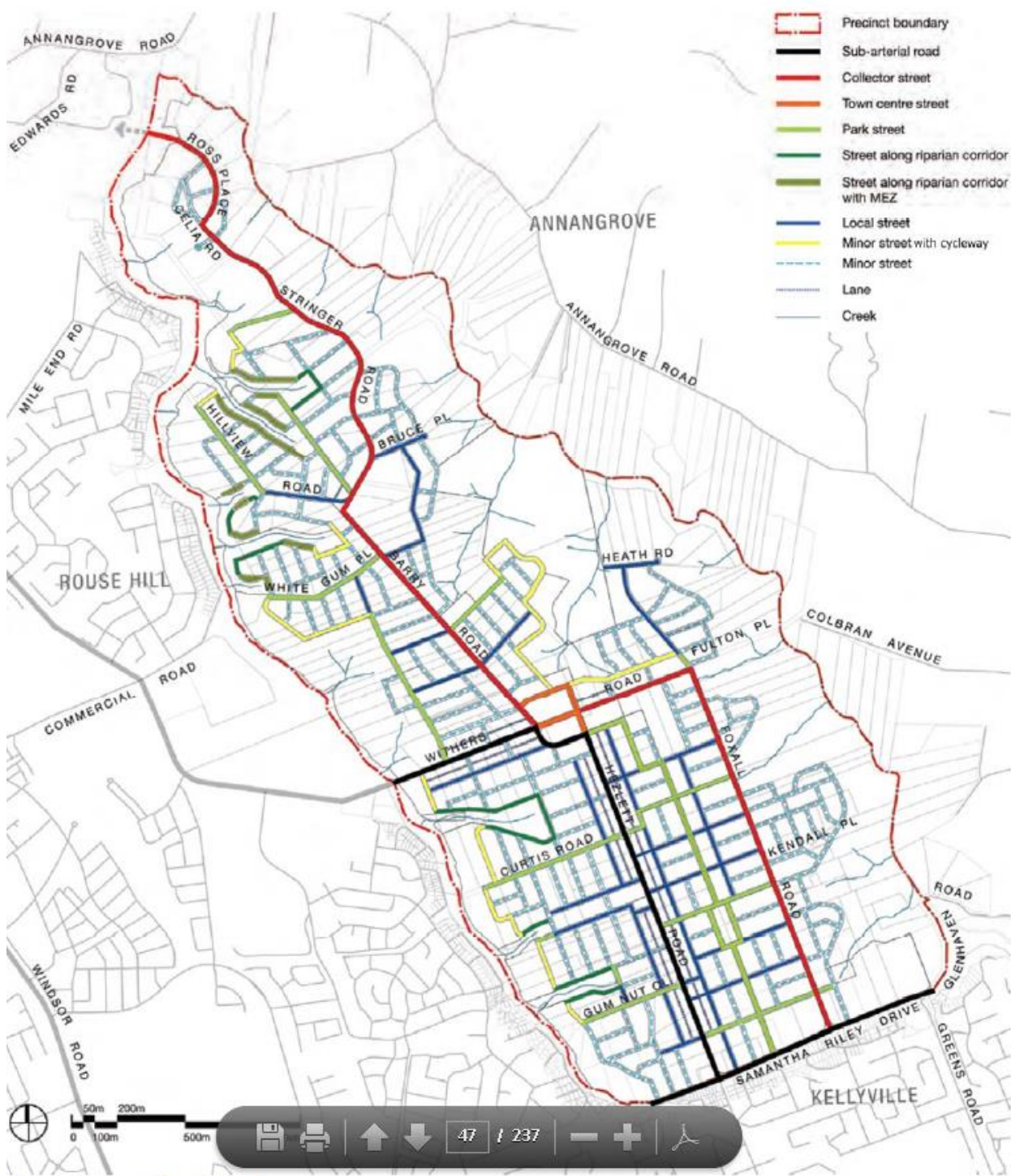


Figure 6. Road Network

Table 6 Street Types

Street Type	Description
Sub-Arterial	<p>Sub-arterial roads mediate between regional traffic routes and local traffic routes, and link arterial routes to town centres. Vehicular access to property is not permitted along these roads, so rear access should be provided for properties fronting them. Shared paths are provided for pedestrian and cycle use and on-street parking on both sides of the street is generally provided (with the exception of Samantha Riley Drive).</p> <p>Sub Arterial roads in North Kellyville include Samantha Riley Drive, Hezlett Road, Withers Road, and the town centre loop road. Refer to Figures 7 and 8.</p>
Collector Road	<p>Collects traffic from local streets and carries a higher volume of traffic, linking neighbourhoods and centres and accommodating public transport routes. Amenity and safety is to be maintained by restricting vehicle speeds through traffic-calming measures and intersection design. Intermittent parking with landscaping is provided on both sides of the street.</p> <p>Collector roads in North Kellyville include Foxall Road, Withers Road, Barry Road, Stringer Road and Ross Place. Refer to Figure 9.</p>
Town Centre Street	<p>Town centre streets are specially designed to create a pleasant and comfortable pedestrian environment. Amenity and safety is to be maintained through wide shaded footpaths, regular traffic calmed street and crossing points. Public transport routes can be accommodated. On-street parking is to be provided on both sides of the street, contributing to street activity and providing a buffer between pedestrians and cars on the travel way.</p> <p>Town Centre streets in North Kellyville include sections of Withers Road and Hezlett Road. Refer to Figure 10.</p>
Park Street	<p>Especially designed to encourage a cycle route running parallel to Hezlett Road and Foxall Road. It will feature a shared path for pedestrians and cyclists. It is designed to link key open spaces from the south of the Precinct to the North Kellyville Local Centre, primary school and beyond. The Park Street will be an important element of the water cycle management system by providing swales along the centre of the street.</p> <p>Refer to Figure 11.</p>
Local Street	<p>Provide local residential access. These streets are designed to slow residential traffic in order to give priority to pedestrians and cyclists. Amenity and safety is to be maintained by introducing various traffic calming measures. On-street parking is provided on both sides of the street. Local streets will be an important element of the water cycle management system by providing swales along the centre of the street.</p> <p>Local streets in North Kellyville are as per Figure 12.</p>
Minor Street	<p>Provide local residential access. These streets are designed to slow residential</p>

Street Type	Description
	<p>traffic in order to give priority to pedestrians and cyclists. Parking is permitted on one side of the street. Amenity and safety is to be maintained by introducing various traffic calming measures. Minor streets will be an important element of the water cycle management system by providing swales along one side of the street.</p> <p>Refer to Figure 13.</p>
Minor Street with Cycleway	<p>Provide local residential access. These streets are designed to slow residential traffic in order to give priority to pedestrians and cyclists. It will feature a shared path for pedestrians and cyclists. Parking is permitted on one side of the street. Amenity and safety is to be maintained by introducing various traffic calming measures. Minor streets will be an important element of the water cycle management system by providing swales along one side of the street.</p> <p>Refer to Figure 14.</p>
Street along Riparian Corridors / Parks	<p>Located along riparian corridors and parks. Amenity and safety is to be maintained by introducing various traffic calming measures. Parking will be provided on the side of the street adjoining the riparian corridor/park. Where Managed Ecological Zones are nominated by this DCP, the road corridor will include an area of land (nominated by this DCP) for ecological protection and bushfire asset protection. The North Kellyville Waterfront Land Strategy provides details on the objectives and controls applicable to Managed Ecological Zones.</p> <p>Amenity, safety and emergency access and egress for fire fighting is to be maintained by designing the road in accordance with acceptable solutions as stipulated under Planning for Bushfire Protection 2006. Traffic calming measures are to be introduced and parking is to be provided on the dwelling side of the street to allow access for emergency vehicles as per Figure 15.</p>

STREET DESIGN

1. Streets are to be provided in accordance with the minimum cross-sections in **Figures 7 to 15**.
2. Internal intersections are to be T-junctions, roundabouts or controlled by other appropriate traffic management treatments to slow and control traffic.
3. Direct vehicular access to sub-arterial roads will not be permitted where alternate access is available. Access will not be restricted to any property with existing access from arterial roads until such time as alternate access is available.
4. Roundabouts, street cross falls, longitudinal gradient, vehicle-turning movements and sight distances are to comply with Council's Design Guidelines Subdivisions/Developments (June 1997).
5. All Development Applications for subdivision are to detail the proposed kerb type.
6. Barrier kerbs are to be used through the whole Precinct unless otherwise indicated in the street sections on **Figures 7 to 15**.
7. Roll kerbs may be used in other locations to the above.

TEMPORARY ROAD CONSTRUCTION

1. Temporary public roads are permitted subject to the following criteria being satisfied:
 - The temporary public road is to be constructed upon a minimum of two (2) residential development lots;
 - The temporary public road is not to be constructed upon land zoned for Local or Neighbourhood Centre, Public Recreation, Infrastructure or Environmental Management;
 - A minimum trafficable width of 6.0m is provided to cater for two-way traffic with 3.5m wide verges on both sides;
 - The allotment layout associated with temporary public road construction does not result in the creation of undevelopable residue lots;
 - The temporary public road does not compromise the safety of all road users including service and passenger vehicles, pedestrians and cyclists;
 - The temporary public road is to be constructed to a standard in accordance with BHSC Shire Council Design Guidelines for Subdivisions/Developments (Section 5.07); and
 - The final road configuration is consistent with the pre-planned road network and street type as identified in Figure 4.
2. The following information must be submitted in support of a DA proposing temporary road construction:
 - An engineering design for the partial and full width road works must be submitted including details of any necessary drainage and service utility provision requirements;
 - A traffic safety report prepared by an appropriately experienced professional must be submitted demonstrating how the partial road proposal provides for the safe usage of all road users including service

and passenger vehicles, pedestrians and cyclists; and

- Written evidence demonstrating that an attempt to cooperate with adjacent landowners has been undertaken must be submitted. Such evidence could be in the form of letters and responses (if applicable).

PARTIAL WIDTH ROAD CONSTRUCTION

1. Partial width construction of existing and proposed roads is permitted subject to the following criteria being satisfied:
 - The site(s) located opposite the proposed partial road are zoned for residential use and are not in public ownership or identified for acquisition, that is, the site(s) opposite are not zoned for Local Centre or Neighbourhood Centre, Public Recreation or Infrastructure;
 - A minimum trafficable road width of 6.0m is provided to cater for two-way traffic;
 - The development potential of all adjoining allotments is maintained. The proposed development shall not, in the opinion of the consent authority, render any allotment adjoining or opposite the site of the proposed development incapable of development for the purpose of residential development because the allotment would not meet minimum DCP or SEPP development standards;
 - The safety of all road users including service and passenger vehicles, pedestrians and cyclists is not compromised by the proposed partial road construction; and
 - The final road configuration is consistent with the pre-planned road layout and road type as shown in the North Kellyville Indicative Layout Plan and Part 3.1 of this DCP. Note: In some circumstances where proposed partial width roads straddle existing boundaries, the alignment of the road may need to be slightly offset to ensure the partial road is wholly contained on the applicant's land.
2. The following information must be submitted in support of a DA proposing partial road construction:
 - An engineering design for the partial and full width road works must be submitted including details of any necessary drainage and service utility provision requirements;
 - A traffic safety report prepared by an appropriately experienced professional must be submitted demonstrating how the partial road proposal provides for the safe usage of all road users including service and passenger vehicles, pedestrians and cyclists.

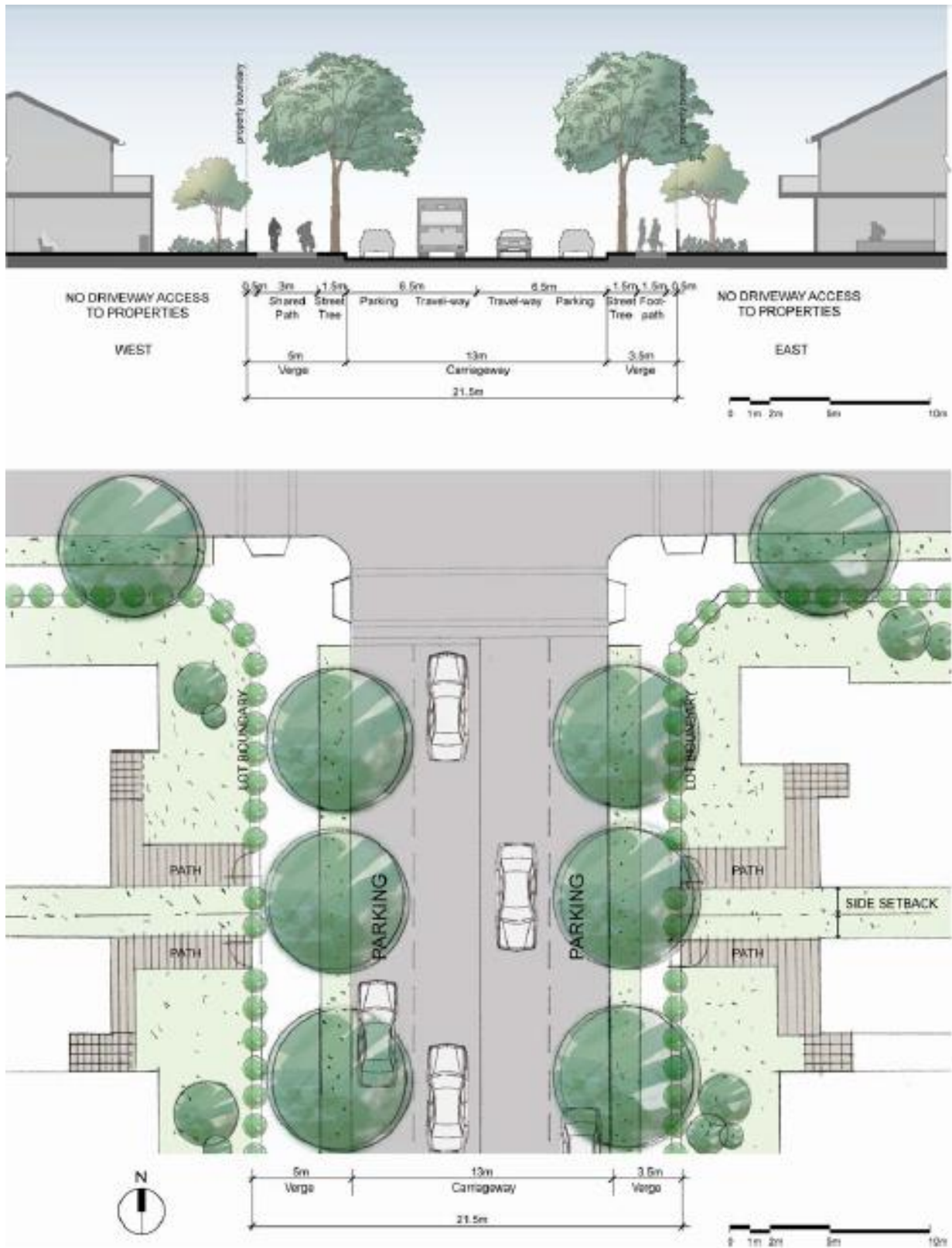


Figure 7. Sub Arterial Road A - Hezlett Road (South of the Town Centre)

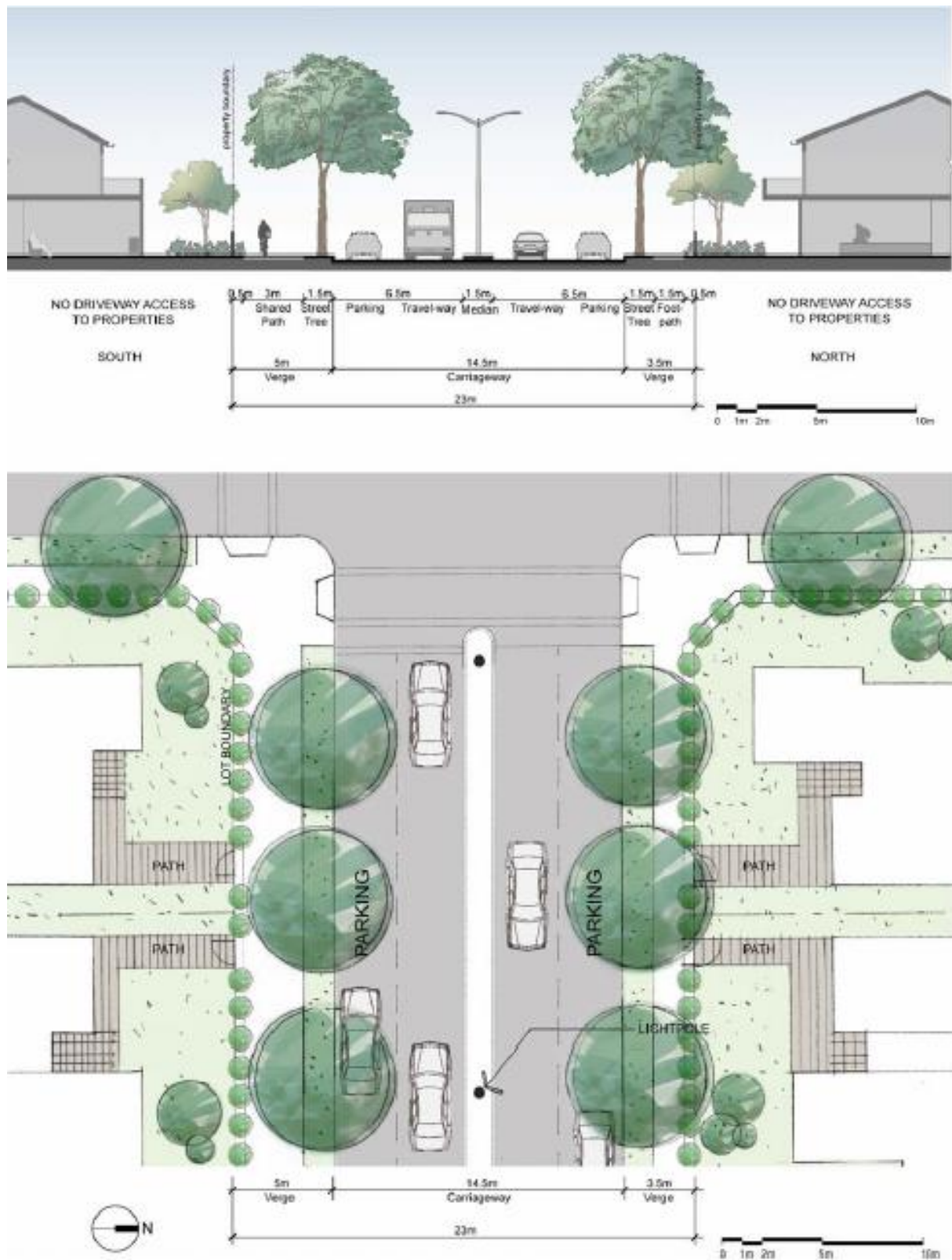


Figure 8 Sub Arterial Road B - Withers Road (From Barry Road to Smalls Creek or Mungerie Road)

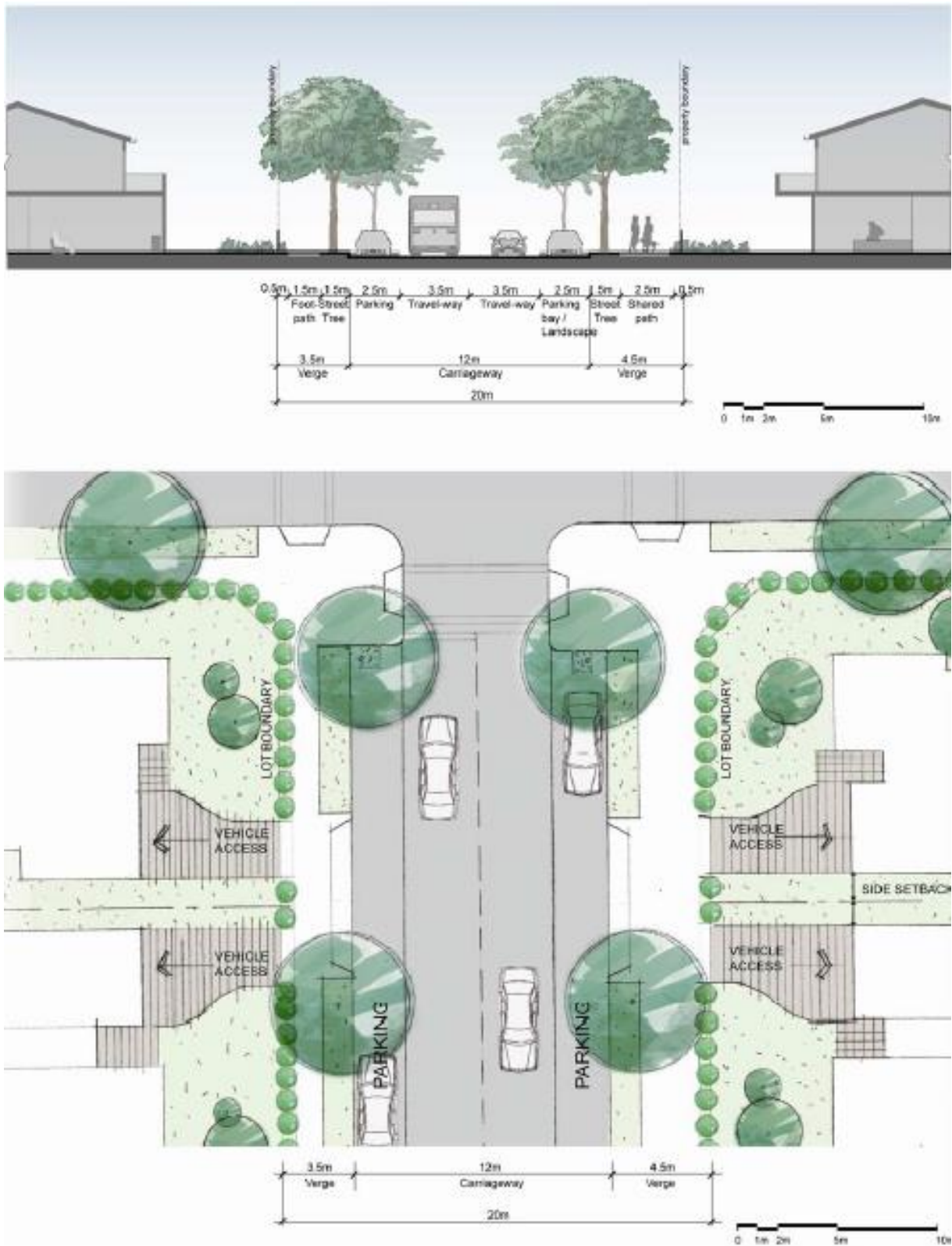


Figure 9. Collector Road

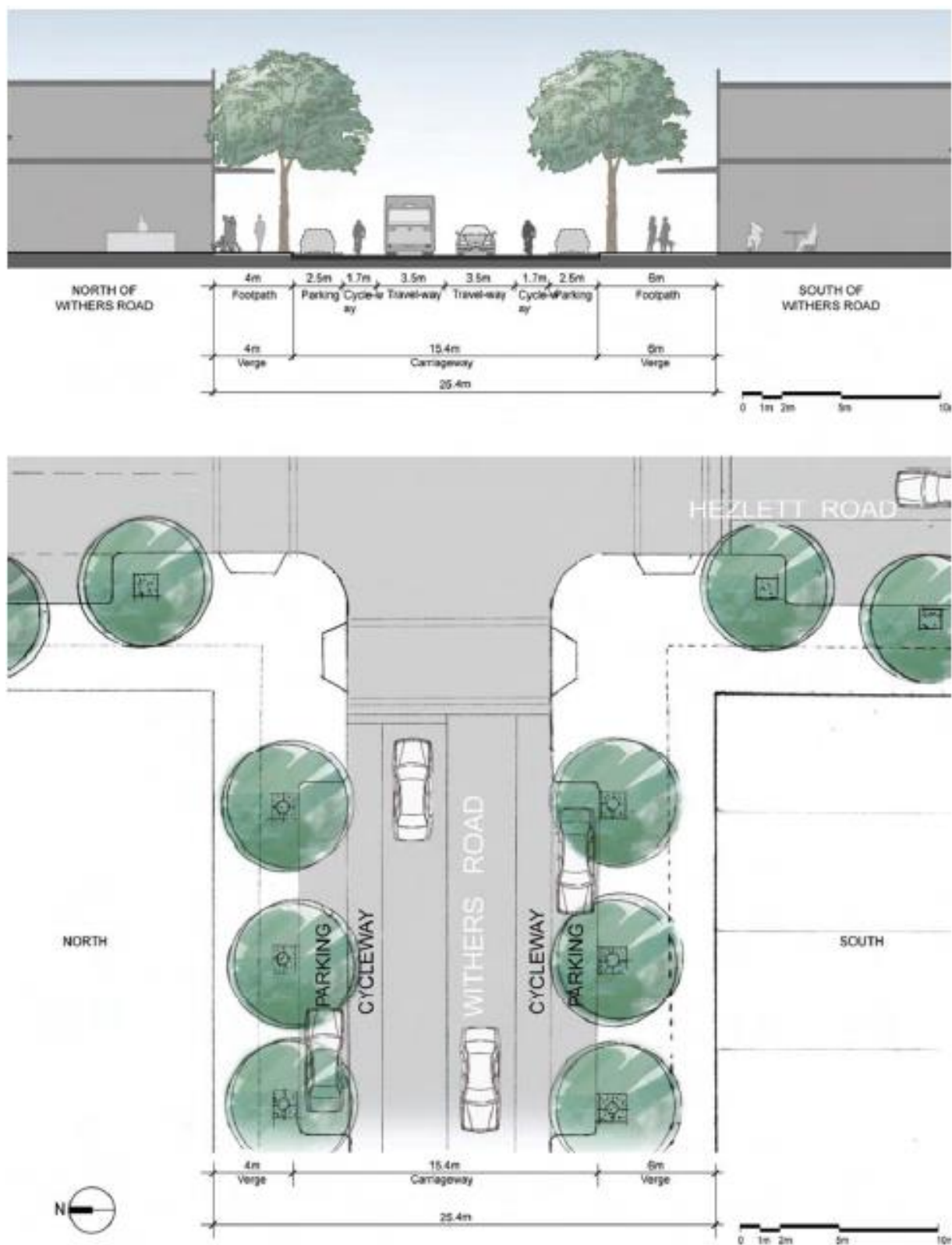


Figure 10. Town Centre Street - Withers Road (between Barry Road and Hezlett Road)

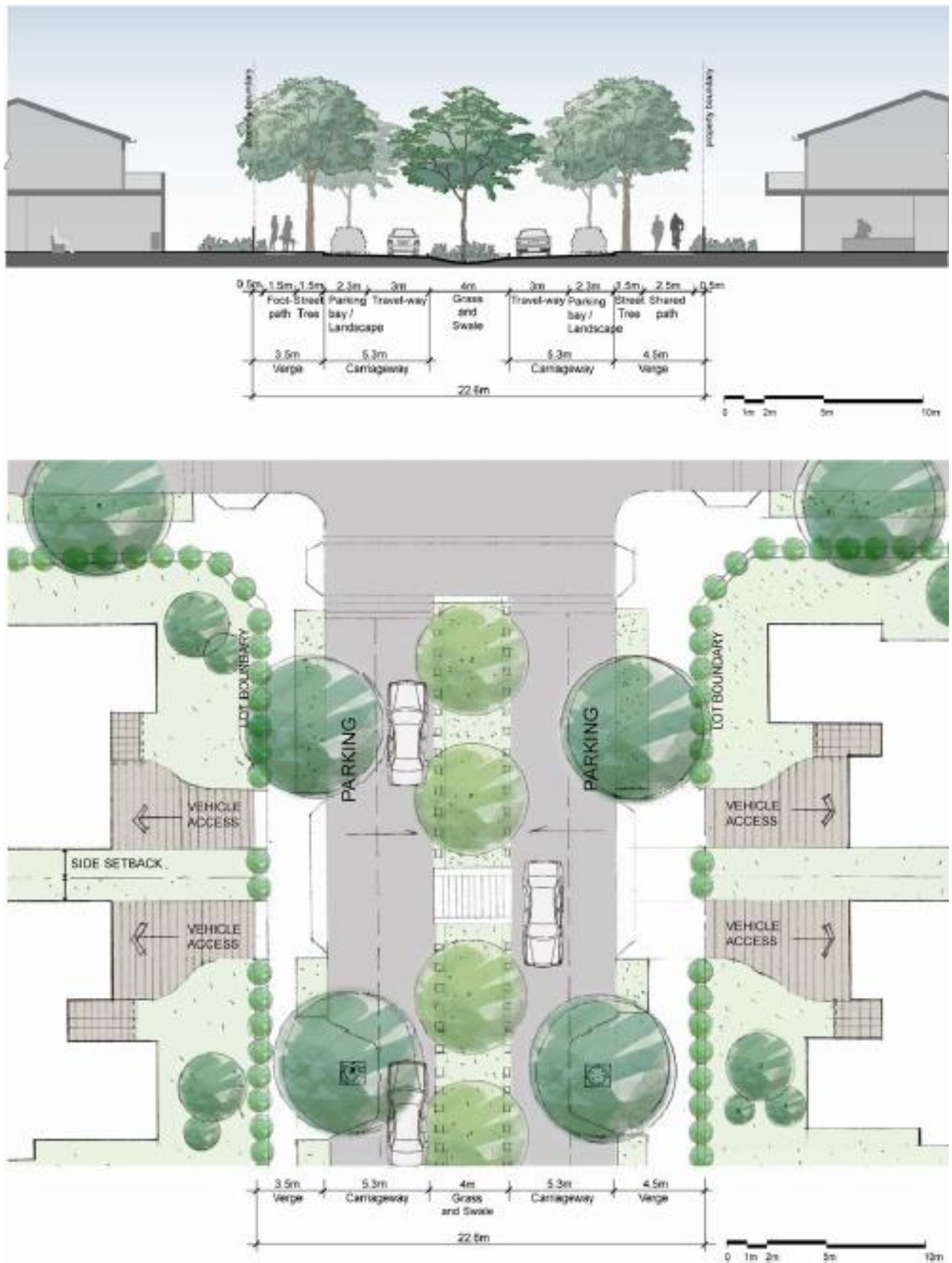


Figure 11. Park Street

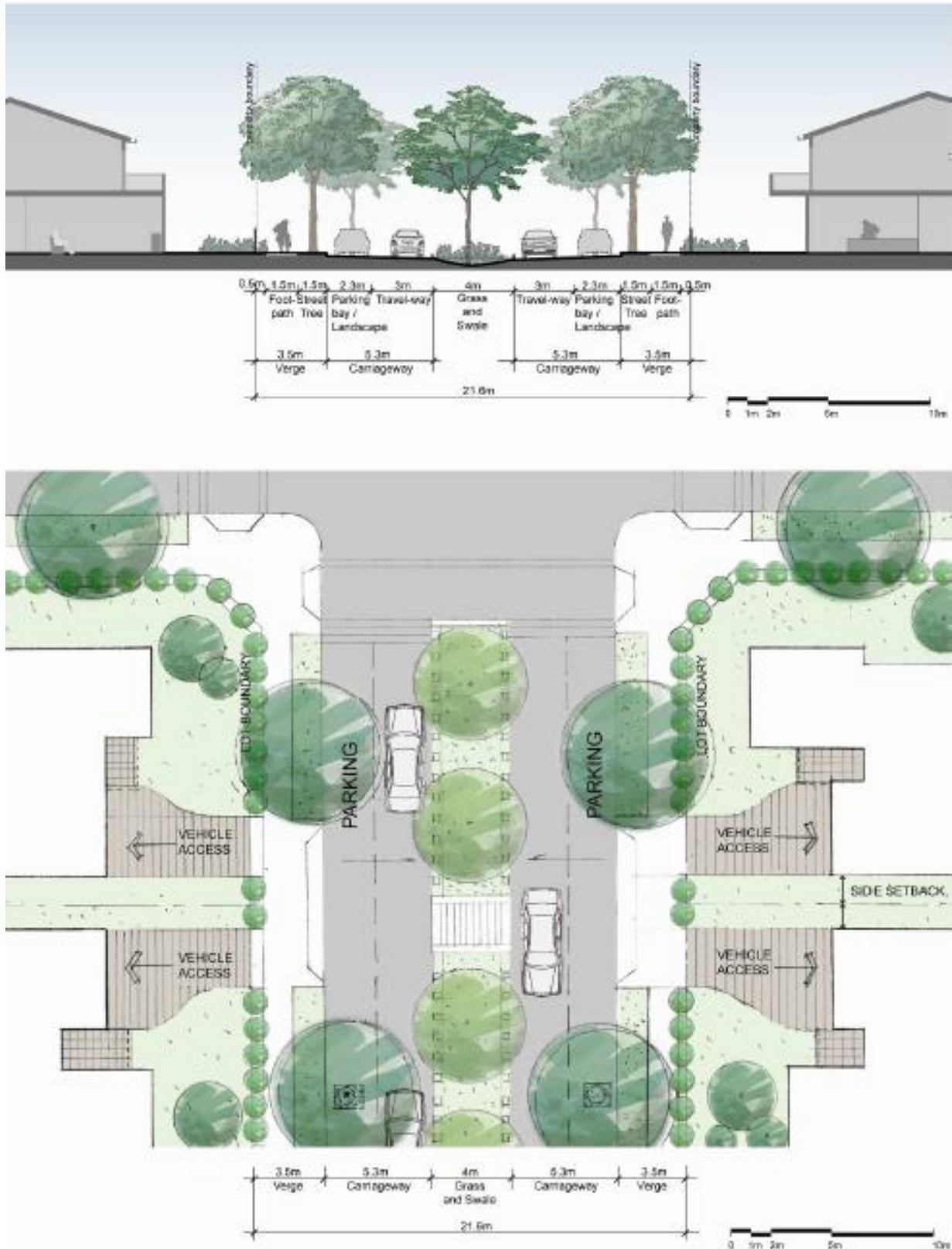


Figure 12. Local Street

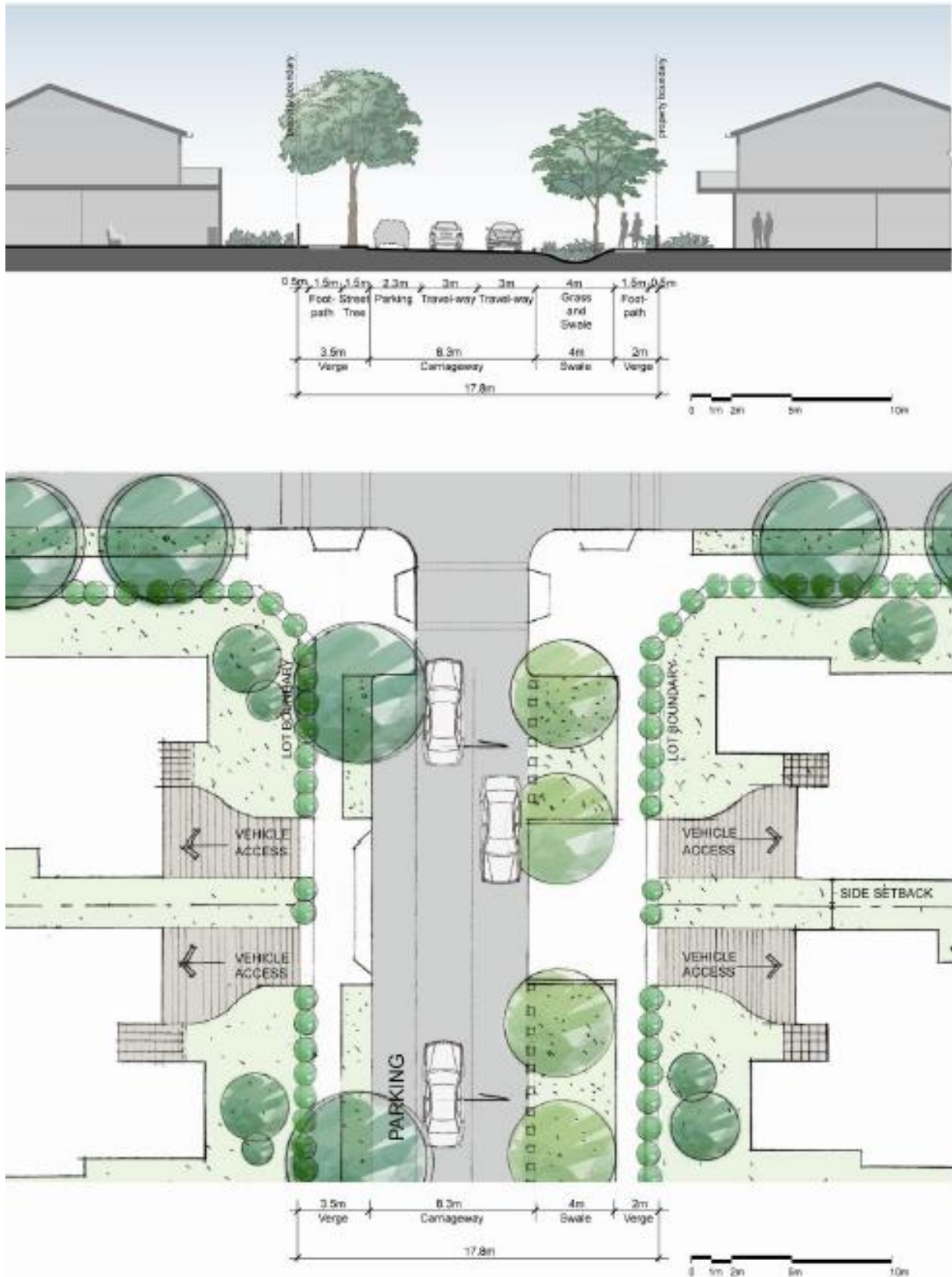


Figure 13. Minor Street

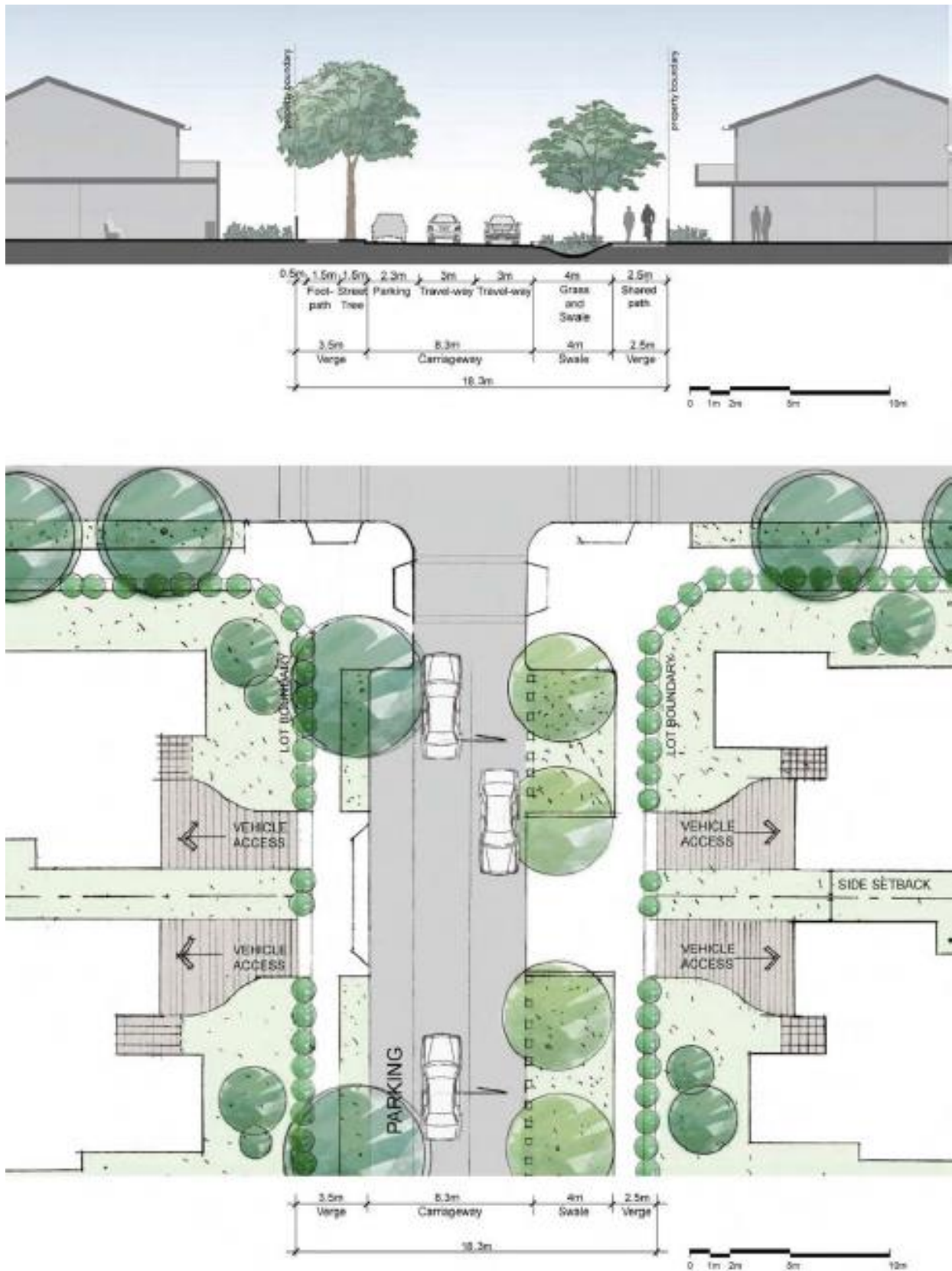


Figure 14. Minor Street with Cycleway

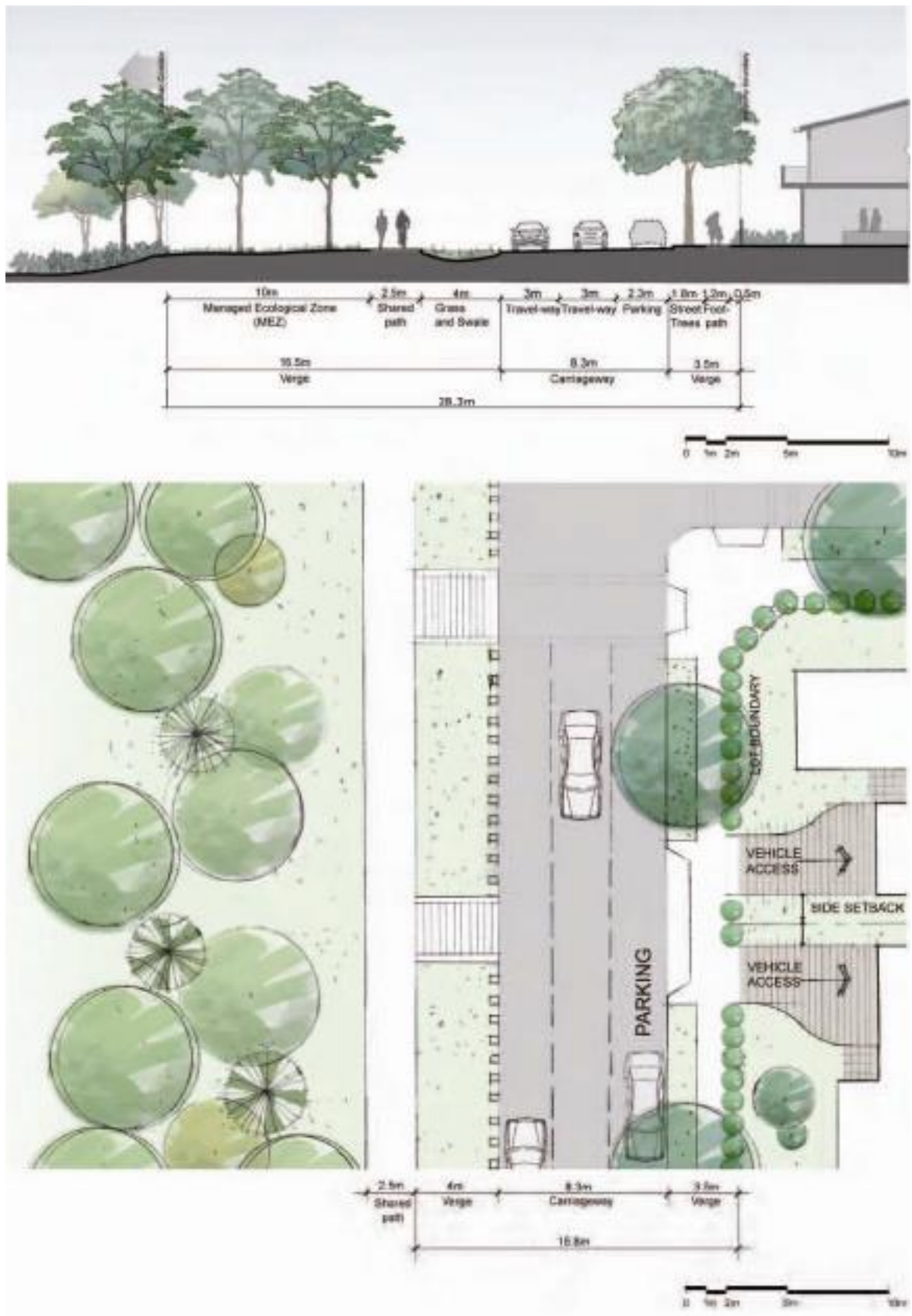


Figure 15. Street along Riparian Corridors/Park

3.1.2 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 16** and the **Department of Planning and Environment Delivery Note: Laneways**.

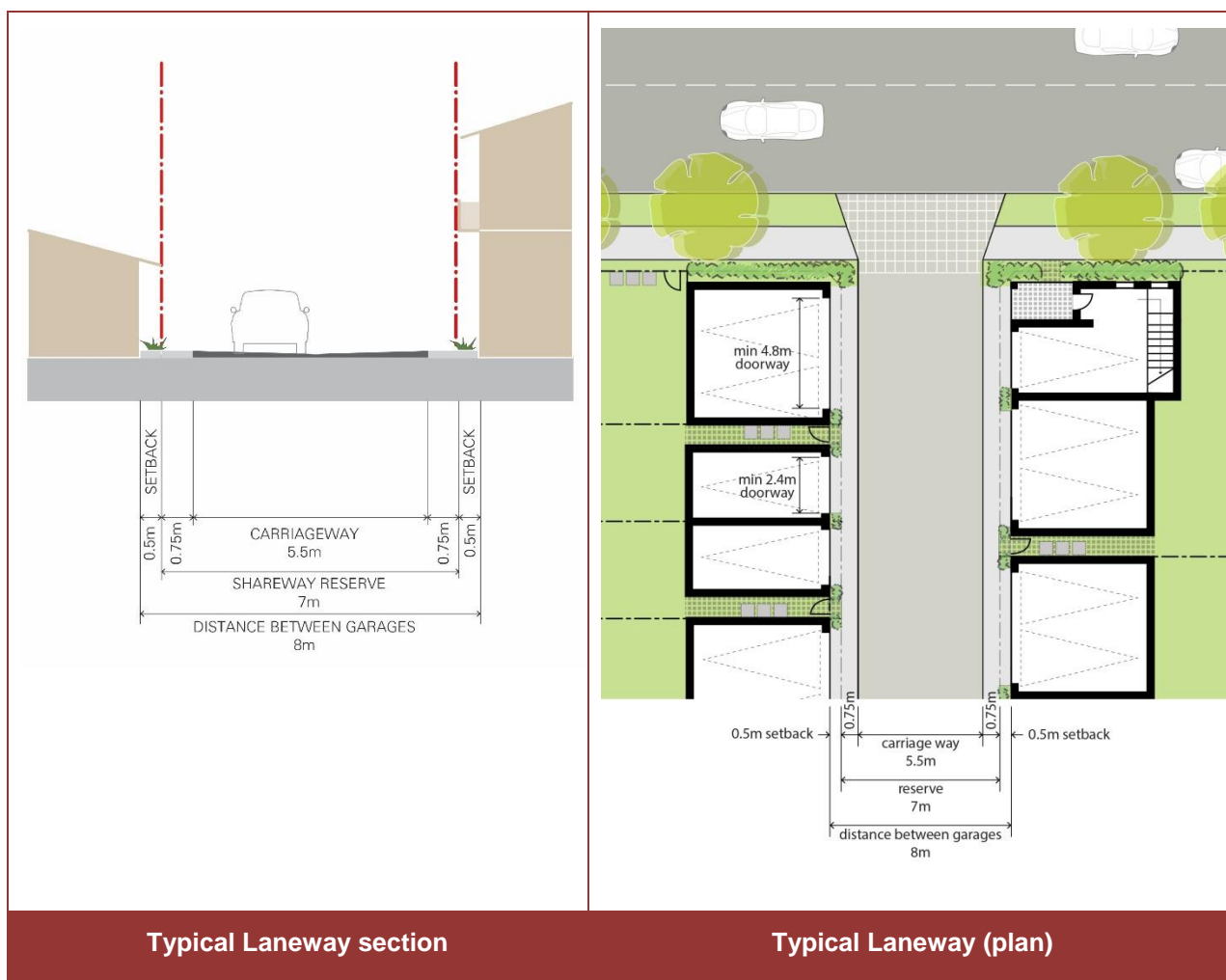


Figure 16. Laneway Principles

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).
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 17**.
 - Lanes on sloping land with significant longitudinal and/or cross falls require detailed design consideration to demonstrate functionality.

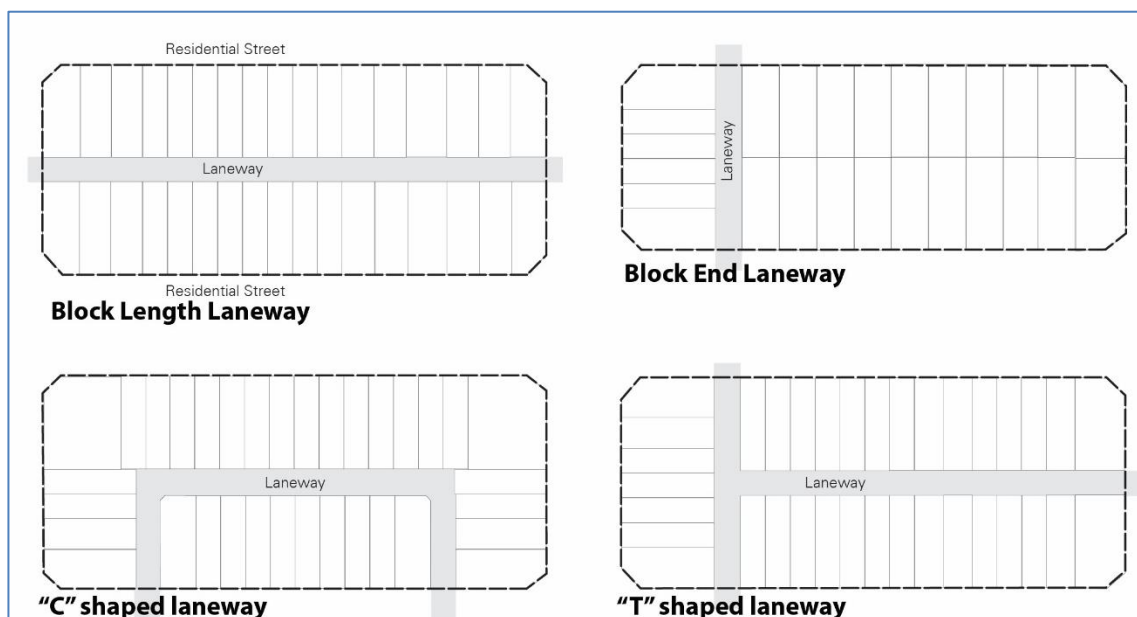


Figure 17. Sample Lane Layouts

6. 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.
7. All lots adjoining a laneway should utilise the laneway for vehicular/garage access.
8. 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 18** as lane entry/street corner lots. **Figure 18** 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.
9. 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 18**.
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.

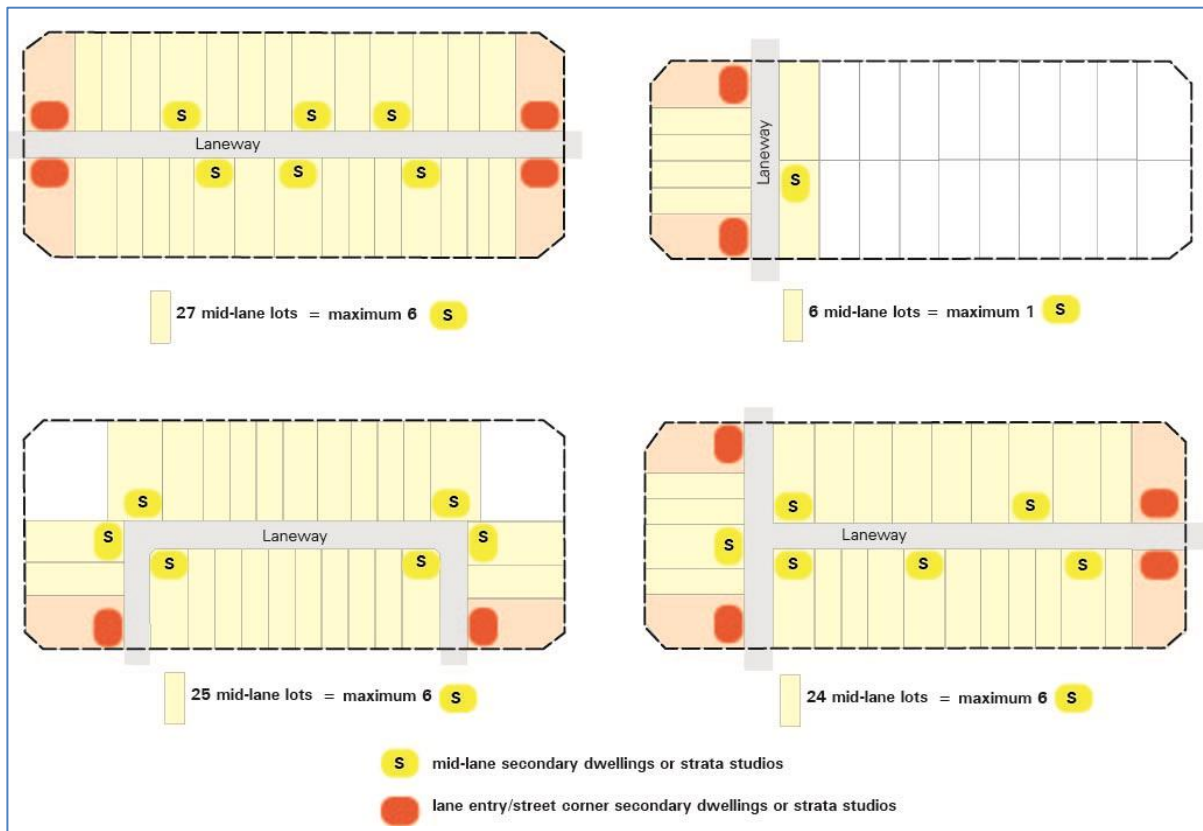


Figure 18. Sample laneways showing maximum number of secondary dwellings or strata studios

3.0

Land Development



3.1.3 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 19**.
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**.

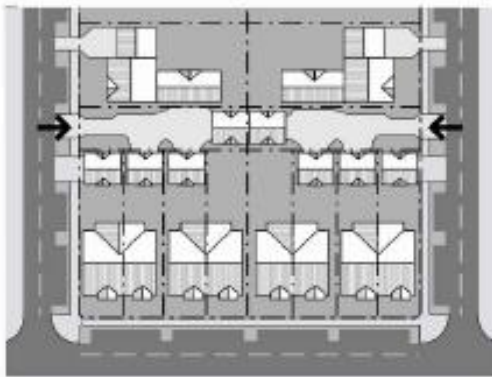


- Irregular shaped mews with central landscape feature
- Use for odd shaped block geometry



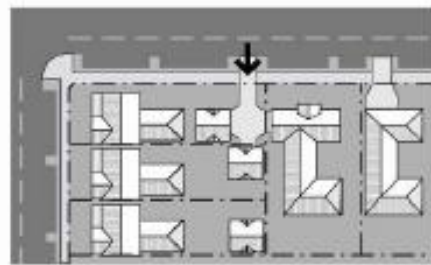
T-SHAPED

- Driveway should form the frontage road of the narrow lot dwellings
- Use where block geometry or available road frontage precludes 'close'



CLOSE

- Preferable



COMMON APRON

- Maximum 3 properties

Figure 19. Indicative examples of shared driveways

3.2 Sub-precincts

Development sub-precincts are areas generally bound by fixed roads and indicated in **Figure 20**.

OBJECTIVES

1. To allow departure from the Indicative Layout Plan; and
2. To ensure that access, drainage and servicing is appropriately provided to all sub-precincts.

CONTROLS

An applicant may depart from the subdivision layout within a sub-precinct provided that:

1. The block layout and subdivision objectives and controls outlined in **Section 3.6.1** are met;
2. The level of access to fixed roads is retained;
3. The provision of drainage and service infrastructure is retained; and
4. Any variation from the Indicative Layout Plan does not limit the development potential for adjoining precincts to meet the objectives of the Indicative Layout Plan.
5. Where any variation to the residential street network indicated at **Figure 6** is proposed, the alternative street network is to be designed to achieve the following principles:
 - a. a permeable street network that is based on a modified grid system;
 - b. maximise connectivity across sub-precincts;
 - c. maximise connectivity between residential areas and community facilities, open space and centres;
 - d. encourage walking and cycling and reduce travel distances;
 - e. take account of topography and accommodate significant vegetation;
 - f. optimise solar access opportunities for dwellings;
 - g. provide frontage to and maximise surveillance of open space and riparian corridors;
 - h. provide views and vistas to landscape features and visual connections to nodal points and centres;
 - i. maximise the use of water sensitive urban design measures; and
 - j. minimise the use of culs-de-sac. If required, the maximum number of dwellings to be served by culs-de-sac is 10.

Neighbourhood Block Design

1. The size of the block must facilitate circulation on public streets through each sub precinct.
2. The 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 solar design principles.
3. Orientate blocks, wherever possible, to maximise the number of east, west and south facing lots and to minimise the number of narrow north facing blocks.
4. Variation in the size of the blocks is permitted provided that a regular layout of streets allows for ease of circulation, and that the number of streets as indicated in the Indicative Layout Plan (refer to **Figure 2**) is not reduced.
5. Maximum block dimensions are not to exceed 85 metres x 220 metres.

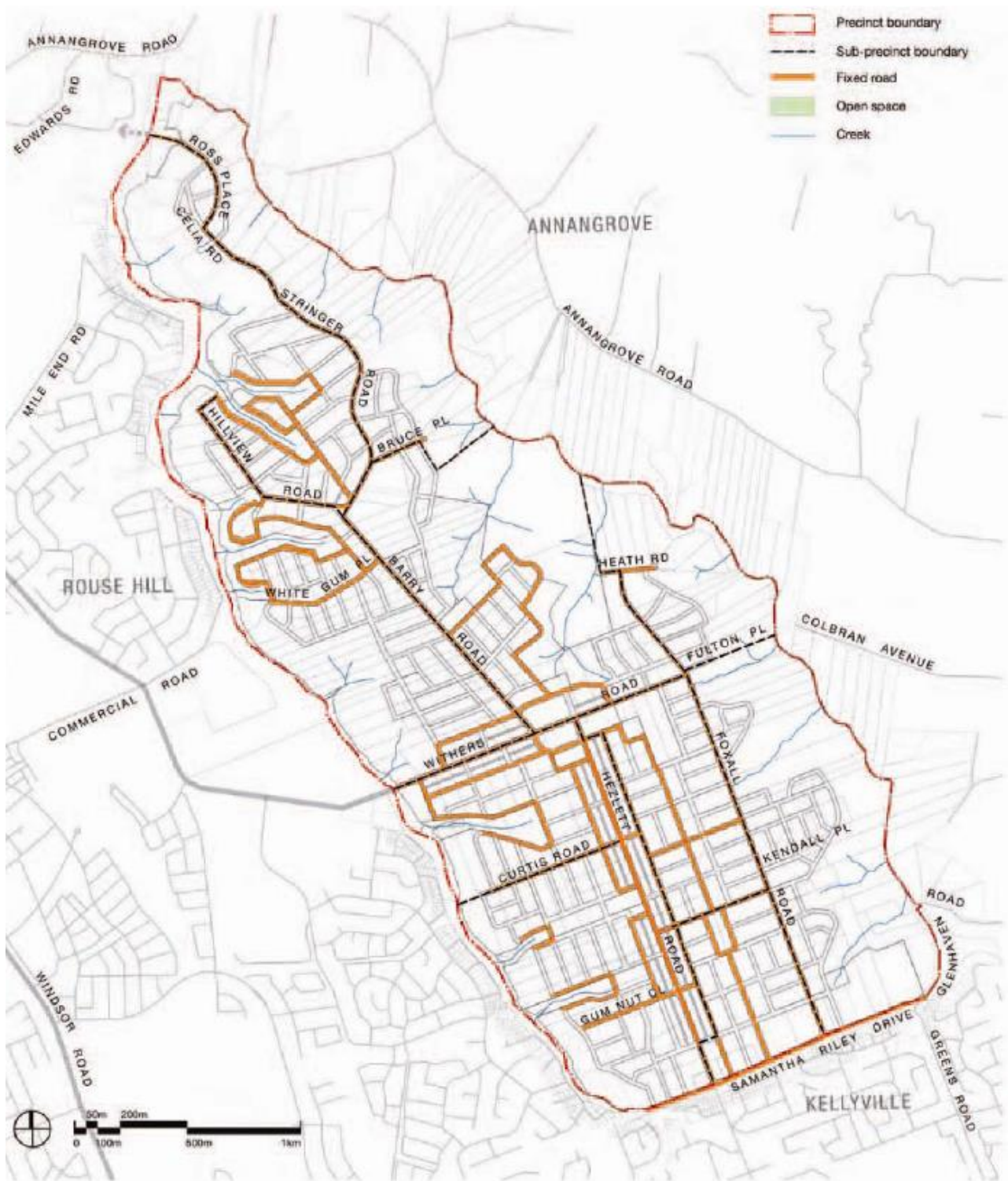


Figure 20 Sub Precincts

3.3 Public Transport

OBJECTIVES

1. Encourage the use of public transport through the provision of integrated bus, pedestrian and cycle routes.
2. To encourage the provision and use of public transport within North Kellyville.
3. To ensure clear, safe pedestrian links to public transport stops.
4. To ensure that the majority of residential lots are within 400 metres distance from an existing or proposed bus stop.

CONTROLS

1. Bus stops should be provided generally in accordance with **Figure 21** and be indicated on the subdivision DA drawings where the bus route is known. The final location of bus stops will be determined by Council's Local Traffic Committee.
2. Bus stops should be provided on-street and not within indented bays. Bus shelters are to be provided at key stops and installed at the subdivision construction stage by the developer.

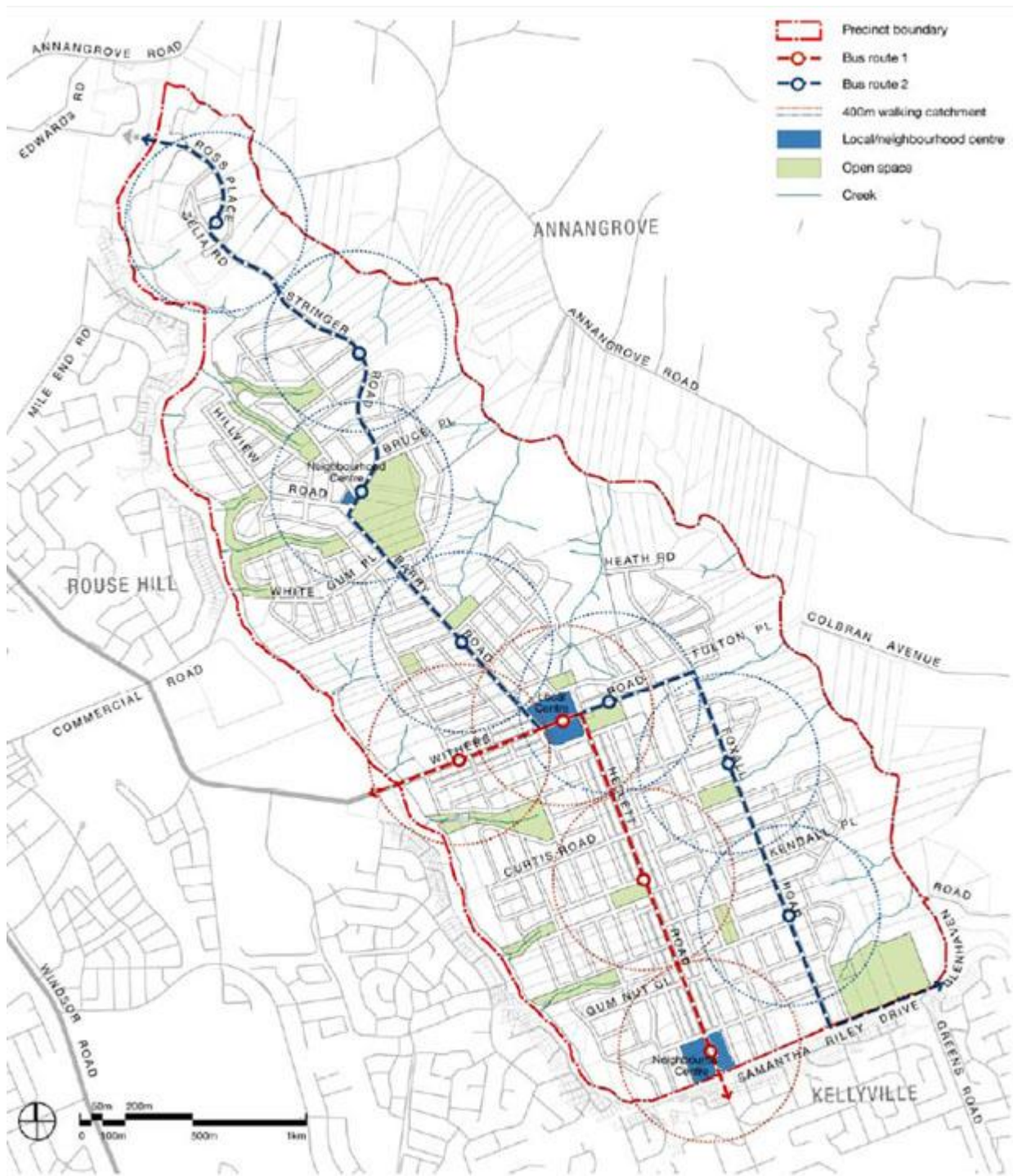


Figure 21. Public Transport

3.4 Pedestrian and Cycle Network

OBJECTIVES

1. To provide a convenient, efficient and safe network of pedestrian and cycleway paths for the use of the community, within and beyond the site.
2. To encourage residents to walk or cycle, in preference to using motor vehicles, as a way of gaining access to the schools, shops, and local community and recreation facilities.
3. To avoid duplication by allowing pedestrian pathways and cycleways to be located within parks and corridors wherever practical.

CONTROLS

1. Footpaths and cycle paths are to be provided in accordance with street sections provided in **Section 3.1** Street Network and Design
2. All pedestrian and cycle routes are to be consistent with the Planning Guidelines for Walking and Cycling (DIPNR & RTA 2004) and Council's Pedestrian Access and Mobility Plan 2003.
3. Pedestrian paths, cycle routes and facilities in public spaces are to be safe, well lit, clearly defined, functional and accessible to all.
4. Pedestrian paths, cycle paths and pedestrian refuge islands are to be designed to be fully accessible by all in terms of access points and gradients, generally in accordance with Australian Standard 1428:1-4.
5. Pedestrian and cycle pathways are to be constructed as part of the infrastructure works for each residential stage with detailed designs to be submitted with the construction certificate application. Concept approval will be required at DA stage.
6. Pedestrian and cycle routes shall be in accordance with **Figure 22**.

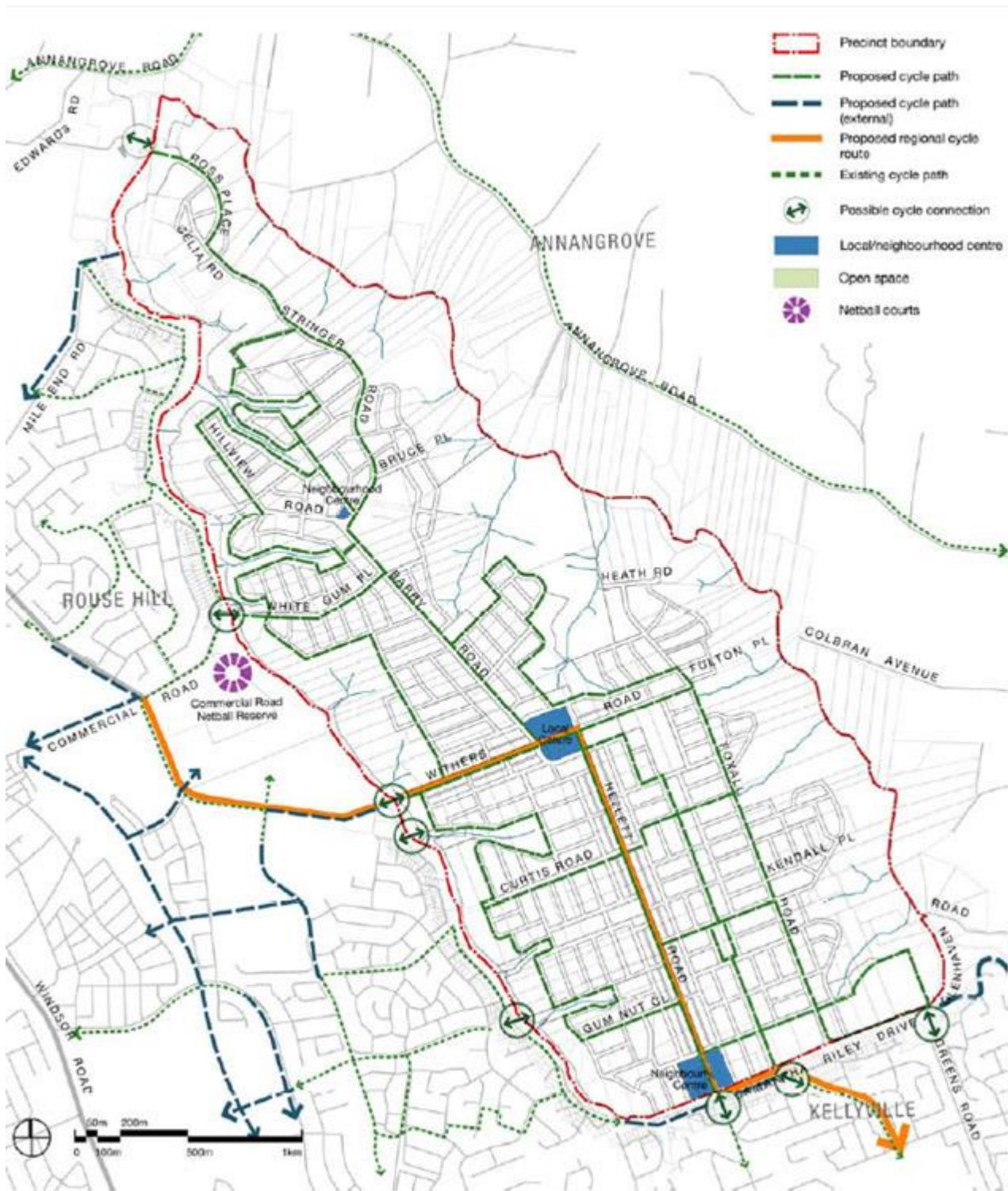


Figure 22. Pedestrian and Bicycle Network

3.5 Public Domain Works

OBJECTIVES

1. To meet the public open space and recreational needs of residents.
2. To provide an equitable distribution of public open space and recreation opportunities.
3. To ensure a high quality of design and embellishment of all public open space.
4. To ensure environmentally and visually sensitive land contributes to the landscape character of the Precinct.
5. To ensure that all the public domain elements like street trees, paving, street furniture, lighting, and signage contribute to a consistent street character.
6. To ensure that adequate provision is made for utilities.
7. To ensure that all utilities are integrated into the development and are unobtrusive.
8. To ensure that all parks are managed to the extent required to provide acceptable asset protection to adjoining dwellings.

CONTROLS

Public parks and landscape

1. Public parks should be provided in accordance with **Figure 23**.
2. Parks should be located and designed to accommodate remnant vegetation and where appropriate, should be linked to and integrated with riparian corridors. They should also be located to take advantage of views and vistas.
3. Parks should be generally bordered by streets on all sides with houses oriented towards them for surveillance. Smaller lot housing is encouraged around parks.
4. Riparian corridors and conservation areas are to provide opportunities for pedestrian and cycle ways, fitness trails and additional open space in a manner that maintains the environmental significance of these areas. A range of themed elements such as boardwalks, eco-pathways, and educational tracks should be utilised in appropriate locations (i.e. within the riparian corridor buffer).
5. A Landscape Plan is required to accompany a subdivision DA creating any park and is to provide details on elements such as:
 1. asset protection zones
 2. earthworks
 3. furniture
 4. plant species and sizes (with consideration for bush fire risks)

5. play equipment
6. utilities and services
7. public art
8. hard and soft landscaping treatments
9. signage
10. any entry statements
11. waste facilities
12. any other embellishment.

Street Planting

1. Street trees are required for all streets. Street planting is to:
 - 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; and
 - Provide an attractive and interesting landscape character and clearly define public and private areas, without blocking the potential for street surveillance.
2. Street trees will be required to be planted at the time of subdivision construction. Street trees will be protected with tree guards and a 12-month bond will be imposed to ensure the preservation of each tree.
3. Street tree planting is to be provided to all streets with a spacing of between 7 and 10 metres, with a minimum of one tree per lot frontage. Corner lots will have a minimum of two street trees and normally three trees. The location of street trees must complement proposed driveway locations.
4. Street tree species must be in accordance with Council's list of preferred planting species in **Appendix B**.
5. Street tree species must be consistent with Council's Non- Indigenous Planting Zone Map in **Appendix B**.
6. All enhanced collector roads are to be planted with a consistent species of tree in order to provide a boulevard treatment of the streetscape.
7. Landscape works in roundabout islands may include low-maintenance groundcover planting and native grasses with a mature height of up to 0.5 metres as well as clear-stemmed tree planting. A metered water supply point and subsurface drainage is required in all small island planter beds.
8. Access streets located adjacent to arterial roads are to include landscape treatment of the verge adjoining the arterial road. Road verges provide opportunities for unifying the appearance and landscape character of the area and should be provided as a continuous design feature along the length of the arterial road.

Signage, Street Furniture, Lighting and Public Art

1. Signage, street furniture and lighting is to be:
 - Consistent with BHSC DCP 2007 Part D Section 3 Landscaping;
 - 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.
2. The integration of artworks into the design of public spaces is encouraged.
3. Artworks should, where possible, serve a dual role, e.g. as play equipment for children, informal seating or a marker for a meeting place.
4. Locating entry signage and the like within a public road reserve is subject to Council agreement.
5. The location and design of signage and street furniture is to be indicated on engineering construction drawings.
6. All lighting proposed is to be identified with the engineering plans accompanying an application for a Construction Certificate. The level of street lighting is to be designed to meet the current Australian Standards AS/NZS 1158 series.

Utilities

1. Gas and water services may be located in a shared trench on one side of the street and electricity power and telephone located in a shared trench on the other side of the street. The North Kellyville Precinct is also to be serviced with a recycled water supply, which will require an increase in Sydney Water's service allocation.
2. All development shall incorporate underground electricity reticulation and telecommunications.
3. Any existing aboveground electricity reticulation services shall be relocated underground with the exception of main transmission lines.
4. Where agreement to develop shared trench practices cannot be met, or location of services are unable to be limited to one side of the road, the alignment of services shall be to a standard acceptable to Council.
5. Utilities and services are to be supplied and constructed in accordance with the requirements of the relevant authority.
6. Details of the location of all sewer reticulation mains are to be supplied to Council for assessment of environmental and property considerations.
7. Pipes and conduits through bushland areas and areas with significant vegetation cover are to be avoided. Where it cannot be avoided, pipes are to be or under-bored with the aid of small machinery, causing minimal disturbance to vegetation and exposed rock outcrops.
8. Development is to have a water supply for fire-fighting purposes in accordance with the NSW Rural Fire Service's *Planning for Bushfire Protection 2006* (as amended).

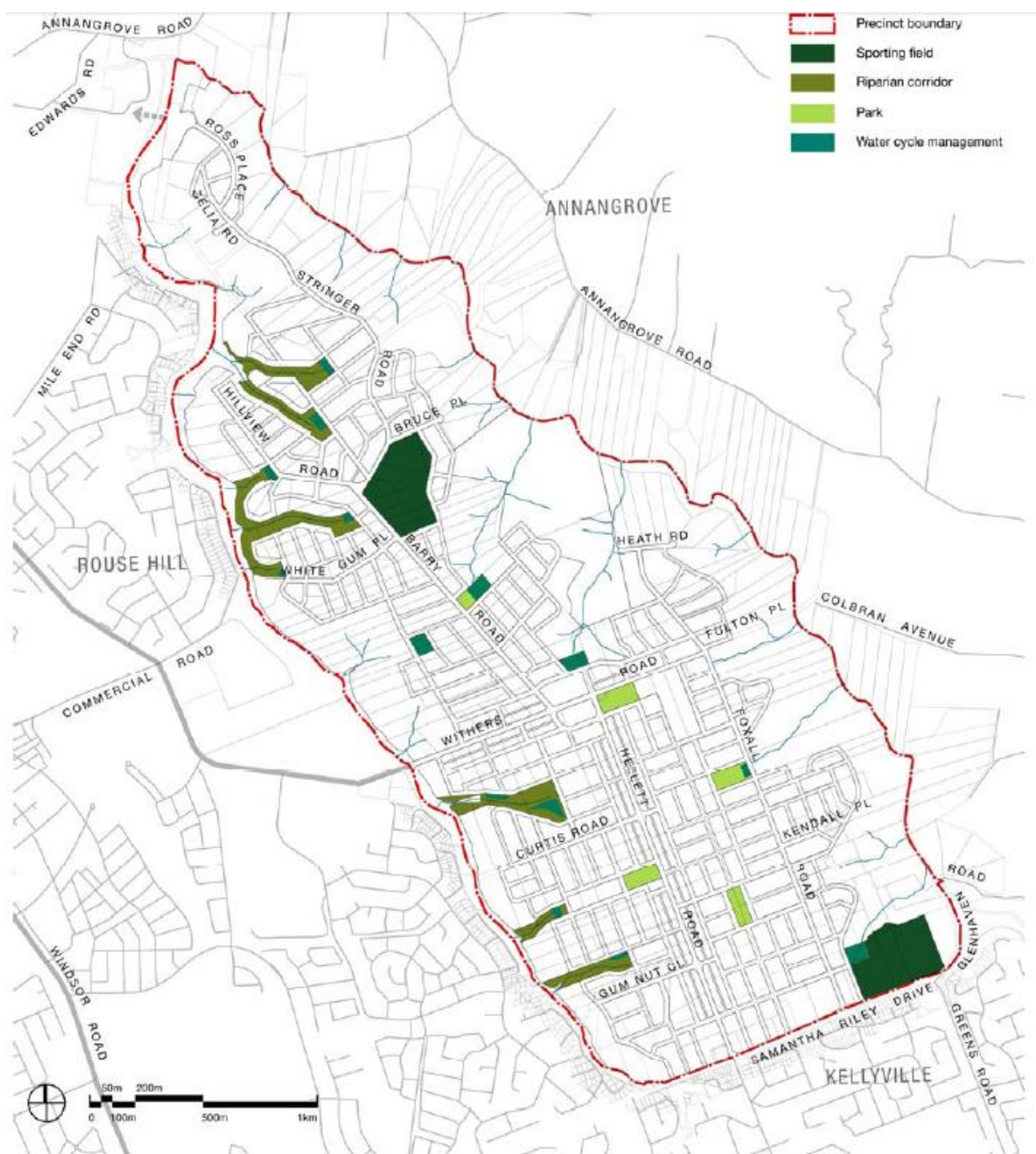


Figure 23. Open Space

3.6 Residential Subdivision

3.6.1 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

11. 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.
12. 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.
13. 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.
14. 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

15. 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 7**. In certain density bands, variations to some lot sizes may be possible subject to clauses in the Sydney Region Growth Centres SEPP.
16. Minimum lot frontages applying to each density band will comply with **Table 8**. Lot frontage is measured at the street facing building line as indicated in **Figure 24**.

Table 7 Minimum lot size by density bands

	R1 General Residential	R2 Low Density Residential	R3 Medium Density Residential
Minimum Net Residential Target (dwellings/Ha)	12.5	10	20
Dwelling House (base control)	300	360	300
With BEP	240	360	225
As Integrated DA	240	360	200
Studio Dwelling	No minimum lot size as strata development not subject to minimum lot size controls		
Secondary Dwelling	450	450	In principle lot
Dual Occupancy	600	600	500
Semi Detached Dwelling	300	300	150
Attached Dwelling	1500	Not permissible	375
Multi Dwelling Housing	1500	Not permissible	1500
Manor Homes	Not permissible	Not permissible	600
Residential Flat Buildings	4000	Not permissible	2000

Table 8 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.

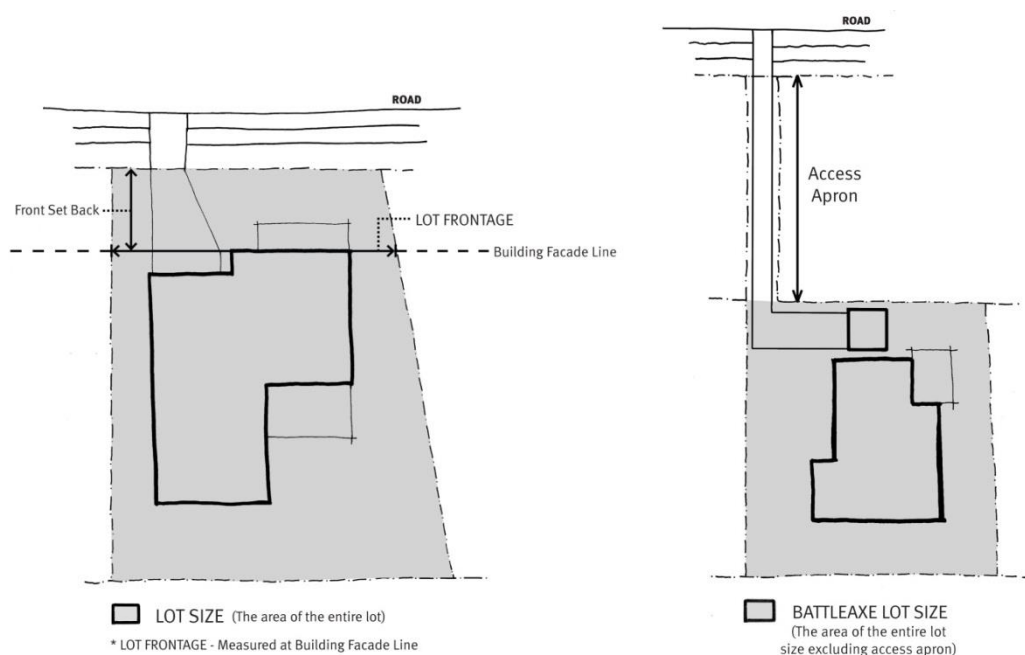


Figure 24. Measurement of minimum lot widths and lot area

17. 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.
18. In density bands $\leq 20\text{dw/ha}$ no more than 40% of the total residential lots proposed in a street block may have frontage of less than 10m wide.
19. In density bands $\leq 25\text{dw/ha}$, 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.
20. 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.

21. 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.
22. 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.
23. 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.
24. 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

25. 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 40**.
26. 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.
27. 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.
28. 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

29. 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

30. 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.
31. The maximum number of attached or abutted dwellings permissible in a set is six.
32. 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 25**

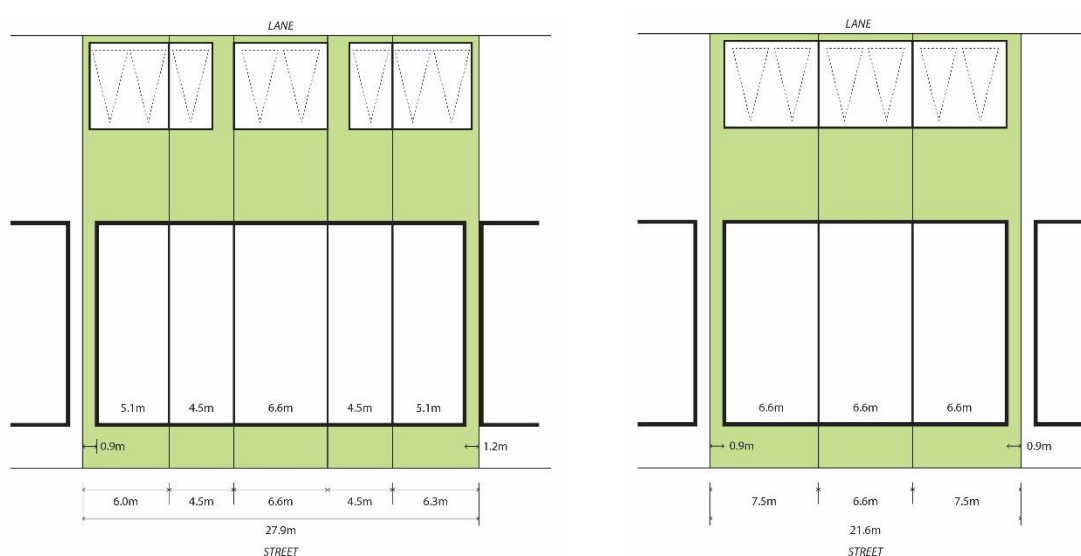


Figure 25. Two examples of lot subdivision for 'sets' of attached or abutting terraces.

RESIDENTIAL FLAT BUILDINGS

33. 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.

3.6.2 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 26**.
2. Subdivision layout should minimise the use of battle-axe lots without public frontage to resolve residual land issues.

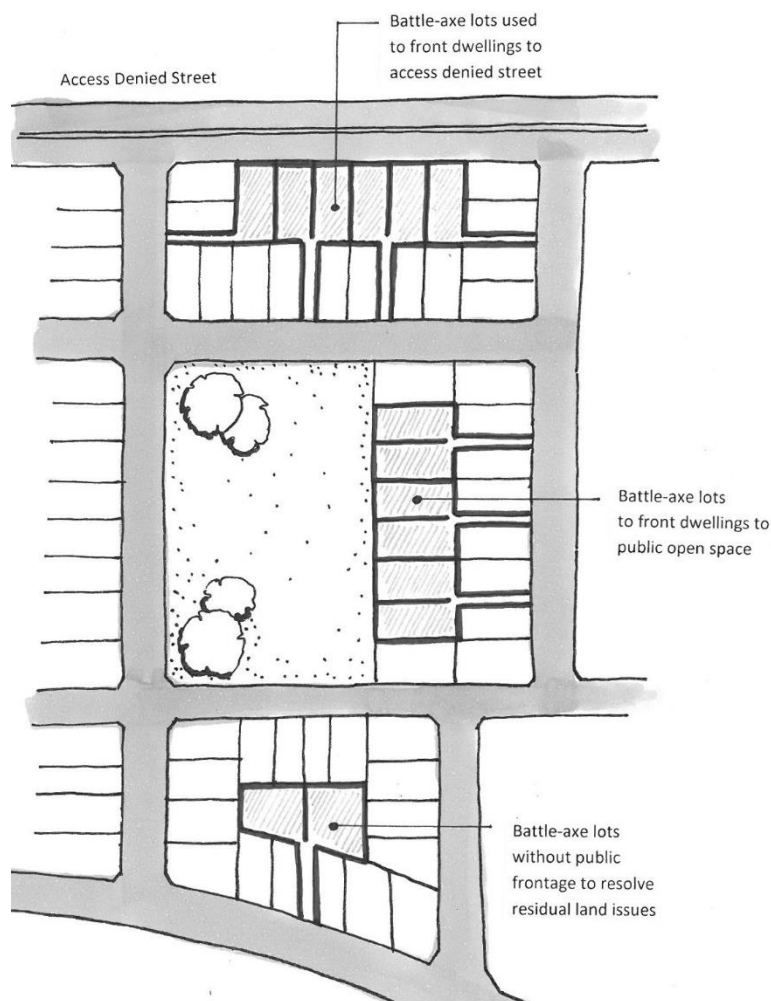


Figure 26. Examples of locations of battle-axe lots

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 27**.
5. Driveway design, including dimensions and corner splays, is to be in accordance with Council's Engineering Specifications.
6. Any future subdivision applicable to land at 9 Palaran Avenue, North Kellyville (Lot 3 DP 249675), which is subject to a minimum lot size of 600m², must not result in the creation of battle-axe lots.

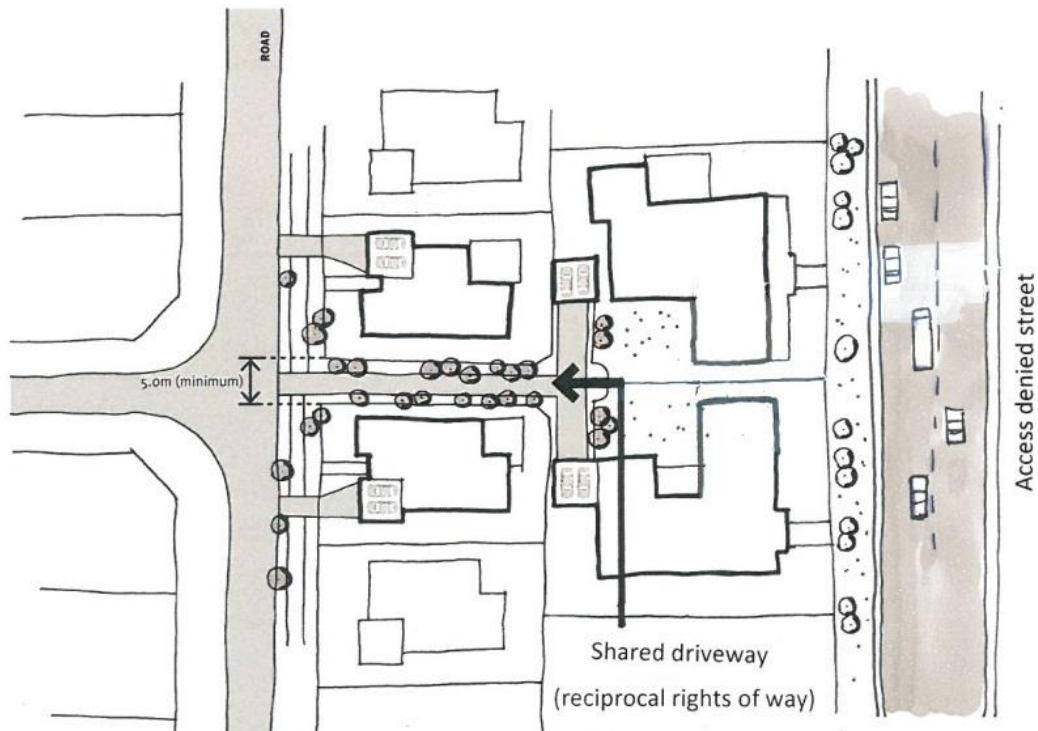
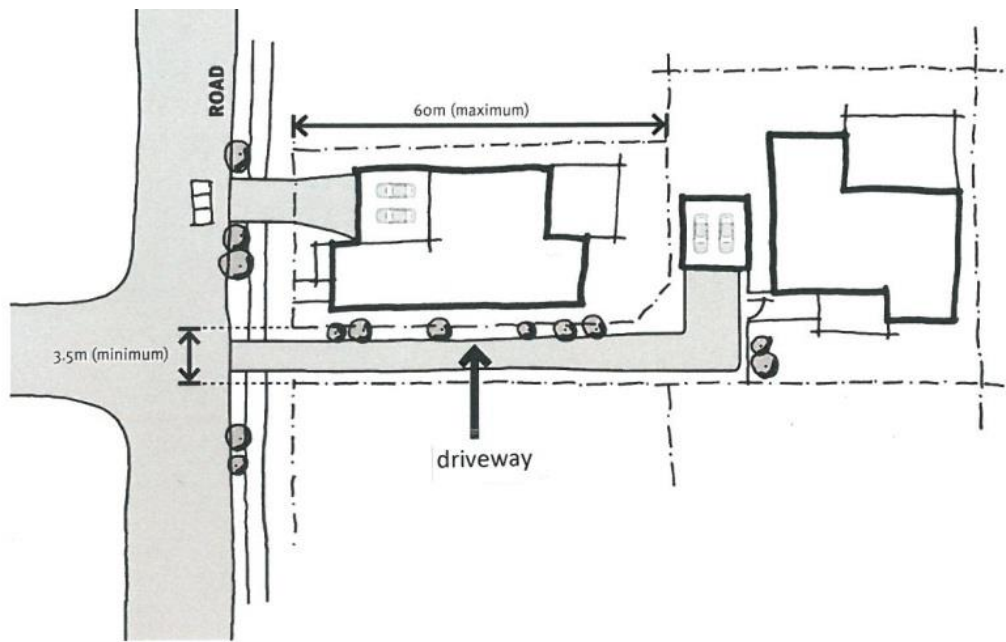


Figure 27. Examples of driveways and shared driveways for battle-axe lots

3.6.3 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 28**.
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.

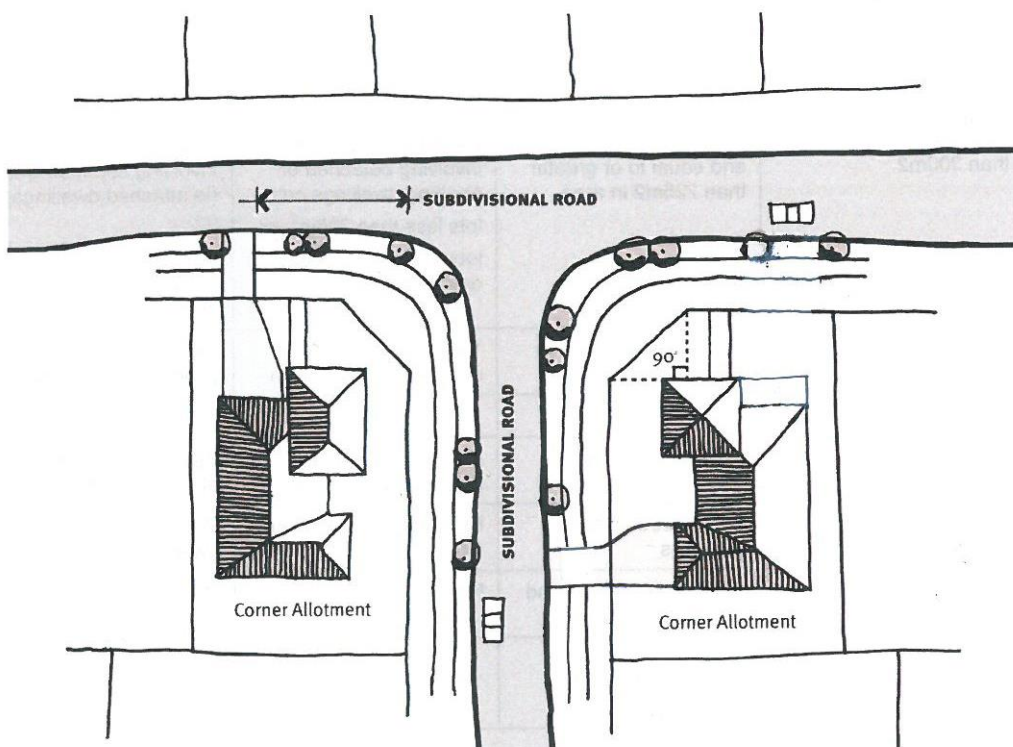


Figure 28. Corner lots

3.7 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 9**.
- 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 9. Subdivision Approval Process

Approval pathway	DA for Subdivision <i>Pathway A1</i>	DA for Subdivision with Building Envelope Plan <i>Pathway A2</i>	DA for Integrated Housing (Integrated Assessment with subdivision prior to construction of dwellings) <i>Pathway B1</i>	DA for Integrated Housing <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 (ie 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 **Table 8**.

- 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 29**.

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 30**.

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 Environmental Delivery Note: Public Domain Plans**

Subdivision in the E3 Zone

1. Any lot created must be capable of providing a building platform for the dwelling of at least 15m x 20m clear of any restrictions (including any Asset Protection Zones) or building line setbacks. The building platform shall be sited in an accessible and practical location suitable for residential building construction.
2. Suitable graded vehicle access shall be provided from a public road to the identified building platform in accordance with Councils minimum driveway requirements.
3. The subdivision plans must clearly indicate where the building platforms can be located on each lot and indicate the proposed access paths to the platforms, free of any restrictions or building line setbacks.
4. A covenant must be written to apply to all newly created lots within the E3 Environmental Management Zone, indicating that maintenance and management of Native Vegetation as shown in State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Amendment No. 3), Native Vegetation Protection Map must be undertaken by the owner of the subdivided lot in accordance with:
 - a landscape plan;
 - the Environmental Management Plan attached in **Appendix C**;
 - payment of 5 year bond to the council.

Subdivision in the E4 Zone

1. The minimum lot width is 30m unless the subdivision is undertaken as a community title scheme as outlined in point 6 below.
2. Any lot created must be capable of providing a building platform for the dwelling of at least 15m x 20m clear of any restrictions (including any Asset Protection Zones) or building line setbacks. The building platform shall be sited in an accessible and practical location suitable for residential building construction.
3. Suitable graded vehicle access shall be provided from a public road to the identified building platform in accordance with Councils minimum driveway requirements.
4. The subdivision plans must clearly indicate where the building platforms can be located on each lot and indicate the proposed access paths to the platforms, free of any restrictions or building line setbacks.
5. A covenant must be written to apply to all newly created lots within the E4 Environmental Living Zone, indicating that maintenance and management of Native Vegetation as shown in State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Amendment No. 3), Native Vegetation Protection Map must be undertaken by the owner of the subdivided lot in accordance with:
 - a landscape plan;
 - the Environmental Management Plan attached in **Appendix C**;
 - payment of 5 year bond to the council.

Community Title subdivision

In some circumstances existing slope and vegetation require Asset Protection Zones (APZs) for Bushfire Hazard Management that limit the development opportunities available on land in the E4 Environmental Living zone. In these circumstances the aim is to achieve a consistency in streetscape character regardless of the underlying zoning applying to the land. Community title subdivision under the provisions of the *Community Land Development Act 1989* (NSW) is encouraged to achieve this objective.

1. Community Title subdivision of land to create lots with narrower frontages and reduced side and front boundary setbacks in the E4 Environmental Living zone in accordance with *State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Amendment No. 3)* will be permitted where:
 - (a) The development is concentrated on the land within the development site excluding native vegetation shown in the Native Vegetation Protection Map and/or Riparian Protection Area;
 - (b) The land is subdivided into ten (10) or more lots (excluding the Community Lot);
 - (c) The land identified as contained vegetation shown in the Native Vegetation Protection Map and/or Riparian Protection Area is wholly contained within the Community Lot;
 - (d) The Community Lot is managed in accordance with a Plan of Management which creates and maintains fire protection zones and provides for the management, protection and enhancement of the environmental values of any land identified as contained native vegetation as shown in the Native Vegetation Protection Map and/or Riparian Protection Area. The Plan of Management shall contain, but is not limited to, an Environmental Management Plan, Bushfire Hazard Management Plan and details of the obligations of landowners in the ongoing management of Community Land;
 - (e) The Plan of Management will form part of the public authority by-laws in the Community Management Statement. The public authority by-laws relating to the Plan of Management shall provide that amendments to the Plan of Management may not be made without the consent of the public authority (Hills Shire Council) in accordance with the *Community Land Management Act 1989* (NSW);
 - (f) The design of roads and lots within the development provide for NSW Rural Fire Service vehicle access and comply with the provisions of *Planning for Bushfire Protection 2006* (as amended) where required. Roads which are adjacent to land identified as Riparian Protection Area, that avoid significant land reformation and provide for street-orientated development are encouraged;
 - (g) Stormwater drainage be provided in accordance with the urban flow attenuation rates identified in Section 6.1 of this Development Control Plan.
2. Development applications for community title subdivision are to be consistent with the design principles illustrated in **Figure 31** to **Figure 33** which focus on providing street oriented and accessible subdivision designs.

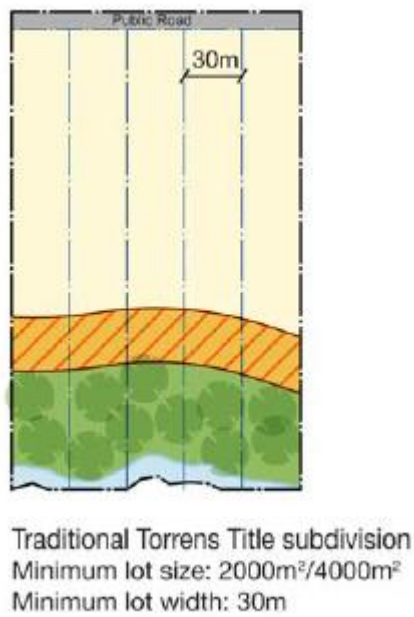


Figure 31. Traditional Torrens Subdivision

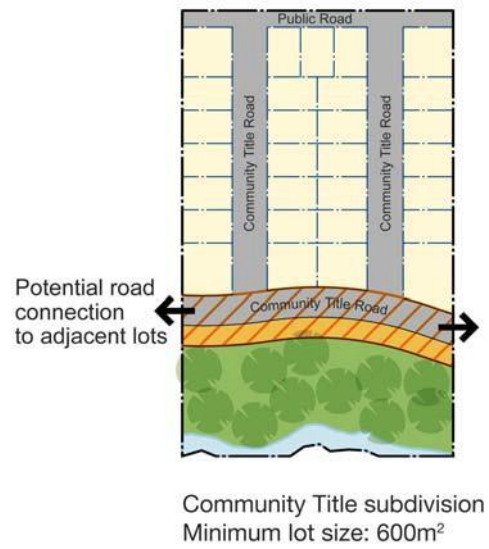
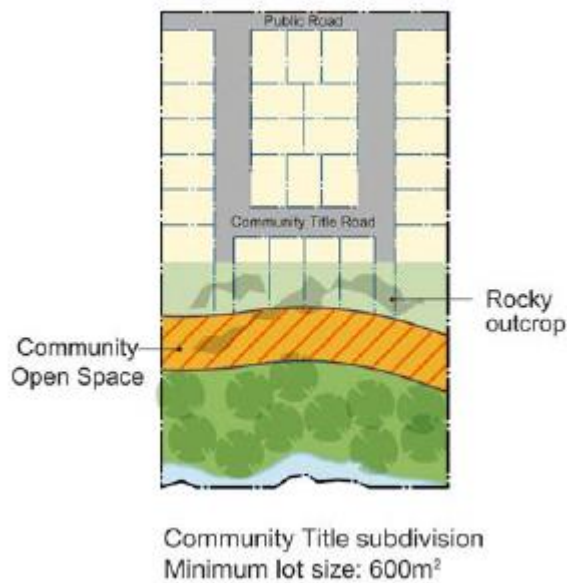


Figure 32. (A) Community Title Subdivision



- Precinct boundary
- E4 Environmental Living Lot
- Asset Protection Zone
- Riparian Corridor/Retained native vegetation
- Creek

Figure 33. (B) Community Title Subdivision

3.8 Residue Lots

OBJECTIVES

1. To ensure that any residue lot created as part of the subdivision can meet the requirements of the DCP.

CONTROLS

Any development proposal including creation of residue lots for future subdivision must:

- Include documentation demonstrating how the minimum density can be achieved across each residue lot through future subdivision. The minimum density for each site should in accordance with **Section 2.4**.
- Demonstrate how the future development of each residue lot can be consistent with the character statement for the local area in terms of the built form, dwelling types, bulk and scale, height and other public domain considerations.
- Demonstrate that the residue lot can be serviced and accessed in accordance with **Figure 2**. Indicative Layout Plan.
- Demonstrate that development of the residue lot can be undertaken without compromising the other objectives and controls of this DCP.

4.0

Residential Development



4.0 RESIDENTIAL DEVELOPMENT

4.1 Site Responsive Design

4.1.1 Cut and Fill

OBJECTIVE

1. To minimise the extent of cut and fill within residential allotments.
2. To protect and enhance the aesthetic quality of the area by controlling the form, bulk and scale of land forming operations.
3. To ensure that filling material is satisfactory and does not adversely affect the fertility or salinity of soil, or the quality of surface water or groundwater.
4. 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. Proposals requiring significant moving and filling of earth will be considered if they contribute to the overall quality of the development and the urban design outcomes for the area. A Validation Report will be required to be submitted to Council prior to the placement of imported fill on site. All fill shall comply with the Department of Natural Resources – “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.”
3. 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*.
4. No earthworks shall be undertaken whereby excavation exceeds 500mm or fill exceeds 500mm from the present surface level of the property without approval from Council.
5. 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.
6. Retaining walls within residential allotments are to be no greater than 500mm high at any point on the edge of any residential allotment. A combined 1m maximum retaining wall height is permissible between residential lots (2 x 500mm). 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 and concurrence of the adjoining neighbour.

7. The maximum height of voids within individual allotments is 3m (see **Figure 34**).
8. All retaining walls proposed for the site are to be identified.

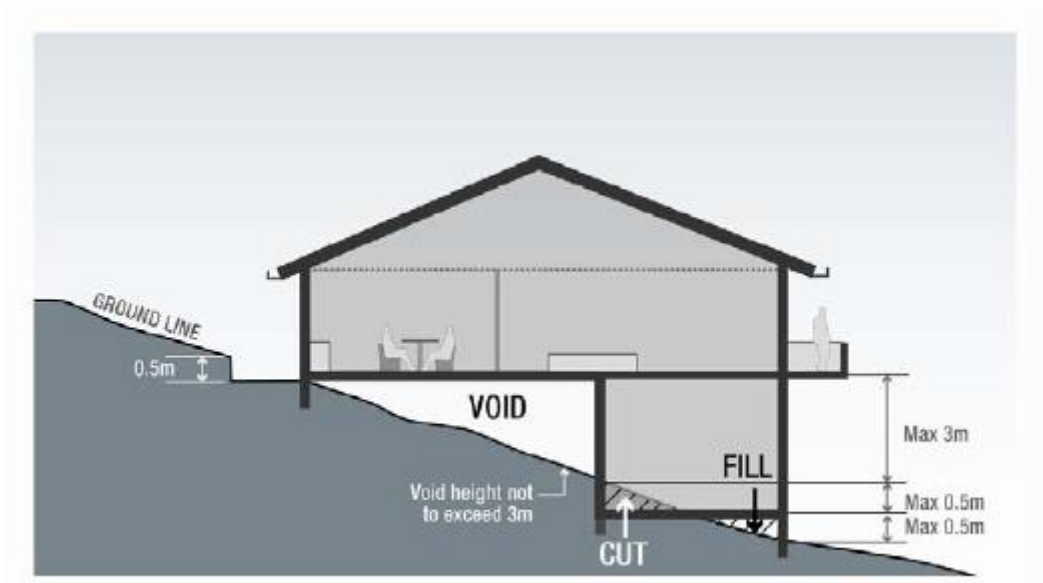


Figure 34. Maximum Cut and Fill with residential blocks

4.1.2 Safety and Surveillance

OBJECTIVES

1. To ensure that the siting and design of buildings and spaces decreases the opportunities for committing crime through casual surveillance.
2. To ensure that development encourages people to use streets, parks and other public places without fear of personal risk.

CONTROLS

1. Dwellings should be designed to overlook streets, lanes and other public or communal areas to provide casual surveillance. In the case of corner lots habitable windows are to be oriented to overlook the side street.
2. The design of all development, in particular, the public domain and community facilities is to enhance public surveillance of public streets and open space/conservation areas.
3. Encourage a sense of community ownership of open and public spaces (eg parks, footpaths, etc) through appropriate design of publicly accessible areas.

4. Use of roller shutters other than garages is not permitted on doors and windows facing the street. Any security railings must be designed to complement the architecture of the building.
5. Developments are to avoid the creation of areas for concealment and blank walls facing the street.
6. Pedestrian and communal areas are to have sufficient lighting to ensure a high level of safety. These areas must be designed to minimise opportunities for concealment.
7. All development should aim to provide casual surveillance of the street as a means of passive security. This should be achieved by maximising outlooks and views, but minimising the overlooking of neighbouring properties. Opportunities for casual surveillance from dwellings / studios are to be incorporated into the design of shared driveways and where rear access is proposed from laneways.
8. All developments are to incorporate the principles of Crime Prevention through Environmental Design (CPTED).

4.1.3 Sustainable Building Design

OBJECTIVES

1. To ensure that developments are environmentally sustainable in terms of energy and water use.
2. To reduce consumption of potable water and waste water discharge.
3. To maximise opportunities for natural ventilation in residential development.
4. To prevent further air pollution or disturbance to amenity of nearby residents from the use of open fire places and slow combustion stoves.

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. Buildings and developments not affected by BASIX are to achieve a 40% reduction of baseline potable water consumption. Where the building or development is water intensive (ie. high water user), specific water conservation objectives must be resolved with Council.
3. Building envelopes, depths and internal layouts of all residential development is to facilitate natural ventilation.
4. Open fire places and slow combustion stoves are prohibited.

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 10** summarises the types of lots and housing. **Table 10** is diagrammatic only and directs readers to the relevant **Tables 12 to 15** containing the main development controls.

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

Table 10. Summary of lot and dwelling types

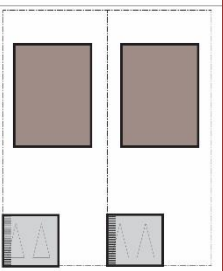
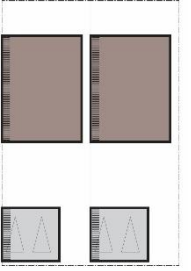
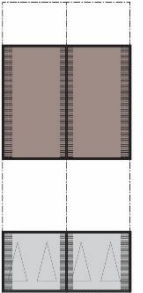
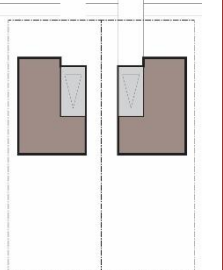
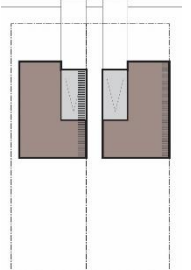
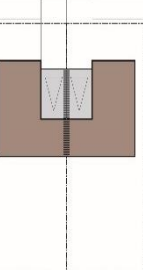
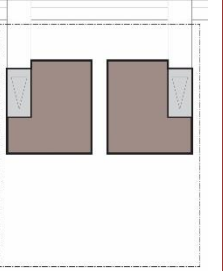
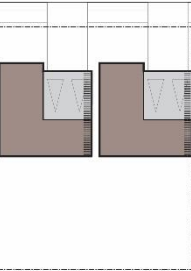
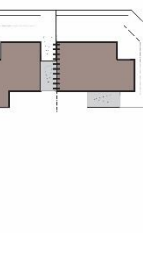
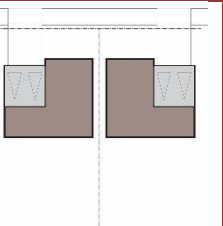
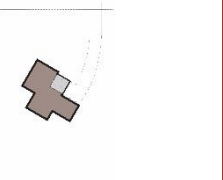
Access	Lot Width	Detached	Zero lot	Abutting/Attached	Controls Table
Rear access	≥4.5m				Table 11
	7>9m				Table 12
Front access	≥9≥15m				Table 13
	>15m				Table 14
	Environment al Living Zone				Table 15

Table 11. 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 façade 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 façade 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 0(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: <ul style="list-style-type: none"> 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 12. 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)
Max 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: <ul style="list-style-type: none"> 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 13. 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 14. 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 15. 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 35 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 35. The combination of built form, lot size, garaging & landscape 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.

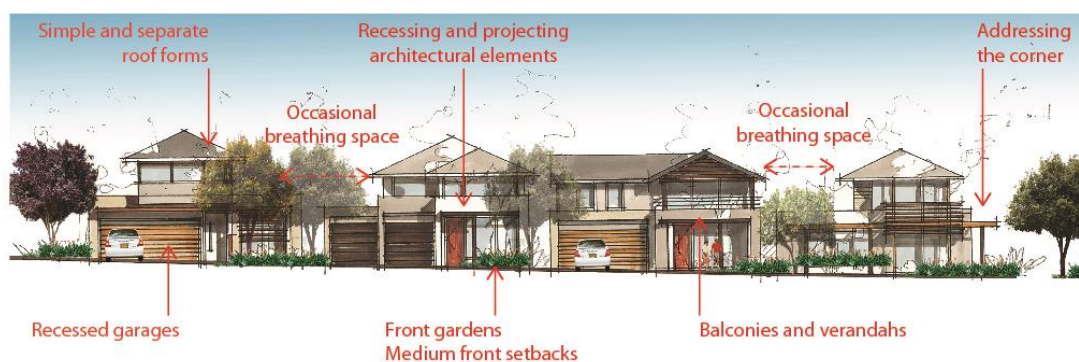
CONTROLS

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 36**.



Garden Suburban streetscape principles



Suburban streetscape principles



Urban streetscape principles

Figure 36. 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 the **relevant Table 11 to Table 15, Figure 37 and Figure 38.**
- 2. On corner lots, front setback controls are to be consistent with **Figure 39.**
- 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 **Table 11 to Table 15** 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 37, Figure 38 & Figure 39**) include those items listed in Control Streetscape and architectural design4.2.2 (1).
- 5. Except for rear loaded garages, garages are to be setback at least 5.5m from the street boundary and at least 1m behind the building line of the dwelling.
- 6. Any building along Windsor Road must have a minimum setback of 20 m from this road.

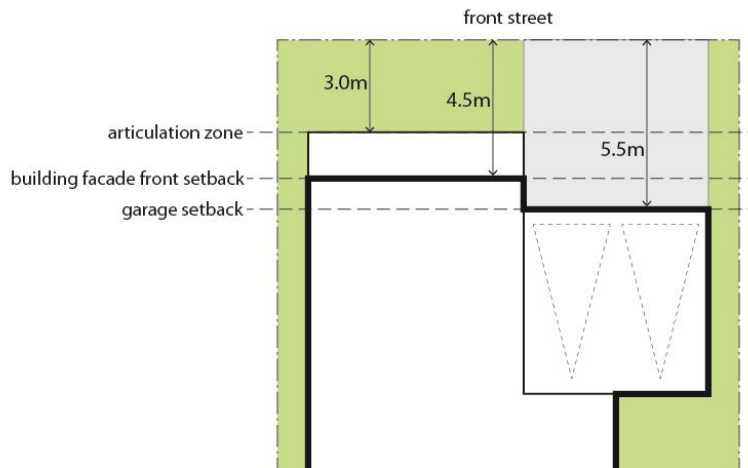


Figure 37. Minimum front setback distances

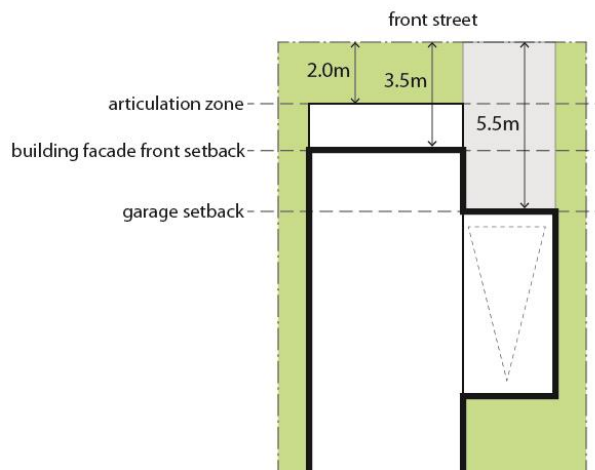


Figure 38. Minimum front setbacks for dwellings fronting open space or drainage land

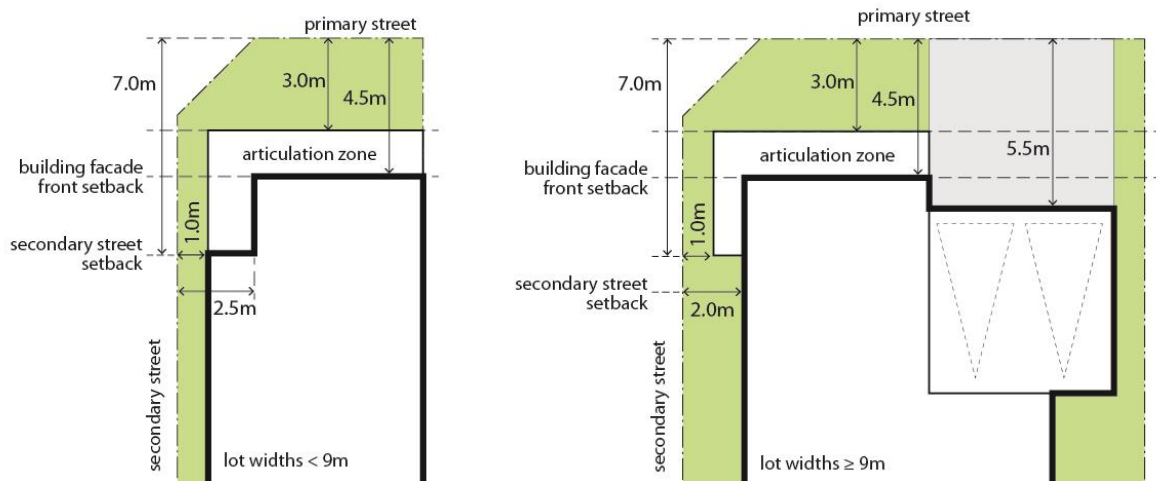


Figure 39. Minimum setbacks for corner lot dwellings

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 **Table 11 to Table 15** and principles in **Figure 40**.
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 40**.
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.

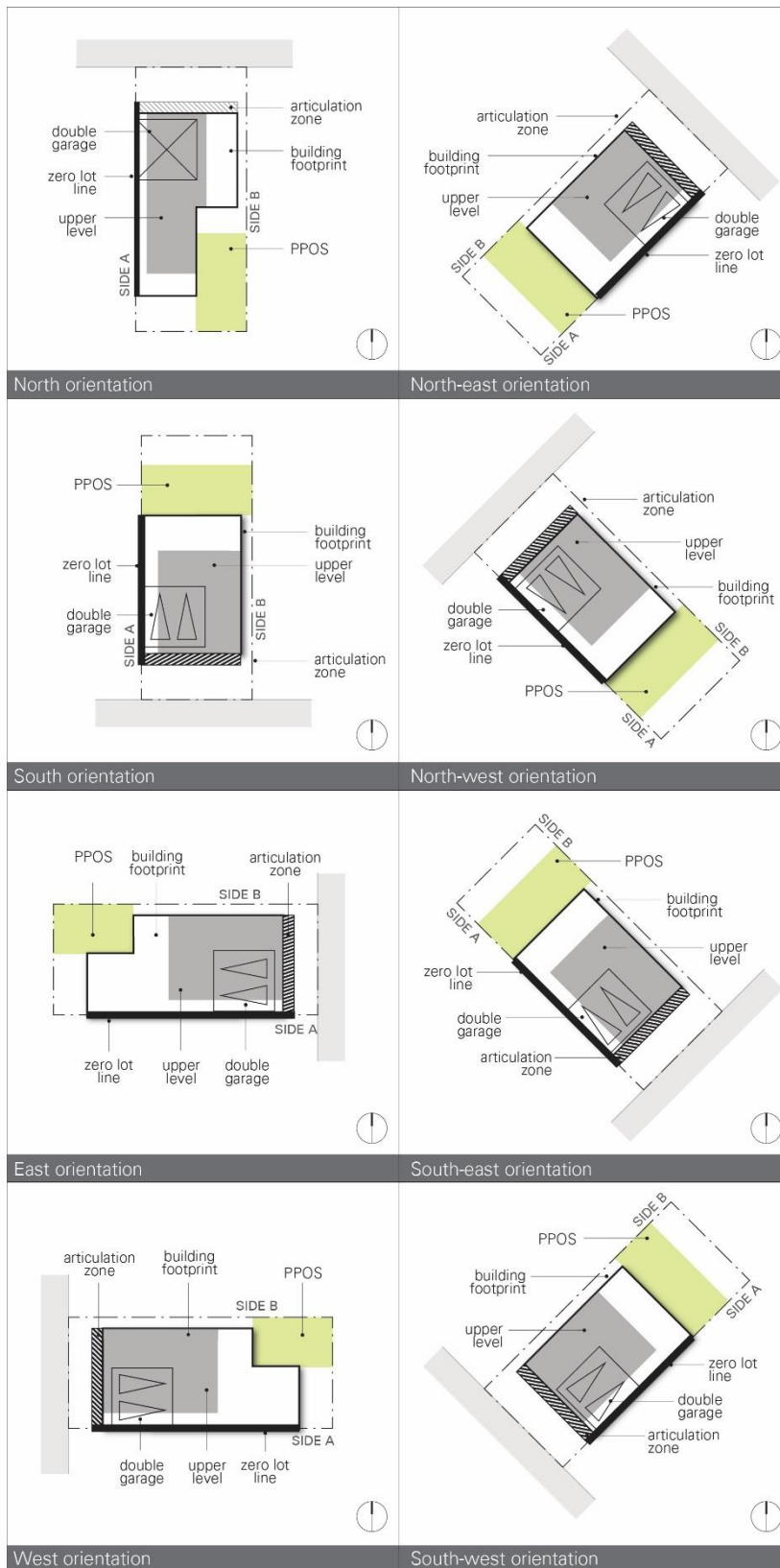


Figure 40. Dwelling and open space siting principles for different lot orientations

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 41**.
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 42**.
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 Table 14 and Table 15 provided the minimum private open space and solar access requirements to the proposed and adjoining properties are met.

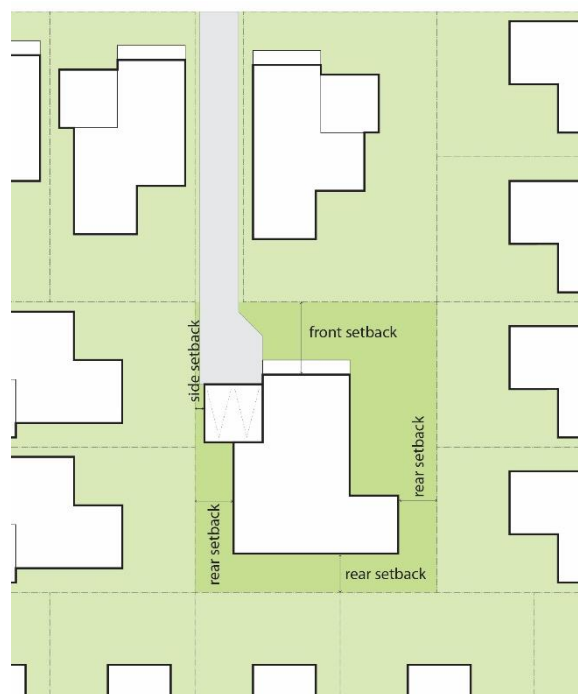


Figure 41. Battle axe lot (without any street frontage) example of setbacks

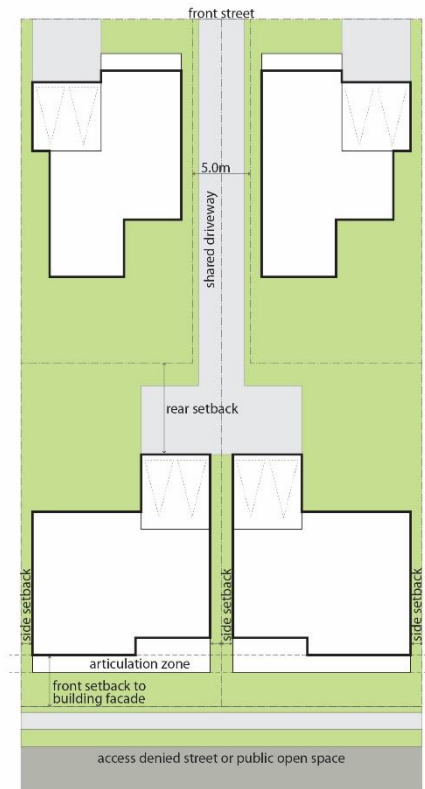


Figure 42. Battle axe lot (fronting access denied road) setbacks

4.2.5 Dwelling Height, Massing and Siting

OBJECTIVES

- a. To ensure development is of a scale appropriate to protect residential amenity.
- b. 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 4.2.3 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 **Table 11 to Table 15**.
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 **Table 11 to Table 15**. **Figure 43** 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.

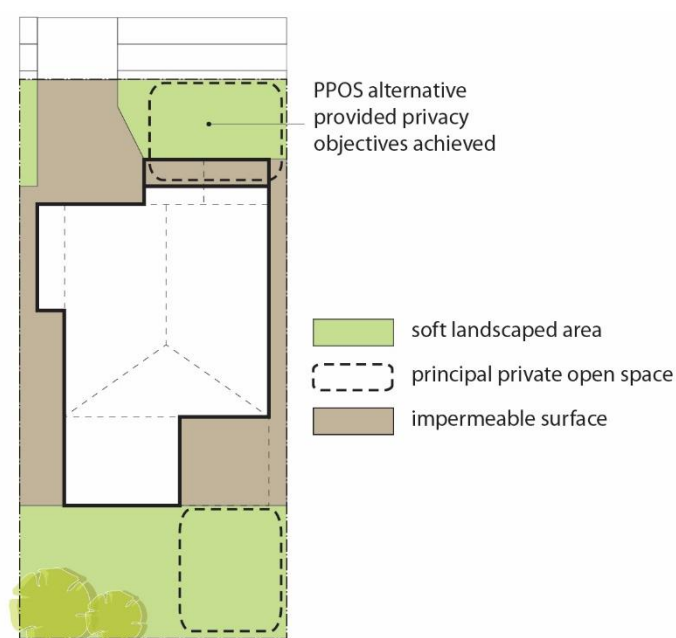


Figure 43. Soft landscaped area and principal private open space

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 **Table 11 to Table 15**.
- 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, Storage, 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 3.7 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 3.6.3 and Figure 28**.

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 **Table 11 to Table 15**.
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

- a. To site and design dwellings to meet projected user requirements for visual and acoustic privacy, whilst minimising visual and acoustic impacts of development on adjoining properties.

CONTROLS

1. Direct overlooking of main habitable areas and private open spaces should be minimised through building layout, window and balcony location and design, and the use of screening devices, including landscaping.
2. Habitable room windows with a direct sightline to the habitable room windows in an adjacent dwelling within 9 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.
3. The design of dwellings must minimise the opportunity for sound transmission through the building structure, with particular attention given to protecting bedrooms and living areas.
4. In attached 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.

5. Living areas and service equipment such as air conditioning units must be located away from bedrooms of neighbouring dwellings.
6. Dwellings along Hezlett Road, Withers Road and Samantha Riley Drive should be designed to minimise the impact of traffic noise.

4.2.10 Fencing

OBJECTIVES

- a. To ensure boundary fencing is of a high quality and does not detract from the streetscape.

CONTROLS

1. Front fencing shall be in harmony with the street, consistent in design and style with its dwelling and a maximum of 1m high. Separate application is to be made for fences higher than 1m and for courtyard walls. Side and rear fencing are to be a maximum of 1.8m high. Front fences and walls are to not impede safe sight lines for traffic.
2. On corner lots the preferred outcome is for the dwelling to front both street frontages providing a better overall streetscape presentation. Where fencing to the secondary street frontage is proposed, it is not to exceed 1.8m high for more than one third of the length of the secondary road frontage, if relevant.
3. On corner lots the front fencing style is to be continued along the secondary street frontage to at least 1m behind the building line of the dwelling. Side fences higher than 1m are not to extend past the Building Facade Line or Garage Building Line.
4. Where a dwelling is located adjacent to open space, boundary fencing is to be of a high quality material and finish. The design of the fencing is to permit casual surveillance of the open space and provide the dwelling with outlook towards the open space. Fencing that adjoins mews or rear access ways is to permit casual surveillance. Colorbond or timber paling or lapped/capped fencing can only be used internally between dwelling lots.
5. 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.

4.3 Additional controls for certain dwelling types

4.3.1 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**.

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.

4.3.2 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 - 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 16**.
3. The maximum site coverage control for upper floors in the relevant **Table 11** to **Table 15** 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 16. 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 **Table 11 to Table 15** 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 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 **Table 11 to Table 15**, 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.

4.3.3 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 17**.
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 17. 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.

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

The controls in **Section 4.3.3** 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

- a. To establish a high quality residential environment where all dwellings have a good level of amenity.
- b. To encourage a variety of housing forms within residential areas.
- c. To ensure the provision of housing that will, in its adaptable features, meet the access and mobility needs of any occupant.
- d. To ensure shop top housing and mixed use developments are appropriate in terms of form and scale for their location.
- e. To ensure shop top housing and mixed use developments reflect the role of centres as articulated within Council's Centres Direction.

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 18**, 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 18. Key controls for residential flat buildings, manor homes and shop top housing

Element	R1 zone (residential flat buildings as part of mixed use developments)	R3 zone (residential flat buildings)	R3 zone (manor homes)	B1 and B2 zones (manor homes)	B1 and B2 zones and R1 zone in Hezlett Road centre (shop top housing developments and residential flat buildings as part of mixed use developments)
Building and ceiling height	<p>The applicable height of buildings standard under Clause 6.6 of the North Kellyville Precinct Plan equates to the following maximum building heights in storeys: 7 metres: 2</p> <p>Minimum floor to ceiling heights are: 3.3m for commercial floors 2.7m for residential floors</p>	N/A	N/A	N/A	<p>The applicable height of buildings standard under Clause 6.6 of the North Kellyville Precinct Plan equates to the following maximum building heights in storeys: 7 metres: 2 storeys 10 metres: 3 storeys</p> <p>Minimum floor to ceiling heights are: 3.3m for commercial floors 2.7m for residential floors</p>
Site coverage (maximum)	N/A	50% of site area	50% of site area	N/A	N/A
Landscaped area (minimum)	Required within setbacks and common open space areas	30% of site area	30% of site area	N/A	Required within setbacks and common open space areas

Element	R1 zone (residential flat buildings as part of mixed use developments)	R3 zone (residential flat buildings)	R3 zone (manor homes)	B1 and B2 zones (manor homes)	B1 and B2 zones and R1 zone in Hezlett Road centre (shop top housing developments and residential flat buildings as part of mixed use developments)
Communal open space	20m ² per dwelling where the development includes 5 or more dwellings 75% must be provided at ground level and well landscaped Common open space must only be accessible by the residents of the development	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.	20m ² per dwelling where the development includes 5 or more dwellings 75% must be provided at ground level and well landscaped Common open space must only be accessible by the residents of the development
Principal Private open space (PPOS)	Ground level 4m x 3m Min 10m ² per dwelling with minimum dimension 2.5m	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	Ground level 4m x 3m Min 10m ² per dwelling with minimum dimension 2.5m
Front setback (minimum)	Zero if active frontage provided 3m if no active frontage provided 3m for residential floors above the first level	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.	4.5m to building façade line <i>Shop top housing:</i> 0m for first floor 4m for floors above first floor	Zero if active frontage provided 3m if no active frontage provided 3m for residential floors above the first level
Corner lots secondary street setback (minimum)	As per front setbacks	6m	2m	4.5m to building façade line <i>Shop top housing:</i> 0m for first floor 4m for floors above first floor	As per front setbacks

Element	R1 zone (residential flat buildings as part of mixed use developments)	R3 zone (residential flat buildings)	R3 zone (manor homes)	B1 and B2 zones (manor homes)	B1 and B2 zones and R1 zone in Hezlett Road centre (shop top housing developments and residential flat buildings as part of mixed use developments)
Side setback (minimum)	6m where adjoining low density residential development 3m where not adjoining low density residential development	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.	6m where adjoining low density residential development 3m where not adjoining low density residential development
Rear setback (minimum)	As per side setbacks	6m	4m (excluding rear garages)	8m	As per side setbacks
Zero lot line (minimum)	N/A	Not permitted	Not permitted to adjacent lots	Permitted on side boundaries only	N/A
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.	Refer to Other Part of DCP regarding B zonings.
Access and entries	Separate site and building access points are to be provided for the residential and commercial components of developments.	N/A	N/A	N/A	Separate site and building access points are to be provided for the residential and commercial components of developments.

Element	R1 zone (residential flat buildings as part of mixed use developments)	R3 zone (residential flat buildings)	R3 zone (manor homes)	B1 and B2 zones (manor homes)	B1 and B2 zones and R1 zone in Hezlett Road centre (shop top housing developments and residential flat buildings as part of mixed use developments)
Car parking spaces	<p>In accordance with The Hills DCP 2012 Part C Section 1 – Parking</p> <p>Preferred location for parking is within a basement or to the rear of developments</p>	<p>1 space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling.</p> <p>May be in a 'stack parking' configuration.</p> <p>Car parking spaces to be located below ground or behind building line</p> <p>1 visitor car parking space per 5 apartments</p> <p>Bicycle parking spaces: 1 per 3 dwellings</p>	<p>1-2 bedrooms: 1 space (min)</p> <p>3 bedrooms or more: 2 spaces (min) – may be provided in a 'stack parking' configuration.</p>	<p>1 space per dwelling, plus 0.5 spaces per 3 or more bedroom dwelling.</p> <p>May be in a 'stack parking' configuration.</p> <p>Car parking spaces to be located below ground or behind the building</p> <p>1 visitor car parking space per 5 apartments (may be above ground)</p> <p>Bicycle parking spaces: 1 per 3 dwellings</p>	<p>In accordance with The Hills DCP 2012 Part C Section 1 – Parking</p> <p>Preferred location for parking is within a basement or to the rear of developments</p>
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	N/A
Garages and car parking dimensions (min)	<p>Covered: 3m x 5.5m</p> <p>Uncovered: 2.5m x 5.2m</p> <p>Aisle widths must comply with AS 2890.1</p>				
Other controls	Refer to the Residential Flat Building or Business Sections of The Hills DCP 2012 for controls relating to unit size/mix, visual privacy, solar access, private open space, ventilation, storage and waste management.	N/A	N/A	N/A	Refer to the Residential Flat Building or Business Sections of The Hills DCP 2012 for additional controls relating to unit size/mix, visual privacy, solar access, private open space, ventilation, storage and waste management.

4.3.5 Site Servicing

OBJECTIVES

- a. To ensure that site facilities are functional and accessible to all residents and are easy to maintain.
- b. To ensure that site facilities are thoughtfully integrated into the development and are visual and physically unobtrusive.
- c. To minimise the impact of service access on pedestrians and retail, commercial and residential frontage.
- d. To minimise the visual and acoustic impact of site servicing.

CONTROLS

Controls for Residential Flat Buildings and Multi Dwelling Housing:

- 1. Garbage, mail box structures, service meters and the like are to be integrated with the overall design of the buildings and/or landscaping. Garbage storage areas are not permitted in front setbacks.
- 2. Provide communal or individual laundries to every dwelling and at least one external clothes drying area per building.
- 3. Loading facilities must be at the rear of each development.
- 4. Service access is permitted from rear lanes, side streets or right of ways.

4.3.6 Adaptable housing

OBJECTIVES

- a. To ensure a sufficient proportion of dwellings include accessible layouts and features to accommodate changing requirements of residents.
- b. To ensure the provision of housing that will, in its adaptable features, meet the access and mobility needs of any occupant.

CONTROLS

1. 10% of all apartments are to be designed to be capable of adaptation for disabled or elderly residents. Dwellings must be designed in accordance with the Australian Adaptable Housing Standard (AS 4299-1995).
2. Where possible, adaptable dwellings are to be located on the ground floor, for ease of access. 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.
3. 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).
4. Car parking and garages allocated to adaptable dwellings must comply with the requirements of the relevant Australian Standard for disabled parking spaces.

5.0

Special Area Controls

5.0 SPECIAL AREA CONTROLS

Special Area Controls outline the objectives and design principles relating to areas that require detailed planning including the North Kellyville Local Centre, Hezlett Road Neighbourhood Centre, Stringer Road Neighbourhood Centre and 45 Hezlett Road.

5.1 Overall controls

The overall controls apply to the retail and commercial development within North Kellyville Local Centre, Hezlett Road Neighbourhood Centre and Stringer Road Neighbourhood Centre.

5.1.1 Active Street Frontages and Address

OBJECTIVES

1. To promote pedestrian activity and safety in the public domain.
2. To maximise active street fronts in the local and neighbourhood centres.
3. To define areas where active streets are required.
4. To provide an identifiable and desirable street address to residential buildings outside of areas where active street fronts are required.
5. To clearly and consistently define the street edge.
6. To allow for outlook to and surveillance of the street.

CONTROL

Active Street Frontages

1. Active frontage uses are defined as one of a combination of the following at street level:
 - entrance to retail,
 - shop front,
 - glazed entries to commercial and residential lobbies occupying less than 50% of the street frontage, to a maximum of 12m frontage,
 - café or restaurant if accompanied by an entry from the street,
 - active office uses, such as reception, if visible from the street, and/or
 - public building if accompanied by an entry.
2. Active street fronts, built to the street alignment, are required on the ground level of all retail and commercial development, and on areas identified in **Figure 44** and **Figure 45**.
3. Large format retail such as supermarkets and parking areas are to be sleeved or hidden by retail and

commercial uses as shown in **Figure 44**.

4. Ground floor residential uses (other than entries to lobbies to residential uses above ground level) are not permitted on the town centre Main Street.
5. Active ground floor uses are to be at the same general level as the footpath and be accessible directly from the street.
6. Restaurants, cafes and the like are to consider providing openable shop fronts.
7. Only open grill or transparent security shutters (at least 50% visually transparent) are permitted to retail and commercial frontages.
8. On corner sites, shop fronts are to wrap around the corner.
9. Entrances are to be visible to the street and well lit.

Street Address

1. Street address is defined as:
 - a building that is not raised more than an average of 700mm above street level, up to a maximum of 1m,
 - contains entries, lobbies and habitable rooms with clear glazing overlooking the street, and
 - excludes car parking areas.
2. Provide multiple entrances for large developments including an entrance on each street frontage.
3. Provide direct 'front door' access to ground floor residential units.
4. Residential buildings are to provide not less than 65% of the lot width as street address.
5. In mixed-use buildings, a separate street address is required to retail, commercial and residential uses.

5.1.2 Awnings

OBJECTIVES

1. To provide shelter for public streets where most pedestrian activity occurs.
2. To address the streetscape by providing a consistent street frontage in the centres.

CONTROLS

1. Provide continuous street frontage awnings to all new commercial and retail developments within the town centre and village centres.
2. Wrap awnings around corners on street corner buildings.
3. Cantilever awnings from buildings are to have a minimum soffit height of 3.2m and a maximum of 4m.
4. Low profile awnings with slim vertical fascias and/or eaves (not to exceed 300mm) are encouraged.
5. Awnings are to be a minimum of 3m deep (dependant on street width) and setback from the kerb a minimum of 1.2m to allow clearance for street furniture, trees etc.
6. Awnings must be complementary to each other and maintain continuity.
7. Steps for design articulation or to accommodate sloping streets are to be integrated with the building design and should not exceed 700mm.
8. Vertical canvas drop blinds are permissible along the street edge, but they are not to carry advertising or signage.
9. Provide under awning lighting to facilitate night use as well as improve public safety. Lighting is to be recessed into the soffit of the awning, or wall mounted onto the building.
10. Any under awning signage is to maintain a minimum clearance of 2.8m from the level of the pavement.
11. All residential buildings are to be provided with awnings or other weather protection at their main entrance area.

5.1.3 Signage

OBJECTIVES

1. To permit adequate identification and business advertising that achieves a very high level of design quality in terms of graphic design, its relationship to the architectural design of buildings and the character of streetscapes.

2. To promote signage that complements the scale and character of a building.
3. To avoid the creation of visual clutter on buildings and streetscapes.
4. To ensure compatibility with the desired urban character of adjacent land uses.
5. To consider the amenity of residential development and the visual quality of the public domain.
6. To ensure that advertising signs do not adversely affect the safety of motorists and other road users.

CONTROLS

General Signage:

1. Signage must be integrated into the building façade and achieve a high degree of compatibility with the architectural design of the supporting building having regard to its composition, fenestration, materials, finishes, and colours. Architectural features of the building are not to be obscured.
2. One under-awning sign is permitted on each shop or commercial premises. at a rate of one sign per 8m of shop front.
3. Signs including real estate signs and temporary signs are not allowed to stand on the top of awnings.
4. The total area of all signs is not to exceed 1m² of advertising area per 1m of shop frontage. This includes signs painted on blinds or windows.
5. Signs that contain additional advertising promoting products or services not related to the approved use of the premises or site (such as the logos of brands or products) are not permitted.
6. Signs painted on, or applied to the roof, are prohibited.
7. Signs in excess of a total of 50 square metres in area are to be considered on their merits.
8. Directional signage and public notices are to have a coordinated appearance and help to establish the town centre as a unique destination and place.

Illuminated Signs:

1. Illumination (including cabling) of signs is to be:
 - concealed, or
 - integral with the sign, or
 - provided by means of carefully designed and located remote or spot lighting.
2. The ability to adjust the light intensity of illuminated signs is to be installed where the consent authority considers necessary.
3. Restricted hours shall be imposed on the operation of illuminated signs where continuous illumination is considered to impact adversely on the amenity of residential buildings, serviced apartments or other visitor accommodation, or have other adverse environmental effects.

4. Up-lighting of signs is prohibited. Any external lighting of signs is to be downward pointing and focussed directly on the sign and is to prevent or minimise the escape of light beyond the sign.

Signage and Road Safety:

1. Signs are regarded as prejudicial to the safety of road users if they:
 - obscure or interfere with road traffic signs and signals or with the view of a road hazard, oncoming vehicles, or any other vehicle or person, or an obstruction which should be visible to drivers or other road users,
 - give instructions to traffic by use of the word 'stop' or other directions, which could be confused with traffic signs,
 - are of such a design or arrangement that any variable messages or intensity of lighting impairs drivers' vision or distract drivers' attention, and
 - are situated at locations where the demands on drivers' concentration due to road conditions are high such as at major intersections or merging and diverging lanes.

5.1.4 Parking

OBJECTIVES

1. To provide an appropriate level of on-site car and bicycle parking provision in North Kellyville to cater for a mix of development types and location.
2. To minimise the visual impact of on-site parking.
3. To integrate parking facilities with the overall site planning and landscape.
4. To encourage the use of bicycles.

CONTROLS

1. On-site car and bicycle parking is to be provided in accordance with the standards set out in **Table 19** and **Table 20**.
2. The parking area per vehicle is to be in accordance with AS 4299 and AS/NZS 2890.6.
3. All outdoor parking areas shall be appropriately screened by planting and/or fencing.
4. At grade car parks shall provide landscaping and tree planting in accordance with BHSC DCP Part D Section 1 - Parking.
5. Basement parking must be provided for Mixed Use Development. Basements are not to be raised more than 1m above ground level.
6. In the local centre and neighbourhood centres, parking and servicing is to be located to the rear of buildings, or below grade, to minimise impacts on the streetscape and pedestrian amenity.
7. Above ground parking structures are not permitted except in the central mixed use blocks in the town centres. Where fronting a street or public space (excluding service lanes), above ground parking is to be set a minimum of 8m behind the building façade.
8. Rear lanes should be utilised where possible to access parking areas.
9. All bicycle parking is to be in secure and accessible locations. Bicycle parking for employees is to have weather protection.
10. Refer **Sections 4.3.3 & 4.3.4** of this DCP for residential flat building and multi dwelling housing parking provisions
11. Refer to The Hills DCP 2012 Part C Section 1 – Parking for shop top housing parking provisions.

Table 19. On site car parking for commercial/retail premises

Use	Requirement
Retail Uses	1 space per 25 square metres GFA (Gross Floor Area) for supermarkets and Discount Department Stores; 1 per 50 square metres GFA for main street, village centre and other retail.
Commercial	1 space per 50 square metres GFA.
Educational Establishments	1 space per full-time employee or classroom, whichever is greater, plus 1 space per 10 students over the age of 17 years. Where development includes the provision of a church or community facilities in conjunction with a school, additional parking must be provided at half the applicable rate.
Child Care Centres	1 space per employee plus 1 space per 6 children enrolled for visitors and/or parent parking

Table 20. On site bicycle parking for commercial/retail premises

Use	Requirement
Retail	Provide the following minimum rates of bicycle parking. <ul style="list-style-type: none"> • Supermarkets: • 1 space per 750 square metres of GFA for employees; • 1 space per 1000 square metres of GFA for shoppers. • Speciality shops: • 1 space per 300 square metres of GFA for employees; • 1 space per 300 square metres of GFA for shoppers. • Neighbourhood shops: • 8 bicycle spaces minimum.
Commercial	Provide the following minimum rates of bicycle parking. <ul style="list-style-type: none"> • Employee: • 1 space per 150 square metres of GFA. • Visitor: • 1 space per 750 square metres of GFA.
Community Centres	• 6 bicycle spaces at the community centre.
Parks	• 16 bicycle spaces at sports grounds;
Primary and High Schools	• One bicycle space per 5 students above Grade 4 at primary and high schools.

5.1.5 Site Servicing

OBJECTIVES

1. To ensure that site facilities are functional and accessible to all residents and are easy to maintain.
2. To ensure that site facilities are thoughtfully integrated into the development and are visual and physically unobtrusive.
3. To minimise the impact of service access on pedestrians and retail, commercial and residential frontage.
4. To minimise the visual and acoustic impact of site servicing.

CONTROLS

Commercial / Retail Premises and Mixed Use Development

1. Garbage, mail box structures, service meters and the like are to be integrated with the overall design of the buildings and/or landscaping. Garbage storage areas are not permitted along the primary street frontage.
2. Provide adequate space within any new development for the unloading and loading of service vehicles.
3. Loading facilities must be located to the rear of each development.
4. Ventilation stacks are to be utilised wherever possible to vent shops and basements.
5. All service areas are to be screened from existing developments.
6. Service access is permitted from rear lanes, side streets or right of ways.

5.2 North Kellyville Local Centre

OBJECTIVES

1. To create a vibrant local centre that provides amenity to the North Kellyville Precinct.
2. To ensure that the detailed design of the Local Centre is undertaken in a coordinated manner in order to achieve a high quality urban design outcome.
3. To ensure that the North Kellyville Local Centre is well served by public transport.
4. To provide a good range of retail and commercial services for the local population whilst minimising risk of over supply and adverse economic impact on existing centres.

CONTROLS

1. The North Kellyville Local Centre is to be located generally in accordance with **Figure 2**. An indicative layout plan of the Local Centre is shown at **Figure 44**.
2. The Local Centre is to be consistent with the following principles -

Function and uses:

1. A maximum of 15,000m² GFA for retail and commercial premises.
2. Incorporate a range of retail, commercial and community uses to serve the needs of the community.
3. Incorporate higher density housing and mixed use development.
4. Concentrate intensive retail uses along and fronting Withers Road and Hezlett Road.
5. Locate active uses at ground floor, throughout the Local Centre, in particular fronting the Main Street and all open space.
6. Provide a mix of uses that promote an active and vibrant town centre.

Built form:

1. Provide a range of building heights, up to a maximum of 3 storeys with a transition in heights to surrounding residential areas.
2. Relate building heights to street widths and functions to promote a comfortable urban scale of development.
3. Define streets and open spaces with buildings that are generally built to the street edge, have a consistent street wall height and provide a continuous street frontage along all key streets.
4. Sleeve all large format retail premises and decked parking areas with active uses. Blank walls visible from the public domain are to be avoided.
5. Promote diversity and activity along the main street with a variety of frontage widths for retail shops.
6. Building heights are to take into account view lines and solar access to the public domain.

7. Residential and mixed use development is to be consistent with the guidelines and principles outlined in *SEPP No. 65 – Residential Flat Development* and the *Residential Flat Design Code* (Urban Design Advisory Service and Planning NSW 2002).
8. A high quality built form and energy efficient architectural design that promotes a 'sense of place' and modern character for the Local Centre.
9. Waste storage and collection areas are to be accommodated and designed appropriately to minimise impacts, in particular within mixed use development.

Parking and access:

1. Access to parking, loading docks and waste collection areas must not be provided from Withers Road nor Hezlett Road frontages.
2. Basement, semi-basement or decked parking is preferred over large expanses of at-grade parking.
3. At grade parking areas are to be generally located behind building lines and within the centre of street blocks away from street corners. 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.
4. Parking is to be provided in accordance with Part D, Section 1 of BHSC DCP 2007. Opportunities for shared parking provision for complementary uses within the local centre are to be provided.
5. On-street parking is to be provided on all streets within the Centre to contribute to street life and surveillance and designed in accordance with AS 2890.5-1993.

Public domain:

1. 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.
2. Incorporate a town square / civic plaza, adjacent to the main street which provides an urban landscape setting and a civic focus for the community.
3. Provide high amenity, pedestrian streets with generous footpath widths.
4. Incorporate the principles of Crime Prevention Through Environmental Design (CPTED) and Safer by Design (NSW Police) into all development within the Local Centre.
5. Weather protection for pedestrians is to be provided in key locations.
6. Provide a high quality landscape design including a co-ordinated package of street furniture and lighting that enhances the character of the Local Centre.
7. Provide street tree and open space planting that establishes generous shade for pedestrians.
8. Design all signage and advertising in a co-ordinated manner.
9. Site servicing and loading facilities, waste storage and other infrastructure is to be designed to minimise visual impact on the public domain and impacts on neighbours.



Figure 44. Indicative layout of North Kellyville Local Centre

5.2.1 Hezlett Road Neighbourhood Centre

OBJECTIVES

1. To create a vibrant, mixed use Neighbourhood Centre that provides a range of small-scale retail, business and community uses which serve the needs of people who live and work in the surrounding neighbourhood.
2. To ensure that the detailed design of the neighbourhood centre is undertaken in a co-ordinated manner in order to achieve a high quality urban design outcome.
3. To provide opportunities for medium density housing.

CONTROLS

1. The Hezlett Road Neighbourhood Centre is to be located generally in accordance with **Figure 2**.
2. The Neighbourhood Centre is to be consistent with the indicative layout shown in **Figure 45** and the following principles -

Function and uses:

1. Provide for a maximum of 3,000m² GFA for retail and commercial premises within the neighbourhood centre to cater for the needs of the local population.
2. Incorporate a range of local retail, commercial and community uses to serve the needs of the local community.
3. Incorporate residential and shop-top housing adjacent to public open space areas Hezlett Road.

Built form:

1. Provide a range of building heights, up to a maximum of 4 storeys.
2. Buildings are to define the entry to the residential areas and open spaces adjacent to the neighbourhood centre and are to be generally built to the street edge.
3. Avoid blank walls visible from principal street and the public domain. Large format retail premises are to be sleeved where appropriate with active uses.
4. Residential and mixed use development is to be consistent with the guidelines and principles outlined in *SEPP No. 65 – Residential Flat Development* and the *Residential Flat Design Code* (Urban Design Advisory Service and Planning NSW 2002).
5. Establish a high quality built form and energy efficient architectural design that promotes a 'sense of place' and modern character for the Neighbourhood Centre.

Parking and access:

1. Access to parking, loading docks and waste collection areas must not be provided from Hezlett Road.

2. Locate at grade parking areas generally behind building lines and screened from streets and public open space.
3. Opportunities for shared parking provision for complementary uses within the local centre are to be provided.
4. On-street parking is to be provided within the Centre and designed in accordance with AS 2890.5-1993.

Public domain:

1. Provide a high quality landscape design including a co-ordinated package of street furniture and lighting that enhances the character of the Centre.
2. Provide street tree and open space planting that establishes generous shade for pedestrians.
3. Incorporate the principles of Crime Prevention through Environmental Design (CPTED) and Safer by Design (NSW Police) into all development within the Neighbourhood Centre.
4. Site servicing and loading facilities, waste storage and other infrastructure is to be designed to minimise visual impact on the public domain and impacts on neighbours.

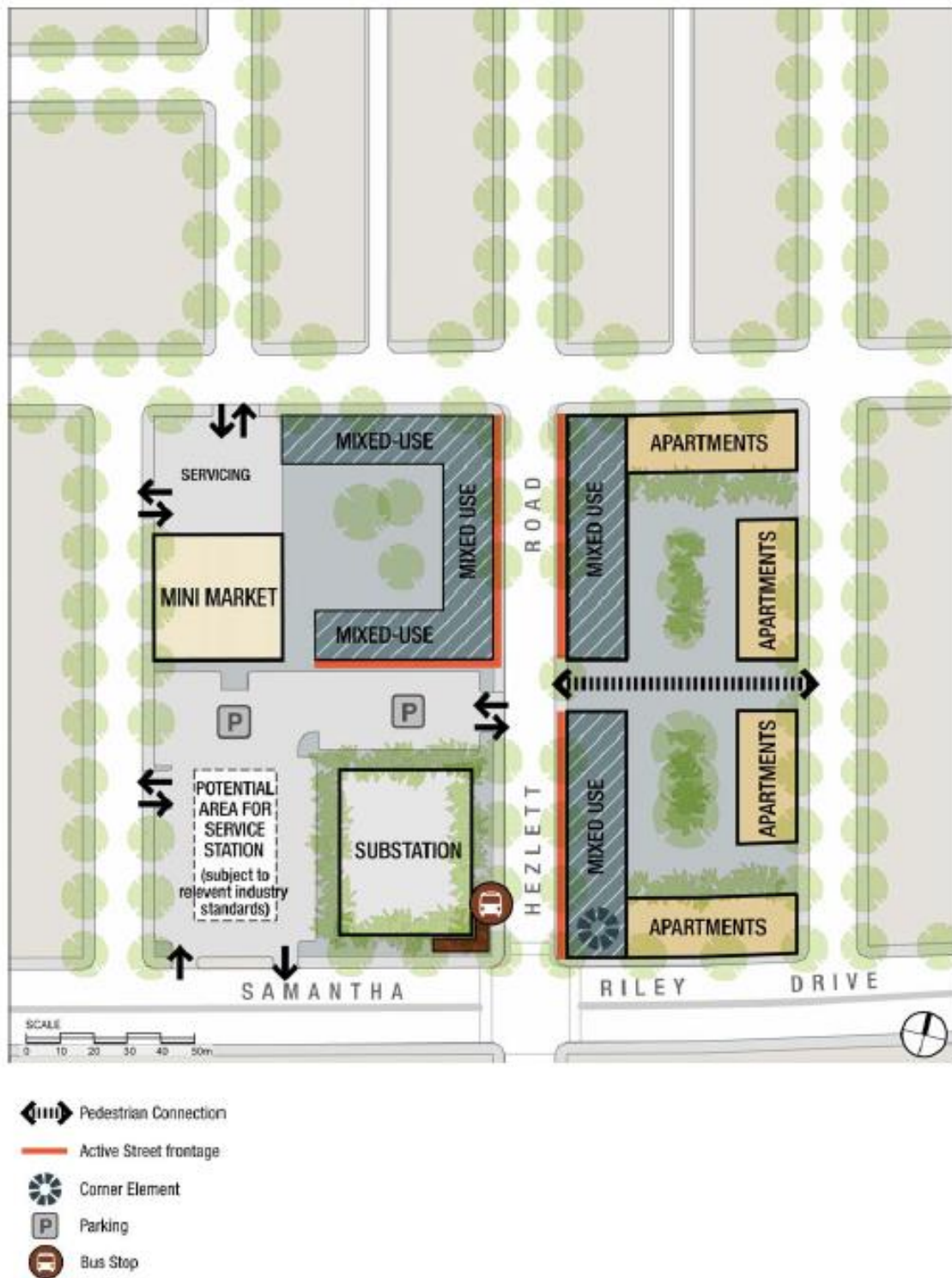


Figure 45. Indicative layout of Hezlett Road Neighbourhood Centre

5.2.2 Stringer Road Neighbourhood Centre

OBJECTIVES

1. To encourage the activation of the area around the playing fields by provision of cafes and restaurants.
2. To create a vibrant, mixed use Neighbourhood Centre that provides a range of small-scale retail, business and community uses which serve the needs of people who live and work in the surrounding neighbourhood.
3. To ensure that the detailed design of the neighbourhood centre is undertaken in a co-ordinated manner in order to achieve a high quality urban design outcome.
4. To provide opportunities for medium density housing.

CONTROLS

1. The Stringer Road Neighbourhood Centre is to be located generally in accordance with **Figure 2**.
2. The Neighbourhood Centre is to be consistent with the indicative layout shown in **Figure 46** and the following principles.

Function and uses:

1. Provide for a maximum of 1,000m² GFA for retail and commercial premises within the neighbourhood centre to cater for the needs of the local population.
2. Incorporate a range of local retail, and community uses to serve the needs of the local community.
3. Incorporate residential and shop-top housing adjacent to public open space areas.

Built form:

1. Maximum building height is 2 storeys.
2. Buildings are to define the entry to the residential areas and open spaces adjacent to the Centre and are to be generally built to the boundary.
3. Avoid blank walls visible from the public domain.
4. Residential and mixed use development is to be consistent with the guidelines and principles outlined in *SEPP No. 65 – Residential Flat Development* and the *Residential Flat Design Code* (Urban Design Advisory Service and Planning NSW 2002).
5. Establish a high quality built form and energy efficient architectural design that promotes a 'sense of place' and modern character for the Neighbourhood Centre.

Parking and access:

1. Access to parking, loading docks and waste collection areas must not be provided from the Main Street of the Neighbourhood Centre.

2. Parking is to be provided in accordance with Part D, Section 1 of BHSC DCP 2007. Opportunities for shared parking provision for complementary uses within the local centre are to be provided.
3. On-street parking is to be provided within the Centre and designed in accordance with AS 2890.5-1993.

Public domain:

1. Provide street tree and open space planting that establishes generous shade for pedestrians.
2. Incorporate the principles of Crime Prevention through Environmental Design (CPTED) and Safer by Design (NSW Police) into all development within the Centre.
3. Site servicing and loading facilities, waste storage and other infrastructure is to be designed to minimise visual impact on the public domain and impacts on neighbours.

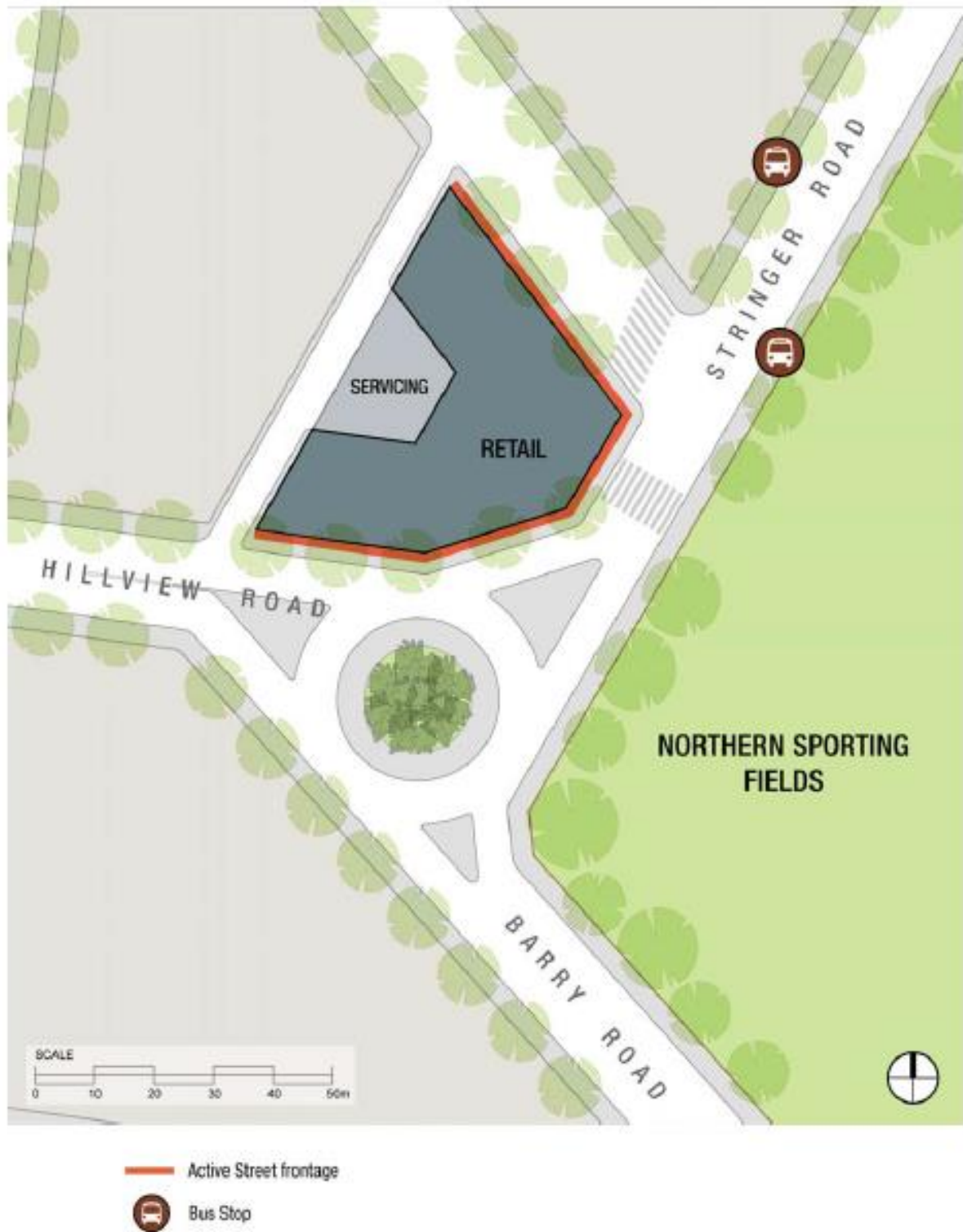


Figure 46. Indicative Layout Plan of Stringer Road Neighbourhood Centre

5.2.3 45 Hezlett Road, “Yalta”

OBJECTIVES

1. To conserve the heritage significance of “Yalta”.
2. To protect and enhance the heritage curtilage of Yalta.
3. To ensure that the development around Yalta respects the heritage value of the building.

CONTROLS

1. The location of the 45 Hezlett Road “Yalta” is as shown in **Figure 47**.
2. All development in and around 45 Hezlett Road should be in accordance with the requirements of State Environmental Planning Policy - Sydney Region Growth Centres 2006 (Amendment No 3)
3. All development must comply with the curtilage requirement indicated in **Figure 48**.
4. Prior to any development that affects 45 Hezlett Road, an assessment of heritage significance is to be undertaken which addresses the significance assessment criteria contained in the NSW Heritage Manual. An applicant is to demonstrate to Council how any proposed development that affects 45 Hezlett Road responds to any identified archaeological constraints. If any relics are to be retained in situ, an applicant is to outline all management measures to ensure ongoing protection of the relics.
5. Single storey development respecting the character of Yalta is encouraged in the immediate surrounding area.
6. The visual impact of dwelling houses and around the site should be minimised through appropriate siting, landscaping and the use of materials.

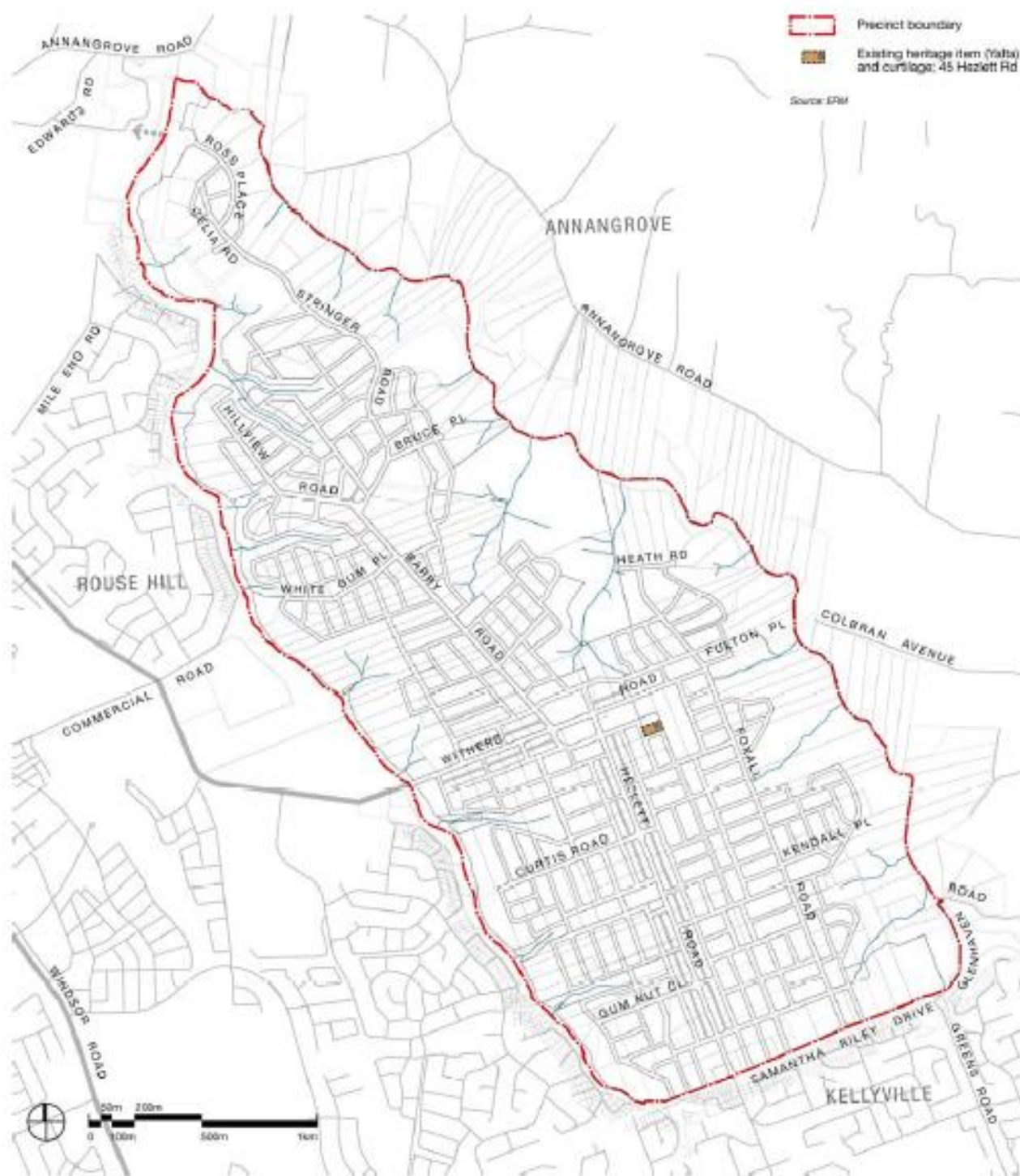


Figure 47. European archaeological heritage significance

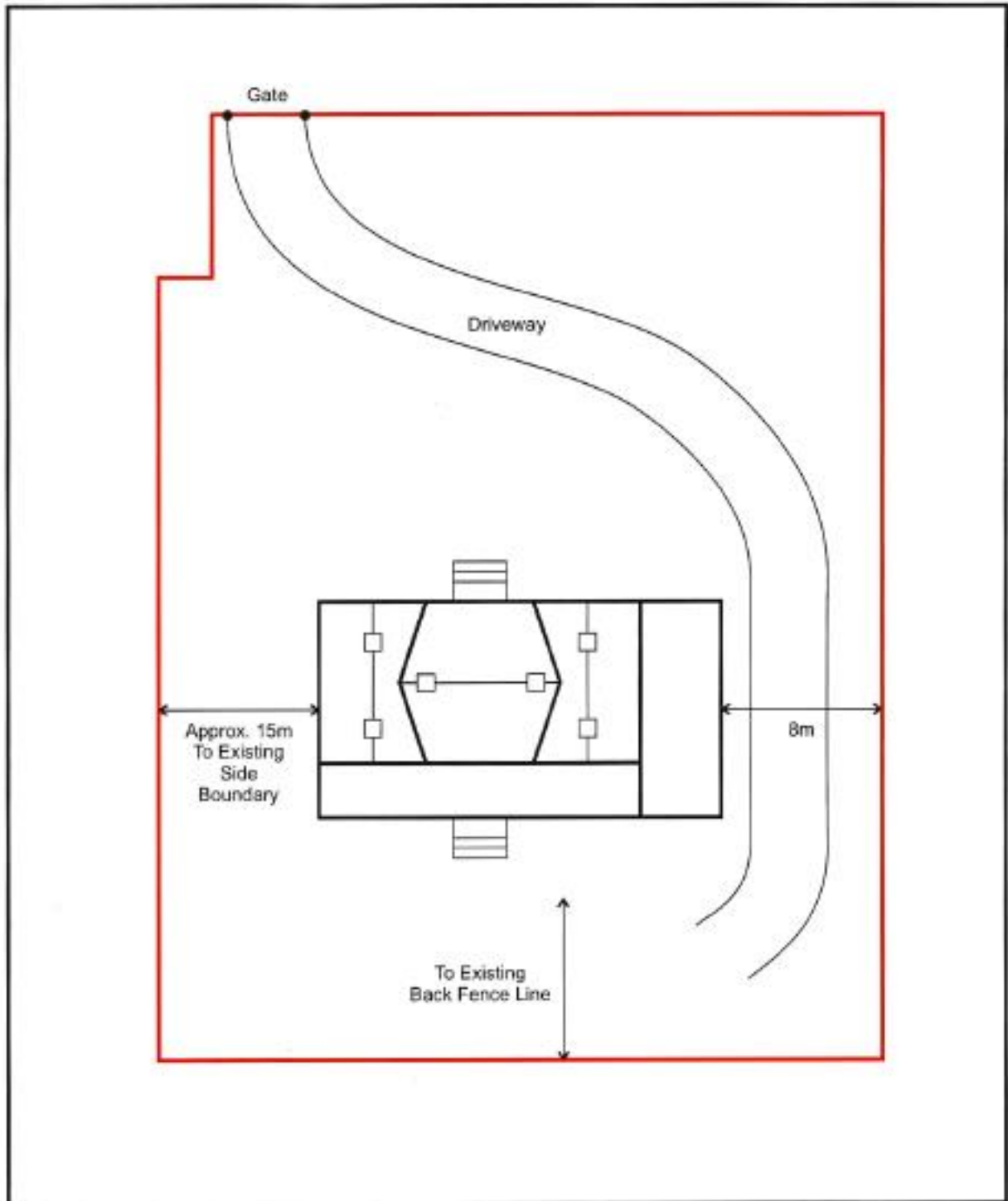


Figure 48. Curtilage plan for Yalta

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6.0

Managing the Environment



6.0 MANAGING THE ENVIRONMENT

This section outlines the objectives and development controls relating to general Environmental Management of issues that apply across the entire North Kellyville Precinct including conservation areas, integrated stormwater management, soils and salinity, Aboriginal and European heritage, bushfire hazard management, tree retention and biodiversity, contamination and acoustics.

6.1 Integrated Stormwater Management

OBJECTIVES

1. To ensure that appropriate stormwater management measures are implemented to maximise opportunities to maintain and enhance the quality and integrity of urban waterways through both the construction and occupation phases of development, while encouraging and creating an urban form where risks to life and property, as a result of either minor or major flooding, are minimised;
2. To maximise opportunities for a best practice Water Sensitive Urban Design approach at the individual lot, overall development and regional scales;
3. To ensure water quality in receiving waterways is not adversely affected by pollutants typically resulting from urban development;
4. To ensure the impacts on waterway channel bed and bank erosion is limited by minimising the changes in flow rates, runoff volumes and flow durations within receiving waterways;
5. To ensure that stormwater runoff is treated as a valuable resource, that development maintains and/or restores the natural water balance and the re-use of stormwater for non-potable purposes is maximised;
6. To minimise the impact of nuisance flooding to a level acceptable to the community; and
7. To reduce the impacts typically associated with urbanisation on receiving waterways and wetlands, including a reduction in streamflow erosion potential.

CONTROLS

All development proposals are to provide for integrated stormwater management measures in accordance with the publication "North Kellyville Masterplan - Water Cycle Management Strategy" (Worley Parsons, 2008) and as summarised below.

1. All habitable rooms shall have floor levels of a minimum of 500mm above the 1 in 100 year Annual Recurrence Level (ARI) flood level.
2. All stormwater drainage designs are to comply with the most up to date revision of Council's "Design Guidelines Subdivisions/Developments".
3. Post-construction (occupation) phase stormwater management objectives are to be achieved by all development through the innovative application of Water Sensitive Urban Design (WSUD). WSUD is to be adopted throughout all development to provide sustainable and integrated management of land and water resources, incorporating best

practice stormwater management, water conservation and environmental protection measures.

The overall water quality and stream erosivity performance objectives applicable to the North Kellyville Precinct have been provided by the NSW Department of Environment and Climate Change (DECC). Those performance objectives are set out in **Table 21**.

Table 21. DECC water quality and stream erosivity performance objectives for the North West Growth Centres

	WATER QUALITY				ENVIRONMENTAL FLOWS
	% reduction in pollutant loads ¹				Stream Erosion Index
	Gross Pollutants (>5mm)	Total Suspended Solids	Total phosphorus	Total Nitrogen	(Post development duration of flows above 'stream forming flow') / (natural duration of flows above 'stream forming flow') ²
Stormwater management objective	90	85	65	45	3.5 - 5 ³
'Ideal' stormwater outcome ⁴	100	95	95	85	1

1. Load based objectives are expressed as the reduction in pollutant loads required, compared to the proposed development with no stormwater management measure.
 2. For the purposes of these objectives, the 'stream forming flow' is defined as 50% of the 2 year ARI design flowrate estimated for the catchment under natural conditions.
 3. Development proposals should be designed to achieve a value as close to one as practical.
 4. These 'ideal stormwater outcomes' reflect the stormwater outcomes considered necessary to protect the receiving environment from the impact of urban development (i.e. achieve the environmental values). They are included to demonstrate the gap between environmental objectives and the extent to which those objectives can be met by 'best practice' water sensitive urban design, and encourage the attainment of outcomes beyond the stormwater management objectives, where practicable.
3. The WSUD strategy prepared for all development is to take into account water quality and stream erosivity objectives, together with attenuating flow rates and runoff volumes to acceptable levels following urban development.

The report by Worley Parsons describes a suite of hydrological, hydraulic and water quality modelling which has been undertaken to support implementation of the required WSUD approach.

For the purposes of that modelling, the North Kellyville Precinct has been subdivided into two hydrological catchments, each identified by the receiving waterway name. The catchments are:

- Smalls Creek Catchment
- Cattai Creek Catchment

The modelling has identified the rates of total detention storage volume requirements, together with WSUD infrastructure and surface area requirements, on a per developable hectare basis for the Precinct.

WSUD infrastructure recommended for implementation in the North Kellyville Precinct includes:

- Rainwater Tanks
 - Raingardens (bio-retention basin)
 - Road side swales (bio-infiltration)
 - Gross Pollutant Traps (GPTS)
 - Combined constructed wetlands and detention basins.
4. For all development in the Smalls Creek Catchment a minimum detention storage volume of 239m³ per hectare is required. Typically, this storage volume may be made up by each element of WSUD infrastructure, as shown in **Table 22**.

Table 22. Storage volume within the Smalls Creek Catchment

Smalls Creek Catchment WSUD Element	Percentage (%) of Contribution of WSUD Element to Catchment Requirement
Rainwater Tanks	5
Raingardens	8
Swales	30
Detention Basins	57

5. For all development in the Cattai Creek Catchment a minimum detention storage volume of 185m³ per hectare is required.

Typically, this storage volume may be made up by each element of WSUD infrastructure, as shown in the **Table 23**.

Table 23. Storage volume within the Cattai Creek Catchment

Cattai Creek Catchment WSUD Element	Percentage (%) of Contribution of WSUD Element to Catchment Requirement
Rainwater Tanks	5
Additional Active Storage	6
Raingardens	8
Swales	26
Detention Basins	55

6. The percentage contribution of each WSUD element to catchment detention storage requirements, as noted above, are provided as a guide only.

Applicants are able to prepare individual WSUD strategies, provided the total detention storage requirements for each catchment are achieved.

7. WSUD elements are also required to make a contribution towards achieving the water quality and stream erosivity objectives, noted above.

In order to achieve those objectives, the outcomes of the water quality modelling undertaken for the North

Kellyville Precinct has estimated the surface areas of WSUD infrastructure elements on a per developable hectare basis for each catchment, as indicated in **Table 24**.

Table 24. Area of WSUD infrastructure elements per hectare by catchment

WSUD Element	Element Surface Area Per ha	
	Smalls Creek	Cattai Creek
Raingardens	130m ² /ha	104m ² /ha
Road Side Swales	380m ² /ha	257m ² /ha
Constructed Wetlands	190m ² /ha	50m ² /ha

As noted in control 7 above, applicants are able to prepare individual WSUD strategies, provided the water quality and stream erosivity objectives are met.

8. Design methodologies for WSUD infrastructure elements are to comply with the requirements of the following publications:
 - Australian Runoff Quality (Engineers Australia 2005)
 - Water Sensitive Urban Design Technical Guidelines for Western Sydney (NSW Government Stormwater Trust and UPRCT, May 2004)
9. All residential dwellings are required to provide a rainwater tank as part of the WSUD strategy, and such tank is to be plumbed specifically for washing machine use. External use is also permitted however the recycled water system supplied by Sydney Water must be connected to all toilets for flushing purposes, and at least one external tap.
10. Minimum rainwater tank sizes are as follows:
 - Smalls Creek Catchment: 3000 litres (3kl)
 - Cattai Creek Catchment: 4000 litres (4kl)

Larger tanks than the minimum requirement are permitted.

The additional 1000 litres of storage required for rainwater tanks in the Cattai Creek Catchment is to be allocated to stormwater detention only.

Each rainwater tank is to be provided with potable water trickle top-up with a back flow prevention device, complying with Sydney Water requirements.

11. In accordance with the recommendations made in the publication "Guidance on the Use of Rainwater Tanks" (enHealth, Commonwealth Government 2004), diversion of the "first flush" of up to 180 litres is to be incorporated into the design of the rainwater tank and associated plumbing based on a minimum first flush of 1L/m² of roof area.

12. To encourage innovation in the preparation of the WSUD strategy for each development, applicants may substitute hydrological and water quality modelling to establish WSUD infrastructure needs.

To assist the preparation of such modelling, the following MUSIC model parameters recommended for use in the North Kellyville Precinct by DECC, are provided in **Table 25** and **Table 26**. All hydrological, water quality and stream erosivity objectives must be demonstrated to be achieved when undertaking substitute modelling.

Table 25. Recommended Stormwater Quality Parameters for MUSIC modelling

Land use	Storm Flow						Base Flow					
	Total		Total		Total		Total		Total		Total	
	Suspended		Phosphorus		Nitrogen		Suspended		Phosphorus		Nitrogen	
	Solids						Solids					
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>(all values expressed as log₁₀ mg/l)</i>												
General urban												
Residential	2.15	0.32	-0.60	0.25	0.30	0.19	1.20	0.17	-0.85	0.19	0.11	0.12
Industrial												
Commercial												
Rural	1.95	-	-0.66	-	0.30	-	1.15	-	-1.22	-	-0.05	-
Roads	2.43	0.32	-0.30	0.25	0.34	0.19	-	-	-	-	-	-
Roofs	1.30	0.32	-0.89	0.25	0.30	0.19	-	-	-	-	-	-
Forest/Natural	1.60	0.32	-1.10	0.25	-0.05	0.19	0.78	0.17	-1.52	0.19	-0.52	0.12

Note: SD = standard deviation, TSS = total suspended solids, TP = total phosphorus and TN = total nitrogen

* Rural EMC values taken from Chapter 2 - Review of Stormwater Quality and Runoff, CRC for Catchment Hydrology, October 2003

Table 26. Soil and Groundwater Parameters for MUSIC Modelling in Western Sydney

	Units	Urban	Non-Urban
Impervious area parameters			
Rainfall threshold	mm/day	1.4	1.4
Pervious area parameters			
Soil storage capacity	mm	170	210
Initial storage	% of capacity	30	30
Field capacity	mm	70	80
Infiltration capacity coefficient – a		210	175

	Units	Urban	Non-Urban
Infiltration capacity coefficient – b		4.7	3.1
Groundwater properties			
Initial depth	mm	10	10
Daily recharge rate	%	50	35
Daily baseflow rate	%	4	20
Daily deep seepage rate	%	0	0

13. During the construction phase of development, the relevant Stormwater Management Objectives for New Development as set out in the most up to date revision of "Managing Urban Stormwater : Soils and Construction" (NSW Department of Housing) must be complied with, in full.

Erosion and sediment control measures are to be implemented and regularly maintained on site, while sediment trapping measures are to be located at all points where stormwater runoff can enter inlets to stormwater systems, or where runoff may leave the construction site.

14. Where community title subdivision is proposed under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Amendment No. 3)*, the urban development WSUD Parameters established by the North Kellyville Water Cycle Management Strategy must be implemented.

6.2 Aboriginal Heritage

OBJECTIVES

1. To protect and manage areas and elements of identified Aboriginal archaeological heritage of the Precinct.
2. To incorporate elements of Aboriginal heritage within the redevelopment of the Precinct.

CONTROLS

1. Properties with potential Aboriginal archaeological significance are shown in Figure 49.
2. Aboriginal cultural heritage shall be avoided where possible in zones where impacts may occur (such as constrained land/environmental living).
3. Within areas where impacts to Aboriginal heritage cannot be avoided development of potential Aboriginal archaeological significance shall not proceed without appropriate investigation and consultation with the relevant local Aboriginal groups and until a Plan of Management has been prepared that addresses the ongoing management of any archaeological deposits within the Conservation Areas.
4. Aboriginal cultural heritage shall be conserved where no impacts occur. The locations of Aboriginal sites should be identified in a conservation management plan to ensure the sites are not inadvertently damaged as a result of construction works or future land uses.
5. Section 90 consent under the *National Parks and Wildlife Act 1974* will be required for all impacted archaeological sites. Section 90 consent should only cover that part of the site that will be impacted. Consent should be obtained prior to any works which will directly affect these sites. It will be necessary to obtain an excavation permit pursuant to Section 60 or Section 140 of the *Heritage Act 1977*.
6. Test/salvage excavation of Aboriginal sites or areas of archaeological potential is warranted for some of the recorded archaeological sites and potential archaeological deposits which will be impacted by future development. A section 87(1) permit under the *National Parks and Wildlife Act 1974* should be obtained for these sites.

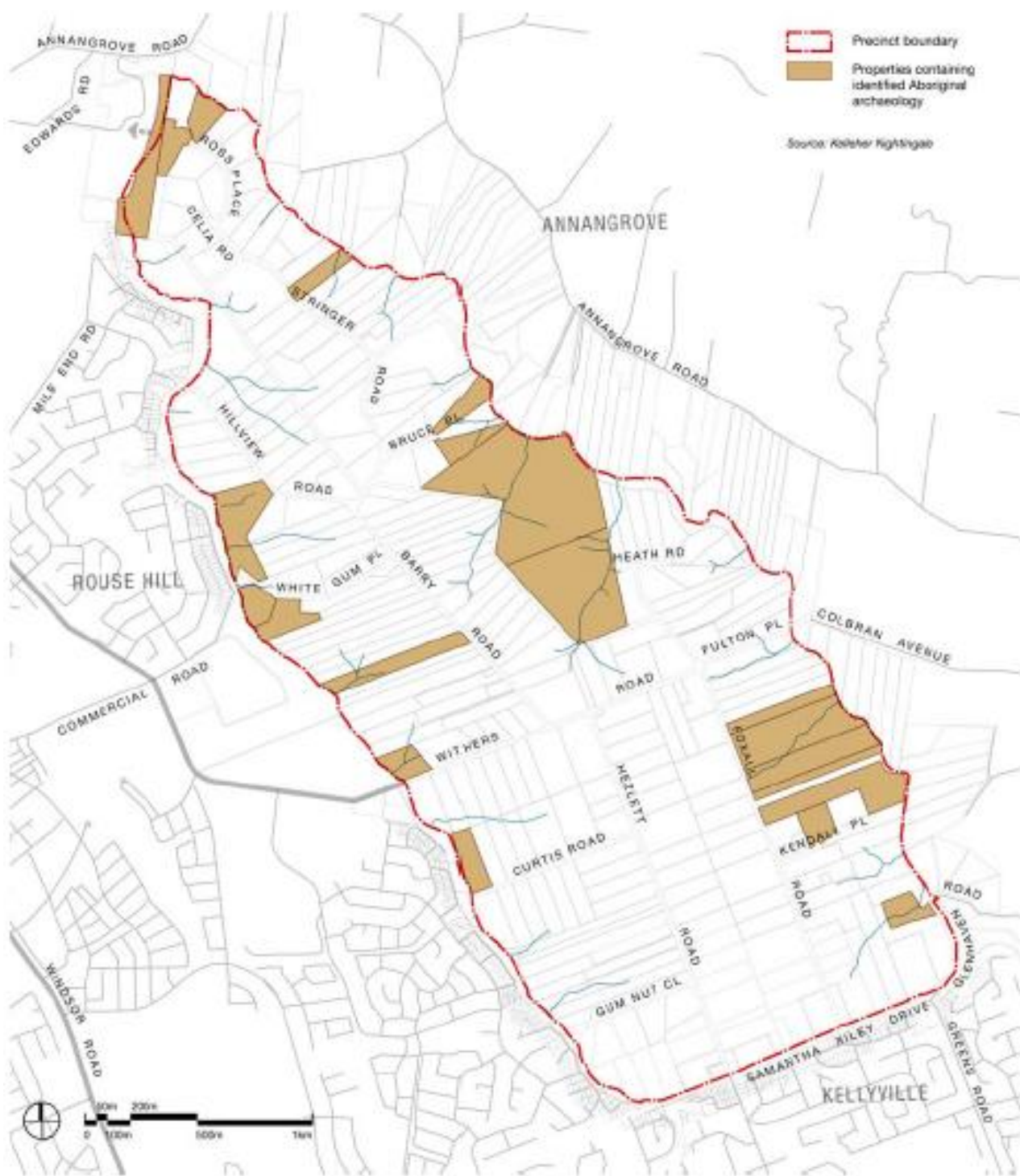


Figure 49. Properties with potential Aboriginal archaeological significance sites

6.3 Bushfire Hazard Management

OBJECTIVES

1. To prevent loss of life and property due to bushfires, by discouraging the establishment of incompatible uses in bushfire-prone areas.
2. To ensure adequate fuel management of asset protection zones in accordance with RFS fuel management standards.
3. To define construction standards that applies to lots within 100 m of bushfire prone vegetation.

CONTROLS

1. Subject to detailed design at DA stage, the indicative location and widths of APZs are to be provided generally in accordance with the following:
 - are to be located wholly within the Precinct;
 - may incorporate roads and flood prone land,
 - are to be located wholly outside of vegetation shown in the Native Vegetation Protection Map and Riparian Protection Area Map and fuel management not impacting on vegetation within these areas in any way,
 - may incorporate Managed Ecological Zones (refer to North Kellyville Waterfront Land Strategy)
 - may be used for open space and recreation subject to appropriate fuel management,
 - are to be maintained in accordance with *Planning for Bushfire Protection 2006* (NSW Rural Fire Service),
 - may incorporate private residential land, but only within the building setback,
 - are not to burden public land, and
 - are to be generally bounded by a perimeter fire trail/road that is linked to the public road system at regular intervals in accordance with *Planning for Bushfire Protection 2006*.
2. Reticulated water is to meet the standards contained within *Planning for Bushfire Protection 2006*. Water supply is to be via a ring main system, engineered to the requirements of Australian Standard AS 2419.1 – Fire Hydrant Solutions.
3. Vegetation management within public parks and community title areas is to be subject to completion of a Fuel Management Plan that is to be integrated within the Park Plan of Management.
4. Buildings adjacent to APZs are to be constructed in accordance with the requirements of Appendix 3 of *Planning for Bushfire Protection 2006* and Australian Standard 3959-1999 - Construction of Buildings in Bushfire Prone Areas.
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. Once the adjacent stage of development is undertaken, the temporary APZ will no longer be required and shall cease.
7. Roads are to be designed in accordance with acceptable solutions as defined within *Planning for Bushfire Protection 2006*.

6.4 Tree and Bushland Protection

The retention of trees and bushland in new development areas provides a range of benefits including a contribution to the character of the neighbourhood, spatial definition and environmental values.

OBJECTIVES

1. To ensure bushland is substantially retained and protected and that development enhances and complements this bushland.
2. To ensure through appropriate protection mechanisms that development and subdivision adjacent to bushland do not detrimentally affect the continued survival of that bushland.
3. Provide a basis for increasing lot areas and altering lot shapes to enable the retention of trees and bushland.

CONTROLS

1. Where it is likely that mature trees will be removed either through the creation of a residential lot or through its subsequent development Council will require:
 - The lot area to be increased beyond the minimum 450m² so as to ensure mature tree(s) are retained; or
 - The lot boundaries to be rearranged to ensure mature tree(s) are retained; or
2. Prior to submission of a development application for the purposes of subdivision, the applicant is to prepare a Tree Management Plan utilising the services of a qualified arborist. This report will ensure an understanding of the condition of existing trees, which will assist in analysing the site opportunities, and is to be submitted at subdivision application stage. The Tree Management Plan must incorporate a survey of all trees as defined under Council's Tree Management Plan and all bushland, as defined by SEPP 19 - Bushland in Urban Areas.
3. Protective fencing is to be provided around trees and bushland to be retained to prevent damage. Fences are to be constructed at the drip-line of existing vegetation as a minimum to prevent damage within the drip-line/protection zone by limiting access into it.

6.5 Contamination Management

OBJECTIVES

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

CONTROLS

1. When redevelopment is proposed on a site a Stage 1 – Preliminary Site Contamination Investigation is required for all subdivision unless it can be demonstrated that such an investigation is not required, such as in bushland areas where it can be established that there has only been a continuous residential landuse;.
2. Subdivisions applications which propose development on Area's of Environmental Concern (AEC) as identified at **Figure 50** shall be accompanied by a Stage 2 – Detailed Site Investigation prepared in accordance with Council's Policy – Management of Contaminated Lands. A Stage 2 assessment will also be required where the Stage 1 report identifies that the site is potentially contaminated. A Remediation Action Plan (RAP) will be required for areas identified as contaminated land in the Stage 2 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 DECC) Guidelines for Consultants Reporting on Contaminated Sites and SEPP 55 – Contaminated Land.
4. Prior to granting development consent, the Council must be satisfied that the site is suitable, or can be made suitable, for the proposed use. Remediation works identified in any Remediation Action Plan (RAP) will require Council consent prior to the works commencing.
5. Council may require a Site Audit Statement (SAS) (issued by a DECC Accredited Site Auditor) where remediation works have been undertaken to confirm that a site is suitable for the proposed use.

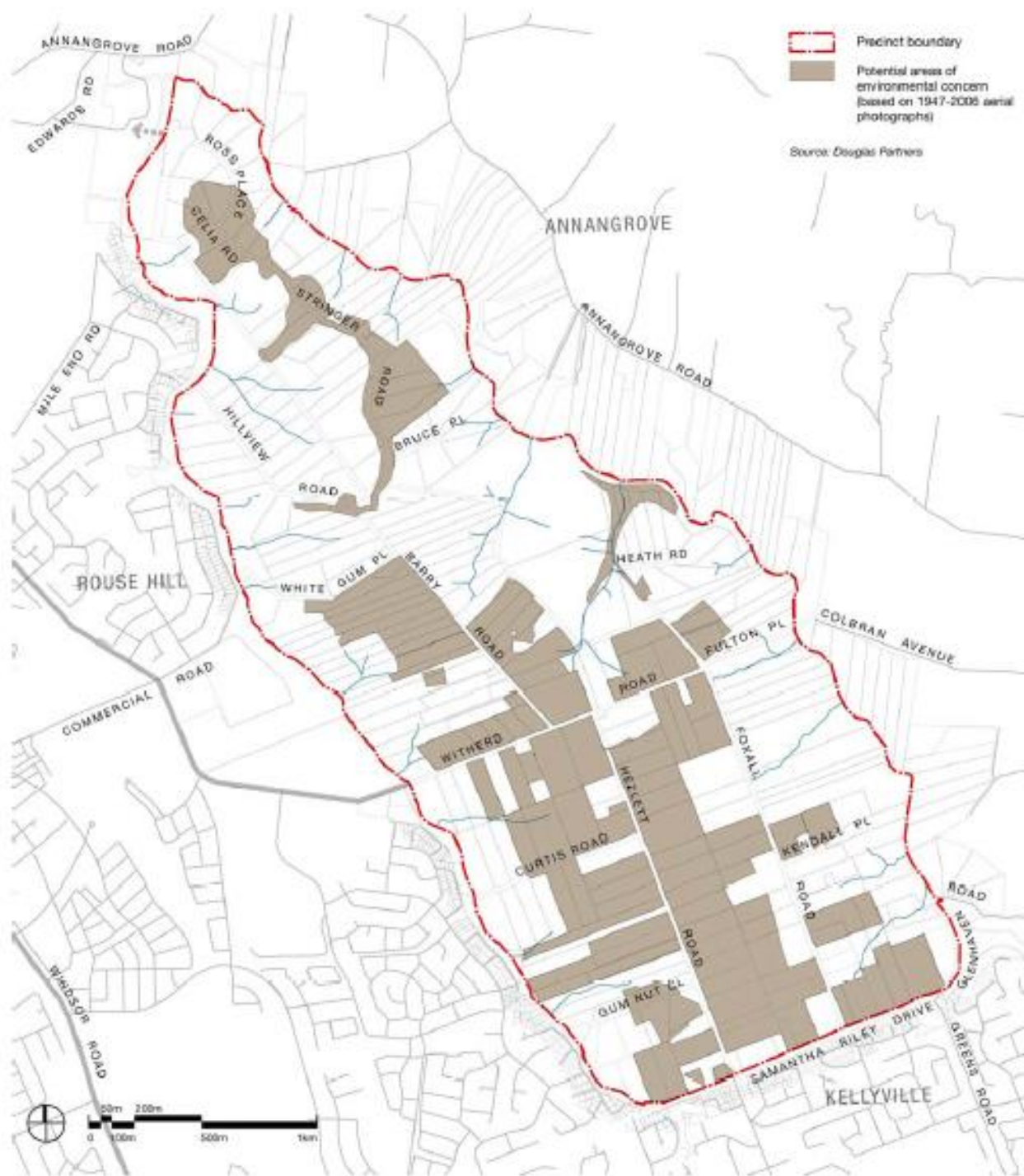


Figure 50. Areas of Environmental Concern

6.6 Subdivision Earthworks

OBJECTIVES

1. To minimise topsoil and vegetation removal and “land-shaping” on land where residential subdivisions are being constructed.

CONTROLS

1. Earthworks shall be minimised to locations where the construction of roads require earthworks to be undertaken.
2. Such earthworks may extend into the proposed allotments for the purpose of providing suitable vehicle access to the identified building platform referred to in **Section 4**.
3. Vegetation and topsoil are not to be removed or disturbed in areas outside of the above areas of proposed construction.
4. All proposed public open space areas are to be fenced and are not to be disturbed or used for any purpose during the construction of a subdivision.
5. Subdivision applications must provide a plan showing the existing pre-development and proposed finished ground levels to enable an assessment of the extent of earthworks proposed and assessment of the relationship between the finished road levels and proposed building platform levels.

6.7 Waste Management

OBJECTIVES

1. To ensure sufficient storage and collection of wastes and recyclables during demolition and construction stages of development.
2. To minimise waste generation and disposal to landfill via use of the waste hierarchy and careful source separation, reuse and recycling.
3. To ensure the provision of adequate and appropriate storage areas for waste and recyclables.

CONTROLS

1. A Waste Management Plan is to be submitted with all development, with the exception of single dwelling housing. The Plan is to address:
 - best practise recycling and reuse of construction and demolition materials.
 - how recycled material, garbage and other waste generated by clearing, excavation and construction are to be stored and controlled,

- the type and volume of waste expected to be generated during construction, and
 - handling methods and location of waste storage areas, including that such handling and storage has no negative impact on the streetscape, building presentation or amenity of occupants and pedestrians.
2. Provide adequate space within the main building for separation of waste material for recycling. Locate such facilities away from windows to habitable rooms.
 3. Garbage storage areas must be located so as to not cause any negative impacts, in terms of visual appearance, noise or smell, to adjoining properties, or to the street.
 4. Separate garbage from recycling chutes so that waste is divided into separate waste streams in order to recycle materials.
 5. Where present, rear lanes are to be used for garbage collection.
 6. Utilise ventilation stacks wherever possible to vent shops and basements.

6.8 Riparian Corridors

Note: At the time of adoption of this DCP, the Growth Centres Commission in conjunction with the Department of Water and Energy is pursuing a process that will involve the 'Precinct-wide sign-off' of Controlled Activity Approval under the Water Management Act 2000.

As part of the work, a Waterfront Land Strategy is being prepared by the Growth Centres Commission. Once this process has been confirmed, an amendment to this DCP will be undertaken to incorporate the approval process for all riparian corridor works.

OBJECTIVES

1. To protect, restore and enhance the environmental values and functions of water courses and riparian corridors.
2. To ensure that the development has a neutral or beneficial impact on the quality and quantity of water and water courses.
3. To allow for some limited use of riparian corridor buffers for low impact recreation activities such as walking and cycling.

CONTROLS

1. Riparian corridors are to be provided in accordance with **Figure 51** and designed in accordance with the specific objectives and controls set out in **Table 27** and the North Kellyville Waterfront Land Strategy.
2. Infrastructure services, stormwater infrastructure, water quality treatment ponds, flood compatible activities (ie playing fields), pedestrian and cycleways, and asset protection zones are to be located outside of the CRZ. These uses are permitted within the vegetated buffer if the impact on riparian functions is minimal and its integrity maintained. Water quality treatment devices are permissible within the CRZ providing that they are vegetated dry basins, are above top of bank, do not increase flood levels and are consistent with the North Kellyville Waterfront Land Strategy.
3. The location of access ways to and within a vegetated buffer is not to compromise the ecological integrity of any existing riparian vegetation, the streambed or bank stability.
4. The impact of pedestrian and cycleways, general access points to riparian corridors and road crossings is to be minimised by using ecologically informed design principles (for example, elevated accessways that allow sunlight to penetrate and vegetation to grow beneath).
5. All CRZs are to be rehabilitated and revegetated with appropriate native vegetation having regard to its drainage function and vegetation management for bushfire protection. A Vegetation Management Plan is to be submitted to Council as part of the residential subdivision DA for residential areas adjacent to a riparian corridor. The Vegetation management Plan is to:

- identify existing trees to be retained,
 - be consistent with DWE guidelines, and
 - indicate the location, type and size and all new plant species.
6. Where wetlands are proposed, a management strategy outlining ownership, ongoing management, annual maintenance costs and initial development costs shall be submitted with any development application.

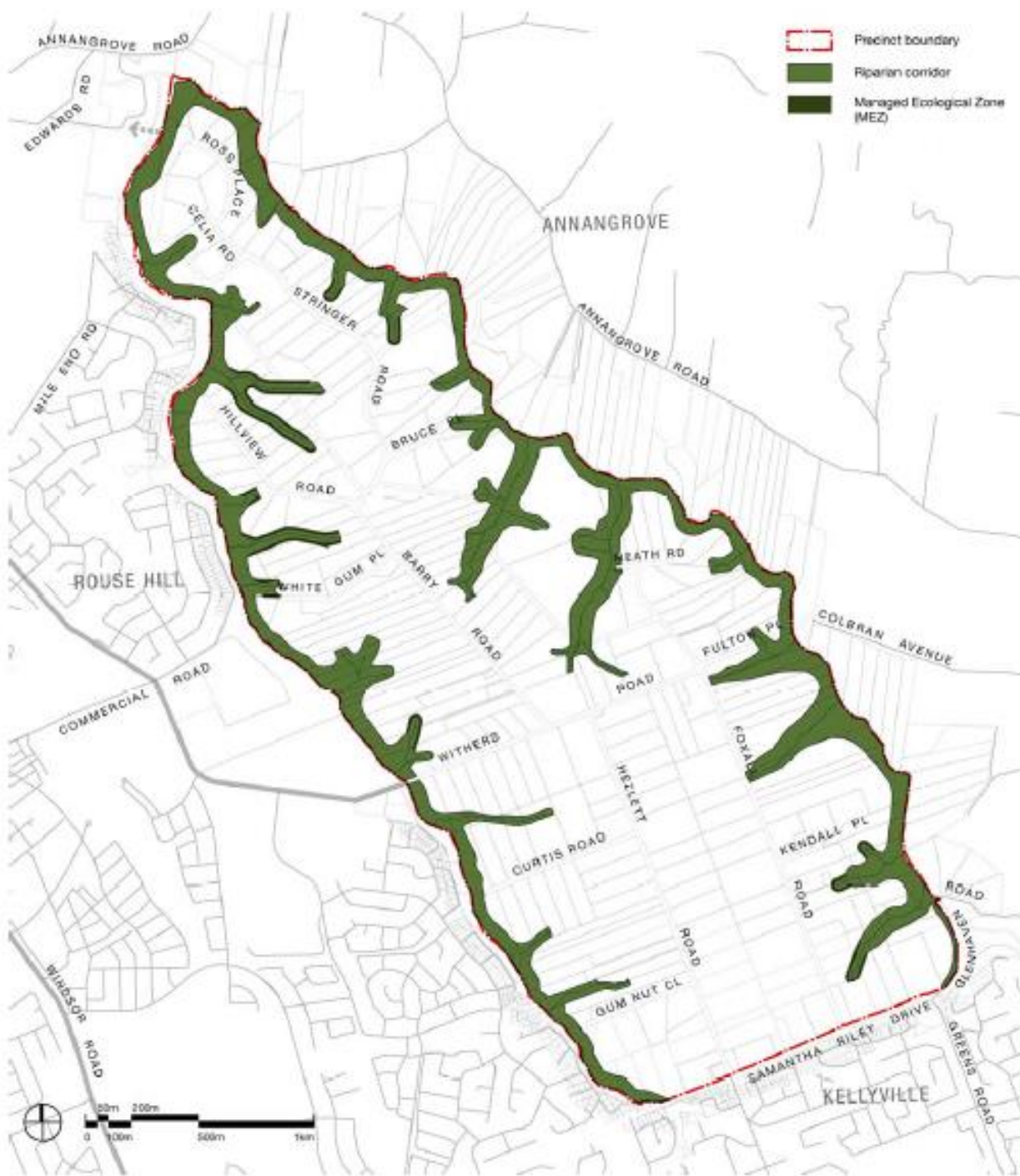


Figure 51. Riparian Corridors

Table 27. Riparian corridors objectives and controls

Specific objectives		Specific controls	
Category 1			
(1)	To provide a continuous, vegetated riparian corridor for the movement of flora and fauna species through and beyond the catchment.	(1)	Restore and rehabilitate the CRZ with local provenance native vegetation.
(2)	To provide extensive habitat and connectivity between habitat nodes for both terrestrial and aquatic fauna.	(2)	Ensure vegetation in the CRZ and vegetated buffer is at a density that would occur naturally.
(3)	To maintain the viability of native riparian vegetation.	(3)	Minimise the number of road crossings.
		(4)	Maintain riparian connectivity by using pierced crossings in preference to pipes or culverts.
		(5)	Ensure lateral connectivity for in-stream function.
Category 2:			
(1)	To maintain and restore the natural functions of a stream and its aquatic and terrestrial qualities.	(1)	Restore and rehabilitate the CRZ with local provenance native vegetation.
(2)	To maintain the viability of native riparian vegetation.	(2)	Ensure vegetation in the CRZ and vegetated buffer is at a density that would occur naturally.
(3)	To provide suitable habitat for local and terrestrial aquatic fauna.	(3)	Minimise the number of road crossings and ensure riparian connectivity is maintained.
		(4)	Provide lateral connectivity for in-stream function.
Category 3:			
(1)	To retain, maintain and restore where possible the natural functions of a stream, including bed and bank stability to protect local water quality.	(1)	Emulate or preserve, wherever possible, a naturally functioning stream.
		(2)	Filling is to be avoided in order to retain the natural stream bed and bank profile.
		(3)	Engineered drainage solutions are to be used as a last resort within CRZs with the appropriate WSUD approaches to be used within sensitive areas

Appendix A

Glossary

APPENDIX A: Glossary

Note: definitions for terms are also included in the Dictionary contained within the SEPP.

“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.

“Articulation Zone” is the area that provides relief from blank facades and can include verandahs, porches, awnings, shading devices, bay windows, pergolas and the like. A carport is not considered part of the articulation zone.

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

“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.

“Gross floor area” means the sum of the floor area of each storey of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and includes:

- a. the area of a mezzanine within the storey, and
- b. habitable rooms in a basement, and
- c. any shop, auditorium, cinema, and the like, in a basement or attic, but excludes:
- d. any area for common vertical circulation, such as lifts and stairs, and
- e. any basement:
 - storage, and
 - vehicular access, loading areas, garbage and services, and
- f. plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
- g. car parking to meet any requirements of the consent authority (including access to that car parking), and
- h. any space used for the loading or unloading of goods (including access to it), and
- i. terraces and balconies with outer walls less than 1.4 metres high, and
- j. voids above a floor at the level of a storey or storey above.

“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.

“Manor House” 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.

“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.

“Residential net developable area” means the land occupied by development, including internal streets plus half the width of any adjoining access roads that provide vehicular access, but excluding public open space and other non residential land.

“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.

but does not include a demi-detached dwelling.

“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**.

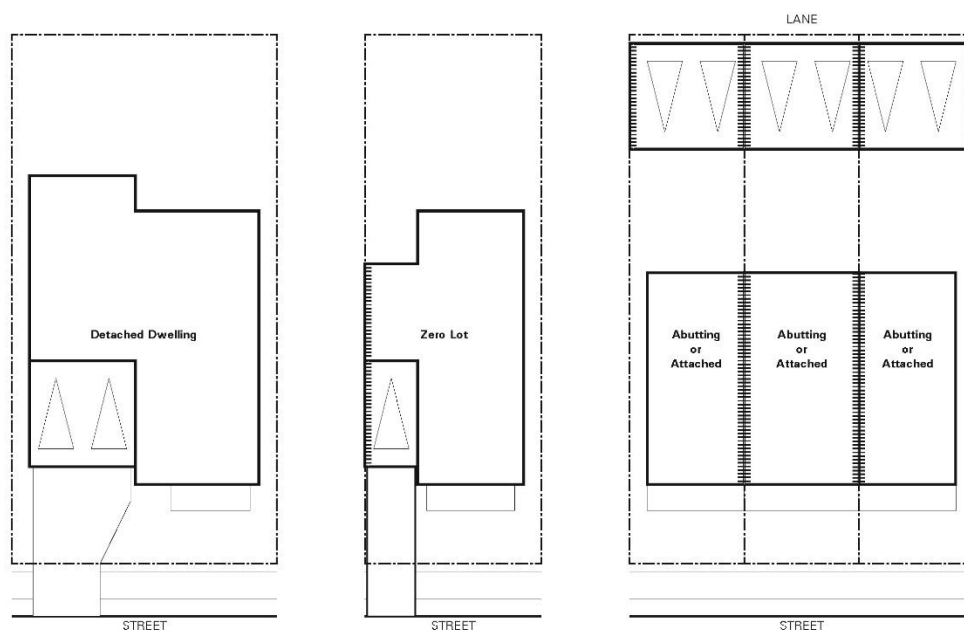
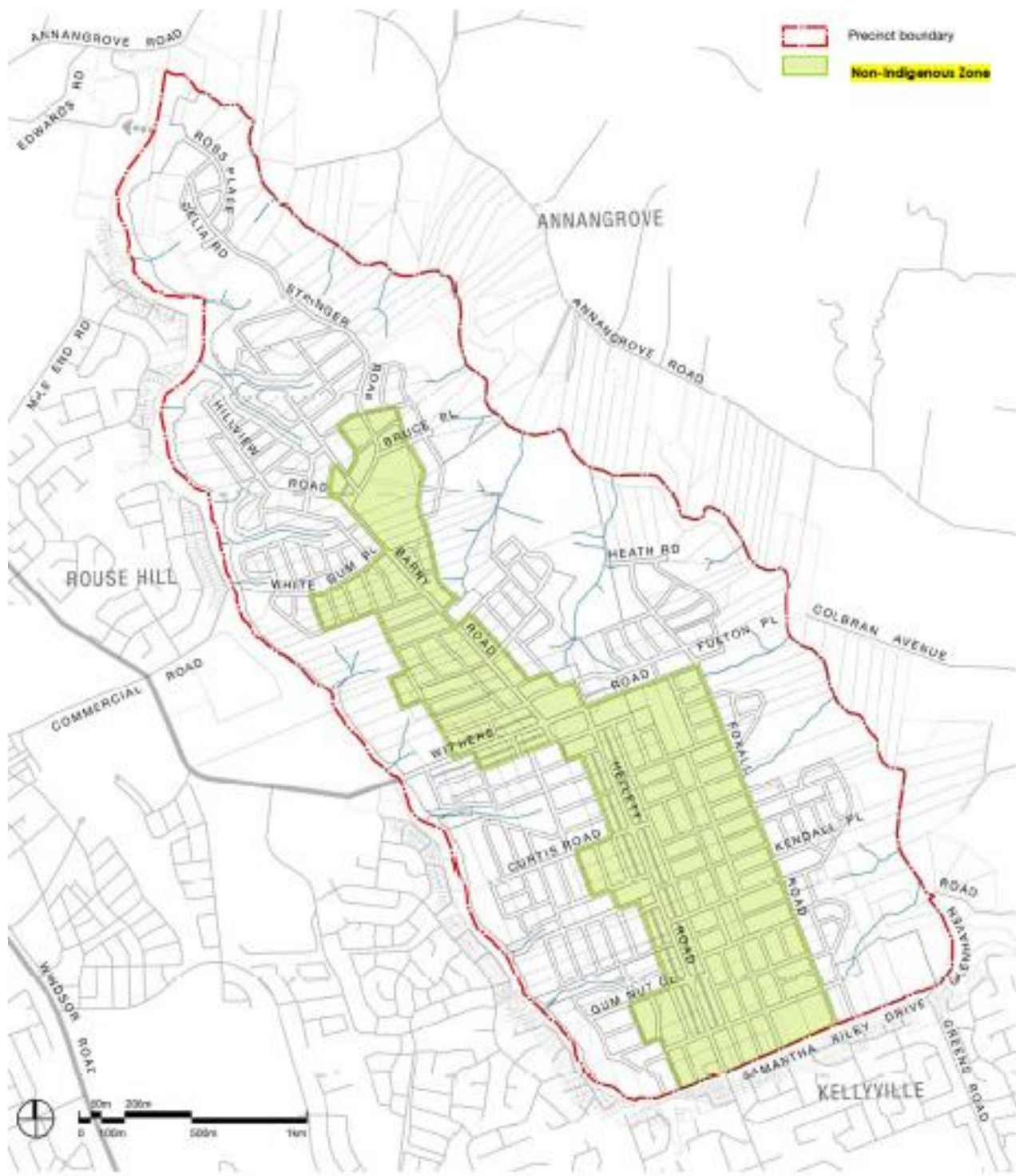


Figure1: Detached, zero lot line, abutting and attached dwellings

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Appendix B
List of Preferred Plant
Species

APPENDIX B: Planting Zone and List of Preferred Planting Species



Legend

* Tree species suitable for streets with no footpaths

** Tree Species suitable for streets with footpaths

Indigenous Species Suitable for Planting in The Hills Shire						
Botanical Name	Common Name	Plant Community				
		Bird Attracting	Shale Cap Forest	Sandstone Soils	Cumberland Plain Woodland	Transition Forest
<i>Allocasuarina littoralis</i>	Black She-oak			■	■	■
<i>Allocasuarina torulosa</i>	Forest Oak		■	■		■
* <i>Angophora costata</i>	Smooth-barked Apple	■	■	■		■
* <i>Angophora floribunda</i>	Rough barked Apple	■	■	■		■
<i>Banksia serrata</i>	Old Man Banksia	■		■		
** <i>Backhousia citriodora</i>	Lemon Scented Myrtle	■				
** <i>Buckinghamia celcissima</i>	Ivory Curl	■				
<i>Casuarina cunninghamiana</i>	River She-oak				■	
<i>Casuarina glauca</i>	Swamp She-oak			■	■	
<i>Ceratopetalum gummiferum</i>	NSW Christmas Bush	■		■		
* <i>Corymbia gummerifera</i>	Red Bloodwood	■		■		
* <i>Corymbia maculata</i>	Spotted Gum					■
** <i>Cupaniopsis anacardioides</i>	Tuckeroo					
** <i>Elaeocarpus eumundii</i>	Smooth Leaved Quandong	■				
** <i>Elaeocarpus reticulatus</i>	Blue Berry Ash	■	■			
* <i>Eucalyptus crebra</i>	Narrow Leaved Ironbark	■			■	■

Indigenous Species Suitable for Planting in The Hills Shire

Botanical Name	Common Name	Plant Community				
		Bird Attracting	Shale Cap Forest	Sandstone Soils	Cumberland Plain Woodland	Transition Forest
*Eucalyptus fibrosa	Broad Leaved Ironbark	■			■	■
*Eucalyptus gummifera	Red Blood Wood	■		■		
*Eucalyptus haemastoma	Scribbly Gum	■		■		
*Eucalyptus moluccana	Grey Box	■			■	■
*Eucalyptus paniculata	Grey Ironbark	■	■	■		■
*Eucalyptus pilularis	Blackbutt	■	■	■		
*Eucalyptus punctata	Grey Gum	■		■		■
*Eucalyptus robusta	Swamp Mahogany	■		■		
*Eucalyptus saligna	Sydney Blue Gum	■	■	■		
*Eucalyptus sideroxylon	Red Ironbark	■				
*Eucalyptus tereticornis	Forest Red Gum	■			■	■
Harpullia pendula	Tulipwood	■				
**Hymenosporum flavum	Native Frangipani	■				
*Melaleuca decora	White Feather Honeymyrtle	■			■	
Lophostemon confertus	Brush Box	■				
**Podocarpus elatus	Plum Pine	■				
*Syncarpia glomulifera	Turpentine	■	■	■		■

Indigenous Species Suitable for Planting in The Hills Shire

Botanical Name	Common Name	Plant Community				
		Bird Attracting	Shale Cap Forest	Sandstone Soils	Cumberland Plain Woodland	Transition Forest
** <i>Stenocarpus sinuatus</i>	Fire Wheel Tree	■				
* <i>Syzygium leuhmannii</i>	Small Leaved Lilly Pilly	■				
** <i>Tristaniaopsis laurina</i>	Water Gum	■		■		
** <i>Waterhousia floribunda</i>	Weeping Lilly Pilly	■				
Shrubs						
<i>Acacia binervia</i>	Coast Myall			■		
<i>Acacia decurrens</i>	Sydney Green Wattle				■	■
<i>Acacia elata</i>	Mountain Cedar Wattle			■		
<i>Acacia floribunda</i>	White Sallow Wattle			■	■	
<i>Acacia implexa</i>	Hickory		■	■	■	■
<i>Acacia longifolia</i>	Sydney Golden Wattle			■		
<i>Acacia parramattensis</i>	Parramatta Green Wattle			■	■	■
<i>Banksia spinulosa</i>	Hair-pin Banksia	■		■		■
* <i>Callicoma serratifolia</i>	Black Wattle			■		
<i>Callistemon citrinus</i>	Crimson Bottlebrush	■		■		
<i>Callistemon lineraris</i>	Narrow Leafed Bottlebrush	■		■	■	
<i>Callistemon pinifolius</i>	Bottlebrush	■		■		
<i>Callistemon salignus</i>	Willow Bottlebrush	■		■		
<i>Davesia ulicifolia</i>	Gorse Bitter Pea			■		■
<i>Dodonea triquetra</i>	Common Hop Bush			■	■	

Indigenous Species Suitable for Planting in The Hills Shire

Botanical Name	Common Name	Plant Community				
		Bird Attracting	Shale Cap Forest	Sandstone Soils	Cumberland Plain Woodland	Transition Forest
<i>Dodonea viscosa</i>	Hop Bush				■	
<i>Gravillea mucronulata</i>	Green Spider Flower	■		■		
<i>Grevillea linearifolia</i>	White Spider Flower	■		■		
<i>Hakea salicifolia</i>	Willow Leaved Hakea	■		■		
<i>Hakea sericea</i>	Bushy Needlebush	■		■	■	■
<i>Hibbertia diffusa</i>	Guinea Flower				■	
<i>Indigofera australis</i>	Indigofera		■	■	■	■
<i>Kunzea ambigua</i>	Tick Bush	■		■		■
<i>Leptospermum polygalifolium</i>	Lemon Scented Tea-tree	■		■	■	
<i>Leucopogon juniperus</i>	Bearded Heath		■			■
<i>Lomandra longifolia</i>	Spiny-head Mat-rush		■	■	■	■
<i>Melaleuca bracteata</i>	Black Tea Tree					
<i>Melaleuca linearifolia</i>	Snow-in-Summer	■		■	■	
<i>Melaleuca nodosa</i>	Ball Honey Myrtle	■		■	■	
<i>Melaleuca styphellioides</i>	Prickly Leaved Paperbark	■		■	■	
<i>Melaleuca thymifolia</i>	Thyme-leaf Honey-myrtle	■		■	■	
<i>Oxylobium ilicifolium</i>	Native Holly			■		
<i>Pimelia linifolia</i>	Rice Flower			■		■
<i>Pittosporum revolutum</i>	Sweet Pittosporum	■		■		
<i>Polyscias sambucifolia</i>	Elderberry Panax	■		■		

Indigenous Species Suitable for Planting in The Hills Shire

Botanical Name	Common Name	Plant Community				
		Bird Attracting	Shale Cap Forest	Sandstone Soils	Cumberland Plain Woodland	Transition Forest
Pultanaea villosa	Bush Pea				■	■
Groundcovers						
Adiantum aethiopicum	Maidenhair Fern		■	■		
Danthonia sp.	Wallaby Grass			■	■	■
Dianella caerulea	Blue Flax Lily	■		■	■	■
Dianella revoluta	Mauve Flax Lily	■		■	■	
Dichelachne crinita	Longhair Plume Grass			■	■	
Dichelachne micrantha	Shorthair Plume Grass			■	■	
Gahnia aspera	Saw-sedge	■		■		
Gahnia clarkei	Tall Saw-sedge	■		■		
Gahnia melanocarpa	Black Fruit Saw-sedge	■		■		
Gahnia seiberana	Saw-sedge	■		■	■	
Geranium solanderi	Native Geranium			■	■	
Lepidosperma laterale	Variable Sword Sedge			■		
Microlaena stiptoides	Weeping Meadow Grass		■	■	■	■
Poa	Tussock Grass		■	■		
Pratia purpurascens	White Root			■	■	
Stipa sp.	Speargrass			■	■	
Themeda australis	Kangaroo Grass		■	■	■	■
Viola sp.	Native Violet			■	■	
Wahlenbergia communis	Native Bluebell			■	■	
Climbers						

Indigenous Species Suitable for Planting in The Hills Shire

Botanical Name	Common Name	Plant Community				
		Bird Attracting	Shale Cap Forest	Sandstone Soils	Cumberland Plain Woodland	Transition Forest
<i>Clematis aristata</i>	Toothed Clematis		■	■	■	
<i>Clematis glycinoides</i>	Old Mans Beard			■	■	
<i>Glycine clandestina</i>	Love Creeper		■			■
<i>Hardenbergia violacea</i>	False Sarsaparilla		■	■	■	■
<i>Hibbertia scandens</i>	Golden Guinea Flower		■			
<i>Kennedia rubicunda</i>	Dusky Coral pea			■	■	
<i>Pandorea pandorana</i>	Wonga Wonga Vine		■	■		

Non-Indigenous Species Suitable for Planting in The Hills Shire

Botanical Name	Common Name
Trees	
* <i>Agonis flexuosa</i>	Willow Myrtle
** <i>Banksia integrifolia</i>	Coastal Banksia
** <i>Bauhinia purpurea</i>	Butterfly Tree
* <i>Brachychiton populneus</i>	Kurrajong
** <i>Callistemon viminalis</i>	Weeping Bottlebrush
** <i>Callitris columellaris</i>	White Cypress Pine
** <i>Callitris rhomboidea</i>	Port Jackson Cypress
** <i>Calodendron capense</i>	Cape Chestnut
<i>Casuarina littoralis</i>	Black She-Oak
** <i>Celtis australis</i>	Nettle Wood
<i>Eucalyptus cladocalyx</i> 'Nana'	Dwarf Sugar Gum
* <i>Eucalyptus elata</i>	Willow Peppermint

Non-Indigenous Species Suitable for Planting in The Hills Shire	
Botanical Name	Common Name
*Eucalyptus eximia	Yellow Bloodwood
Eucalyptus ficifolia	Scarlet-flowering gum
*Eucalyptus leucoxylon	White Ironbark
*Eucalyptus melliodora	Yellow Box
*Fraxinus Americana	White Ash
*Fraxinus excelsior 'Aurea'	Golden Ash
*Fraxinus 'Raywoodii'	Claret Ash
**Jacaranda mimosifolia	Jacaranda
**Lagerstroemia indica var. Indian Summer	Crepe Myrtle
**Leptospermum petersonii	Lemon-scented Tea Tree
*Magnolia grandiflora	White Magnolia
**Melaleuca liniifolia	Flax-leaf Paper Bark
Melaleuca stypheloides	Prickly Paper Bark
*Nyssa sylvatica	Tupelo
**Pyrus calleryana	Ornamental Pear
**Pistachia chinensis	Chinese Pistache
*Quercus coccinea	Scarlet Oak
*Quercus ilex	Holly Oak
*Quercus palustris	Pin Oak
*Schinus molle var ariera	Peppercorn Tree
*Ulmus parvifolia	Chinese Elm
Shrubs	
Abelia grandiflora	Glossy Abelia
Aucuba japonica	Japanese Laurel
Azalea sp.	Azalea
Bauera rubroides	Native Dog Rose
Berberis thunbergii 'Atropurpurea'	Japanese Berberis
Boronia floribunda	Pink Boronia

Non-Indigenous Species Suitable for Planting in The Hills Shire	
Botanical Name	Common Name
<i>Brunfelsia latifolia</i>	Yesterday-today-and-tomorrow
<i>Callistemon citrinus</i>	Crimson Bottlebrush
<i>Callistemon speciosus</i>	Albany Bottlebrush
<i>Choisya temata</i>	Mexican Orange Blossom
<i>Coleonema pulchrum</i>	Pink Diosma
<i>Coprosma repens</i>	Mirror Bush
<i>Correa alba</i>	White Correa
<i>Cyathea cooperii</i>	Rough-barked Tree Fern
<i>Daphne odora</i>	Winter Daphne
<i>Epacris longiflora</i>	Fuchsia Heath
<i>Epacris obtusifolia</i>	Bluntleaf Heath
<i>Fraxinus griffithii</i>	Evergreen Ash
<i>Gardenia sp.</i>	Gardenia
<i>Grevillea hybrids</i>	Grevillea, var
<i>Hebe 'Blue Gem'</i>	Veronica
<i>Hibiscus rosa-sinensis</i>	Chinese Hibiscus
<i>Hydrangea macrophylla</i>	Hydrangea
<i>Juniperus chinensis 'Japonica'</i>	Chinese Juniper
<i>Juniperus communis 'Hibernica'</i>	Irish Juniper
**Lagerstroemia indica	Crepe Myrtle
<i>Lambertia formosa</i>	Mountain Devil
<i>Leptospermum scoparium</i>	Manuka
<i>Leptospermum squarrosum</i>	Peach Flowered Tea Tree
**Magnolia soulangeana	Japanese Magnolia
**Melaleuca bracteata	Black Tea Tree
<i>Melaleuca incana</i>	Grey Honey Myrtle
<i>Melaleuca nesophila</i>	Showy Honey Myrtle
**Michelia figo	Port Wine Magnolia

Non-Indigenous Species Suitable for Planting in The Hills Shire	
Botanical Name	Common Name
<i>Murraya Paniculata</i>	Orange Jasmine
<i>Rhododendron indicum</i>	Rhododendron
<i>Russelia equisetiformis</i>	Coral Bush
<i>Thuja occidentalis</i>	Common Yew
<i>Viburnum tinus</i>	Laurustinus
<i>Westringia fruticosa</i>	Coastal Rosemary
<i>Acacia brownii</i>	Heath Wattle
<i>Coprosma kirkii</i>	Kirk's Coprosma
<i>Grevillea fasciculata</i>	Grevillea, var
<i>Grevillea x gaudichaudi</i>	Prostrate Grevillea
<i>Grevillea 'Poorinda Royal Mantle'</i>	Grevillea, var
<i>Juniperus conferta</i>	Shore Juniper
<i>Parthenocissus quinquefolia</i>	Virginia Creeper

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Appendix C
Environmental Management
Plan

APPENDIX C: Environmental Management Plan



NORTH KELLYVILLE PRECINCT

Environmental Management Plan

November 2008

Cumberland Ecology

PO Box 2474, Carlingford Court 2118

Report No. 6090RP2

The preparation of this report has been in accordance with the brief provided by the Client and has relied upon the data and results collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained within the report are based only on the aforementioned circumstances. The report has been prepared for use by the Client and no responsibility for its use by other parties is accepted by Cumberland Ecology

Approved by: David Robertson

Position: Project Director

Signed: _____

Date: 26 November, 2008

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Introduction

1.1 Background

The Growth Centres Commission (GCC) was established in 2005 under the *Growth Centres (Development Corporations) Act 1974*. The Commission's role is to develop land use and infrastructure plans, recommend land release sequencing, and co-ordinate infrastructure delivery and funding within the South West and North West Growth Centres. The North Kellyville Precinct forms part of the North West Growth Centre. It is envisaged that there is potential for between 5,000 and 6,000 dwellings and a future population of between 14,500 and 15,500 people within this precinct. It is also envisaged that one small local centre will be established and two smaller neighbourhood centres as well as one primary school.

The Growth Centres contain a number of areas that have biodiversity values, including endangered vegetation, threatened species habitat and wildlife and riparian corridors. In order to address issues relating to biodiversity, a Conservation Plan was prepared for the Department of Planning (DoP) as the basis for seeking a grant of "Biodiversity Certification" to the Growth Centres SEPP¹. The Conservation Plan outlined how the SEPP and an accompanying package of actions will maintain or improve biodiversity values. These include:

- Protection of 967 ha of land containing 643 ha of high quality native vegetation through Environment Conservation and Recreation Zones identified by the SEPP;
- Protection of a further 880 ha of native vegetation through development controls identified by the SEPP and associated Development Code; and
- Implementation of a conservation offsets programme to secure the protection of at least 2,300 ha of priority, high quality vegetation in Western Sydney and the Sydney Basin.

Biodiversity Certification has been granted for the Sydney Region Growth Centres, subject

to a number of conditions. These include the protection of “existing native vegetation” identified within the Conservation Plan as occurring within the “non-certified” areas of North Kellyville and the protection of particular populations of threatened flora species recorded from the precincts.

Biodiversity Certification removes the need to assess impacts on threatened species at the development stage within the precinct. However development within the precinct will still

aim to retain as much existing vegetation and habitat as possible, as this will both complement the broader biodiversity outcomes and contribute to local amenity and open space delivery.

As part of the precinct planning process, a Biodiversity Assessment was prepared for the precinct in 2007 by Cumberland Ecology². This report provided a baseline technical study of aquatic and terrestrial flora and fauna habitat within the precinct to contribute towards the production of an Indicative Layout Plan (ILP). This report included a review of the biodiversity values present within the precinct, and provided recommendations regarding management of retained vegetation which enable long term protection and management

of high conservation value areas, while facilitating the development outcomes for the precinct.

The ILP has sought to retain existing vegetation and habitat within the precinct and provides for the protection and maintenance of the biodiversity values within the precinct. This has been done by retaining important patches and corridors of vegetation wherever possible and retaining and developing around significant landscape and topographical features.

1.2 Description of the Study Area

The North Kellyville Precinct is bounded by Smalls Creek to the west, Cattai Creek to the east and Samantha Riley Drive to the south. Most of the precinct consists of gently undulating land, however slopes greater than 10 degrees are present near drainage lines and near Cattai Creek and Smalls Creek. The precinct comprises 707 ha of predominantly rural residential land and is divided by few major roads; Foxall Rd and Hezlett Rd, running north to south in the southern part of the precinct and Barry Rd, Hillview Rd and Stringer road running north to south in the northern part of the precinct. Many of the existing residential lots are long and narrow, running from the creeks up to main roads. Typically, the part of the block closest to the road has been cleared for a house and garden, and sometimes for livestock, and usually some vegetation has been retained near the creeks. The condition of this vegetation varies considerably depending on the landowner. Some landowners have under-scrubbed the vegetation significantly so that little remains except for canopy trees, but in other places there is an intact understorey.

Most of the land in the centre of the precinct has been highly modified from its pre-European state. The precinct was originally used mainly for grazing and much of the land has been cleared and existing land uses include large rural residential lots, chicken farms, market gardens and plant nurseries. Most of the flatter, more fertile areas in the precinct have been cleared and remnant vegetation is mostly restricted to steeper or less fertile conditions. Steep slopes are found mostly in the gullies adjacent to Cattai Creek and Smalls Creek, and there is a nearly continuous band of vegetation running north-south along these gullies. Several ephemeral watercourses flow into Cattai Creek and Smalls Creek. The riparian zone is heavily degraded by weeds for most of its extent, however on

the slopes above it the vegetation is in relatively good condition with minimal weed invasion. Some stands of remnant vegetation are present within the largely cleared central part of the site. However these are for the most part highly degraded.

1.3 Terminology

This report uses the following terminology:

- **The precinct** is the North Kellyville Growth Centres Commission Precinct;
- **The subject site** is the land to which this EMP applies to protected vegetation shown in the Growth Centres SEPP (Appendix 2) Native Vegetation Protection Map and mapped as non-certified in the Growth Centres Biodiversity Certification Order.
- **Threatened species, populations or endangered ecological communities** refer to species, populations or ecological communities that are listed as being threatened or endangered in either the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the *Threatened Species Conservation Act 1995* (TSC Act).

1.4 Aims

The aim of this report is to guide the restoration and maintenance of land that occurs on non-certified vegetation within zones E3 and E4 within the precinct. In general this includes riparian and heavily sloped land that occurs within the precinct boundary along the edge of Cattai Creek and parts of the riparian and sloped land adjacent to Smalls Creek (refer to the Figures in Section 2). These areas have previously been identified as being of high conservation value and this EMP provides regeneration guidelines that cover the rehabilitation of creek lines, weed removal, native species re-planting and ongoing maintenance.

This plan covers a period of 5 years and includes 'Key Performance Indicators' to enable an assessment to be made at the end of the five years as to whether the conservation and restoration objectives have been met. Recommendations for achieving ongoing maintenance by individual landholders are also made.



FIGURE 1.1 AERIAL PHOTOGRAPH OF THE NORTH KELLYVILLE PRECINCT

Environmental Values

2.1 The Subject Site

The subject site to which this EMP refers includes all protected vegetation shown in Native Vegetation Protection Map (GC SEPP Appendix 2) which is generally associated with E3 and E4 zones within the precinct. Primarily, this consists of large tracts of riparian vegetation running along Cattai Creek and parts of Smalls Creek, as well as vegetation that occurs on the associated slopes and gullies adjacent to the creek lines. The subject site also includes part of an extended area of bushland within the former Heath Road Reserve remnant. An endangered ecological community occurs on the subject site as well as several threatened flora species and habitat for a wide diversity of fauna.

The riparian corridors contain high levels of weed infestation; however they constitute large areas of continuous habitat that form important habitat linkages throughout the precinct and the region. They also contribute significantly to other biodiversity values such as water quality in Cattai Creek and Smalls Creek. The sloped areas outside of the riparian zone are generally in better condition although weed invasion varies significantly across the site, depending on soil type, slope aspect, etc.

2.2 Vegetation Communities

Broad-scale mapping of the vegetation in the precinct was conducted by NSW National Parks and Wildlife Service in 2003, largely with reference to aerial photography. Some ground-truthing of this mapping was undertaken by EcoLogical in 2005 for the preparation of the draft Conservation Plan³ and by Cumberland Ecology in 2007 for the preparation of the Biodiversity Assessment². The vegetation communities that fall within the subject site include:

- Shale Sandstone Transition Forest;
- Sydney Sandstone Gully Forest;
- Sydney Sandstone Heath;
- Sydney Sandstone Ridgetop Woodland;
- Upper Georges River Sandstone Woodland; and
- Alluvial Woodland (not shown on the broad-scale mapping but occurs in narrow bands along parts of the creekline)

Of these communities, Shale Sandstone Transition Forest and Alluvial Woodland are listed as EECs under the TSC Act.

Figure 2.1 illustrates the broad vegetation communities that have been mapped within the subject site. Descriptions of each vegetation community are provided in Appendix A

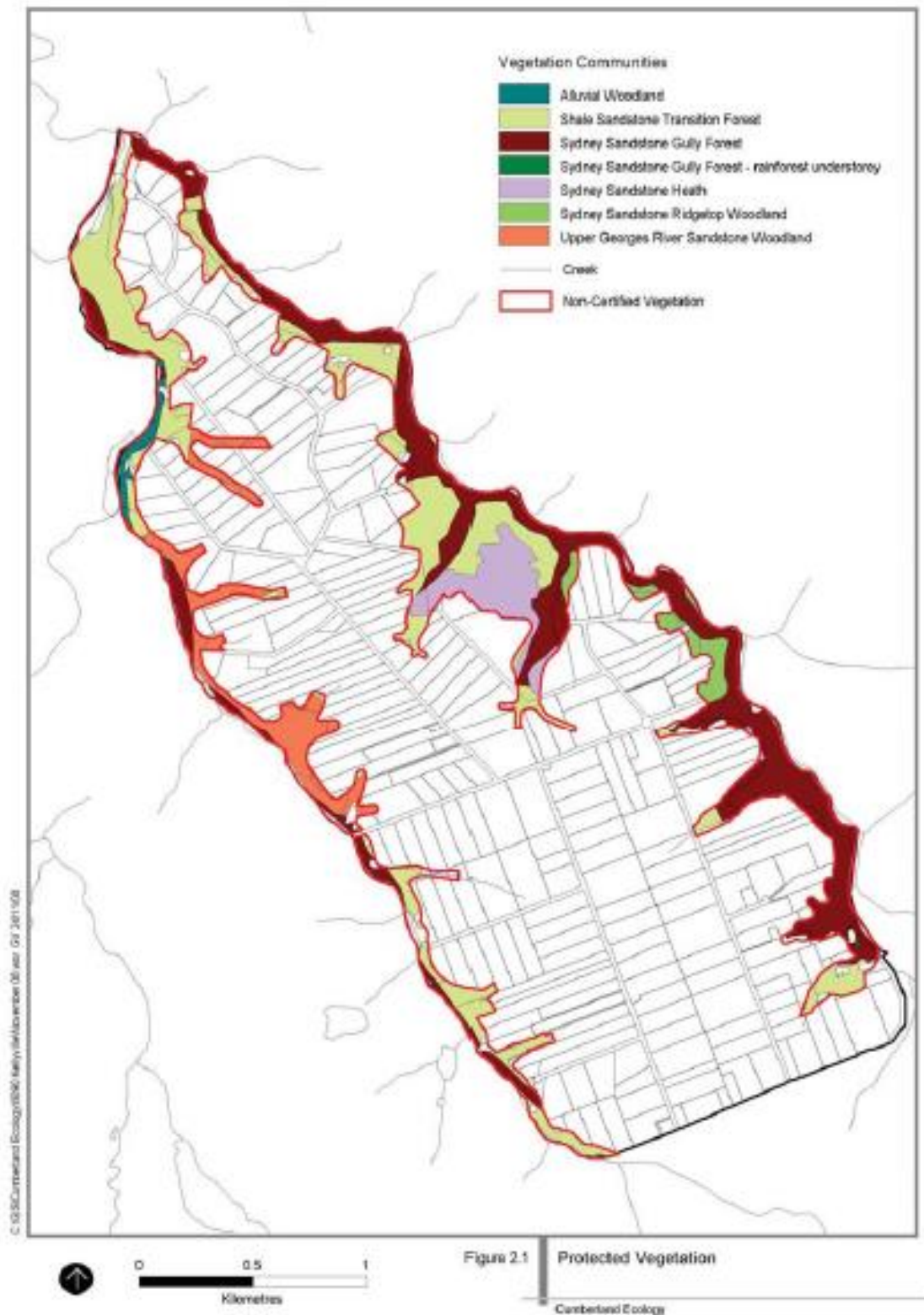


FIGURE 2.1 VEGETATION COMMUNITIES WITHIN NON-CERTIFIED LAND

2.2.1 *Riparian Vegetation of Cattai Creek and Smalls Creek*

The vegetation in the riparian zone along Cattai Creek and Smalls Creek is largely composed of Sydney Sandstone Gully Forest with small areas of Alluvial Woodland occurring along parts of the creekline. This zone is almost wholly vegetated and provides important fauna habitat and connectivity to other areas outside of the subject site. Although the riparian zone is degraded and characterised by heavy weed invasion throughout most of its length, it is still considered to be an ecologically important area and a high priority for conservation. Cattai Creek and Smalls Creek have been classified as Category 1 streams.



PHOTOGRAPH 2.1 DEGRADED RIPARIAN ZONE OF CATTAI CREEK

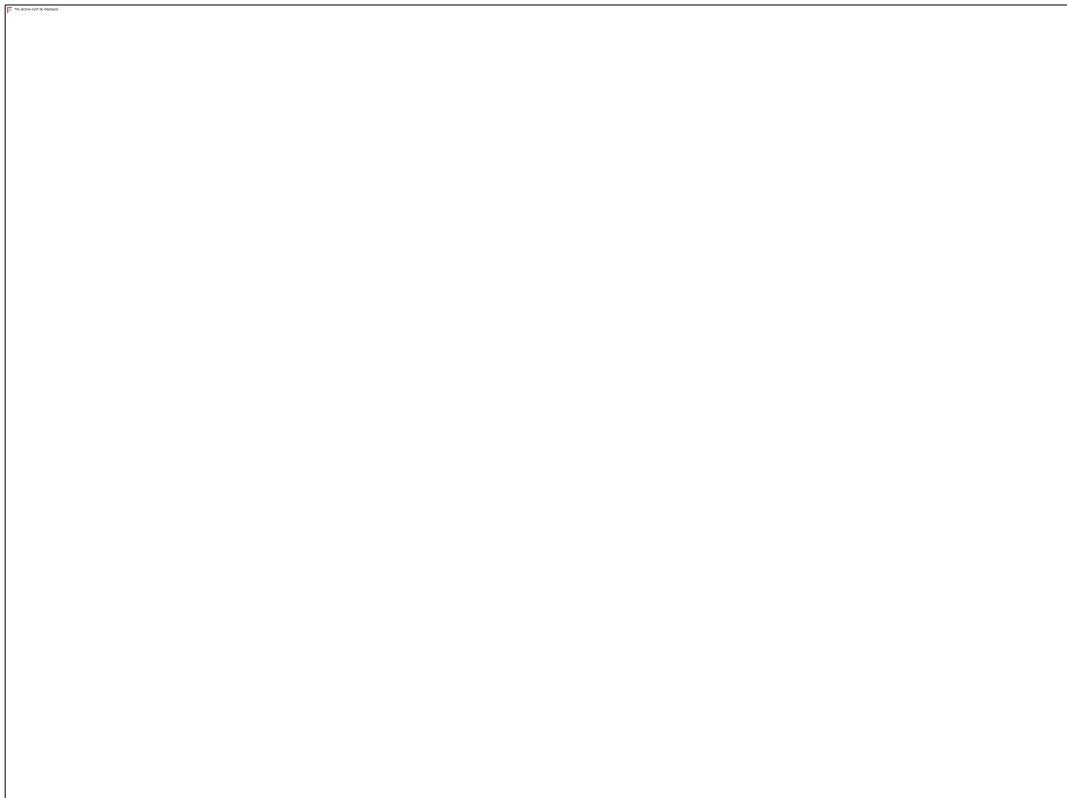
2.2.2 *Upper Slope and Ridge-top Woodlands*

The upper slope and ridgetops in the subject site consist of heaths and woodland in relatively good condition. The vegetation communities in these areas include Sydney Sandstone Ridgetop Woodland, Upper Georges River Sandstone Woodland and Sydney Sandstone Heath. Crevices and caves are common and they provide good habitat for fauna to bask on and shelter underneath. The upper slope and ridgetop areas have a

complex habitat structure that provides habitat for many fauna species and some of the threatened species recorded from the locality have the potential to utilise these areas. Weeds are rare on the upper slopes and ridge-tops and these areas tend to support a high diversity of flora.

The viability of these kinds of habitats is usually very good due to a low level of past disturbance and low levels of weeds. The soil on the upper slopes and ridges is typically nutrient poor and relatively dry and weeds do not flourish in these conditions. Higher areas are not subject to nutrient enriched stormwater runoff which is particularly detrimental to gully vegetation and riparian zones. Disturbance by humans is also relatively low in these areas, probably because they are frequently rocky and steep and therefore unable to support intensive agriculture.

An area of particular conservation significance within the subject site is the Heath Road remnant. This is a relatively large area of high quality and relatively undisturbed bushland and several threatened flora species have been recorded from within this area.



PHOTOGRAPH 2.2 UPPER SLOPE AND RIDGE-TOP VEGETATION

2.3 Soil and Topography

The majority of the subject site is on Hawkesbury colluvial soil associated with the major creeks and tributaries. Upper slopes are on Blacktown residual soils. The width of the riparian zone varies and numerous sub-tributaries occur along the length of the subject site. In general the site is steeply sloped although where sub-tributaries converge, the slopes are more gradual. On the upper slopes and ridge tops, the soil is typically thin and sandstone outcrops are common, often forming benches and cliff lines.

2.4 River Flows

Cattai Creek and Smalls Creek are freshwater tributaries of the Hawkesbury-Nepean River and form the north-eastern and western boundaries of the precinct. These two creeks generally have some flow at all times, especially after rainfall⁴. Several un-named tributaries are present within the precinct but these are ephemeral streams that only flow when sufficient rain has fallen.

2.5 Flora and Fauna

2.5.1 Threatened Flora Species

Several threatened flora species have been recorded in the precinct, including populations of: *Hibbertia superans*, *Eucalyptus* sp. Cattai, *Darwinia biflora*, *Epacris purpurascens* var. *purpurascens* and *Leucopogon fletcheri* subsp. *fletcheri*.

These populations tend to be strongly associated due to their habitat requirements and restricted distribution and are located largely in and near the former Heath Road Reserve remnant on predominantly sandstone geology.

2.5.2 Fauna Species

A wide range of threatened fauna species have been recorded from within or near the precinct and have potential habitat within the precinct. These include but are not limited to large forest birds, such as the Glossy Black Cockatoo (*Calyptorhynchus lathami*) and the Powerful Owl (*Ninox strenua*); small forest birds such as the Regent Honeyeater (*Xanthomyza phrygia*); microchiropteran bats; amphibians such as the Red-crowned Toadlet (*Pseudophryne australis*); and one invertebrate, the Cumberland Plain Land Snail (*Meridolum corneovirens*).

The riparian corridors of Cattai Creek and Smalls Creek constitute large areas of contiguous native vegetation, which form part of a biodiversity corridor throughout the precinct and are important for the dispersal of native fauna throughout the precinct and the wider district. In this area there is high floristic diversity and habitat for a wide range of fauna is present.

Associated Issues

3.1 Weeds

Weeds have the potential to adversely impact on native biodiversity as they alter ecosystem function, degrade natural vegetation and seriously limit the long-term sustainability of natural resources.

3.1.1 *Relevant Legislation*

i. Noxious Weeds Act 1993

The *Noxious Weeds Act 1993* provides for the identification, classification and control of noxious weeds in New South Wales. Changes to the Act came into force in March 2006 via the *Noxious Weeds Amendment Act 2005*. Plants that are declared noxious weeds by the Minister are placed into the following weed control categories:

- Class 1 – State Prohibited Weeds

These are plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.

➤ Class 2 – Regionally Prohibited Weeds

These are plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent.

➤ Class 3 – Regionally Controlled Weeds

These are plants that pose a serious threat to primary production or the environment of an area to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area.

➤ Class 4 – Locally Controlled Weeds

These are plants that pose a threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area.

➤ Class 5 – Restricted Plants

These are plants that are considered likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State.

A noxious weed that is classified as a Class 1, 2 or 5 noxious weed is referred to in the Noxious Weed Act as a notifiable weed.

ii. *Weeds of National Significance (WONS)*

Weeds of National Significance are a list of weeds that have been prioritised for control on the basis of:

- Invasiveness;
- Impacts;
- Potential for Spread; and
- Socioeconomic and Environmental aspects.

Weeds of National Significance (WONS) recorded from the precinct include: Willows (*Salix* sp.), Lantana (*Lantana camara*), Alligator Weed (*Alternanthera philoxeroides*), Bridal Creeper (*Asparagus asparagoides*) and Blackberry (*Rubus fruticosus* agg.).

3.1.2 Weed Species in North Kellyville

Weed distribution within the North Kellyville Precinct is strongly influenced by past and present land uses, with the greatest weed infestations occurring in the riparian zones of Smalls and Cattai Creeks and in the small tributaries that flow into them where the moisture and nutrient levels are often elevated due to stormwater pollution.

The degradation of native riparian vegetation along NSW water courses is listed as a key threatening process (KTP) under the *Fisheries Management Act 1994* (FM Act). A major cause of riparian degradation is the invasion by exotic weed species.

Table 3.1 presents a list of the most significant weeds for the precinct. These have been either recorded from the precinct or have been recorded from the Baulkham Hills LGA and have significant potential to occur in the precinct. Appendix B provides a full list of weeds known to occur within the Baulkham Hills LGA.

Table 3.1 NOXIOUS WEEDS AND WEEDS OF NATIONAL SIGNIFICANCE RECORDED FROM THE PRECINCT OR HAVING THE POTENTIAL TO OCCUR WITHIN IT

Species	Listing	Control Requirements
Alligator weed (<i>Alternanthera philoxeroides</i>)	Class 3 Noxious WONS	The plant must be fully and continuously suppressed and destroyed
Blackberry (<i>Rubus fruticosus</i> aggregate species)	Class 4 Noxious WONS	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed. This is an All of NSW declaration
Bridal creeper (<i>Asparagus asparagoides</i>)	Class 5 Noxious WONS	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with. This is an All of NSW declaration
Green cestrum (<i>Cestrum parqui</i>)	Class 3 Noxious	The plant must be fully and continuously suppressed and destroyed
Lantana (<i>Lantana</i> species)	Class 5 Noxious WONS	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with. This is an All of NSW declaration
Mother-of-millions (<i>Bryophyllum</i> species and hybrids)	Class 3 Noxious	The plant must be fully and continuously suppressed and destroyed and the plant may not be sold, propagated or knowingly distributed
Paterson's curse (<i>Echium</i> species)	Class 4 Noxious	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Prickly pear (<i>Opuntia</i> and <i>Cylindropuntia</i> species)	Class 4 Noxious	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed. This is an All of NSW declaration
Broad-leaf Privet (<i>Ligustrum lucidum</i>)		Privet (<i>Ligustrum sinense</i>)
	Narrow-leaf	

Class 4 Noxious WONS	The growth and spread of the plant must be controlled	
Class 4 Noxious WONS	according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed	
	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed	
Willows (<i>Salix</i> species)	Class 5 Noxious WONS	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with. This is an All of NSW declaration

3.1.3 Weed Invasion on the Subject Site

Weeds are a significant problem within the subject site, particularly along riparian corridors where introduced woody and herbaceous weed species compromise the integrity of the native ecosystem. Balloon Vine (*Cardiospermum halicacabum*) and Narrow-leaved Privet (*Ligustrum sinense*) in particular, dominate large tracts of the riparian zone across the subject site.

Exotic invasive species are a particular issue along drainage lines where seeds can be transported from upstream. High levels of nutrients can also enter the riparian zone through overland or storm water flows favouring the success of introduced species.

The vegetation on the steep slopes away from the creeks is significantly less weed invaded than the riparian zones. The soil on the upper slopes and ridges is typically nutrient poor and relatively dry and weeds do not flourish in these conditions.

Exotic plants can provide good nesting habitat for native fauna and the removal of weeds will need to be carried out in stages, with exotic cover replaced by native species to provide alternative nesting and sheltering sites for fauna.

Weeding methodologies for the subject site and general best practice principles are outlined in Chapter 5.

3.2 Water Quality and Aquatic Habitats

Water quality in Cattai and Small's Creeks varies and is highly dependent on catchment uses⁵. Current impacts on the creeks include urban stormwater runoff, treated sewage discharges and agricultural runoff. In general, areas closer to urban development are subject to urban stormwater run-off whilst further downstream in the lower reaches of Cattai Creek, pollution levels are reduced due to the natural assimilation processes of the creek⁶.

The environmental management objectives for the precinct include improvement and

maintenance of water quality within the two main waterbodies, Cattai and Small's Creeks. Most of the aquatic ecosystem will not be impacted on by development within the precinct, but will benefit from the imposition of managed riparian corridors. These will improve the aquatic environment by acting to filter water entering the waterways and intercepting nutrients and sediment. Re-vegetation and maintenance of riparian vegetation along both creeks will reinforce bank stability and slow overland flows from storm events by intercepting such flows. Erosion control and riparian re-planting are covered in the following sections of this Plan

3.3 Erosion and Run-off

Land zoned for development within the precinct will be subject to some vegetation removal. Although this will take place outside of the subject site that this plan relates to, the removal of vegetation can create indirect environmental impacts down-slope, such as topsoil erosion and deposition, and increased nutrient flows. All remnant vegetation will need to be protected during construction and measures put in place to prevent any pollution of waterways. Construction methods in the development area should follow an appropriate soil and water management plan that addresses these issues to prevent indirect impacts occurring within conserved areas.

3.4 Bushfire

The Rural Fire Service (RFS) has mapped areas of land within the precinct as containing bushfire prone land due to steep slopes and dense bushland along the riparian corridor of Cattai Creek and some areas of Smalls Creek.

As a bushfire mitigation measure, APZs will be established between the protected vegetation and future residential development. Vegetation within the APZs will be required to be maintained at a reduced level and allow use by fire trucks to combat outbreaks of bushfire. The APZs are located outside of the area to which this EMP relates and therefore are not discussed further here. Vegetation within APZs should be managed in accordance with a bushfire management plan.

3.5 Cultural Heritage

It is recommended that bush regenerators and on-site workers be briefed on the presence and location of any adjacent sites of cultural heritage prior to any works beginning on the subject site. A precautionary approach should be adopted in these areas to minimise the risk of damaging the integrity of Aboriginal and European cultural heritage.

Riparian Assessment and Rehabilitation

4.1 Overview

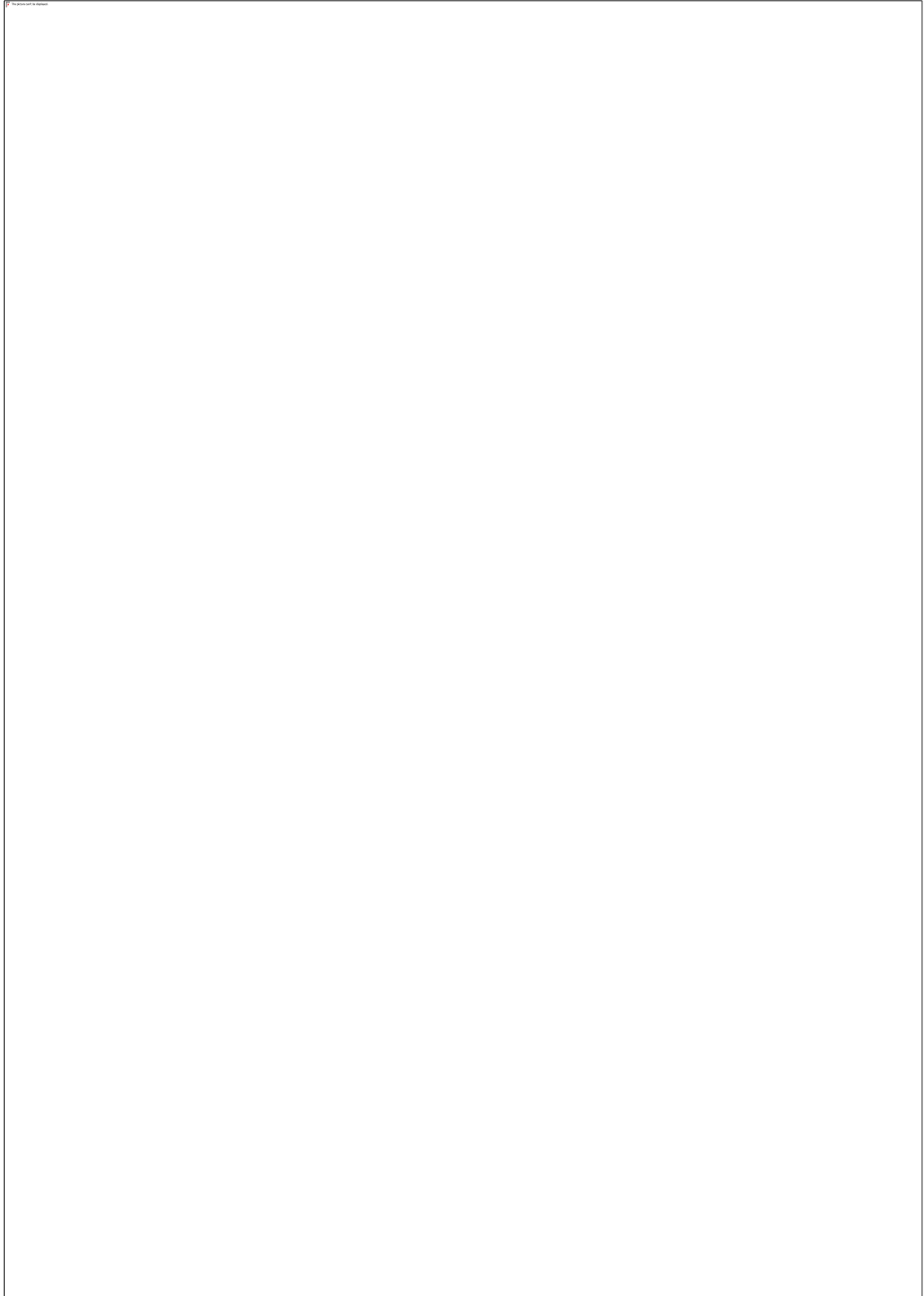
Due to the size of the riparian corridors and the variable condition of the vegetation along the creek-lines it is not practical at this stage to prepare a detailed vegetation management plan for the entire subject site. Therefore, several sub-sections have been assessed in detail to provide examples of the rehabilitation work that would need to be undertaken along different sections of the creek-line and the surrounding retained bushland.

The chosen subsections include:

- Zone 1: the most southerly end of the subject site near Samantha Riley Drive;
- Zone 2: a mid-section of Cattai Creek with numerous associated sub-tributaries in and adjacent to the Heath Road remnant,
- Zone 3: the northern part of the subject site near the confluence of Cattai Creek and Seconds Ponds Creek.

The locations of these sub-sections are shown in Figure 4.1 below, with more detailed descriptions provided in the following section.

This EMP sets parameters and guidelines regarding the regeneration and rehabilitation techniques that should be used to improve the conservation values of the subject site. Any future plans to carry out works within the land to which this EMP relates, should follow the objectives and principles set out in this management plan, and all proposed work should be in keeping with the desired future outcomes for the site, as listed below.



**FIGURE 4.1 LOCATIONS OF CHOSEN SUB-SECTIONS FOR DETAILED
ASSESSMENT**

4.2 Aims and Desired Future Outcomes

The aim of this EMP is to set principles and guidelines to achieve the following performance based outcomes, using a range of integrated best practice techniques:

- Control threats affecting the health of remnant riparian and surrounding vegetation and inhibiting the regeneration potential of these plant communities;
- Increase species diversity and percentage cover of riparian vegetation plant species throughout designated bushland areas within the subject site;
- Improve the resistance of riparian vegetation and adjacent bushland areas to future weed colonisation and establishment related threats, by initiating the two above aims;
- Use measurable indicators to monitor regeneration responses and to assist in prioritizing bushland regeneration works during the proposed works programme;
- Implement supplementary bushland reconstruction plantings within specified management zones to restore structural elements of the plant communities, where these are absent or are not likely to regenerate naturally, using appropriate local native plant materials; and
- Identify monitoring and reporting procedures to measure progress against expected outcomes.

4.3 Best Practice Vegetation Management

The following factors were considered in determining the most appropriate restoration and rehabilitation methods for the subject site:

- Adapting best practice restoration principles and techniques and conforming to statutory requirements; and
- Liaison with providers of established and innovative restoration and rehabilitation techniques and products, to assist in the formulation of the most appropriate restoration and rehabilitation designs and strategies for the subject site.

Appropriately experienced and qualified personnel should carry out all proposed bush regeneration and reconstruction works. There is some scope to involve the community in aspects of the proposed restoration works, provided that appropriately experienced and qualified staff supervise them. All proposed native vegetation restoration recommendations outlined in this EMP should ensure compliance to recognised bushland management best practice guides, such as:

- Bush Regeneration, Recovering Australian Landscapes⁷;
- The Bush Regenerators' Handbook⁸;
- Methods advocated by the Australian Association of Bush Regenerators (www.aabr.org.au); and
- Bringing Back the Bush to Western Sydney-Best Practice Guidelines for Bush Regeneration on the Cumberland Plain⁹.

Generally, a minimum impact approach is recommended to ensure that any works on site have as little impact as possible on the natural stream processes and the ecological functioning of the area that is being rehabilitated. It is always preferable, where possible, to regenerate bushland rather than attempting to reconstruct it, not only from the point-of-view of minimizing expensive engineering and re-planting schemes but to work with the existing ecosystem to assist it in its own natural regeneration process, through existing native plant recruitment from nearby propagules or seeds stored in the soil bank.

4.4 Definitions of Regeneration and Reconstruction

4.4.1 Bushland Regeneration

McDonald¹⁰ gives the following definition for bush regeneration: *where resilience exists...and only removal of obstacles and minor amendment of abiotic conditions are needed to effect recovery by natural regeneration...It applies to areas (of disturbed bushland) where there is perceived native plant resilience in the form of soil stored and/or nearby propagules, which together with time and some degree of intervention in the form of hydrological or heat treatments and weed control will affect recovery by natural regeneration.*

The Australian Association of Bush Regenerators defines bush regeneration as: *the practice of restoring bushland by focusing on reinstating and reinforcing the system's ongoing*

natural regeneration processes.

DIPNR⁹ define “Assisted Natural Regeneration” as: *aiming to trigger the growth of native propagules (such as seed, tubers or rhizomes etc) already present on site or having the ability to migrate onto the site, and aided by suitable management, to allow natural regeneration processes to occur.*

This form of *in-situ* restoration will be collectively referred to as: “bushland regeneration” in this report.

4.4.2 Bushland Reconstruction

McDonald¹⁰ gives the following definition for bushland reconstruction: *where resilience is depleted...and abiotic condition or biotic elements need wholesale importation or major amendment before ecosystem functions can recommence.*

Bushland reconstruction should be implemented in areas where native plant resilience is depleted due to past disturbance mechanisms, but site conditions are still suitable for the “reconstruction” (re-planting and /or re-seeding) of local riparian vegetation plant species and associations. This may also include restoring currently missing structural layers such as the shrub or tree layers in areas where resilient native ground layer species still persist and have the potential to spread naturally.

DIPNR⁹ define Reconstruction through Revegetation as: *involving the introduction of locally indigenous plant species, modelled on the diversity and structural characteristics of the original plant community. It is carried-out by planting or re-introducing propagules.*

This form of *ex-situ* restoration will be collectively referred to as: “bushland reconstruction” in this report.

4.5 Zone Descriptions

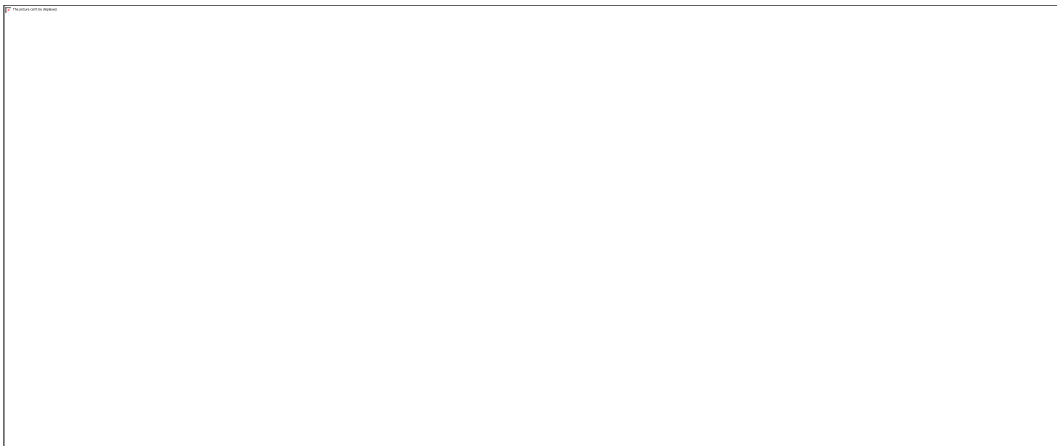
The upper, middle and lower sections of Cattai Creek within the subject site have been identified as representative sub-sections of the site as a whole, in order to provide more detailed assessments and recommendations for these sections. The quality of the vegetation varies along the creek and these sub-sections are indicative of the different levels of management that may be required in order to restore them adequately. Descriptions of the zones are provided below:

4.5.1 Zone 1:

Zone 1 occurs in the most southerly end of the subject site near Samantha Riley Drive,

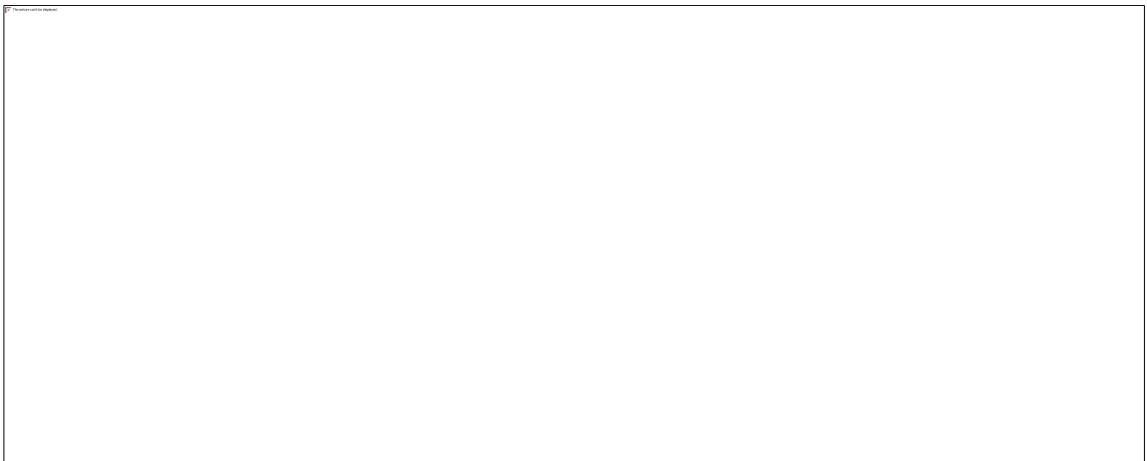
where Cattai Creek and associated sub-tributaries are heavily infested with Balloon Vine and Privet. Weed infestation continues upslope to the top of the ridge-line in these areas right up to the boundary of the subject site. Photographs 4.1 and 4.2 indicate the extent of the weed infestation in this zone.

**PHOTOGRAPH 4.1 BALLOON VINE INFESTATION AT THE SOUTHERN END OF THE
SUBJECT SITE**



Photograph 4.1 depicts a heavily balloon vine infested section of Cattai Creek downstream of the old Glenhaven Road bridge in Zone 1.

PHOTOGRAPH 4.2 PRIVET INFESTED CREEKLINE IN ZONE 1



The photograph above shows a section of heavily privet infested creekline on one of the tributaries that runs into Cattai Creek near the old Glenhaven Road bridge, (Zone 1). This area also has quite heavily infested sections of privet on the more elevated parts of the site.

4.5.2 Zone 2:

Zone 2 occurs in the mid section of the subject site, around the former Heath Road Reserve area. This section of bushland is generally in much better condition than that of zone 1, with relatively weed-free bushland occurring on the steeper slopes. However, pockets of relatively heavy weed infestation occur along parts of the creekline and the shallower slopes.

4.5.3 Zone

3

Zone 3 occurs in the northern section of the subject site near Ross Place. This zone has been subject to some clearing over recent years, both by local residents and the Rural Fire Service and is generally more open along the creekline. Localised burning, grazing and mowing has taken place in this zone, however balloon vine and privet infestation occurs in areas that are not currently being managed.

4.6 Rehabilitation Methods

The majority of the subject site is affected by weed infestation, particularly along the creekline and shallower slopes where weeds are reasonably dominant. Primary weeding will need to take place across the entire subject site. Where weed infestation is heavy, initial weed removal will need to be followed by supplementary planting of native species. It is not considered necessary to carry out re-planting across all areas however. Zone 2, for example, is less prone to weed infestation and weed removal and maintenance weeding in this area (and other sections of the creek that are in a similar condition) is likely to be sufficient to encourage the natural regeneration of native plants. Zones 1 and 3 will require some re-planting due to the amount of weeds that need to be removed. Zone 1 in particular, and other areas of the site that are particularly weed infested, are likely to require extensive re-planting of natives to replace former weed-covered areas.

The methodologies for site rehabilitation are discussed in more detail below. Although they are discussed in terms of zones 1, 2 and 3, these zones are representative of different sections of the subject site that are in a similar condition: zone 1 representing heavily weed infested areas; zone 2 being relatively weed-free and zone 3 being prone to moderate weed infestation. The aim of this EMP is to provide guidelines that outline the way in which the subject site will be rehabilitated and managed in the future. It is recommended upon the re-development of each parcel, an individual vegetation management plan (VMP) be prepared for sites adjoining nominated areas. VMPs must adhere to the principles and guidelines set out in this EMP.

4.6.1 Primary Bush Regeneration Weeding

Across the subject site, the bushland along the creek edges is, in general, heavily infested with privet and balloon vine. In zone 1, weed infestation occurs over a fairly broad area, not only along the creekline but throughout adjoining internal tributaries to the top of the adjacent slopes. In zone 2, heavy privet and balloon vine infestation also occurs along the creekline but the width of infestation is generally less extensive. Additionally, areas adjoining the side creeks and adjacent properties are typically less affected by weed competition. In zone 3, weed infestation again occurs over a fairly wide area along the main creekline as well as in the side creeks, however, the quality of the bushland in this zone is in slightly better condition than that in Zone 1.

Primary weeding will include:

- the selective spraying of weeds, with selective and non selective herbicides in situations where damage to adjoining native plants can be avoided;
- cutting/scraping and painting deep rooted woody weeds and climbers with hand tools, chainsaws and brushcutters and painting cut stumps with herbicides containing Glyphosate or Picloram;

- target drilling and injecting certain large tree weeds such as willow with herbicides such as Glyphosate and a Garlon/diesel mix; and
- selective hand removal of weeds; and wicker wiping of tall herbaceous weeds in situations where damage to proximate, low growing native plants can be avoided.

In zones 1 and 3, there may be some provision to clear weeds in very heavily infested areas with a machine such as a excavator mounted forestry mower, as long as this work can be implemented without damaging proximate native plants and the soils of the area. There is less scope for mechanical clearing of weeds in zone 2 due to the higher presence of native plants this area. Many of the better quality bushland areas across the subject site will require very little ongoing management and will not require replacement re-planting following primary weeding activities.

4.6.2 Jute Mat Mulching Planting Areas

Jute matting will need to be installed after weed clearance in erosion prone areas in order to stabilise the soils in these places. Jute matting will largely be concentrated around the edges of the main creekline and adjoining drainage lines. The extent of jute matting required will depend on the extent of weed clearance in each area and prevalence of bare soil. As a guide, it is estimated that 40% of heavily weed infested areas will require jute matting (as in zone 1) and approximately 20% of moderate-heavily weed infested areas (as in zone 3). No replanting or jute matting is likely to be required in areas of better quality bushland, as in zone 2, as natural regeneration is expected to be sufficient in these areas.

4.6.3 Supplementary Bushland Reconstruction Plantings

As with jute matting above, it is expected that natural regeneration will take place in areas that have a higher percentage of native species as in Zone 2. Therefore re-planting will not be required in these areas. In heavily-weed infested areas, re-planting may be required across as much as 40% of the site. Recommended re-planting densities are as follows:

- Local native groundcovers: 4-plants per m²;
- Shrubs: 1 shrub per 2m²; and
- Trees at 1-plant per 9m².

Plants should be installed in hiko tubes with 5-grams of water retaining crystals and 5-grams of slow release fertiliser for each plant (refer to Chapter 5 for general planting guidelines).

It is estimated that initial weeding and re-planting will take place over the first 12 months. Generally these activities can be carried out concurrently to minimise erosion and secondary weed invasion of bare soil.

4.6.4 Twelve months maintenance weeding

After planting is complete, reconstructed areas should be maintained by appropriately qualified personnel, selectively spot spraying and hand weeding around native plants, watering plants and replacing dead plants as needed.

Provision should be made to water newly reconstructed areas, as required, in the first 3 months after installation (on at least 4-5 occasions, depending on rainfall conditions).

4.6.5 Three years on-going weeding and maintenance

Follow-up weeding and maintenance should be implemented for a minimum period of three continuous years after primary weeding and re-vegetation works have been completed. After the 3 year follow-up and maintenance period has been completed, a review should be conducted to determine ongoing on-site maintenance requirements.

4.7 Schedule of Works

This EMP relates to a period of five years from when subdivision consent is granted. It is recognised that all lots will be developed at different times and therefore regeneration will be staggered across the site with individual five year plans beginning and ending at different times. A Gantt Chart outlining an indicative schedule of works for a five year plan can be found in Appendix C.

Ongoing maintenance will be required after the initial five year period. The roles and responsibilities for ongoing tasks are outlined in Chapter 6 of this report.

General Principles for Weeding and Re-Planting

5.1 Weed Control Guidelines

A strategic approach to weed control will need to be employed to maximise the results for the weeding effort. This necessitates weeding in accordance with seasonal variations in rainfall and weed growth, botanical flowering times and treatment affectivity.

5.1.1 *Species Specific Control Measure*

Control of weeds requires application of species-specific measures to prevent spread and establishment of weeds in addition to the general weed control measures such as prevention. Control measures for each species need to focus on different aspects of control. This can be related to the habitat of the weed, such as in gullies, native vegetation or cleared areas, as well the life-cycle and method of spread that is most likely in the precinct.

The following section outlines species-specific control measures for groups of species.

i. Perennial Grasses

Species: Pampas Grass, African Love Grass

Chemical Control: Use of registered appropriate chemicals within Inner Protection Areas and along edges to control African Love Grass. Take particular care in spot-spraying African Love Grass to avoid impact on threatened non–target species i.e. *Grevillea juniperina* subsp. *juniperina*.

Mechanical Control: Cut flower heads of Pampas Grass.

Biological Control: None available.

ii. *Herbaceous Weeds*

Species: Bridal Creeper, Crofton Weed.

Chemical Control: Spot-spraying is an effective control for Bridal Creeper, providing follow-up treatment in consecutive years is conducted. Thoroughly spraying Crofton Weed during its peak growing period, during late summer or autumn, is an effective control measure for this weed¹¹.

Mechanical Control: Physically remove and dispose of herbaceous weeds responsibly. Care must be taken to remove the entire tuberous root system to minimise regeneration. Ripping or ploughing an area of Crofton weed will control the weed if the area is suitable for this method¹¹.

Biological Control: Some biological controls may have an effect on Bridal Creeper, these being a chalcid wasp, a moth larva and a rust fungus. The trypetid gall fly can be used to control Crofton Weed¹¹.

iii. *Woody Perennials*

Species: Blackberry, Narrow-leaved Privet, Broad-leaved Privet, African Boxthorn,, African Olive, Cotoneaster, Castor Oil Plant, Lantana, Balloon Vine.

Control Priority: *High* –due to threats to native vegetation and the potential for high future costs of control.

Chemical Control: Control all species (except Blackberry) by cut and paint with undiluted herbicide registered for this application or stem injection. Spot spray Blackberry, which occurs in dense infestations. Follow-up spray and cut stump applications to ensure that native species have a chance to grow in areas where these species have been removed.

Mechanical Control: Pull out small seedlings. Generally removal with tractors and machinery results in inappropriate disturbance level and will result in a high level weed germination and soil disturbance.

Biological Control: No biological controls are currently available.

5.1.2 Flowering and Treatment Times

The flowering, fruiting and appropriate treatment times should be known for each targeted weed species to allow for effective management of these species within the precinct. A schedule of the flowering times of each species to be removed should be included in the preparation of a vegetation management plan by bushland regenerators and treatment should be conducted seasonally, prior to seed set for each species. Flowering or fruiting plants are a high priority for removal, particularly due to the connected nature of ecosystem components along stream corridors that allow weed seeds to disperse downstream.

5.1.3 Manual Weed Removal

Manual removal is an appropriate form of control for some weeds species, when all viable parts of the plant are removed from the soil and site (roots, fruiting material and rhizomes). All weeds removed by hand should be handled according to best practice bush regeneration techniques to prevent subsequent seed set from the removed weeds, and the unviable plant material should be retained on site to provide mulch and natural leaf litter to protect the soil surface.

5.1.4 Use of Herbicides

All herbicides should be used according to recommendations on the herbicide label. Appropriate Personal Protective Equipment (PPE) should be worn and consideration given to time of day, likelihood of rainfall, wind direction and likely impact on native species as per guidelines on the label. Use of glyphosate will be appropriate for most species. Near to water courses, an appropriate form of the herbicide should be used to minimise impact to aquatic life and amphibians such as RoundUp Bioactive®, and herbicide use should be avoided within 5m of the creek or wetland edges. Runoff is a likely way for herbicide residue to enter watercourses therefore chemical treatment should be avoided prior to or directly after rains.

All chemical treatment should be carried out according to best practice guidelines.

5.1.5 Ecological Burn Piles

Woody weeds can be stacked in ecological burn piles and burnt in accordance with the Rural Fire Service's guidelines for pile burning (*Standards for Pile Burning*) which can be found on the RFS website. This treatment is only suitable for woody weeds and advice should be taken from the local RFS as to whether it is suitable for specific areas within the subject site.

5.1.6 Minimising the potential for weeds to spread from construction areas

There is potential for weeds to spread during construction and development. To prevent weed transport during development by vehicles, personnel, wind and water, the following guidelines should be adhered to by all personnel and contractors in the precinct:

- avoid working in or travelling through weed infestations when they are in flower or seeding (warmer months) where possible. Machinery, equipment and footwear should be cleaned down before leaving areas containing weeds during clearing and earthworks;
- stay on formed tracks wherever possible. During clearing and earthworks when this is not feasible machinery, equipment and footwear should be cleaned down before leaving the Precinct;

- where appropriate, establish a fixed clean down site and clean down all vehicles at regular intervals after coming in contact with weeds, and all vehicles that arrive from known weed-infested areas, with high pressure hoses or compressed air;
- contain the water and materials from the clean down site and regularly inspect for weeds species;
- maintain buffers to the boundaries of the conserved bushland areas and along roads and tracks; and
- work from the clean to infested areas when spraying or slashing and start weed control from the outer edges of infestations working inwards. This is important for weeds such as Blackberry.
- always re-establish vegetation as soon as possible and where practicable after construction earthworks in accordance with an appropriate *Soil Management Plan*;
- monitor disturbed areas and all sediment and erosion control structures to ensure that they are functioning correctly and prescribe follow-up weed spraying to ensure that any germinating weed does not set seed;
- weeds in the development area should be removed before any land is filled; and
- use weed free fully composted mulch and topsoil when carrying out revegetation or landscaping and earth works to prevent competition from weeds species and reduce weed invasion. All topsoil to be brought in to the Environmental Living Zone should be certified weed free.

5.1.7 Community Initiatives

i. Controlling the planting of invasive species

In order to avoid the introduction of additional weeds into the precinct, restrictions on

which plants are allowed to be grown in land adjacent to the riparian zone (Environmental Living) may be effective. Planting of locally endemic native plants in landscaping should be encouraged. Invasive plants should be identified in appropriate literature supplied to residents and developers as well as recommended local native alternative plants.

ii. Partnerships

There may be the potential for practical partnerships to be formed in implementing weed control activity as part of this EMP. Weed control is likely to be most effective when it is conducted in a coordinated way throughout a catchment area. This is particularly relevant for rehabilitating watercourses as weed invasion from upstream can undo expensive and time consuming remediation works. As outlined above, Privet removal is one of the

highest priorities in rehabilitating the riparian zone. There may be potential for weed control efforts in the precinct to be coordinated with Cattai Landcare's project "Privet out of Cattai".

This project has received grant funding through the Environmental Trust and Local Government Advisory Group, and involves an awareness-raising, training, weed control and revegetation program targeting Privet in Cattai Creek catchment from Castle Hill through Annangrove and Box Hill to Maraylya. The main aim of the project is to initiate community action towards controlling Privet in the upper parts of Cattai Creek (in the first phase). Baulkham Hills Council supports this program and have pledged to provide education, encouragement and support for the removal of Privet from private properties. A designated Project Officer has been appointed to coordinate the project and to provide advice and support for participating landowners.

5.2 Re-planting

5.2.1 Selection of Plant Species

Species selected for re-planting should be those that are characteristic of the plant communities where the re-planting is taking place. These communities include: Shale Sandstone Transition Forest, Sydney Sandstone Gully Forest, Sydney Sandstone Heath, Alluvial Woodland, Upper Georges River Sandstone Forest and Sydney Sandstone Ridgetop Woodland. Appendix D contains an indicative species list of the plants that occur within these vegetation communities and would be suitable for re-planting on site. However, when species are chosen for re-planting in specific areas other factors should also be taken into account including the topography, aspect, soil type and proximity to water of the area to be planted.

The ecological value of the site can also be improved by creating additional habitat for native fauna that may utilise the site and planting threatened flora, where appropriate. The precinct supports several populations of threatened flora species including: *Hibbertia superans*, *Eucalyptus* sp. Cattai, *Darwinia biflora*, *Epacris purpurascens* var. *purpurascens* and *Leucopogon fletcheri* subsp. *fletcheri*. These species could potentially be used in

revegetation and landscaping works to aid their conservation (a licence is required for the collection of threatened plant species).

Edges of creeklines should be planted with species that can improve aquatic habitat. Species such as *Phragmites australis* and *Baumea juncea* provide sheltering habitat for amphibians and fish and also take up nutrients from the soil prior to them entering waterways, helping to control nutrient input into aquatic environments. Where possible, habitat features for fauna should be retained and/or added, such as woody debris and other shelter/nesting features.

Feral rabbits are present within the precinct and it is advisable that newly planted tubestock be accompanied with tree guards where appropriate to protect the fresh foliage from predation.

All revegetation works, including seed collection and transplanting should be carried out by suitably qualified bush regenerators.

5.2.2 *Mulching and Erosion Control*

The potential erosion of exposed surfaces is high after vegetation has been cleared. Implementation of appropriate mulching will minimise erosion in the short and long terms.

Where weed control has resulted in bare areas of soil in the riparian zones, additional measures can be employed in conjunction with the replanting of the riparian zones to reduce erosion such as the use of jute matting on the edges of the creek to hold the banks in place while vegetation is taking hold.

Green waste that is collected and wood chipped on site will be preferentially used on upper slopes where flooding is a lesser threat. Fresh mulch is to be left stockpiled or lain in situ for a minimum of 3 weeks prior to planting to allow the material to settle and mature, preventing chemical burning of freshly planted tubestock.

5.2.3 *Plant Supply*

The majority of the seeds for propagating plants of local provenance can be sourced from the site and surrounding areas prior to clearing. A qualified seed collector should collect seed from all strata including grasses and ferns. It is likely however, that not all of the species intended for replanting in order to re-establish the natural community will be available on site. Any additional seed required should be of local provenance, collected from within the North Kellyville area, preferably not more than 10 kilometres from the site.

The proposed bush regeneration and revegetation works timing has been applied to an initial works/construction period, (actual times will depend on the corresponding project works starting date), an initial 12-month maintenance period and a further 3-year site

maintenance period. It should be noted that the collection of suitable local native seed to allow for the propagation of suitable plants for any works is likely to need to occur well before any works are proposed. It should be considered that the peak time to collect any local native seed is between the November-January peak seed maturity period in any given year, with other plant species requiring collection before and after this peak time. Also, it note that it takes between 16-20 weeks to grow-on native plants from sowing to plants being ready for planting.

5.3 Vegetation Maintenance

Inspection of rehabilitation areas should be undertaken after each planting phase is completed and monthly thereafter until plants have established. Areas where noxious / serious weeds have been treated should be inspected on a fortnightly basis following initial treatment to assess when and if repeat treatments are necessary.

5.3.1 *Flood and Storm Damage*

During the establishment period of newly planted areas, seeds and juvenile plants in the riparian zone are most vulnerable to damage from storm events. During such an event, there is also the risk of top soil being removed. Enough seed should be collected to allow for replacement plantings beyond the initial establishment period. Seeds can then be propagated at a local commercial or community nursery.

5.3.2 *Replacement of Dead Plants*

Dead plants are to be removed and replaced one for one during the course of maintenance of regenerating vegetation within the first 3 years of vegetation establishment.

5.4 Ongoing Maintenance and Management

Ongoing management will be focused on weed control measures, replacement of dead or damaged native vegetation seedlings, management of erosion issues and sedimentation damage that may interfere with plant health and habitat values.

Monitoring and Reporting

6.1 Roles and Responsibilities

6.1.1 *First Five Years*

The primary responsibility for the implementation of the works outlined in this EMP will be required as consent condition issued by the consent authority. Every lot within zones E3 and E4 that includes vegetation shown in the Native Vegetation Protection Map will require a five year vegetation management plan that includes some or all of the bush regeneration and reconstruction activities outlined above. Qualified bush regenerators must carry out the regeneration work. Council will be responsible for monitoring the work that has been carried out.

Key Performance Indicators have been outlined below that allow for an assessment of whether the expected outcomes for the site (see section 4.2) have been achieved. The final report to Council must address these issues and the developer will be responsible for proving that the site has been adequately restored before handing responsibility over to individual land owners. A site inspection should be conducted by Council to ensure compliance and a written approval issued to the developer as a record that the rehabilitation work has been approved. If management objectives are not met within the five year time period, the developer will continue to be responsible for regeneration activities until the KPIs have been adequately achieved.

6.1.2 *On-going Long Term Maintenance*

On going maintenance for each lot will be the responsibility of the individual landowner. Council will be responsible for long-term monitoring to ensure that maintenance activities continue (refer to long-term implementation below).

6.2 Implementation: First Five Years

This plan relates to the first five years of rehabilitation and management, where the objective will be to restore the relevant parts of the site back to a natural state to enable ongoing long-term maintenance to be carried out in a cost-effective manner.

6.2.1 *Site Inspection and Adaptive Management*

The objectives for the rehabilitation of the subject site are outlined in Section 4.2. A project manager/supervisor should be assigned by the developer to co-ordinate, supervise and manage all works within the lot and related correspondence with Council. The project manager will be responsible for:

- The prioritisation of maintenance tasks and their allocation to personnel;
- Regular inspection of weed invasion and the implementation of methods that control weed re-colonisation at the earliest possible opportunity to minimise weed spread as well as costs;
- Regular inspection of re-planting initiatives and the co-ordination of adaptive management tasks as necessary;
- Co-ordinating and implementing the formal monitoring program and the preparation of annual reports to Council;
- Reviewing activities on an annual basis and re-prioritising actions as needed.

The site should be inspected at least once a month by the project manager whilst primary weeding and re-planting activities are taking place. Once this phase is complete, inspections should be conducted every three months for the next year, then every six months after that for the life of the VMP.

6.3 Monitoring Program

As well as regular site inspections and maintenance checks, a formal monitoring program needs to be implemented to enable ecological improvements to be documented and reported to Council.

Before implementing any management actions, baseline monitoring is required so that initial conditions can be recorded prior to any management occurring on the site.

The following activities are to be conducted as part of a formal monitoring program:

- Establish a series of fixed monitoring points. Three monitoring points (per 2 ha lot) should be established as a minimum. If re-planting is required, at least one monitoring point should be located within an area designated for re-planting;

- Use the monitoring point to form the corner of a 20x20m quadrat. Conduct a floristic survey within the quadrat, noting any weeds and stating the relative abundance of weed species (using the Braun-Blanquet scale), as well as projective foliage cover of native species in each strata.
- Take photographs from each monitoring point from the same aspect each year and compare photographs to previous years;
- Record numbers of failed plantings in each quadrat (where appropriate);
- Note any other weed outbreaks or required management actions.

Monitoring should take place prior to the commencement of the activity, then every six months for the first two years during primary weeding and re-planting and annually thereafter for the duration of this plan.

6.4 Key Performance Indicators (KPIs)

The expected outcomes for the site are described in Section 4.2. KPIs are outlined below that will enable an assessment to be made of whether the objectives set out in this EMP are being achieved. Not all of the KPIs below will be relevant to all lots within the subject site (i.e not all areas require re-planting). However these should be used as a guide when preparing individual VMPs for each lot.

It is suggested that the KPIs include:

- *The distribution of weeds:* significant ecological weeds should be reduced to very low percentage cover levels;
- *The distribution of native species:* native plant species cover should increase to high percentage cover levels;
- *Percentage of plant losses in reconstruction areas:* plant losses should not exceed

10% of total plantings in any one planting area;

- *Erosion control:* erosion should not spread to previously uneroded areas and banks should become stabilised through increased vegetation cover;

The KPIs listed here will need to be reported on annually and shown to be achieved at the end of the five year period in order for the management of the site to be handed over to individual landowners (see below).

6.5 Reporting

A brief and concise report should be prepared annually by suitably qualified personnel and submitted to Council every year for the life of the VMP. The report will:

- Describe the regeneration/reconstruction works undertaken;
- Describe the outcomes of the management activities;
- State the findings of the monitoring activities;
- Report on the status of the KPIs;
- Discuss any problems encountered in implementing the VMP; and
- Recommend any adaptations or additions to the VMP.

The report should contain the photographs, as well as a short description of weeds in each quadrat and a short comparison of the photographs to the previous years. Any other notable occurrences of weeds should also be reported. The report should also recommend and prioritise areas where weed control should be targeted.

At the end of the five year period, a final report is to be produced that assesses whether the management activities have met the KPIs. If the KPIs have not been achieved, the developer will be responsible for continuing to manage the land until it can be shown that the KPIs have been met, to the satisfaction of Council.

The final report should incorporate recommendations for on-going long-term maintenance to enable residents to continue to manage the land in an appropriate manner. These should include techniques and timings for the removal of relevant weeds within each lot.

6.6 Implementation: Long-term Maintenance

6.6.1 Positive Covenants

There are a number of complications involved in having numerous landowners managing different sections of the conserved land, particularly in terms individuals varying in the amount of effort made to manage their section of the conserved lands and the effect that this may have on neighbouring properties. Therefore it is recommended that the requirement for ongoing maintenance is set through the provision of a positive covenant such as a Section 88B or 88E agreement (refer to the *Conveyancing Act* 1919) which can dictate the use of the land in accordance with approved plans (such as a Vegetation Management Plan). This could simply relate to the ongoing management recommendations outlined in the final report for the site (submitted by the developer to Council) and should include provisions for on-going weed removal to ensure that weed cover does not spread to previously un-infested areas and requiring that any planting in

conserved areas is limited to local native species. It would then be a condition of purchase that the landowner accepts responsibility for upholding the plan.

The practicalities of achieving this may be made simpler by setting up a Residents Association or similar to co-ordinate the management of the bushland in the conserved areas. This could initially be set up by the developer as an incorporated body, with the residents assuming responsibility for the plan as the lots were sold.

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Appendix A

Vegetation Community Descriptions

A.1 Sydney Sandstone Gully Forest

Sydney Sandstone Gully Forest is generally found where deep gullies have been eroded into sandstone and sheltered hillsides, particularly with a southern to easterly aspect (Benson and Howell 1994). High rainfall and steep sheltered gorges foster the development of this vegetation association, as well as nutrient enrichment from shale soils or ridges. Changes in floristic and vegetation structure are related to increased moisture, shelter and soil fertility. This vegetation community is relatively common and widespread in the Sydney region and is well represented in conservation reserves.

The canopy of Sydney Sandstone Gully Forest is characterised by tall growing eucalypt species such as Mountain Blue Gum (*Eucalyptus deanii*) and *Eucalyptus piperita*. The shrub stratum of this community contains a variety of shrubs including *Persoonia pinifolia*, *Acacia terminalis* and *Pulteneae daphnoides*.

Field investigations showed that this vegetation community is widespread within the precinct. It occurs along most of the riparian zones of Cattai and Smalls Creek, as well as along some of the larger tributaries. The condition of this vegetation community within the precinct is generally poor due to weed invasion. The plant biodiversity in the understorey of the riparian zone is low and Privet thickets are widespread due to nutrient enrichment and suitable growing conditions provided by the damp, moist gullies.

A.2 Sydney Sandstone Ridgetop Woodland

This vegetation community is found on the more exposed ridges and plateau tops with shallow sandy soils and on dry exposed slopes on Hawkesbury Sandstone, interrupted by outcrops of rock (Benson & Howell 1994). Considerable variation can be seen in the structure and floristics of this community, and it varies from open forest to open woodland to open scrub and heathland, with pockets of deeper soil present amongst the underlying rocks allowing larger trees to grow.

Field investigations confirmed the presence of this vegetation community within the precinct, predominantly on the ridges above Cattai Creek in the east of the precinct. The condition of this community was generally good, as it occurs higher in the landscape with less potential for nutrient enrichment and weed invasion. These areas typically have few weeds and are characterised by high levels of biodiversity. Hollow bearing trees were common in this community, and typically all vegetation strata were present.

A.3 Sydney Sandstone Heath

Sydney Sandstone Heath varies from open heath to closed scrub, with predominantly low growing, shrubby species. This community forms in areas where the soil is very thin, thereby preventing the growth of tall trees. Heathland plants typically grow into dense, prickly thickets.

Field investigations confirmed the presence of this vegetation community within the precinct, predominantly in an area to the south of Heath Road, on high rocky and exposed plateaus above Cattai Creek in the east of the precinct. These areas have probably not been cleared as the soil is thin and of limited use for supporting pasture for grazing. This community is in very good condition, similar to Sydney Sandstone Ridgetop Woodland. Few weeds are present in this community due to its high position on the slope and it is characterised by high levels of biodiversity.

A.4 Shale Sandstone Transition Forest

Shale Sandstone Transition Forest is a vegetation community that only develops in close proximity to a transition in parent geology from Wianamatta Shale to Sandstones. This community occurs around the margin of the Cumberland Plain and marks the transition from the communities on the Cumberland Plain that grow on purely shale derived soils and the surrounding sandstone communities (Tozer 2003). Shale Sandstone Transition Forest is listed as an EEC under the TSC Act

Depending on the location of the community on the transition zone, two variants are recognised – low sandstone influence and high sandstone influence. The boundary of these two variants is indistinct and they grade into each other at the margins making precise delineation of boundaries difficult. Both variants have been recorded within the precinct, however for simplification; Cumberland Ecology combined the map units to form a single category.

The majority of the vegetation within the precinct consists of this community, throughout the central section and extending upwards to the northern tip. The condition of this vegetation type within the precinct is highly variable and dependant on the surrounding and adjacent land uses. Large remnants of this community away from homes and farms are in the highest condition, particularly where they occur higher in the landscape.

A.5 Upper Georges River Sandstone Woodland

Upper Georges River Sandstone Woodland is usually dominated by *Eucalyptus punctata* and *Corymbia gummifera*, with a diverse shrub and ground layer. It is found most often on the upper slopes and ridges, usually close to the boundary between shale and sandstone derived soils (Tozer 2003). It appears to require some shale influence in the soil and is broadly similar to Shale Sandstone Transition Forest community.

Within the precinct this community occurs in the east, next to the Sydney Sandstone Gully Forest adjacent to Smalls Creek on higher ridges and slopes on sandstone. This community is in good condition where residential development has not encroached on it, as these positions in the landscape are typically removed from sources of weed invasion and nutrient

enrichment.

A.6 Alluvial Woodland

Alluvial woodland typically occurs in close proximity to watercourses on soils of recent alluvial deposition, particularly those derived from shale (Tozer 2003). The dominant species in this community include *Eucalyptus amplifolia* and *E. tereticornis*, however it can be dominated by smaller trees such as *Casuarina glauca* and *Angophora floribunda*. This community occurs along Smalls Creek to the north-east of the precinct. This area is in relatively poor condition and weeds are prevalent throughout this area. Alluvial woodland

is considered to be equivalent to River Flat Eucalypt Forest on Coastal Floodplains an EEC listed under the TSC Act.

Appendix B

Weed Species Recorded from the Baulkham Hills LGA

Table B.1 WEED SPECIES IN BAULKHAM HILLS LGA

Family	Scientific Name	Common Name
Aceraceae		
	Apocynaceae	
Agavaceae		
Alliaceae		
	Araceae	
	Araliaceae	
Amygdalaceae		
	Asparagaceae	
Anacardiaceae		
Anthericaceae	Asteraceae	

<i>Acer negundo</i> *	<i>Chlorophytum comosum</i> *	Spider Plant, Ribbon Plant
Box Elder	<i>Cyclospermum leptophyllum</i> *	Slender Celery
	<i>Daucus carota</i> *	Wild Carrot
<i>Agave americana</i> *	<i>Foeniculum vulgare</i> *	Fennel
	<i>Hydrocotyle bonariensis</i> *	
Century Plant		
	<i>Araujia sericifera</i> *	Moth Vine
<i>Nothoscordum borbonicum</i> *	<i>Asclepias curassavica</i> *	Blood Flower
Onion Weed	<i>Nerium oleander</i> *	Oleander
<i>Alternanthera pungens</i> *	<i>Zantedeschia aethiopica</i> *	Arum Lily
Khaki Weed		
<i>Amaranthus viridis</i> *	<i>Hedera helix</i> *	English Ivy
Green Amaranth		
	<i>Asparagus aethiopicus</i> *	Asparagus Fern, Sprenger's Fern
<i>Prunus spp.</i> *	<i>Asparagus asparagoides</i> *	Bridal Creeper, Florist's Smilax
<i>Schinus areira</i> *	<i>Ageratina adenophora</i> *	Crofton Weed
	<i>Ageratina riparia</i> *	Mistflower
Pepper Tree		
	<i>Ambrosia artemisiifolia</i> *	Annual Ragweed

Family	Scientific Name	Common Name
	<i>Arctotheca calendula</i> *	Caneweed
	<i>Aster subulatus</i> *	Wild Aster
	<i>Bidens pilosa</i> *	Cobbler's Pegs
	<i>Bidens subalternans</i> *	Greater Beggar's Ticks
	<i>Cirsium vulgare</i> *	Spear Thistle
	<i>Conyza bonariensis</i> *	Flaxleaf Fleabane
	<i>Conyza canadensis</i> var. <i>canadensis</i> *	Canadian Fleabane
	<i>Conyza</i> spp.*	
	<i>Conyza sumatrensis</i> *	Tall fleabane
	<i>Crassocephalum crepidioides</i> *	Thickhead
	<i>Erigeron karvinskianus</i> *	Bony-tip Fleabane
	<i>Gamochaeta spicata</i> *	
	<i>Hypochaeris radicata</i> *	Catsear
	<i>Lactuca serriola</i> *	Prickly Lettuce
	<i>Onopordum acanthium</i> subsp. <i>acanthium</i> *	
	<i>Senecio madagascariensis</i> *	Fireweed
	<i>Senecio pterophorus</i> *	
	<i>Solidago canadensis</i> var. <i>scabra</i> *	Goldenrod
	<i>Soliva anthemifolia</i> *	Dwarf Jo-jo
	<i>Soliva sessilis</i> *	Bindyi
	<i>Sonchus asper</i> subsp. <i>glaucescens</i> *	Prickly Sowthistle
	<i>Sonchus oleraceus</i> *	Common Sowthistle
	<i>Tagetes minuta</i> *	Stinking Roger
	<i>Taraxacum officinale</i> *	Dandelion
	<i>Xanthium occidentale</i> *	Noogoora Burr, Cockle Burr
Basellaceae		
	<i>Anredera cordifolia</i> *	Madeira Vine
Berberidaceae		
	<i>Nandina domestica</i> *	Japanese Sacred Bamboo
Bignoniaceae		
	<i>Macfadyena unguis-cati</i> *	Cat's Claw Creeper
Boraginaceae		
	<i>Echium plantagineum</i> *	Patterson's Curse
Brassicaceae		

Family	Scientific Name	Common Name
	<i>Chenopodiaceae</i>	
	Clusiaceae	
Cactaceae	Commelinaceae	
	Convolvulaceae	
Callitrichaceae		
Cannaceae	Crassulaceae	
Caprifoliaceae		
<i>Caryophyllaceae</i>		

Brassica rapa subsp.

*sylvestris**

Turnip	<i>Gerastium glomeratum</i> *	Mouse-ear Chickweed
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<i>Lepidium</i> spp.	<i>Petrorhagia nanteuilii</i> *	
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<i>Raphanus</i>	<i>Polycarpon tetraphyllum</i> *	Four-leaved Allseed
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<i>raphanistrum</i> *	<i>Spergula arvensis</i> *	Corn Spurry
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Wild Radish	<i>Stellaria media</i> *	Common Chickweed
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*Rorippa nasturtium-aquaticum**

Watercress	<i>Chenopodium album</i> *	Fat Hen
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<i>Opuntia</i> spp.*	<i>Hypericum perforatum</i> *	St. Johns Wort
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<i>Opuntia stricta</i> var. <i>stricta</i> *	<i>Tradescantia fluminensis</i> *	Wandering Jew
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Common Prickly
Pear

<i>Opuntia stricta</i> *	<i>Calystegia silvatica</i> *	
	<i>Ipomoea cairica</i> *	
	<i>Ipomoea indica</i> *	Blue Morning Glory

*Callitriche stagnalis**

Common Starwort	<i>Bryophyllum delagoense</i> *	Mother of millions
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	<i>Bryophyllum pinnatum</i> *	Resurrection Plant
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<i>Canna indica</i> *	<i>Crassula sarmentosa</i> var. <i>sarmentosa</i> *	
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Indian Shot

*Lonicera japonica**

Japanese
Honeysuckle

Family	Scientific Name	Common Name
Cyperaceae		
	<i>Cyperus congestus</i> *	
	<i>Cyperus eragrostis</i> *	Umbrella Sedge
	<i>Cyperus rotundus</i> *	Nutgrass
	<i>Isolepis marginata</i> *	
	<i>Isolepis prolifera</i> *	
Euphorbiaceae		
	<i>Chamaesyce maculata</i> *	
	<i>Euphorbia peplus</i> *	Petty Spurge
	<i>Ricinus communis</i> *	Castor Oil Plant
Fabaceae (Caesalpinioideae)		
	<i>Senna pendula</i> var. <i>glabrata</i> *	
Fabaceae (Faboideae)		
	<i>Erythrina X sykesii</i> *	Coral tree
	<i>Genista monspessulana</i> *	Montpellier Broom
	<i>Lotus corniculatus</i> *	Birds-foot Trefoil
	<i>Lotus suaveolens</i> *	Hairy Birds-foot Trefoil
	<i>Medicago arabica</i> *	Spotted Burr Medic
	<i>Medicago lupulina</i> *	Black Medic
	<i>Medicago polymorpha</i> *	Burr Medic
	<i>Medicago spp.</i> *	
	<i>Medicago truncatula</i> *	Barrel Medic
	<i>Robinia pseudoacacia</i> *	Black Locust

<i>Trifolium pratense</i> *	Red Clover
<i>Trifolium repens</i> *	White Clover
<i>Trifolium tomentosum</i> *	Woolly Clover
<i>Vicia sativa subsp. sativa</i> *	Common Vetch
<i>Vicia sativa</i> *	
<i>Vicia spp.</i> *	
<i>Wisteria sinensis</i> *	Chinese wisteria
<i>Fabaceae (Mimosoideae)</i>	
Fagaceae	
<i>Quercus spp.</i> *	
Fumariaceae	
<i>Fumaria muralis subsp. muralis</i> *	Wall Fumitory

Family	Scientific Name	Common Name
Gentianaceae		
	Lauraceae	
Geraniaceae		
	Loganiaceae	
Haloragaceae		
	Lythraceae	
<i>Hamamelidaceae</i>		
	Malvaceae	
Iridaceae		
Juncaceae		
Lamiaceae		

<i>Fumaria</i> spp.*	<i>Dietes bicolor</i> *	
	<i>Romulea rosea</i> var. <i>australis</i> *	Onion Grass
<i>Centaurium erythraea</i> *		
Common Centaury	<i>Juncus acutus</i> subsp. <i>acutus</i> *	Sharp Rush
<i>Centaurium tenuiflorum</i> *	<i>Juncus articulatus</i> *	
	<i>Juncus cognatus</i> *	
	<i>Lamium amplexicaule</i> *	Dead Nettle
<i>Geranium molle</i> subsp. <i>molle</i> *	<i>Lavandula</i> spp.*	
Cranesbill Geranium	<i>Rosmarinus officinalis</i> *	Rosemary
<i>Pelargonium domesticum</i> *	<i>Stachys arvensis</i> *	Stagger Weed
Pelargonium	<i>Cinnamomum camphora</i> *	Camphor Laurel
<i>Myriophyllum aquaticum</i> *	<i>Gelsemium sempervirens</i> *	Yellow Jessamine, Carolina Jasmine
Parrots Feather, Brazilian Water-milfoil	<i>Lagerstroemia indica</i> *	
<i>Liquidambar styraciflua</i> *	<i>Malva parviflora</i> *	Small-flowered Mallow
	<i>Malva</i> spp.*	
Sweetgum	<i>Malva sylvestris</i> *	Tall Mallow
	<i>Modiola caroliniana</i> *	Red-flowered Mallow
	<i>Sida rhombifolia</i> *	Paddy's Lucerne

Family	Scientific Name	Common Name
Moraceae		
Myrsinaceae	Plantaginaceae	
Ochnaceae	Poaceae	
Oleaceae		
Onagraceae		
Oxalidaceae		
Passifloraceae		
Phytolaccaceae		
Pinaceae		

<i>Morus alba</i> *		
White Mulberry	<i>Oxalis corniculata</i> *	Creeping Oxalis
	<i>Oxalis latifolia</i> *	
<i>Anagallis arvensis</i> *		
Scarlet/Blue Pimpernel	<i>Passiflora edulis</i> *	Common Passionfruit
	<i>Phytolacca octandra</i> *	Inkweed
<i>Ochna serrulata</i> *		
Mickey Mouse Plant	<i>Pinus radiata</i> *	Radiata Pine
	<i>Pinus spp.</i> *	
<i>Fraxinus spp.</i> *		
<i>Jasminum polyanthum</i> *	<i>Plantago lanceolata</i> *	Lamb's Tongues
White Jasmine	<i>Andropogon virginicus</i> *	Whisky Grass
<i>Ligustrum lucidum</i> *	<i>Avena fatua</i> *	Wild Oats
Large-leaved Privet	<i>Avena sativa</i> *	Oats
	<i>Axonopus fissifolius</i> *	Narrow-leaved Carpet Grass
<i>Ligustrum sinense</i> *	<i>Bothriochloa spp.</i>	
Small-leaved Privet	<i>Briza minor</i> *	Shivery Grass
<i>Olea europaea subsp. cuspidata</i> *	<i>Briza subaristata</i> *	
	<i>Bromus catharticus</i> *	Praire Grass
	<i>Chloris gayana</i> *	Rhodes Grass

Family	Scientific Name	Common Name
	<i>Chloris virgata</i> *	
	<i>Cortaderia selloana</i> *	Feathertop Rhodes Grass
	<i>Digitaria ciliaris</i> *	Pampas Grass
		Summer Grass
	<i>Digitaria sanguinalis</i> *	Summer Grass, Crab Grass
	<i>Echinochloa crusgalli</i> *	Barnyard Grass
	<i>Ehrharta erecta</i> *	Panic Veldtgrass
	<i>Eleusine indica</i> *	Crowsfoot Grass
	<i>Eleusine tristachya</i> *	Goose Grass
	<i>Eragrostis cilianensis</i> *	Stinkgrass
	<i>Eragrostis curvula</i> *	African Lovegrass
	<i>Hordeum leporinum</i> *	Barley Grass
	<i>Hordeum spp.</i> *	
	<i>Lolium perenne</i> *	Perennial Ryegrass
	<i>Paspalum dilatatum</i> *	Paspalum
	<i>Paspalum urvillei</i> *	Vasey Grass
	<i>Pennisetum clandestinum</i> *	Kikuyu Grass
	<i>Phalaris aquatica</i> *	Phalaris
	<i>Phalaris minor</i> *	Lesser Canary Grass
	<i>Phalaris spp.</i> *	
	<i>Poa annua</i> *	Winter Grass
	<i>Setaria gracilis</i> *	Slender Pigeon Grass
	<i>Setaria palmifolia</i> *	Palm Grass
	<i>Setaria pumila</i> *	Pale Pigeon Grass
	<i>Sporobolus africanus</i> *	Parramatta Grass
	<i>Sporobolus fertilis</i> *	
	<i>Stenotaphrum secundatum</i> *	Buffalo Grass
	<i>Vulpia bromoides</i> *	Squirrel Tail Fesque

*Vulpia myuros f. megalura**

*Acetosa sagittata**

Rambling Dock, Turkey Rhubarb

*Polygonum aviculare**

Wireweed

*Rumex crispus**

Curled Dock

*Ranunculus repens**

Creeping Buttercup

Rhamnaceae

Family	Scientific Name	Common Name
Rosaceae		
Rubiaceae		
	Urticaceae	
Salicaceae		
	Verbenaceae	
Sapindaceae		
<i>Scrophulariaceae</i>		
Solanaceae		

Balloon Vine

*Rosa rubiginosa**

Sweet Briar

Euphrasia collina

Rubus fruticosus sp.
agg.*

*Verbascum virgatum**
*Veronica anagallis-aquatica**
*Veronica persica**

Twiggy Mullein, Green Mullein
Blue Water-speedwell
Creeping Speedwell

Blackberry complex

*Rubus ulmifolius**

*Cestrum parqui**

Green Cestrum

Blackberry

*Datura ferox**

Fierce Thornapple

*Datura stramonium**

Common Thornapple

*Galium aparine**

*Lycium ferocissimum**

African Boxthorn

*Salpichroa organifolia**

Pampas Lily-of-the-valley

Goosegrass

*Solanum jasminoides**

Potato Climber

*Richardia stellaris**

*Solanum mauritianum**

Wild Tobacco Bush

*Sherardia arvensis**

*Solanum nigrum**

Black-berry Nightshade

Field Madder

*Solanum pseudocapsicum**

Madeira Winter Cherry

*Solanum sisymbriifolium**

*Salix babylonica**

*Urtica urens**

Small Nettle

Weeping Willow

*Lantana camara**

Lantana

Cardiospermum
*grandiflorum**

*Verbena bonariensis**

Purpletop

*Verbena quadrangularis**

Verbena rigida var. *rigida**

Veined Verbena

Family	Scientific Name	Common Name
Zingiberaceae		
	<i>Hedychium gardnerianum</i> *	Ginger Lily



Appendix C

Schedule of Works

C.1 Five Year Indicative Schedule of Works

Task Name	Duration	Year 1			
		Months 1-3	Months 4-6	Months 7-9	Months 10-12
Preparation of VMP	1 week				
Base-line Monitoring	1 week				
Seed Collection	3 months				
Seed Propagation	4 months				
Primary Weed Control	24 months				
Re-planting	24 months				
Secondary Weeding	12 months				
Maintenance Weeding	24 months				
Site Inspections	5 years				
On-going monitoring	5 years				
Reporting	5 years				

Task Name	Duration	Year 2			
		Months 1-3	Months 4-6	Months 7-9	Months 10-12
Preparation of VMP	1 week				
Base-line Monitoring	1 week				
Seed Collection	3 months				
Seed Propagation	4 months				
Primary Weed Control	24 months				
Re-planting	24 months				
Secondary Weeding	12 months				
Maintenance Weeding	24 months				

Site Inspections	5 years				
On-going monitoring	5 years				
Reporting	5 years				



Task Name	Duration	Year 3 Months 1-3	Months 4-6	Months 7-9	Months 10-12
Preparation of VMP	1 week				
Base-line Monitoring	1 week				
Seed Collection	3 months				
Seed Propagation	4 months				
Primary Weed Control	24 months				
Re-planting	24 months				
Secondary Weeding	12 months				
Maintenance Weeding	24 months				
Site Inspections	5 years				
On-going monitoring	5 years				
Reporting	5 years				

Task Name	Duration	Year 4 Months 1-3	Months 4-6	Months 7-9	Months 10-12
Preparation of VMP	1 week				
Base-line Monitoring	1 week				
Seed Collection	3 months				
Seed Propagation	4 months				
Primary Weed Control	24 months				
Re-planting	24 months				
Secondary Weeding	12 months				
Maintenance Weeding	24 months				
Site Inspections	5 years				
On-going monitoring	5 years				
Reporting	5 years				

Task Name	Duration	Year 5 Months 1-3	Months 4-6	Months 7-9	Months 10-12
Preparation of VMP	1 week				
Base-line Monitoring	1 week				
Seed Collection	3 months				
Seed Propagation	4 months				
Primary Weed Control	24 months				
Re-planting	24 months				
Secondary Weeding	12 months				
Maintenance Weeding	24 months				
Site Inspections	5 years				
On-going monitoring	5 years				
Reporting	5 years				

Appendix D

Plant Species to be used in Revegetation

Table D.1 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN ALLUVIAL WOODLAND

Family	Scientific Name	Common Name
<i>Trees</i>		
Mimosaceae	<i>Acacia parramattensis</i>	Sydney Green Wattle
Myrtaceae	<i>Angophora floribunda</i>	Rough-barked Apple
Myrtaceae	<i>Eucalyptus amplifolia</i>	Cabbage Gum
Myrtaceae	<i>Eucalyptus eugenioides</i>	Thin-leaved Stringybark
Myrtaceae	<i>Eucalyptus tereticornis</i>	Forest Red Gum
Myrtaceae	<i>Melaleuca linariifolia</i>	Snow in Summer
<i>Shrubs</i>		
Pittosporaceae	<i>Bursaria spinosa</i> var. <i>spinosa</i>	Blackthorn
<i>Groundcovers</i>		
Lomandraceae	<i>Lomandra longifolia</i>	Spiky-headed Mat-rush
Lomandraceae	<i>Lomandra multiflora</i>	Many-flowered Mat-rush
Poaceae	<i>Aristida vagans</i>	Three-awn Speargrass
Poaceae	<i>Echinopogon ovatus</i>	Forest Hedgehog Grass
Poaceae	<i>Entolasia marginata</i>	Bordered Panic
Poaceae	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Rice Grass
Poaceae	<i>Oplismenus aemulus</i>	Basket Grass
Poaceae	<i>Themeda australis</i>	Kangaroo Grass
Solanaceae	<i>Solanum prinophyllum</i>	Forest Nightshade

Table D.2 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN SYDNEY SANDSTONE GULLY FOREST

Family	Scientific Name	Common Name
<i>Trees</i>		
Myrtaceae	<i>Eucalyptus deanei</i>	Mountian Blue Gum
Myrtaceae	<i>Eucalyptus piperita</i>	Peppermint
Myrtaceae	<i>Eucalyptus punctata</i>	Grey Gum

Table D.2 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN SYDNEY SANDSTONE GULLY FOREST

Family	Scientific Name	Common Name
<i>Shrubs</i>		
Euphorbiaceae	<i>Phyllanthus hirtellus</i>	Thyme Spurge
Fabaceae	<i>Dillwynia retorta</i> var. <i>retorta</i>	Eggs and Bacon
Fabaceae	<i>Pultenaea daphnoides</i>	Large-leaf Bush Pea
Mimosaceae	<i>Acacia linifolia</i>	Flax Wattle
Mimosaceae	<i>Acacia terminalis</i>	Sunshine Wattle
Myrtaceae	<i>Leptospermum trinervium</i>	Flaky-barked Tea-tree
Proteaceae	<i>Persoonia piniifolia</i>	Pine-leaved Geebung
Rutaceae	<i>Eriostemon australasius</i> subsp. <i>australasius</i>	Pink Wax Flower
<i>Groundcovers</i>		
Cyperaceae	<i>Lepidosperma laterale</i>	Variable Sword-sedge
Goodeniaceae	<i>Dampiera stricta</i>	Blue Dampiera
Lomandraceae	<i>Lomandra cylindrica</i>	
Lomandraceae	<i>Lomandra longifolia</i>	Spiky-headed Mat-rush
Lomandraceae	<i>Lomandra obliqua</i>	Twisted Mat-rush
Poaceae	<i>Austrostipa pubescens</i>	Tall Speargrass
Poaceae	<i>Entolasia stricta</i>	Wiry Panic
Poaceae	<i>Themeda australis</i>	Kangaroo Grass
Xanthorrhoeaceae	<i>Xanthorrhoea media</i> subsp. <i>media</i>	Forest Grass Tree

**Table D.3 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN SYDNEY
SANDSTONE GULLY FOREST-RAINFOREST**

Family	Scientific Name	Common Name
<i>Trees</i>		
Myrtaceae	<i>Eucalyptus piperita</i>	Peppermint
Myrtaceae	<i>Eucalyptus punctata</i>	Grey Gum
<i>Shrubs</i>		
Verbenaceae	<i>Clerodendrum tomentosum</i>	Hairy Clerodendrum

Family	Scientific Name	Common Name
Pittosporaceae	<i>Pittosporum revolutum</i>	Sweet Pittosporum
Euphorbiaceae	<i>Breynia oblongifolia</i>	Coffee Bush
Oleaceae	<i>Notelaea longifolia f. longifolia</i>	Mock Olive
Euphorbiaceae	<i>Phyllanthus hirtellus</i>	Thyme Spurge
Mimosaceae	<i>Acacia linifolia</i>	Flax Wattle
Mimosaceae	<i>Acacia terminalis</i>	Sunshine Wattle
Mimosaceae	<i>Acacia implexa</i>	Hickory
Sapindaceae	<i>Alectryon subcinereus</i>	Native Quince
Rutaceae	<i>Eriostemon australasius</i> subsp. <i>australasius</i>	Pink Wax Flower

Groundcovers

Adiantaceae	<i>Adiantum aethiopicum</i>	Common Maidenhair
Poaceae		
<i>Microlaena stipoides</i> var. <i>stipoides</i>		Weeping Rice Grass
Poaceae		
<i>Oplismenus imbecillis</i>	Basket Grass	
Myrsinaceae	<i>Rapanea variabilis</i>	Muttonwood
Cyperaceae	<i>Lepidosperma laterale</i>	Variable Sword-sedge
Lomandraceae	<i>Lomandra cylindrica</i>	
Lomandraceae	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	
Lomandraceae	<i>Lomandra longifolia</i>	Spiky-headed Mat-rush
Poaceae	<i>Entolasia stricta</i>	Wiry Panic
Poaceae	<i>Themeda australis</i>	Kangaroo Grass

**Table D.3 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN SYDNEY
SANDSTONE GULLY FOREST RAINFOREST**

Family	Scientific Name	Common Name
<i>Trees</i>		
Myrtaceae	<i>Corymbia gummifera</i>	Red Bloodwood
Myrtaceae	<i>Eucalyptus oblonga</i>	
Myrtaceae	<i>Eucalyptus punctata</i>	Grey Gum
Myrtaceae	<i>Eucalyptus sclerophylla</i>	Scribbly Gum

Table D.4 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN SYDNEY SANDSTONE HEATH

Family	Scientific Name	Common Name
Proteaceae	<i>Banksia serrata</i>	Old Man Banksia
Euphorbiaceae	<i>Phyllanthus hirtellus</i>	Thyme Spurge
Fabaceae	<i>Dillwynia retorta</i> var. <i>retorta</i>	Eggs and Bacon
Mimosaceae	<i>Acacia linifolia</i>	Flax Wattle
Mimosaceae	<i>Acacia suaveolens</i>	Sweet Scented Wattle
Myrtaceae	<i>Leptospermum trinervium</i>	Flaky-barked Tea-tree
Proteaceae	<i>Banksia ericifolia</i> var. <i>ericifolia</i>	Heath-leaved Banksia
Proteaceae	<i>Banksia spinulosa</i> var. <i>spinulosa</i>	Hairpin Banksia
Proteaceae	<i>Isopogon anemonifolius</i>	Flat-leaved Drumsticks
Groundcovers		
Cyperaceae	<i>Lepidosperma laterale</i>	Variable Sword-sedge
Goodeniaceae	<i>Dampiera stricta</i>	Blue Dampiera
Lomandraceae	<i>Lomandra cylindrica</i>	
Lomandraceae	<i>Lomandra longifolia</i>	Spiky-headed Mat-rush
Lomandraceae	<i>Lomandra obliqua</i>	Twisted Mat-rush
Poaceae	<i>Austrostipa pubescens</i>	Tall Speargrass
Poaceae	<i>Entolasia stricta</i>	Wiry Panic
Poaceae	<i>Themeda australis</i>	Kangaroo Grass
Xanthorrhoeaceae	<i>Xanthorrhoea media</i> subsp. <i>media</i>	Forest Grass Tree

**Table D.5 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN SYDNEY
SANDSTONE RIDGETOP WOODLAND**

Family	Scientific Name	Common Name
Trees		
Myrtaceae		
Myrtaceae	<i>Corymbia gummifera</i>	Red Bloodwood
Myrtaceae	<i>Eucalyptus oblonga</i>	
Myrtaceae	<i>Eucalyptus punctata</i>	Grey Gum
Myrtaceae	<i>Eucalyptus sclerophylla</i>	Scribbly Gum

Table D.5 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN SYDNEY SANDSTONE RIDGETOP WOODLAND

Family	Scientific Name	Common Name
Proteaceae	<i>Banksia serrata</i>	Old Man Banksia
<i>Shrubs</i>		
Euphorbiaceae	<i>Phyllanthus hirtellus</i>	Thyme Spurge
Fabaceae	<i>Dillwynia retorta</i> var. <i>retorta</i>	Eggs and Bacon
Mimosaceae	<i>Acacia linifolia</i>	Flax Wattle
Mimosaceae	<i>Acacia suaveolens</i>	Sweet Scented Wattle
Myrtaceae	<i>Leptospermum trinervium</i>	Flaky-barked Tea-tree
Proteaceae	<i>Banksia ericifolia</i> var. <i>ericifolia</i>	Heath-leaved Banksia
Proteaceae	<i>Banksia spinulosa</i> var. <i>spinulosa</i>	Hairpin Banksia
Proteaceae	<i>Isopogon anemonifolius</i>	Flat-leaved Drumsticks
Rutaceae	<i>Eriostemon australasius</i> subsp. <i>australasius</i>	Pink Wax Flower
<i>Groundcovers</i>		
Cyperaceae	<i>Lepidosperma laterale</i>	Variable Sword-sedge
Goodeniaceae	<i>Dampiera stricta</i>	Blue Dampiera
Lomandraceae	<i>Lomandra cylindrica</i>	-
Lomandraceae	<i>Lomandra longifolia</i>	Spiky-headed Mat-rush
Lomandraceae	<i>Lomandra obliqua</i>	Twisted Mat-rush
Poaceae	<i>Austrostipa pubescens</i>	Tall Speargrass
Poaceae	<i>Entolasia stricta</i>	Wiry Panic
Poaceae	<i>Themeda australis</i>	Kangaroo Grass
Xanthorrhoeaceae	<i>Xanthorrhoea media</i> subsp. <i>media</i>	Forest Grass Tree

Table B.6 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN UPPER-GEORGE RIVER SANDSTONE WOODLAND

Family	Scientific Name	Common Name
Trees		
Santalaceae		
Casuarinaceae	<i>Allocasuarina littoralis</i>	Black She-oak
Myrtaceae	<i>Corymbia gummifera</i>	Red Bloodwood
Myrtaceae	<i>Eucalyptus oblonga</i>	

Table D.6 SPECIES RECOMMENDED FOR RE-PLANTING WITHIN UPPER GEORGES RIVER SANDSTONE WOODLAND

Family	Scientific Name	Common Name
Myrtaceae	<i>Eucalyptus punctata</i>	Grey Gum
Mimosaceae	<i>Acacia linifolia</i>	Flax Wattle
Mimosaceae	<i>Acacia terminalis</i>	Sunshine Wattle
Mimosaceae	<i>Acacia ulicifolia</i>	Prickly Moses
Myrtaceae	<i>Leptospermum trinervium</i>	Flaky-barked Tea-tree
Proteaceae	<i>Persoonia linearis</i>	Narrow-leaved Geebung
<i>Groundcovers</i>		
Lomandraceae	<i>Lomandra cylindrica</i>	
Lomandraceae	<i>Lomandra multiflora</i>	Many-flowered Mat-rush
Phormiaceae	<i>Dianella revoluta</i> var. <i>revoluta</i>	Spreading Flax Lily
Poaceae	<i>Aristida vagans</i>	Three-awn Speargrass
Poaceae	<i>Austrodanthonia linkii</i> var. <i>fulva</i>	Wallaby Grass
Poaceae	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Rice Grass
Poaceae	<i>Stipa pubescens</i>	Tall Speargrass
Poaceae	<i>Themeda australis</i>	Kangaroo Grass
Rubiaceae	<i>Pomax umbellata</i>	Pomax