Coal & Allied Southern Lands

Appendix B:
Urban Design Guidelines for Gwandalan

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COAL & ALLIED

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ASPECT Studios

Appendix B: Urban Design Guidelines for Gwandalan provides detail information on the public domain and built form. It describes how to achieve the principles of Appendix A: Concept Plan Principles for Gwandalan.

The structure of this document is as follows:

- **B1 is the Public Domain Plan for the site.** It includes landscape and urban design treatments for all areas within the development footprint that will be managed by a community body or the local council. It includes information on character, amenity program and sustainability of the streets and parks. It also includes principles for materials selection and assemblage techniques.
- **B2 is the Design Guidelines for individual lots.** It defines the objectives and specific controls that relate to building types, densities, heights, setbacks and private open space.

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Public Domain

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B1.1 Public Domain Strategy

Public Domain Strategy

Introduction

The Public Domain Plan addresses:

- design principles for landscape character, amenity, program and sustainability
- design strategies for the proposed public domain.

Public domain objectives

Key objectives that relate to the landscape concept plan for Gwandalan are considered under the headings of:

- character
- amenity
- program
- sustainability

Character objectives:

- To retain the dominance of the natural landscape.
- To enhance and enrich landscape character.
- To reflect on the casual and informal qualities of living in the region.
- To maximize views to natural features within the development.
- To protect the quality of views from adjoining areas within the view catchments of the development.
- To give priority to views to and from the public domain over views to and from private domain.

Amenity objectives:

- To provide shade in the public and private domain.
- To provide comfortable, direct and legible connections for all modes of transport.
- To provide opportunities for resting and weather protection at key locations within the public domain.
- To provide safety for all in the public domain through application of CPTED principles.

Program objectives:

- To provide a diverse range of settings in the public domain that will permit a range of activities for the incoming community.
- To provide settings in the public domain for activities for regional users.
- To provide flexibility in all public domain settings to suit a range of activities.
- To provide access and parking for cars and bicycles at all activity nodes.

Sustainability:

- To plan and design energy efficiency in the built form through use of the topography and vegetation.
- To provide for a water management system in the public domain.
- To integrate water sensitive urban design methods in streets and parks.
- To encourage biodiversity in landscape treatments.

Public domain principles

Character

The plan reinforces two main landscape types and provides an order that relates the settlement pattern to these landscape types. The character of the streets is to be controlled so that development respects and enhances the qualities of the surrounding bush.

- In the Hilltop Precinct the woodland landscape type, dominated by Eucalyptus haemastoma, is to be reinforced. This part of the site will continue to have a woodland character with medium to large lots retaining vegetation that will link the external bushland character to the site. The long serpentine north-south streets that traverse the site will weave between clumps of existing and new tree plantings to form a park like landscape.
- In the Lakefront Precinct, tall trees will be introduced, including the smooth barked apple that is endemic to the site's edges. Streets in this area will be aligned east-west and will fall slightly towards the water to take advantage of proximity of the Lake and the opportunity for views to the water. These streets will be narrower to frame these views. Trees will form avenues leading to the water's edges. This will also allow views from the site to the water along tree lined streets. Parks will be located on this part of the site, providing lush green areas of diverse play where they can take advantage of proximity to the foreshore walk.
- Along the drainage line the landscape character will remain, with dense canopy and rich shrubs and ground covers, providing a bushland thread interweaving the site.

Amenity

The key aspects of amenity embodied in the landscape concept plan are as follows:

- The street layout is designed to provide safe walking and bicycle routes that link the site with its foreshore, its foreshore parks and the existing services. The provision of short blocks encourages permeability and legibility.
- Parallel kerbside parking will occur on all streets. Retention of existing trees and new planting in streets and parks will provide shade for pedestrians. The open ground plane will provide good surveillance for all activities. The main entry will be lit at night for good visibility. Universal access will be provided on all routes.
- Two recreational parks will be located by the foreshore, setback so that clearings are within the development footprint. They will have a focus on active recreation. Parks by the foreshore will be a maximum 600m from any residence, creating walkable access for all residents. The parks will include shelter and picnic facilities.
- The drainage line will be reserved as parkland with a bushland character and provision of some community recreational facilities at the edges within their Asset Protection Zones (APZ's).

Program

The Concept Plan provides a diversity of program.

- The parks on the foreshore edge of the development footprint will be programmed to suit the diverse needs of the community. Each park will have a number of nodes or meeting places along its edges. Each will provide controlled access to the foreshore which will limit any broad scale damage to the sensitive shoreline zone.
- The central park will be a village green, adaptable for markets, fetes and community gatherings. The northern park is located by the creek bed and will provide a series of open and intimate spaces for family picnics and barbeques. Both parks will have playgrounds and provision for seating and outdoor eating.
- The outer zone of the APZ provides the potential for additional local recreational places. It will form a linear park that acts as everyone's backyard where local and less formal spaces for safe recreation such as walking, games and meeting can occur as well as being the entry points to the conservation lands.

Sustainability

The landscape concept plan embodies a number of sustainability measures that are integrated into the landscape of the site.

Key components of sustainability are:

- Retention of existing trees.
- Introduction of plantings of endemic species to enhance biodiversity.
- Streets that provide cross linking corridors through the site.

B1.2 Street Types

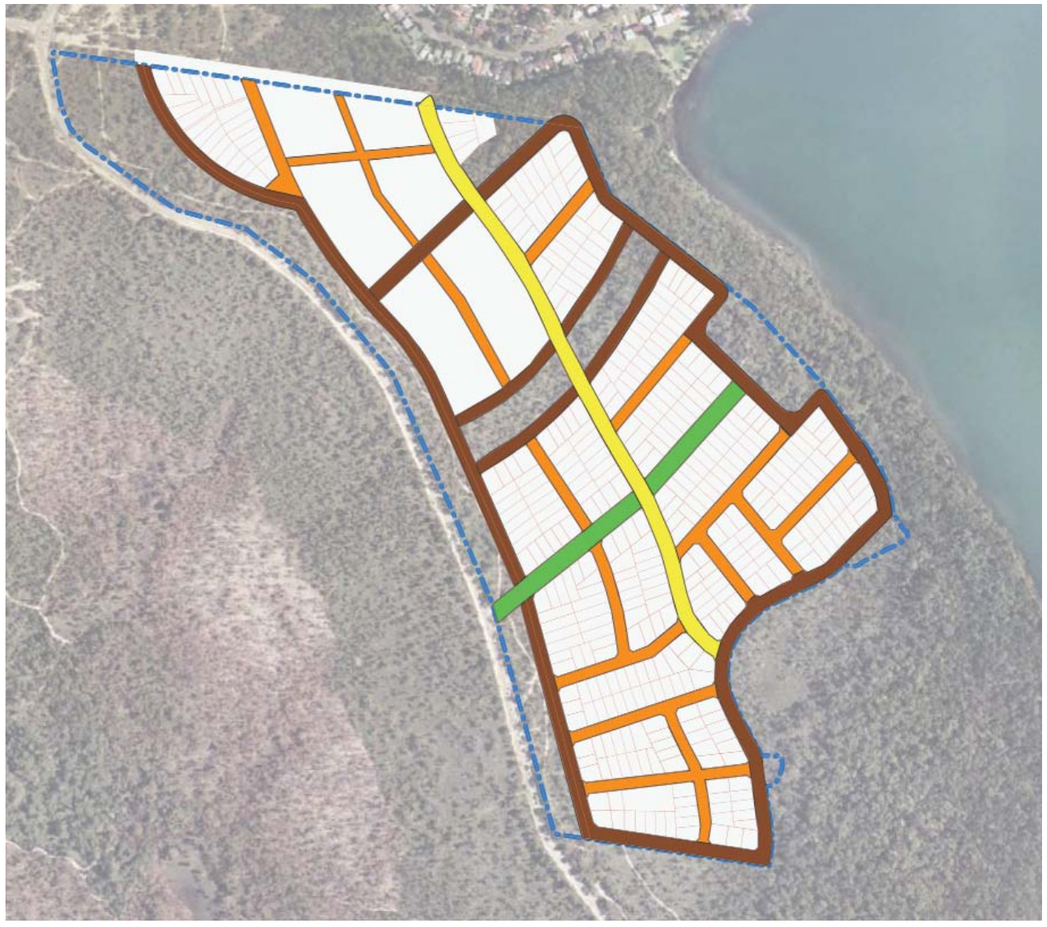


Figure B1.2.1 - Street Types

The streets of Gwandalan are designated as one of three types with another additional sub-type. This will create a diversity and richness that responds to the differing conditions around the site without being constrained by unnecessary complexity. The three types refer to:

- Edge streets that occur on the periphery of the development and include the APZ (Type A).
- Internal streets that form the estate's grid (Type B).
- Wide entry roads that have central medians (Type C).
- Streets to be designed in accordance with Wyong Council Subdivision Development Control Plan No. 66.

The street types, their character, amenity, program and sustainability techniques are described below.

Type A1

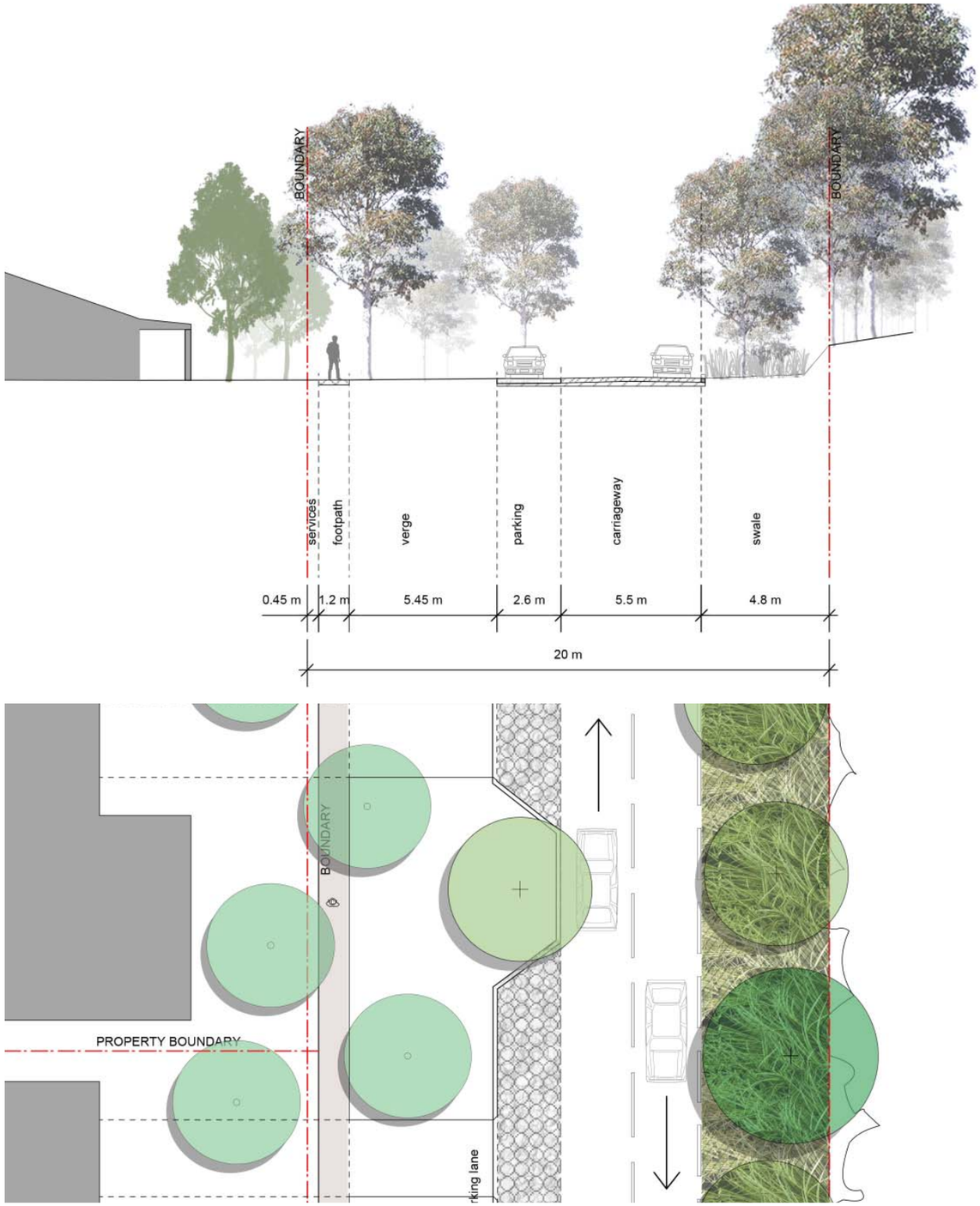
- This street is the periphery street, distinctive because they will have parkland/ bushland on one side and residential housing development on the other. It will be broader, flatter, serpentine parkways that weave along the contours.
- It will be wider spatially, as tree planting will be restricted by APZ requirements. Carriageways will be narrow, and one verge will be dedicated to buffer planting to filter and protect the conservation areas. The development verge will have a kerb a footpath and discontinuous tree and ground cover planting. Housing setbacks will accommodate the APZ requirements where necessary.
- A minimum of 1.2m wide footpath will be located on the housing/shop verge, together with turf and Eucalyptus / Angophora plantings in informal/staggered layouts.
- Surface stormwater is to be directed to bio-retention basins in adjacent parks and bushland. Verges will be planted with native grasses and trees to create a lush layer of vegetation. Where these streets wrap around the formal parks, there will be provision for parking within the verge.

Type B Streets

- This is the local street type that forms the majority of the streets within the development estate.
- In the Hilltop Precinct they will meander through the woodland, between existing trees. They will include parallel parking on both sides and will include wide setbacks to housing. New tree planting will be supplementary to the existing tree structure. The ground plane will include native grasses.
- In the Lakefront precinct these streets will be straight with tall Angophora costata tree plantings. They will be framed by avenues of vegetation which will create view corridors down the site. Tall trees will arch over the streets giving views to the bushland and lake at the terminations of these short streets. The higher density housing will have small street setbacks, reinforcing the idea of the sense of enclosure in these streets. However, setbacks will vary according to the need to retain trees.
- This street type will have 1.2m footpaths on one verge, parallel parking on both sides with, kerbs and gutters.

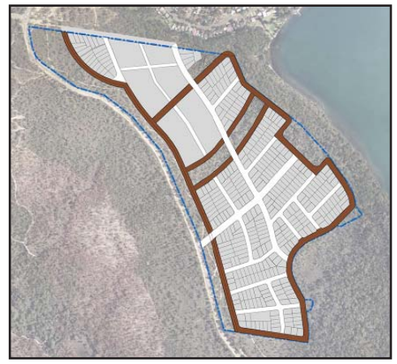
Type C1 and C2 Streets

- Type C is the entry street and the main north-south corridor street.
- The entry streets enter the site from Kanangra Drive and follow the ridges to the centre of the site. Ridge roads are distinctive in the sandstone topography of the Sydney Basin, as they offer the easiest and most legible route and form of access. Kanangra Drive is a ridge road and the site itself has three distinct ridges that spur from the main ridge. The central of the three ridge roads is intended to be the main entrance street. It will retain the character of the bushland setting with a wide landscape corridor, a central median and extensive verge tree planting in a regular layout, to provide a legible entry statement. Built form will have varying setbacks. In the village centre there will be smaller setbacks and taller buildings, creating a distinct town centre scale to the street. The street terminates at the Village Green elevated above and beside the foreshore.
- The main collector road that runs north-south should retain the primacy of the bushland setting with a landscaped median with new tree planting, wide verges with tree planting and footpaths. .
- The character of the streets should match the character of the Angophora landscape sub-type, with clear avenues of tree plantings.
- These streets will both have through traffic, a pedestrian footpath and parallel parking on both sides, street lighting and planting within verges.
- It is envisioned that these streets will be low speed, allowing cyclists' to be on-road.

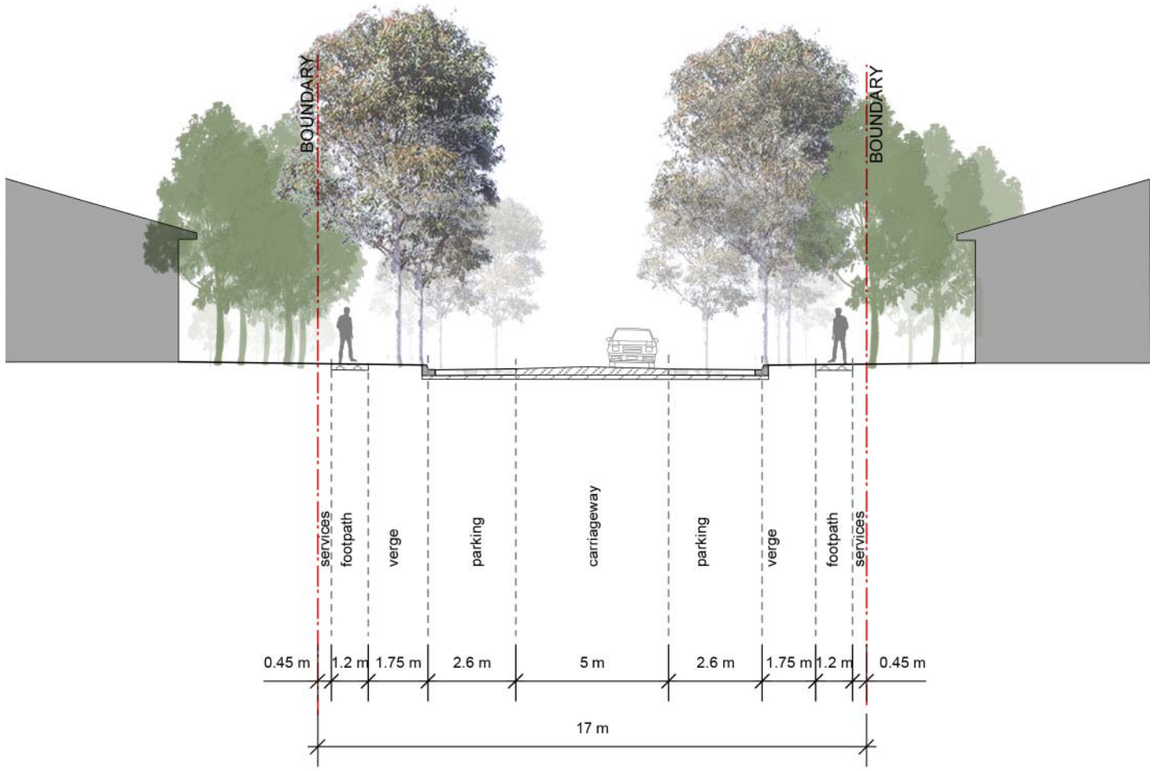


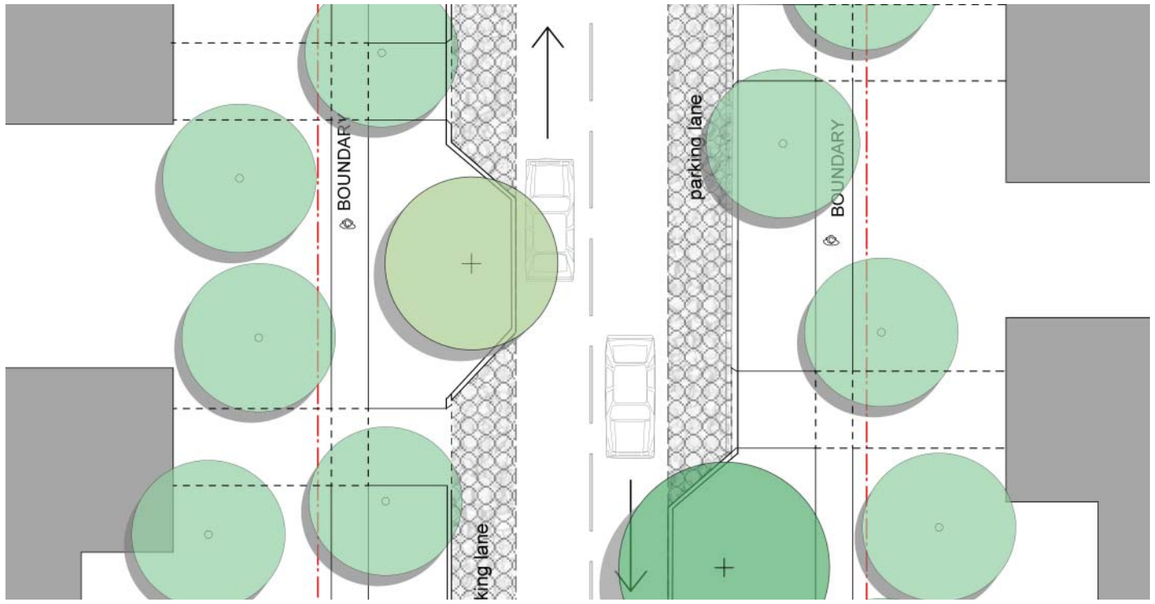
Street Type A1
Local Street with swale :20m wide

Figure B1.2.2 - Street Type A1



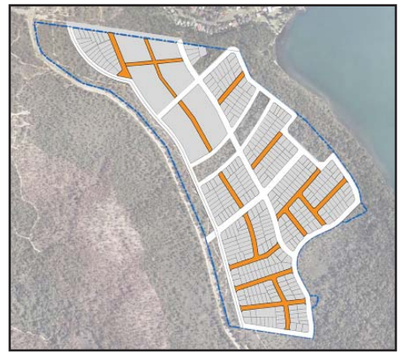
Location plan



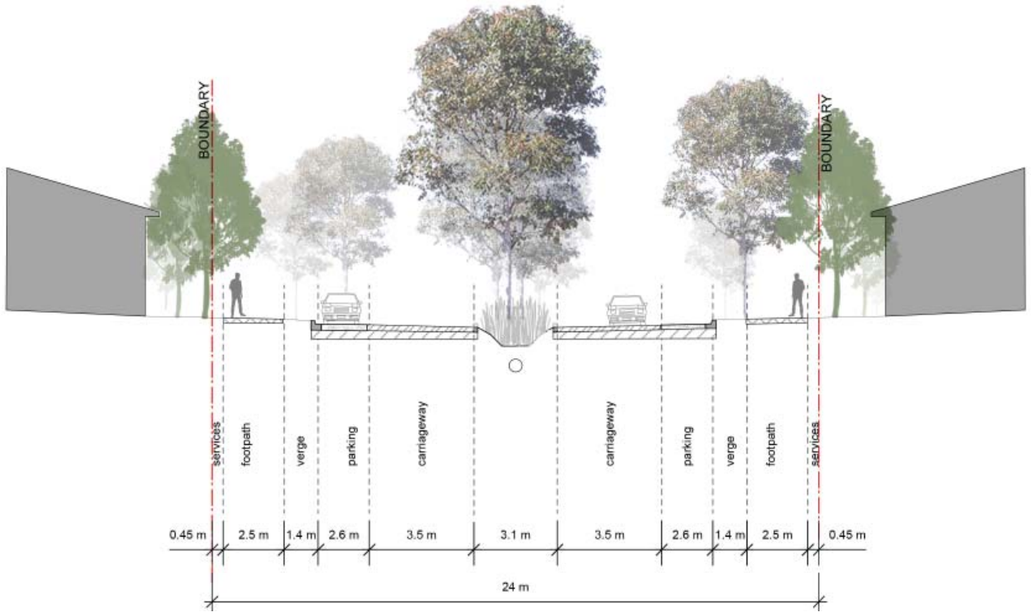


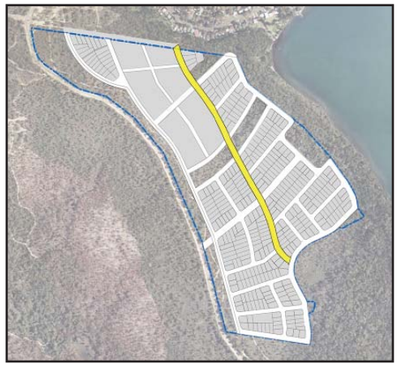
Street Type B
Local Street :17m wide

Figure B1.2.3 - Street Type B



Location plan





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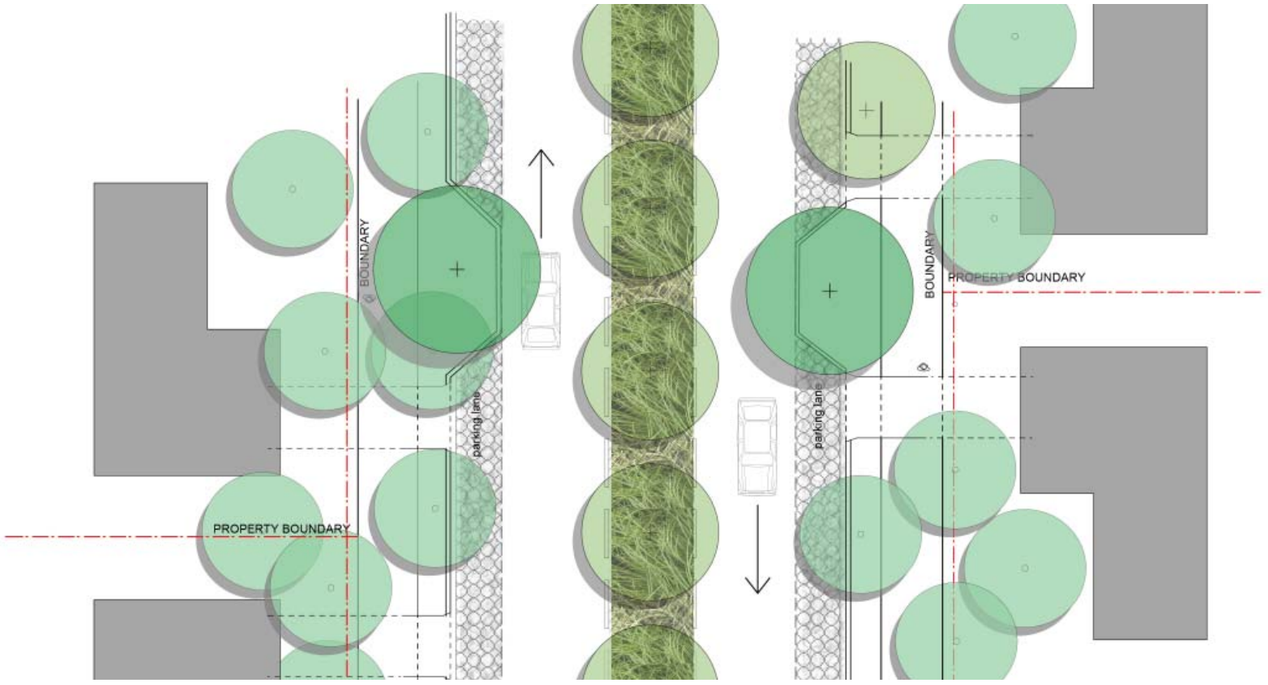
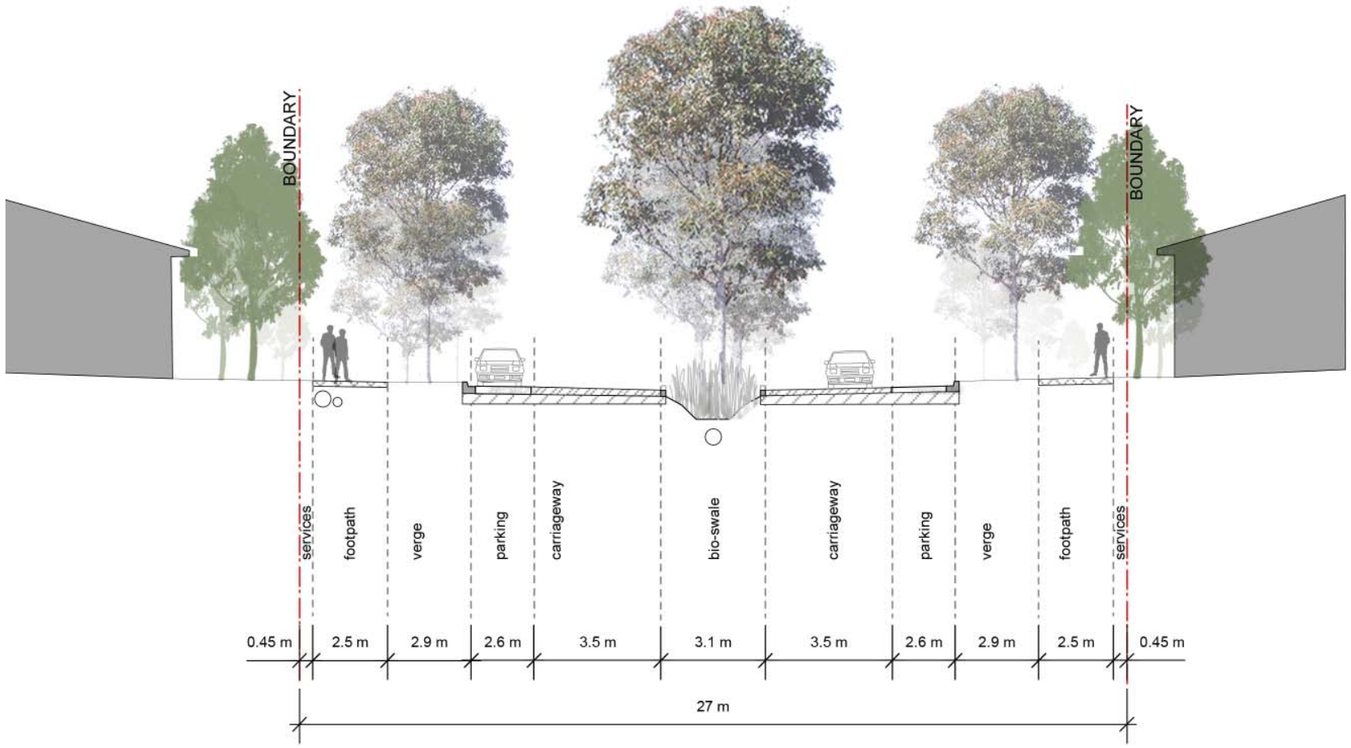
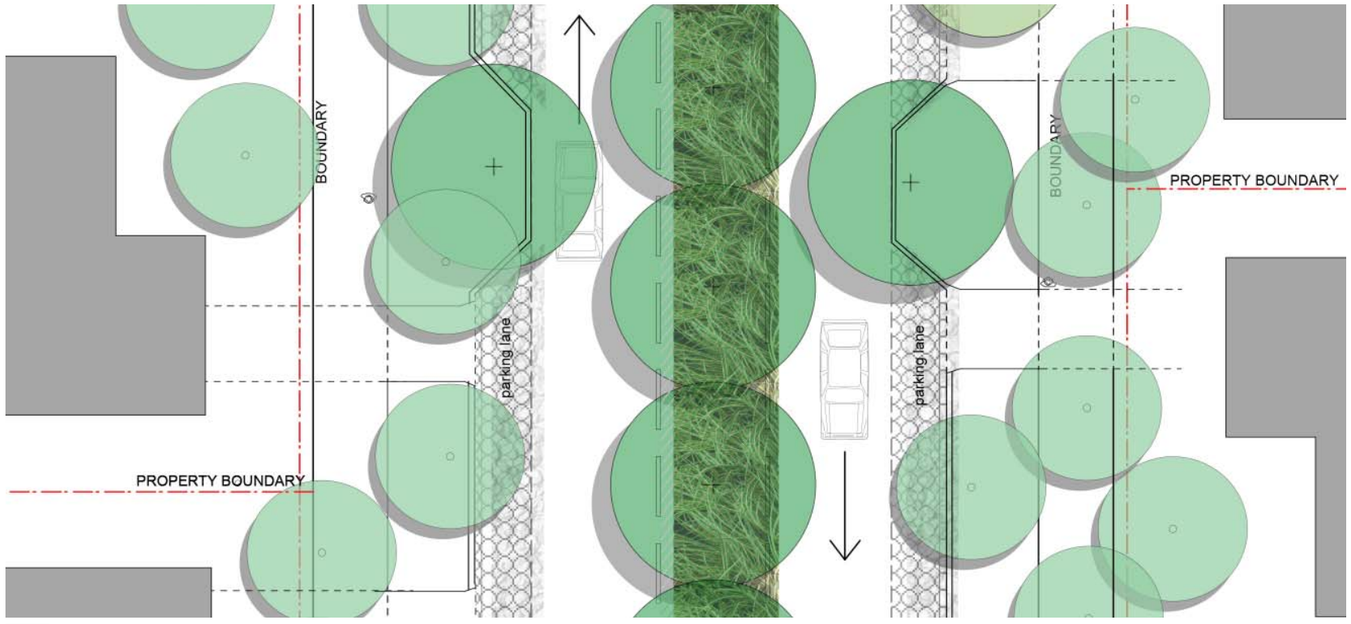


Street Type C1
Entry Street with central swale: 24m wide

Figure B1.2.4 - Street Type C1



Location plan



Street Type C2
Entry street with median :27m wide

Figure B1.2.5 - Street Type C2

B1.3 Parks and Open Space

Figure B1.3.1 - Village Green

There are three key parks on the site. One follows the drainage line, and two are located at the eastern edge of the site, adjacent to the bushland edge of the site. All parks will be fully accessible to all members of the community at all times.

Village Green
The central park will be the Village Green and will provide for community wide activities and some regional activities. It will be surrounded on three sides by built form. It is to be located on a very flat part of the site at the edge of a steep slope that leads down to the foreshore.

Its character will be as an ordered park, a clearing in the forest with grass and peripheral trees and built form giving a clear definition of urban activities. Its green turfed area will be clearly visible as the focus on the main entry street, and behind it the bushland of the lake's edge. Its location and layout will be clearly legible, as it will be the first point for visitors to orient themselves.

The park will be set out with activity areas at the north and south ends of the park. Two nodes are created, each with differing activity focus. In the centre will be a multi-use grass area, suitable for informal games, but adaptable for local football/cricket matches.
At the northern end there will be a setting for family groups with a regional playground and seating and picnic facilities.

At the southern end there will be community activities such as large gatherings and market places.

Amenity will include shade trees, shelters, picnic facilities, seating and a public toilet. A childrens' playground that caters for a diverse range of childrens' activities shall be provided. The park will have easy access from surrounding streets to the park.

For the two nodes at either end of the park there will be clear and universal access to the foreshore which winds down the steep slope.

A stormwater tank will be provided in the park to provide irrigation for the turfed areas.

An illustrative layout of the Village Green is shown opposite.

KEY

1. Open turfed area
2. Playground and shade shelter
3. Bushland picnic area
4. Market/community event space
5. Car parking
6. Rainwater storage tank
7. Entry/exit to coastal connector path

Northern Park

The northern park will be a local park at the northern boundary of the site. It is sited on sloping topography which leads to the creek line.

It will have the character of a bushland park with two main infomral areas:

- a small turfed area for recreation and;
- a childrens' play space.

It will provide for family groups within easy walking distance of the local residential areas. It will also provide access to the creek, to the foreshore and to the foreshore parks and walking trails that will link with the existing Gwandalan settlement.

Amenity will include shade trees, seating, picnic facilities and a childrens' playground that caters for a small range of childrens' activities. The playground will focus on the bush experience of childrens' play.

It's layout will be governed by the need to retain existing trees and incorporate a bio-retention basin.

An illustrative layout of the northern park is shown opposite.

KEY

1. Nature play playground
2. Bushland picnic area
3. Passive recreation - bush platform
4. Major through path
5. Possible future commercial use
6. Coastal connector path - boardwalk over drainage line

Figure B1.3.2 - Northern Park

Foreshore Walk

- A foreshore walk is proposed to link the new development area to Gwandalan along the edge of Crangan Bay.
- The walk will provide access for pedestrians and cyclists.
- The walkway will consist of a range of paving and boardwalk materials appropriate for the context.

Figure B1.3.3 - Foreshore walk

STREETS

Woodland vegetation


Eucalyptus robusta
Swamp Mahogany


Angophora costata
Smooth Barked Apple


Eucalyptus haemastoma
Scribbly Gum


Crynum pendunculatum
Beach Lily


Lomandra longifolia
Matt Rush


Juncus usitatus
Common Rush


Carex appressa
Tall sedge


Themeda australis
Kangaroo Grass

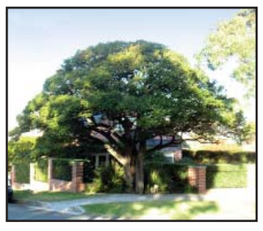
Forest vegetation


Eucalyptus robusta
Swamp Mahogany


Melaleuca linaarifolia
Snow in Summer


Eucalyptus piperata
Sydney Peppermint


Elaeocarpus reticulata
Blueberry Ash


Glochidion ferdinandii
Cheese Tree


Themeda australis
Kangaroo Grass


Dianella caerulea
Flax Lily


Gahnia clarkei
Saw Rush

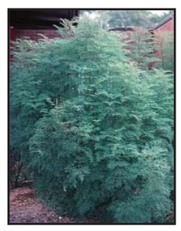
Gully vegetation


Cupaniopsis anacardioides
Magenta Cherry


Elaeocarpus reticulata
Blueberry Ash


Glochidion ferdinandii
Cheese Tree

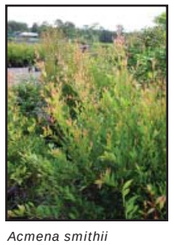

Syzigium paniculatum
Magenta Cherry


Polyscias sambucifolia
Elderberry Panax


Dianella caerulea
Flax Lily


Melaleuca quinqinervia
Broad -leaved Paperbark


Gahnia sieberiana
Saw Rush


Acmena smithii
Lilly Pilly


Lomandra longifolia
Matt Rush

Figure B1.4.1 - Plant Types

B1.4 Plant Types and Materials

Plant palette

- Plant palette will be dominated by local and endemic species. Tree species will consist of both smaller trees on the flat plateau areas and taller trees on the slopes. The soils are quite shallow in this area, so good soil preparation is essential to maximise potential growth from the site.

Landscape materials and assemblage techniques

- Public domain materials will be simple, i.e. concrete footpaths and kerbs. In parks, larger paved areas will be gravel, with some special areas of sandstone paving.
- Playgrounds are to consist of diverse types of play elements, designed in an exciting and experiential setting.
- Picnic facilities will include specially designed shelters that are unique to Gwandalan, and off-the shelf seating and barbeque items that will facilitate easy replacement by Council.
- Kerb ramps are to be provided at all intersections.
- Lighting poles in streets are to be standard galvanized steel poles with outreach arms.
- Light spill is to be minimised to ensure that the surrounding bush setting is not impacted by an excess of night lighting.

The proposed planting includes species shown opposite.

- The forest landscape type of scribbly gum/smooth barked apple is to be developed in streets and parking lanes with plantings of same and similar species of trees with thin, layered canopies.
- Trees in verges will be chosen from the Gully, Forest or Woodland lists opposite to create an informal character in the verges.
- Ground covers will predominantly be native grasses and low shrubs. Extensive areas of lawn on the verges only to facilitate access from parking areas.

B2.1 Building Types

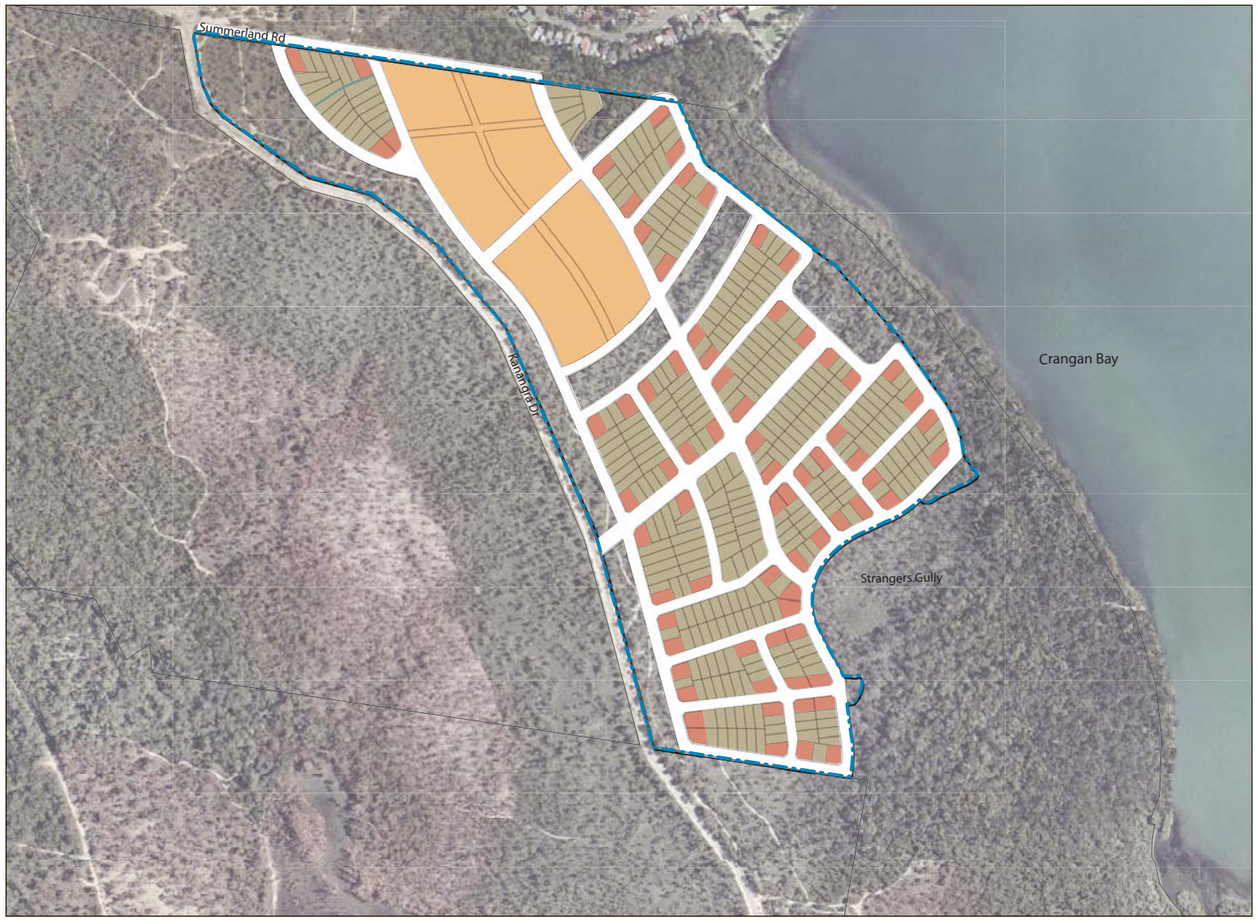


Figure B2.1.1 - Building types diagram

KEY

- Type 1: Village lots
- Type 2: Village corner lots
- Type 3: Residential Aged Care and Independent Living Units

Building types provide indicative illustrations of possible design outcomes on various lot sizes, shapes and orientation. They respond to the desired future character of the Gwandalan Estate.

Objectives:

- To reinforce the desired future character for the Gwandalan Estate.
- To respond to the street hierarchy and corresponding street character with appropriately located building types.
- To design housing types that respond to their lot configurations including size, shape, slope and orientation.
- To encourage the design of dwellings to conform to the natural land form.
- To minimise cut and fill and reduce the need for retaining walls
- To provide a variety of lot sizes to promote housing choice, affordability and aging in place.

Within the Gwandalan Estate there are three building and lot types which have the following characteristics:

Type 1: Village Lots

- detached dwellings
- typically 15m minimum lot frontage
- 450m^2 minimum lot area;
- front vehicle access

Type 2: Village Corner Lots

- detached dwellings
- typically 20m minimum lot frontage
- 700m^2 minimum lot area
- front or side vehicle access

Type 3: Residential Aged Care and Independent Living Unit

includes potential nursing home and independent living units

- refer to SEPP Seniors Living

Cut and fill

- Cut and fill should not exceed 500mm in height measured from the natural ground level adjacent to the building.
- On sloping sites, floor construction is to be raised on stumps to minimise cut and fill.
- The dwelling footprint may need to be broken into smaller pavilions to reduce the extent of cut + fill and/or height of the stumps.

Retaining walls

- A maximum 500mm high
- Located fully within the boundaries of the subject property.
- Constructed in natural materials and colours

Type 1: Village Lots with landscape plan

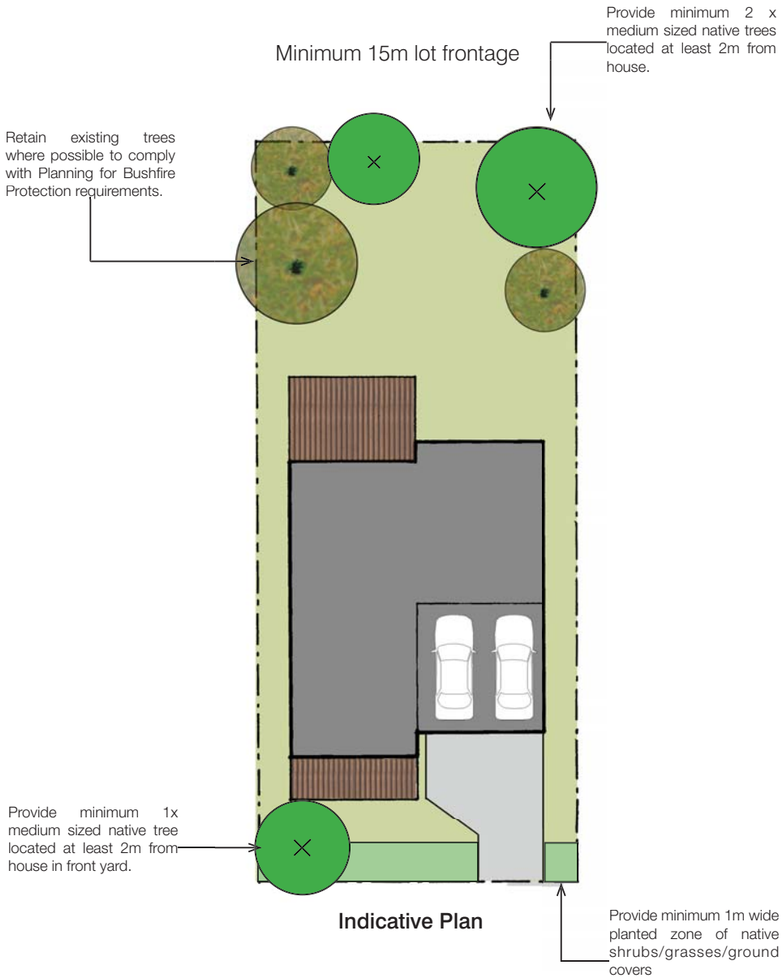


Figure B2.1.2 - Village Lots

Type 2: Village Corner Lots with landscape plan

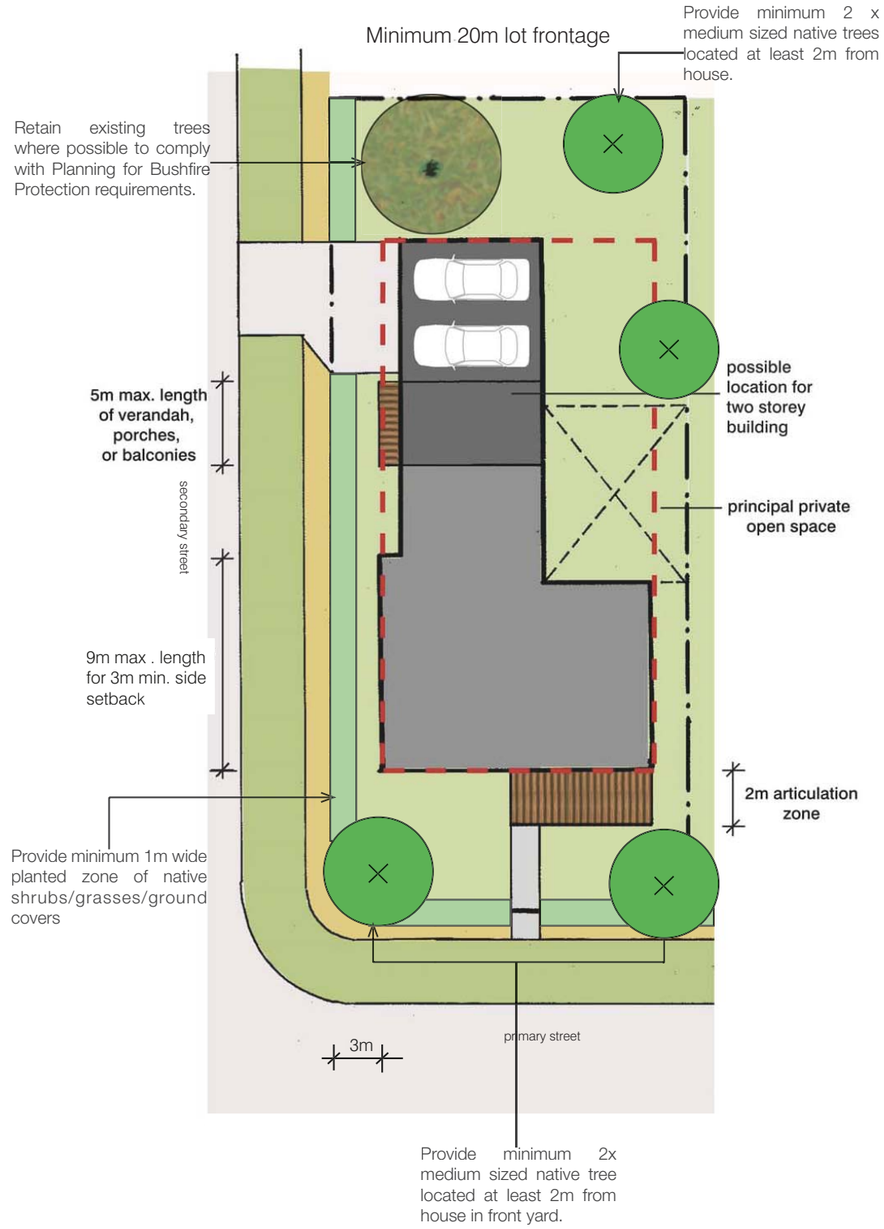


Figure B2.1.3 - Village Corner Lots

B2.2 Site Coverage

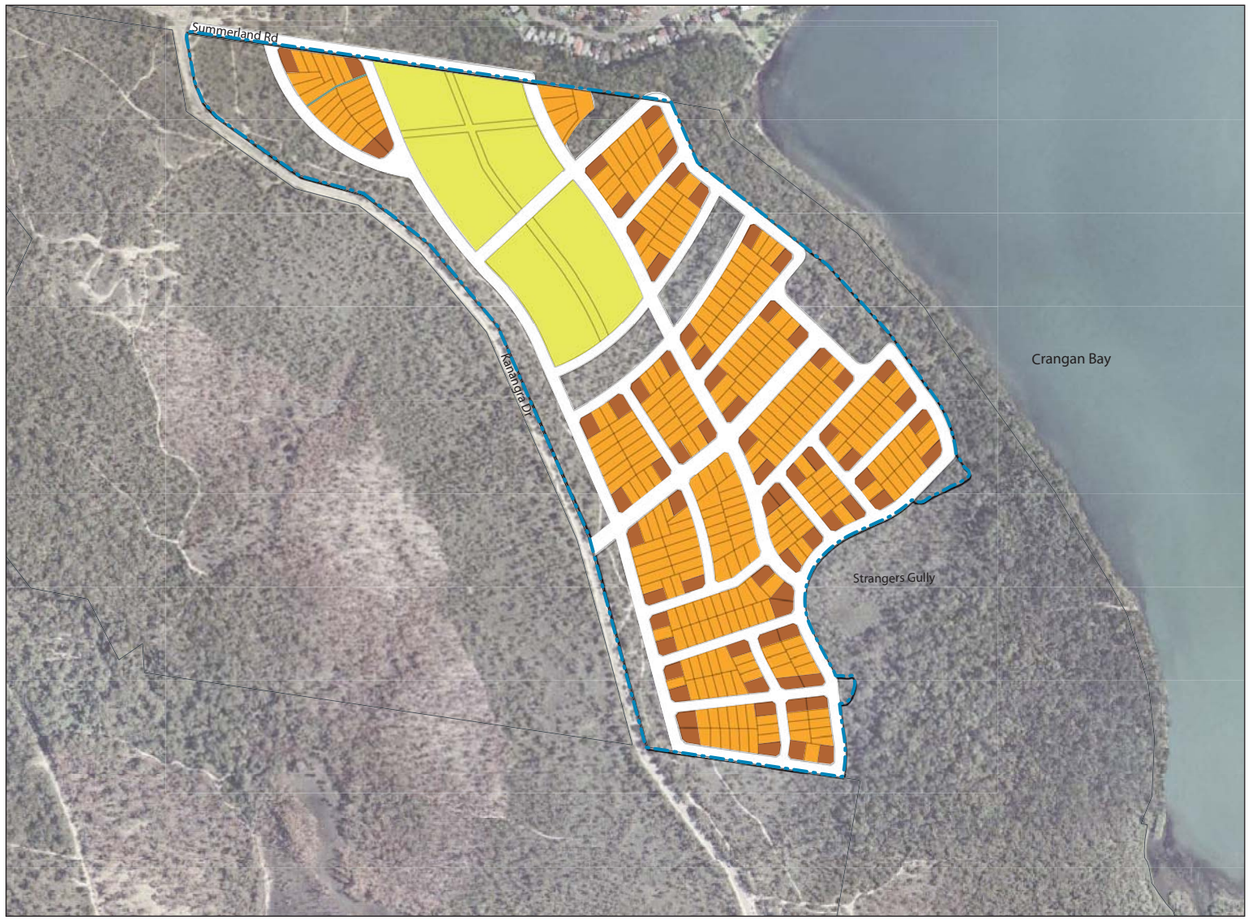


Figure B2.2.1 - Site coverage diagram

Objectives:

- To promote building types and uses appropriate to the lot size, shape, slope and orientation.
- To enhance the landscape character of each neighbourhood precinct by reinforcing its individual landscape setting and encouraging retention of existing trees, where possible.
- To provide adequate residential amenity within the site and between adjacent properties.

Controls:

Individual lots are to be planned to meet the following:

Lot Types	Site Frontage (min.)	Site Area (min.)	FSR	Maximum Site Coverage*
Village Lots	15m	450m^2	N/A	50%
Village Corner Lots	20m	700m^2	N/A	50% (40% if site area >900m)[2)]

- Note: site coverage means the proportion of a site area covered by buildings. However, the following are not included for the purpose of calculating site coverage:

(a) any basement,

(b) any part of an awning that is outside the outer walls of a building and that adjoins the street frontage or other site boundary,

(c) any eaves,

(d) unenclosed balconies, decks, pergolas and the like.

- The maximum area of ancillary structures such as sheds is to be 40m^2.

B2.3 Building Height and Bulk

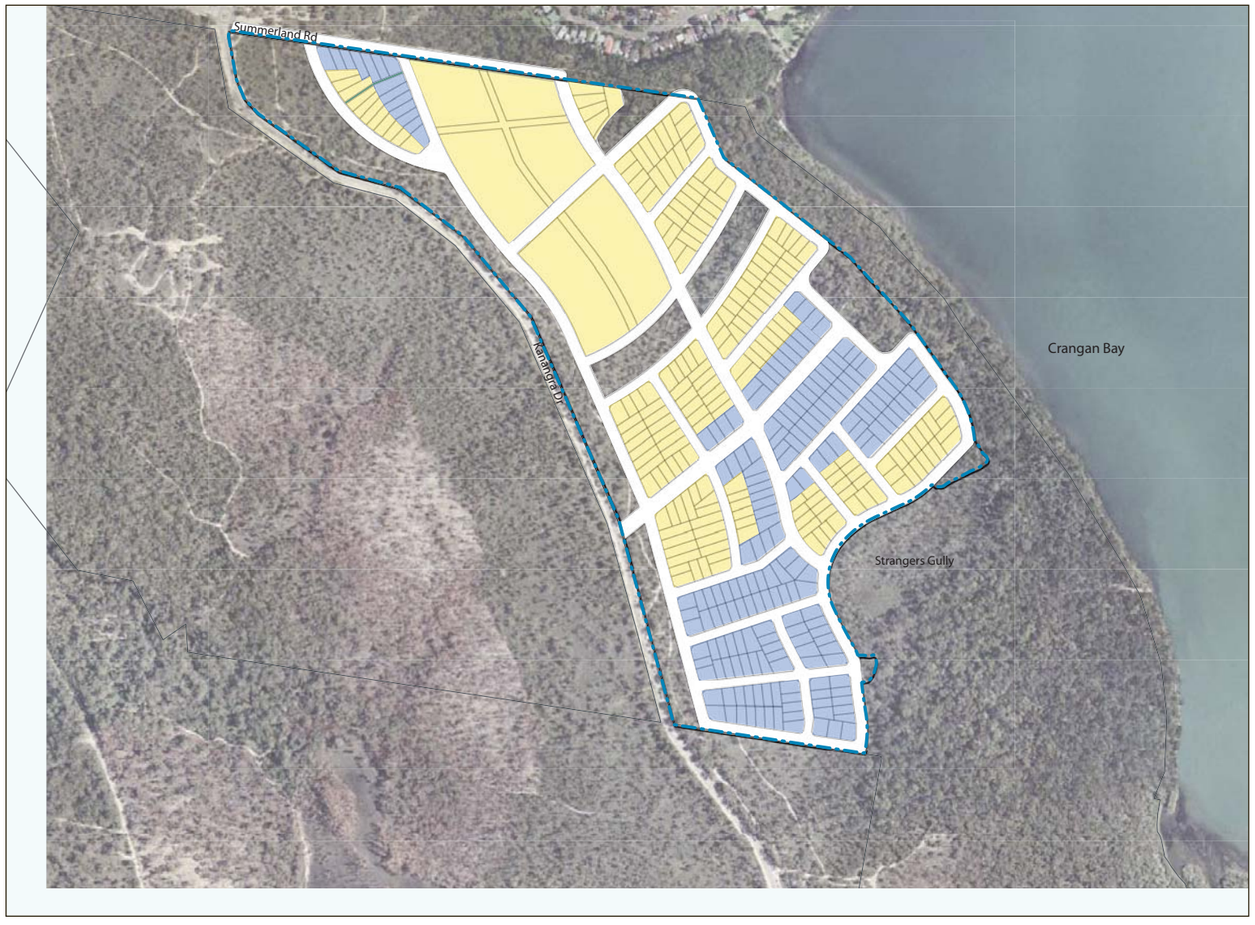


Figure B2.3.1 - Building heights diagram

Objectives:

- To ensure houses are designed in proportion to their site.
- To minimise overshadowing of private open space within the lot and on adjacent lots.
- To ensure solar access to principal living areas and promote good environmental performance.
- To enable sharing of views to the lake and parkland reserves.
- To ensure development responds to mining constraints.

Controls:

- Building heights are to be in accordance with Figure 2.3.1: Building height diagram.
- For two storey development the overall height limit is 8.5 metres.
- For single storey development the overall height limit is 4.5 metres.
- The overall height limit of a detached garage is 4.5 metres.
- The overall height limit of carports is to be 3.5 metres.
- Building height is to be distributed to maximise solar access in response to lot orientation and slope.
- Ceiling heights are to be a minimum of 2.7 metres.
- Roof pitch between 15 and 25 degrees with eaves of minimum 600mm overhang.

B2.4 Streetscape & Street Setbacks

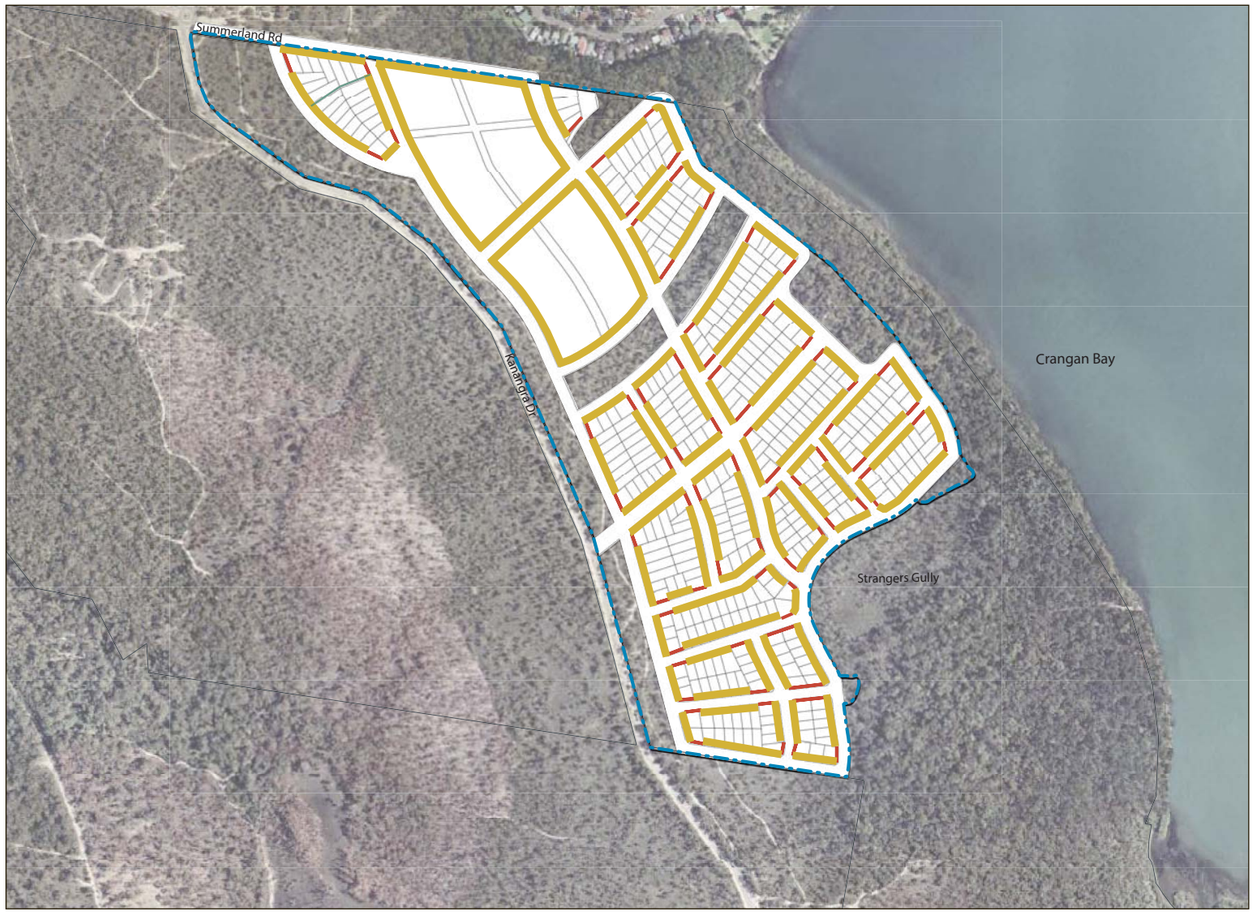


Figure B2.4.1 - Street Setbacks

Objectives:

- To ensure that development enhances the visual character and amenity of the street in response to the street hierarchy.
- To ensure buildings address the street and are designed to provide surveillance of streets and public open spaces.
- To ensure buildings on corner sites address both streets.
- To promote the retention of existing trees and complementary native species planting in front gardens.
- To incorporate APZ's in response to bush fire requirements.
- To limit the visual impact of garages along the street.
- To promote the use of verandas, front porches and balconies along the street frontage by use of articulation zone.
- To reduce the visual impact of boat parking along the primary street frontage.

Controls:

Individual lots are to be planned to meet the following:

	Street Setbacks	Secondary Street Setback*	Garage Setback on Primary Street
Village Lots	• 6m	• N/A	• Minimum 7m setback from front boundary and at least 1m setback from the primary building frontage
Village Corner Lots	• 6m	• 3m	• Preferably off secondary street. • If of the primary street, a minimum 7m setback from front boundary and at least 1m setback from the primary building frontage

*Note: On corner lots, secondary frontage may be a secondary street or a public open space.

- Street setbacks are a minimum and may be varied to promote retention of existing trees in front gardens.
- On Village lots, an articulation zone may project 2m into the street setback for verandahs, porches and balconies, unless the lot has APZ constraint.
- Garages are to be setback a minimum 1m from the front building line.
- The maximum carport and/or garage door width is to be not more than 3m for single and 6m for double garages or 50% of the lineal building frontage, whichever is the lesser.
- 4m maximum width of driveway at boundary.
- A maximum 2 resident car parking spaces are permitted per dwelling. Parking may be tandem and both spaces are to be covered.
- Boat parking areas are to be provided behind the primary building frontage, where possible.
- Dwellings are to address the street with entries located clearly visible from the street.

B2.5 Setbacks

Objectives:

- To provide privacy for residents and neighbours and minimise overshadowing.
- To provide a visual break between buildings.
- To contribute to the landscape setting by planting between houses and within rear gardens.
- To retain and enhance mid-block tree planting to reinforce the bush setting of the estate.
- To enhance the landscape setting by providing views between houses on larger lots of rear garden tree canopies.

Controls:

Individual lots are to be planned to meet the following:

	Side Setbacks (min.)	Rear Setbacks (min.)
Village Lot A	• 1.5m	• 6m for lots with site length <45m • 10m for lots with site length >45m • 80% of the rear setback area is reserved as a deep soil zone, pools and shed are allowed in the remainder of the rear setback area.
Village Corner lots	• 1.5m • 3m setback to secondary street	• 6m for lots with site length <45m • 10m for lots with site length >45m • 80% of the rear setback area is reserved as a deep soil zone, pools and shed are allowed in the remainder of the rear setback area.

- Setbacks may be varied to retain existing trees, provided objectives for residential amenity and environmental performance are achieved.

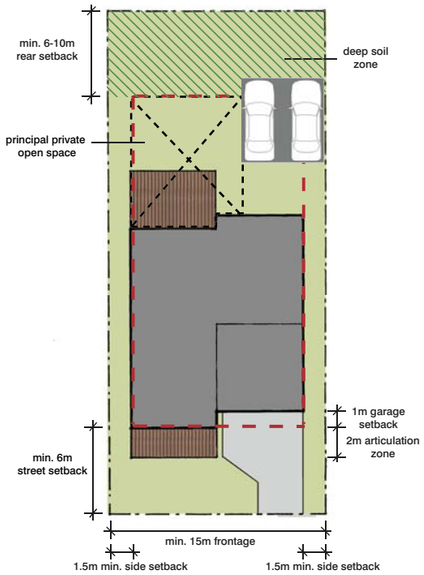


Figure B2.5.1 -Village Lot

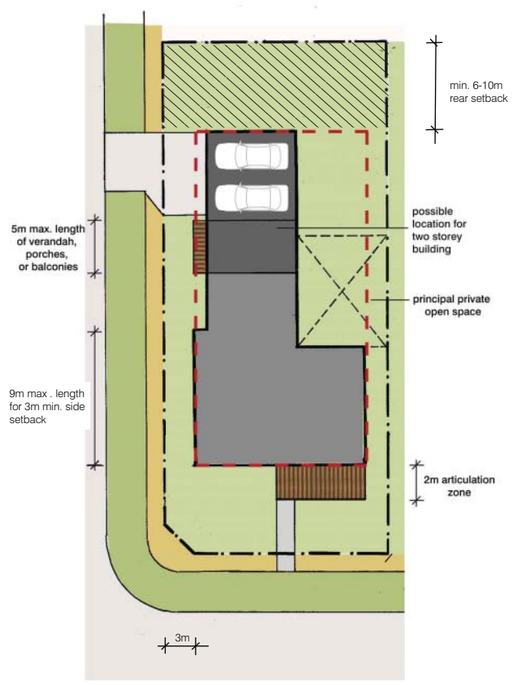


Figure B2.5.2 - Village Corner Lot

PRIVATE

B2.6 Private Open Space and Landscaping

Woodland vegetation

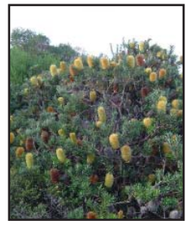
Angophora costata
Smooth barked Apple

Banksia serrata
Old Man Banksia

Melaleuca linaarifolia
Snow in Summer

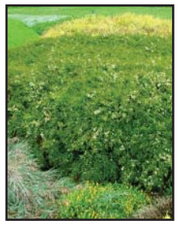
Acacia binervia
Coast Myall

Corymbia gummifera
Red Bloodwood



Banksia marginata
Swamp Banksia

Baeckia imbricata



Baeckia virgata
Twiggy Myrtle

Forest vegetation

Angophora costata
Smooth barked Apple

Banksia serrata
Old Man Banksia

Glochidion ferdinandii
Cheese Tree

Acacia melanoxylon
Black Wattle

Dodonea triquetra
Hop Bush

Ceratopetalum gummiferum
NSW Christmas Bush

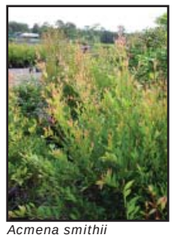
Acacia fimbriata dwarf
Wattle

Gully vegetation

Glochidion ferdinandii
Cheese Tree

Polyscias elegans
Celerywood

Syzigium paniculatum
Magenta Cherry

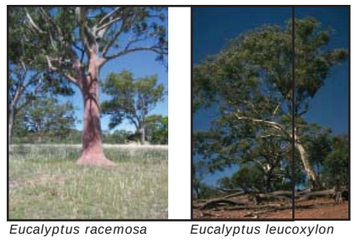


Acmena smithii
Lilly Pilly

Ceratopetalum gummiferum
NSW Christmas Bush

Native vegetation

Eucalyptus leucoxylon
'Little Eukie'
White Gum



Eucalyptus racemosa
Scribbly Gum

Eucalyptus leucoxylon
White gum

Eupomatia laurina
Bolwarra

Melaleuca thymifolia
Thyme leaved Honey Myrtle

Acacia cardiophylla
West Wyalong Wattle

Melaleuca nesophila
Showy Honey Myrtle

Figure B2.6.1 -Plant Types

Objectives:

- To ensure useful and purposeful private open space is provided adjacent internal living areas.
- To reinforce the landscape setting of the estate.
- To promote tree retention on individual lots.
- To encourage consolidated tree retention/planting areas between adjoining properties.

Controls:

Individual lots are to be planned to meet the following:

Lot Types	Principal Private Open Space	Minimum Landscape Area of Lot	Deep Soil Zone
Village Lots	80m² with a minimum dimension of 6m	40%	Rear setback area
Village Corner Lots	90m² with a minimum dimension of 6m	55%	Rear setback area

- Locate principal private open space to side or rear of lot and ensure it is directly accessible from living areas.
- Areas of private open space are to achieve at least 3 hours of sunlight to 50% of the principal open space between 9am and 3 pm on 21 June.
- Locate deep soil zone on lots along the rear boundary and adjoining adjacent property's deep soil zones.
- The location of deep soil zones may be altered if the proposed location is co-located with the retention of existing trees.
- Outdoor rooms in the form of verandahs, generous balconies and decks are encouraged. Where outdoor rooms occur on the second level, their location and detailing is to address privacy and overlooking issues.
- Landscape area is any area that is landscaped by way of planting of gardens, lawns, shrubs or trees in deep soil and includes permeable paving (such as unit paving laid on sand). It does not include driveways within the front setback or concreted areas.
- Utilise a minimum of 50% native plant species in gardens. Species selection to be primarily chosen from species shown opposite.
- Fencing to be of timber, maximum 1.8m high above adjoining ground level. Fencing to be located behind front setback of main building. Any fencing located within an APZ must be constructed of non-combustible materials.

Fences

- No front fences are permitted. The front boundary to be defined by landscaping.
- Side fences are to return against the building at least 1m behind the front building line, be made of timber and be a maximum 1.8m high above adjoining ground level.
- Fences facing bushland are to be as unobtrusive as possible, be a maximum 1.8m high from adjacent ground level, made of open chain mesh, weldmesh or a palisade fence and be dark in colour.
- Sheet metal or solid panel fencing is not acceptable.
- Any fencing located within an APZ must be constructed of non-combustible materials.

B2.7 Asset Protection Zones

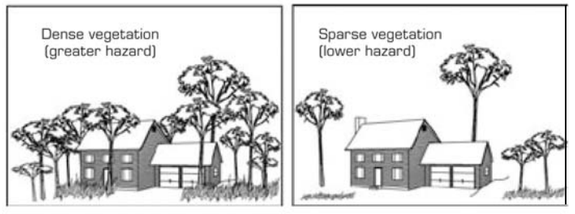
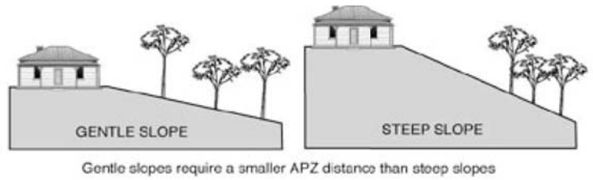


Figure B2.7.2 - Determining if an APZ is required



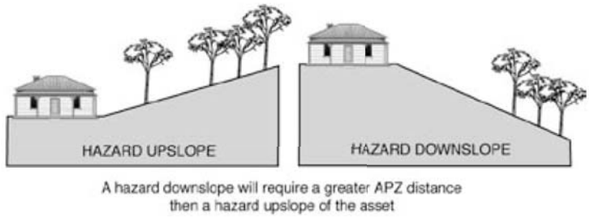


Figure B2.7.3 - Slope influincing an APZ

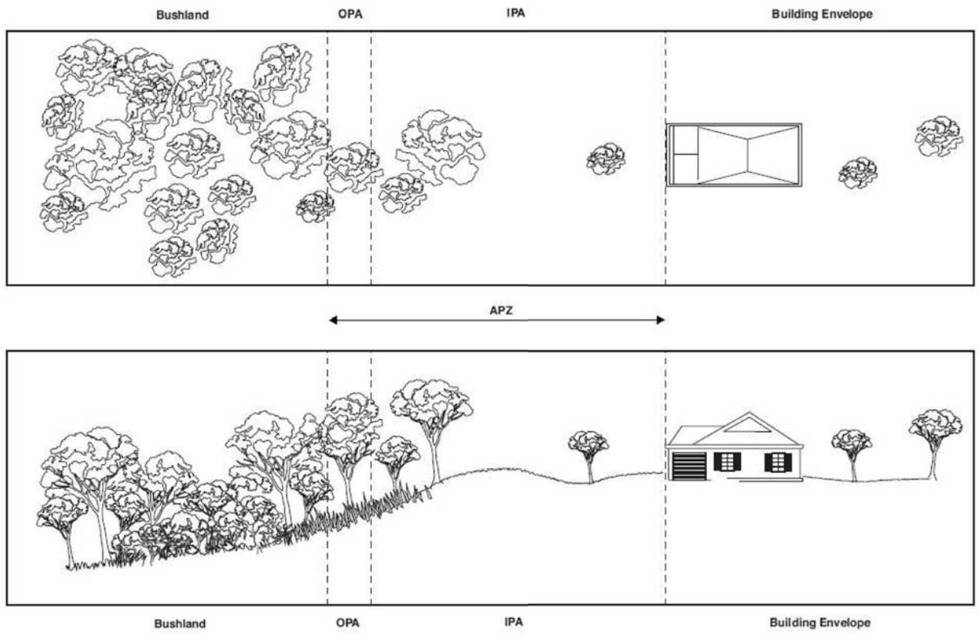


Figure B2.7.1 - Asset Protection Zone (APZ) showing Inner Protection Zone (IPZ) and Outer Protection Zone (OPZ).

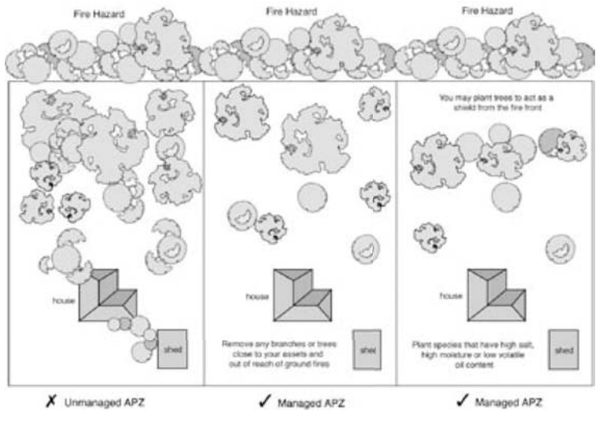


Figure B2.7.4 - Unmanaged and managed APZ's

Asset Protection Zone

- The site is bushfire prone and any development should be consistent with the requirements of Planning for Bushfire Protection 2006.
- Reduction of fuel does not necessarily require the removal of all vegetation as often trees and plants can provide protection from strong winds, intense heat and flying embers and changing wind patterns. The management of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation. Valuable native trees and shrubs will be retained as clumps or islands.
- Each lot will need to comply with the APZ in detail as part of the DA process.

B2.8 Stormwater Management

KEY

- Proposed development footprint
- Proposed new streets
- Coastal connector path
- Bushland reserve
- Bio-retention/ Detention basin
- Emergency access/egress to future RFS requirements
- A Northern Hamlet
- B Southern Hamlet

Figure B2.8.1 Illustrative concept plan showing stormwater management

Stormwater Management

- Individual lot stormwater management and associated infrastructure is not acceptable to Wyong Council which prefers 'end of pipe' stormwater management solutions. Therefore on lot solutions have been removed. Coal & Allied consultants have already prepared 'end of pipe' solutions as shown on the concept plan and their more detailed design will be prepared in conjunction with the lodgement of Development Applications currently being prepared.
- A 3m wide drainage path has been included in the north-west ern block of the Gwandalan Estate.