

Calderwood Urban Development Project

Landscape and Open Space Masterplan (LOSM)

2 March 2010



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Calderwood Urban Development Project

Landscape and Open Space Masterplan

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Executive Summary

i. Purpose of report

This report has been prepared by Environmental Partnership to accompany a Concept Plan Application under Part 3A of the *Environmental Planning & Assessment Act, 1979* (EP&A Act) and a proposal for State significant site listing under Schedule 3 of *State Environmental Planning Policy Major Development 2005* (SEPP Major Development) in relation to the Calderwood Urban Development Project.

ii. Landscape and Open Space Values of the Calderwood site

The Calderwood site described in this report is one of strong individual identity and character. Foremost is the urban development area's:

- visual relationship to adjoining rural areas,
- visual enclosure by Illawarra Escarpment to the north west to south west,
- traversal by creeklines to the north and south,
- penetration by a wooded ridgeline called Johnstons Spur.

Planning, design, and management strategies for open space respond to the physical and cultural values of the Calderwood site and the objectives for open space provision and enhancement developed by Shellharbour Council.

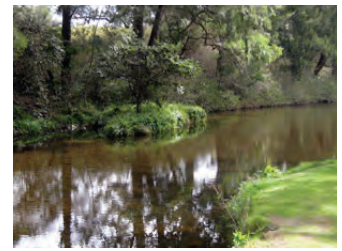
iii. Hierarchy of Open Space

A hierarchy of open space responds to draft Shellharbour Open Space, Recreation and Community Facilities Needs Study 2009 (OSRCFNS) in its open space types, provisions and baseline embellishments. This includes:

- | | |
|------------------------------|---|
| 1. Local Parks | 400m distance from residents at minimum size of 3000m ² |
| 2. District Parks | 800m distance from other district parks at minimum size of 10000m ² |
| 3. Citywide Parks | strategically located responding to unique setting & physical attributes |
| 4. District Sporting Grounds | serve a district catchment for sports activities also incorporating provision for informal recreation |
| 5. Environmental Reserves | manage, conserve and protect natural areas including native bushland |

There are several further elements of the proposed open space hierarchy which have been added to address specific site conditions and opportunities:

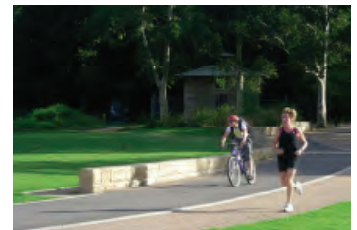
- | | |
|----------------------------|---|
| 6. Open Space Corridors | drainage corridors and adjoining hinterland that in some cases retain existing trees that will provide a variety of characters from bushland to pastoral |
| 7. Asset Protection Zones | setbacks to bushland that may in some cases be formed by an open space buffer to incorporate "fuel managed" vegetation |
| 8. Citywide Bushland Parks | bushland reserves of significance due to their links to Johnston's Spur and escarpment - to be similar to environmental reserves in terms of management and may incorporate pedestrian / cycle linkages |



Natural values



Cultural values



Network connectivity



Multi use facilities



Responsiveness to needs

Above: values to be observed in open space and landscape planning

iv. Open Space Masterplan

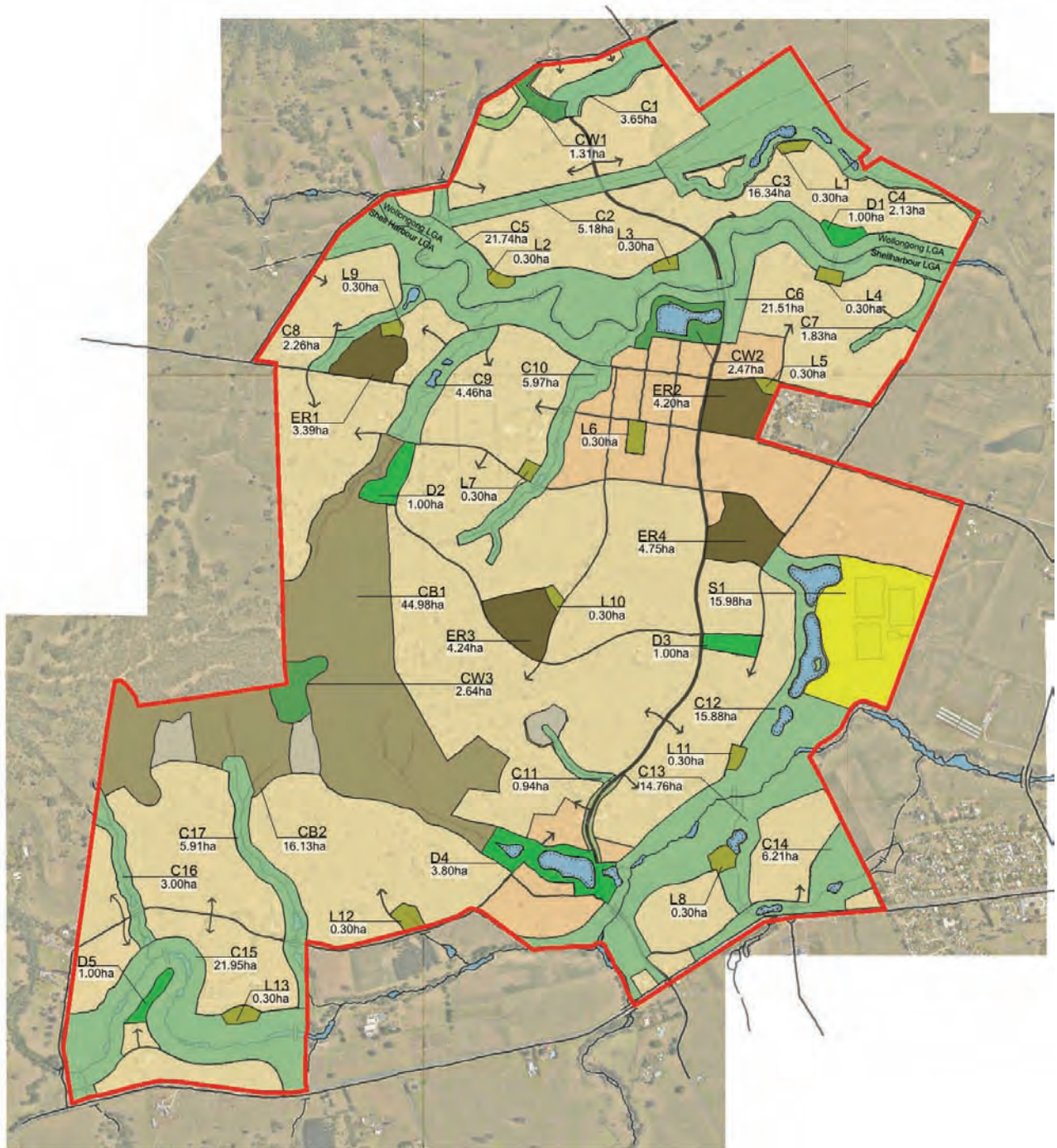
The proposed open space plan (see plan opposite) develops the following principles in locating open space:

1. Local or District Park accessible to each neighbourhood as recreational, civic, and landscape focus.
2. The majority of the residents within walking distance (5-10 minutes) of quality open space.
3. Focal active recreational parkland that provides for clustering of sports facilities and relates to the Town and Village Centre community and educational facilities.
4. Locate parklands to take advantage of existing landscape features where possible.
5. Provide access to recreational and environmental amenity of Johnstons Spur ridge top via corridor path system to complement local open space provision.
6. Integrate parklands where possible with the internal network of open space corridors to enhance continuity of pedestrian / cycle and environmental links.
7. Supplement open space corridor connectivity with off road pedestrian / cycle access to "parkway" style road corridors with tree lined verges.
8. Provide adequate buffer zones between creek lines and the recreational open space where parklands adjoin open space corridors.
9. Balance quantum of open space for residential population against quality of open space settings, experiences, diversity and the range of recreation and lifestyle opportunities available.
10. Optimise the effective use of specific site characteristics and values in provision of open space - that is, the site has high potential to provide quality passive recreational spaces such as to Johnstons Spur - but less potential to provide large scale multi-facility sports fields due to undulating landform and extent of floodplains.
11. Provide a sustainable quantum of open space that does not place undue demand on Council's maintenance resources without tangible benefit for the community.

v. Quantum of Open Space

The figure below summarises the indicative proposed provision of open space within each Local Government Area.

Open Space Provision by LGA						
Item	Shellharbour		Wollongong		Total	
	No.	Area	No.	Area	Area	
Local Parks (> 0.3 ha)	10	3.00 ha	3	0.90 ha	3.90 ha	
District Park (> 1.0 ha)	4	6.80 ha	1	1.00ha	7.80ha	
Citywide Park	2	5.11 ha	1	1.31 ha	6.42 ha	
Sporting Grounds	1	15.98 ha	-	-	15.98 ha	
Paths in open space corridors		3.61 ha		0.82 ha	4.43 ha	
Total		34.50 ha		4.03 ha	38.53 ha	
Total baseline requirement based on 12,400 population		30.00 ha		5.09 ha	35.09 ha	
Including non-VPA open space						
<i>Open Space Corridor</i>	12	104.68 ha	5	49.04	153.72 ha	
<i>Environmental Reserve</i>	4	16.58 ha	-		16.58 ha	
<i>Citywide Bushland</i>	2	61.11 ha	-		61.11 ha	
Total		182.37 ha		49.04 ha	231.41 ha	



Disclaimer: Final locations of sites subject to detailed design

Proposed Open Space - Whole Development

02.03.2010

Key	Code	Type	Parameters	Base Requirement eg. Shellharbour (12,400 total pop'n)	Provision
	L1	Local Parks	0.3ha min 400m radius	4.09ha	3.90ha
	D1	District Parks	1.0ha min 800m radius	6.20ha	7.80ha
	CW1	Citywide Parks	1.0ha min	3.72ha	6.42ha
	S1	Sporting Grounds (Active Recreation)		21.08ha	15.98ha
		Paths in open space corridors (Active Rec - refer access plan)			4.43ha
		Total		35.09ha	38.53ha
	C1	Open Space Corridor		n/a	153.72ha
	ER1	Environmental Reserves		n/a	16.58ha
	CB1	Citywide Bushland		n/a	61.11ha
		Total			231.41ha

vi. Open Space Embellishment

Baseline embellishments

Each of the open spaces will be provided with baseline embellishments to meet the objectives as identified in the Open Space, Recreation and Community Facilities Needs Study. Further to these baseline embellishments an approach to specific provisions is proposed to assist in meeting the specific and ongoing needs of the Wollongong and Shellharbour areas and the Calderwood community.

Sports Complex

The Croom sports facility is located approximately 4km away from the centre of the Calderwood site in Shellharbour Local Government Area. Consideration of this existing facility and the activities catered for is relevant to planning for the Calderwood site. The proposed Open Space masterplan for Calderwood identifies a central “clustered” sports facility of approximately 15-16ha. This facility addresses some key principles identified in Councils OSRCFNS and the draft Elton Community Report prepared in 2009.

These include:

- accessible to the Town Centre and school facilities
- accessible by Collector road system (minimise impact on local residential streets)
- clustered or consolidated space that enables optimisation of sports function and shared use of facilities

Whilst Shellharbour Council is not in a position to define the specific long term sporting uses of this facility it does have identified provision shortfalls in AFL and cricket currently. As such in order to optimise long term flexibility the general dimensions of the proposed open space which may allow for the following:

- up to 3 full size AFL fields which can double as full size cricket fields
- each of the AFL / cricket fields could alternatively cater for 2 rugby league or soccer fields (that is up to 6 fields) subject to future needs
- a playspace
- Picnic and BBQ areas
- recreational paths and trails
- sports amenities including public toilets

Playspaces

Local Parks:

In accordance with Councils requirements fixed play equipment is not provided to Local Parks. However these spaces are proposed to incorporate landscape settings that encourage discovery play such as gently mounded earthforms and level changes. These design features will have regard for the fundamental requirement of ease of maintenance and robust quality finishes.

District Parks, Citywide Parks and Sports Complex

Across all other open space a coordinated and themed balance of playspaces will be provided. These playspaces will combine proprietary play elements with landscape features to provide an integrated play experience that is site specific. The specific play space designs will optimise the physical features of each specific park including views, slope, and existing vegetation.

Adventure play / activities

Councils OSRCFNS and further investigations in the Elton Community Report identify the desirability of catering for Adventure Play in Calderwood. Some key opportunities may include:

Mountain biking: The varied slopes, elevation, and bushland settings across the site in particular through the hilltop Citywide park and Citywide Bushland Park to Johnston's Spur afford opportunities for mountain bike trails to supplement bushwalking and shared (sealed) paths through this area. Tracks would be a gravel finish and would generally require some input from user groups to assist in maintenance

Track networks:	As above the diverse landscape characters across the site create opportunities for a bushwalking / hiking network that links to other access types across the site and provides opportunities for hiking, orienteering etc.
Play landscapes:	Parks provide the opportunity to create through changes in level and simple built elements environments that will encourage active play in a non-structured manner. These elements must be robust and sustainable for ongoing maintenance by Council

Additional open space types

For those open spaces that do not have specific embellishments outlined in the Shellharbour Draft Open Space, Recreation and Community Facilities Needs Study, key works envisaged are listed following.

Corridors

Corridors will vary in character across the site based on existing vegetation cover and level of adjoining earthworks as part of urban development. Key works may include a combination of:

- weed removal;
- revegetation;
- retention of existing pasture grass and isolated trees;
- seeding;
- tree canopy planting;
- pathway,

Asset protection zone

Detailed requirements for widths will vary subject to adjoining landuse, vegetation type and width and slope and vary from 10m (along minor drainage corridors), 25m (along major drainage corridors) and from 35 to 60m along significant stands of remnant bushland. Requirements for APZ management are detailed in the Bushfire Planning Assessment, prepared by Ecological Australia 2009, and vary between Inner Protection Area (IPA) and Outer Protection Area (OPA):

Inner Protection Area (IPA)

- mature canopy trees providing crowns and canopies do not overlap with overall cover not exceeding 15% of areas
- understorey saplings can provide sparse cover suitable for ongoing replacement of canopy
- saplings and shrubs should be limited and not continuous
- minimal ground fuel to less than 4 tonnes / ha

Outer Protection Area (OPA)

- mature canopy trees providing crowns and canopies do not overlap with overall cover not exceeding 30% of areas
- saplings and shrubs should be limited and not continuous
- minimal ground fuel to less than 4 tonnes / ha

Citywide Bushland Parks

Will typically be bushland reserves of district significance due to their links to Johnston's Spur and escarpment. Key works may include a combination of:

- weed removal;
- revegetation;
- pathways

vii. Landscape Presentation and Maintenance

The landscape character of the Calderwood Urban Development Project will need to reflect a range of scenarios of development context, use and relationship to adjoining communities and landscapes. The characters for landscape presentation which reflect these situations include:

- i. bushland
- ii. woodland / rural
- iii. parkland
- iv. open space water
- v. plazas / squares

Each of these characters will require a different level of maintenance and management commitment for the ongoing management authority generally increasing from bushland to plazas / squares

viii. Specific maintenance requirements for natural presentation areas

Each of the areas comprising natural vegetation stands will have varied maintenance requirements for Wollongong and Shellharbour Councils after handover.

Environmental Reserves & Citywide Bushland Parks

General full strata vegetation (canopy, mid and understorey) across area conserved as bushland protection area. Recurrent maintenance will generally involve:

- weed management
- maintenance of path links where considered appropriate to the environmental attributes of the site
- maintenance of any drainage swales through area

Corridors

Varied vegetation cover subject to existing conditions and level of earthworks required for drainage function and adjoining subdivision. Generally where areas have existing vegetation cover and are not to be disturbed this will be retained. As such the existing dominant character of semi cleared "rural creeklines" will be retained to approximately 60-70% of corridor areas.

Maintenance requirements will vary in corridors subject to their character:

Natural character riparian corridors (targeted regeneration and revegetation areas):

- weed management
- maintenance of path links
- maintenance of creek banks

Rural character riparian corridors (pastoral grasslands with pockets of tree planting and native grasses):

- regular slashing of grasslands
- weed management to grasslands
- weed management to fully vegetated areas
- maintenance of path links
- maintenance of creek banks

Asset protection zones

Refer to management requirements outlined in vi.

The process from here

Key steps in moving forward with open space and landscape planning include:

Development of Planning Agreement

The open space masterplan as outlined is proposed to form the basis of ongoing negotiation of open space and embellishment contributions for the Calderwood Urban Development Project through the Planning Agreement process. The arrangements for ownership, management and maintenance for open space will be negotiated with both Wollongong and Shellharbour City Councils as part of this process.

Open Space embellishment

A Public Domain Plan will be developed to accompany stage one Development Applications which will set out in further detail typical materials and finishes strategies to be employed across the Calderwood development.

Landscape development application material will detail concept proposals for specific open spaces as applicable.

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1.0 Introduction

1.1 Background

This report has been prepared by Environmental Partnership to accompany a Concept Plan Application under Part 3A of the Environmental Planning & Assessment Act, 1979 (EP&A Act) and a proposal for State significant site listing under Schedule 3 of State Environmental Planning Policy Major Development 2005 (SEPP Major Development) in relation to the Calderwood Urban Development Project.

The Calderwood Urban Development Project is a master planned community development by Delfin Lend Lease (DLL).

The Calderwood Urban Development Project proposes a mix of residential, employment, retail, education, conservation and open space uses. The development proposes approximately 4,800 dwellings and approximately 50 hectares of retail, education, community and mixed use / employment land. The overall development will accommodate approximately 12,400 people and will deliver an estimated \$2.9 billion in development expenditure and create approximately 8,000 full time equivalent jobs by 2031.

The Calderwood Urban Development Project site is located within the Calderwood Valley in the Illawarra Region. It is approximately 706 hectares in area with approximately 600 hectares of land in the Shellharbour LGA and the balance located within the Wollongong LGA.

The Calderwood Valley is bounded to the north by Marshall Mount Creek (which forms the boundary between the Shellharbour and Wollongong LGAs), to the east by the Macquarie Rivulet, to the south by Johnstons Spur and to the west by the Illawarra Escarpment. Beyond Johnstons Spur to the south is the adjoining Macquarie Rivulet Valley within the suburb of North Macquarie. The Calderwood Urban Development Project land extends south from the Calderwood Valley to the Illawarra Highway. Refer to Location Plan at Figure 1.1.

The Calderwood Valley has long been recognised as a location for future urban development, firstly in the Illawarra Urban and Metropolitan Development Programmes and more recently in the Illawarra Regional Strategy (IRS).

The IRS nominates Calderwood as an alternate release area if demand for additional housing supply arises because of growth beyond projections of the Strategy, or if regional lot supply is lower than expected.

In 2008, the former Growth Centres Commission reviewed the proposed West Dapto Release Area (WDRA) draft planning documents. The GCC concluded that forecast housing land supply in the IRS cannot be delivered as expected due to implementation difficulties with the WDRA, and the significantly lower than anticipated supply of housing land to market in the Illawarra Region is now been recognised as a reality.

The GCC Review of the WDRA also recognised that there is merit in the early release of Calderwood in terms of creating a higher dwelling production rate and meeting State government policy to release as much land to the market as quickly as possible. Given the demonstrated shortfall in land supply in the Illawarra Region and the WDRA implementation difficulties highlighted in the GCC Report, the release of Calderwood for urban development now conforms to its strategic role under the IRS as a source of supply triggered by on-going delays in regional lot supply. The Calderwood Urban Development Project can deliver about 12% of the IRS' new dwelling target.

Changes in outlook arising from global, national and regional factors influencing investment and delivery certainty, housing supply and affordability and employment and economic development also add to the case for immediate commencement of the Calderwood Project.

In April 2008 the Minister for Planning issued terms of reference for the preparation of a Justification Report to address the implications of initiating the rezoning of Calderwood for urban development including associated staging, timing and infrastructure considerations.

In February 2009 the Minister for Planning considered a Preliminary Assessment Report for the Calderwood Urban Development Project that provided justification for the planning, assessment and delivery of the project to occur under Part 3A of the EP&A Act, having regard to the demonstrated contribution that the project will have to achieving State and regional planning objectives.

Subsequently, on the 16 April 2009, pursuant to Clause 6 of SEPP Major Development, the Minister for Planning formed the opinion that the Calderwood Urban Development Project constitutes a Major Project to be assessed and determined under Part 3A of the EP&A Act, and also authorised the submission of a Concept Plan for the site. In doing so, the Minister also formed the opinion that a State significant site (SSS) study be undertaken to determine whether to list the site as a State Significant site in Schedule 3 of SEPP Major Development.

The Part 3A process under the EP&A Act allows for the Calderwood Urban Development Project to be planned, assessed and delivered in an holistic manner, with a uniform set of planning provisions and determination by a single consent authority. Given the scale of the proposal, the Concept Plan and SSS listing provide the opportunity to identify and resolve key issues such as land use and urban form, development staging, infrastructure delivery and environmental management in an integrated and timely manner.

This report has been prepared to fulfil the Environmental Assessment Requirements issued by the Director General for the inclusion of the Calderwood site as a State Significant Site under SEPP Major Development, and for a Concept Plan approval for the development. Specifically, this report addresses the following requirements:

- Undertake a site analysis that identifies the relevant natural and built environmental features
- Details of the proposed landscaping and open space areas
- Linkages with existing and proposed urban development adjoining the site
- Details of open space and community facilities, ongoing maintenance and arrangement for public use, especially as the site is in 2 local government areas

In accordance with the Director General's Requirements this report has been prepared following consultation with the following agencies:

- Shellharbour City Council
- Wollongong City Council

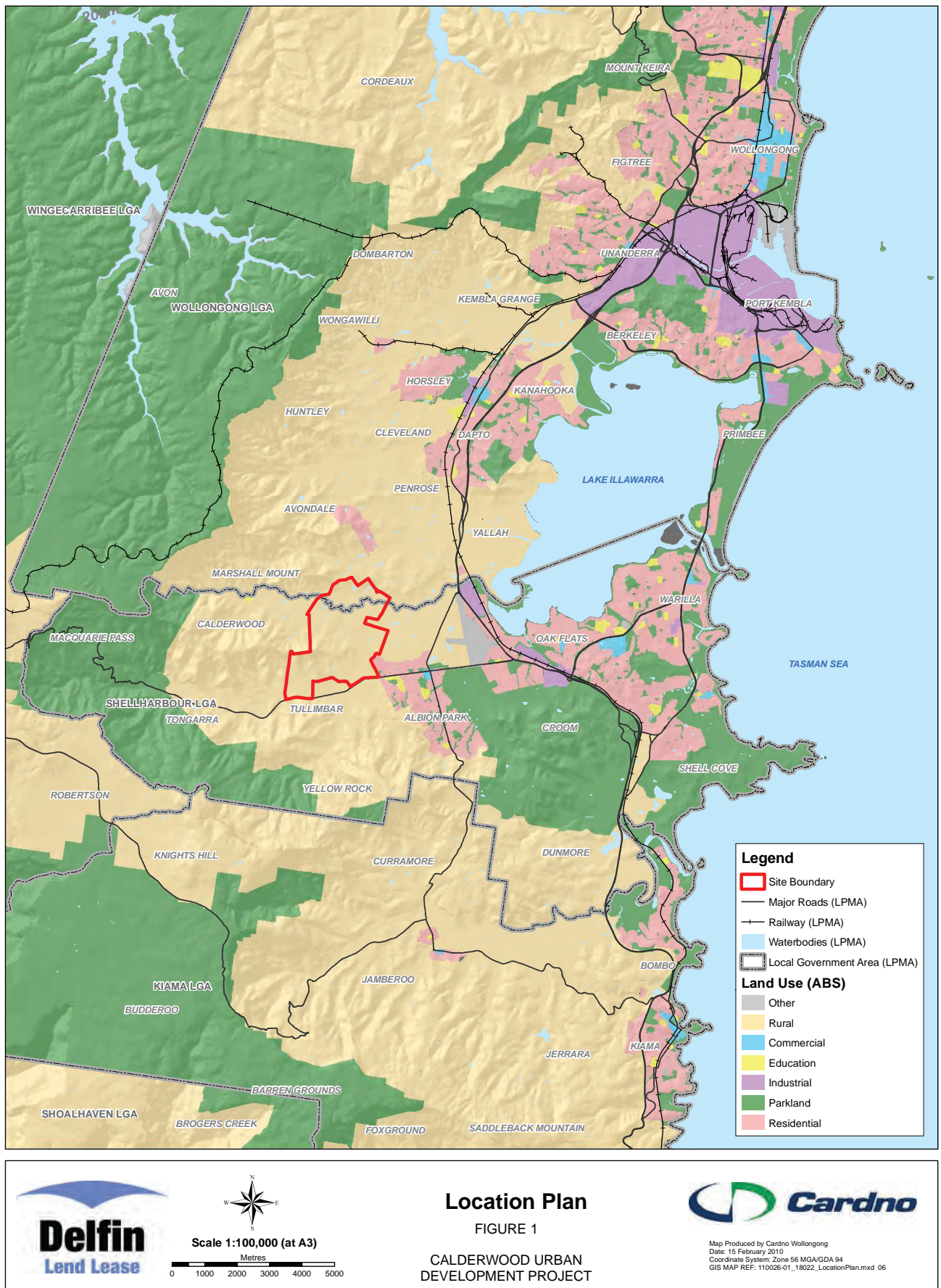


Figure 1.1 Location Plan of Calderwood Urban Development Project

1.2 Structure of the report

Section One – Introduction

Background to the Part 3A process and outline of the structure of the report

Section Two - Site Appraisal

Review of the site's key characteristics that are significance to open space planning.

Section Three - Local Government requirement's

A summary of objectives and principles for open space development.

Section Four– Open Space Strategy

Description of the proposed open space hierarchy which establishes an integrated network of open space, defining a setting and character for the development and which will encourage the new community to seek and enjoy recreation within their locality.

Section Five - Public Domain Character and Presentation

Approach to public domain character and presentation.

2.0 Site Appraisal

The following summary provides a review of the key landscape opportunities and constraints identified in the appraisal of the existing site as part of this report. The outcomes are summarised in relation to diagrams of key landscape features on the following pages:

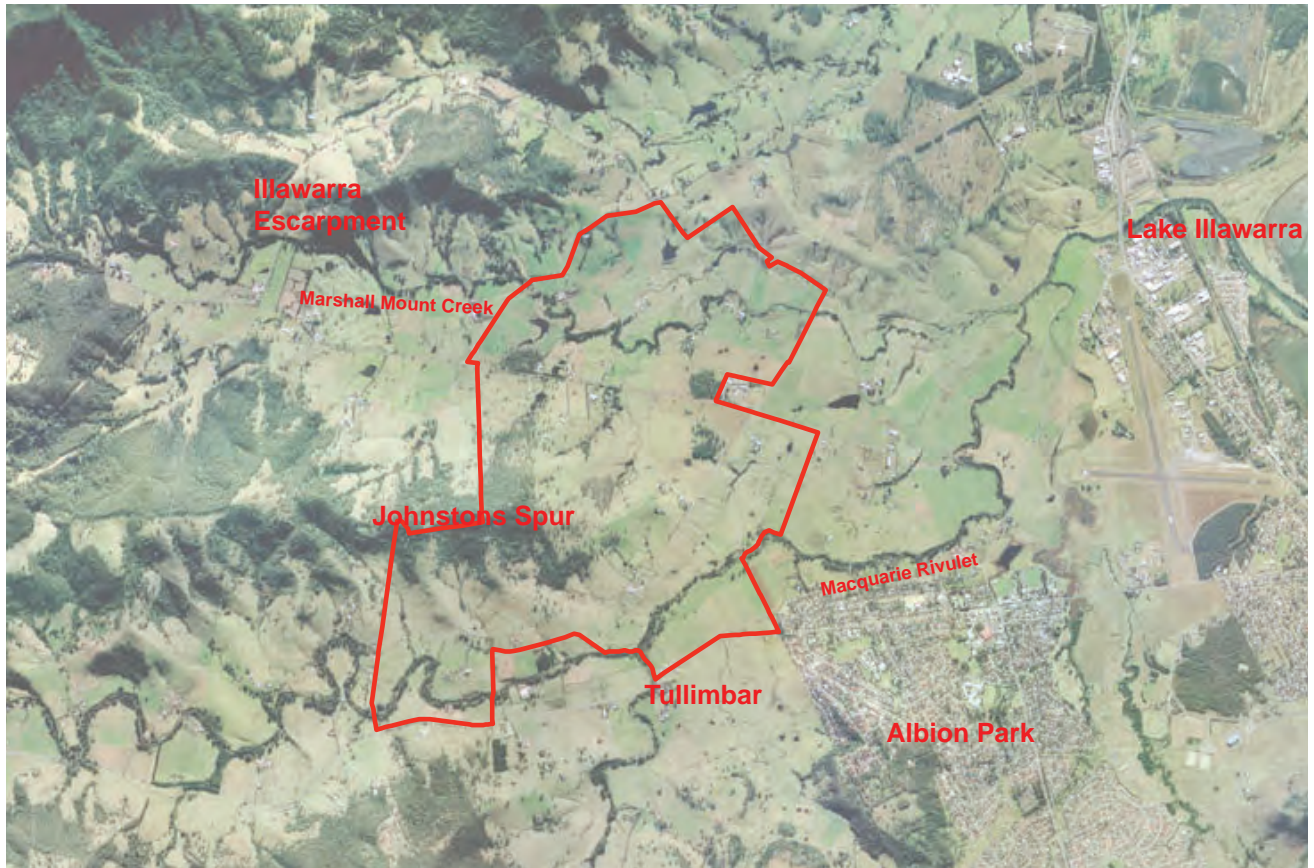


Figure 2.1 Context of Calderwood Development area

2.1 Context

Key points for consideration

- backdrop of wooded ridgelines are key element of character of valley
- the escarpment ridgeline dominates views and landscape character of the valley



Visual and landscape context of the Calderwood Valley



Figure 2.2 Elevation

2.2 Elevation

Key points for consideration

- highest elevations along Johnstons Spur
- these areas will tend to be most visually prominent from a wider range of areas



Views of the Calderwood Valley



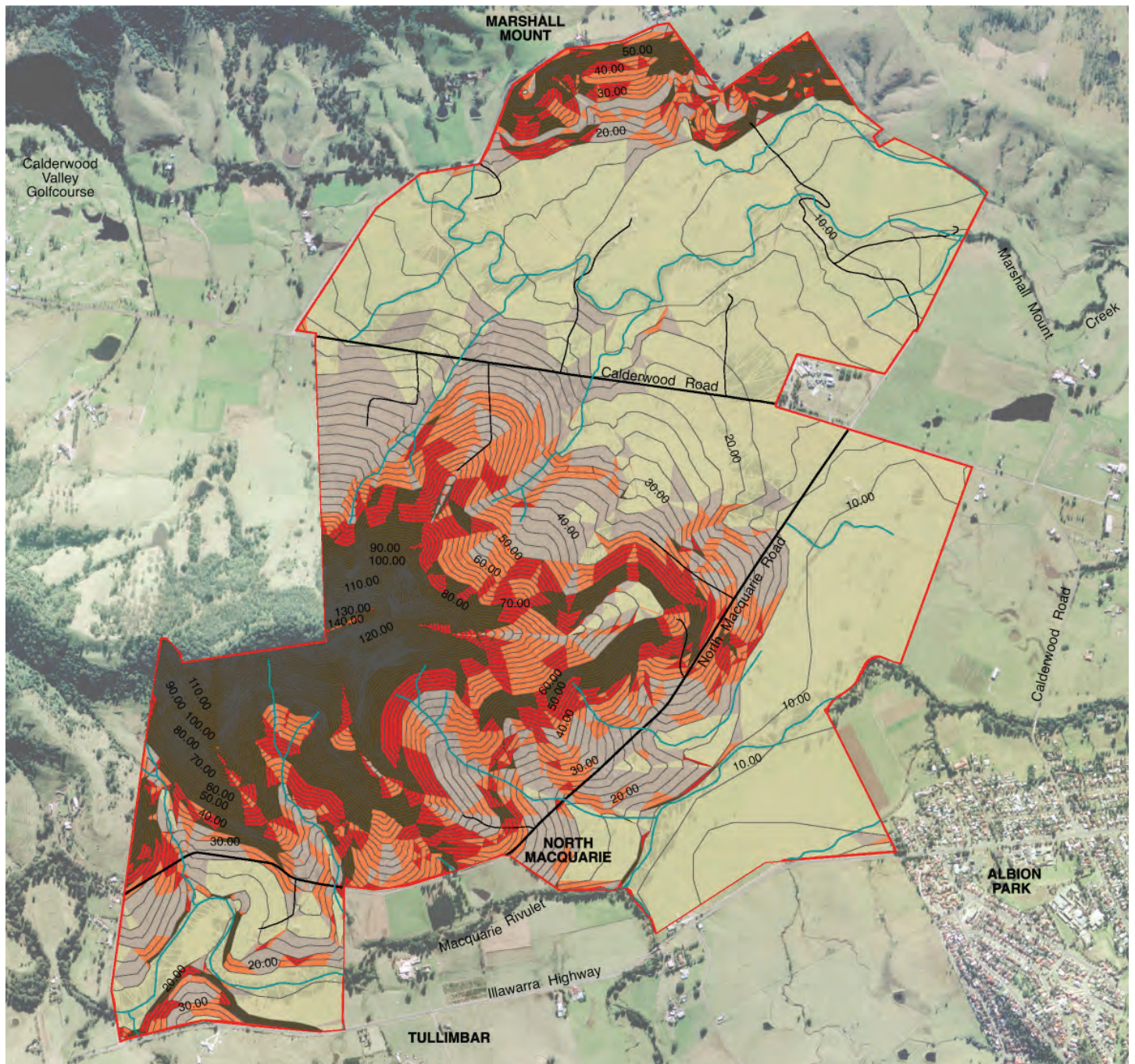


Figure 2.3 Slopes and Drainage

2.3 Slopes and drainage

Key points for consideration

- part of site has undulating topography
- steepest topography and the floodplains of the two creeklines influence the design of the urban development



Drainage in the Calderwood Valley



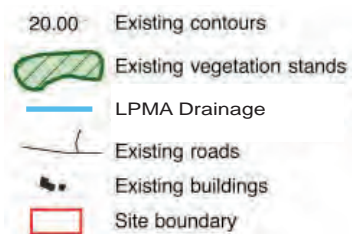


Figure 2.4 Vegetation

2.4 Vegetation

Key points for consideration

- major tree stands occur within Johnstons Spur or as isolated groups
- limited quality of understorey to these areas
- narrow bands of tree canopy to the two creek lines



Vegetation in the Calderwood Valley

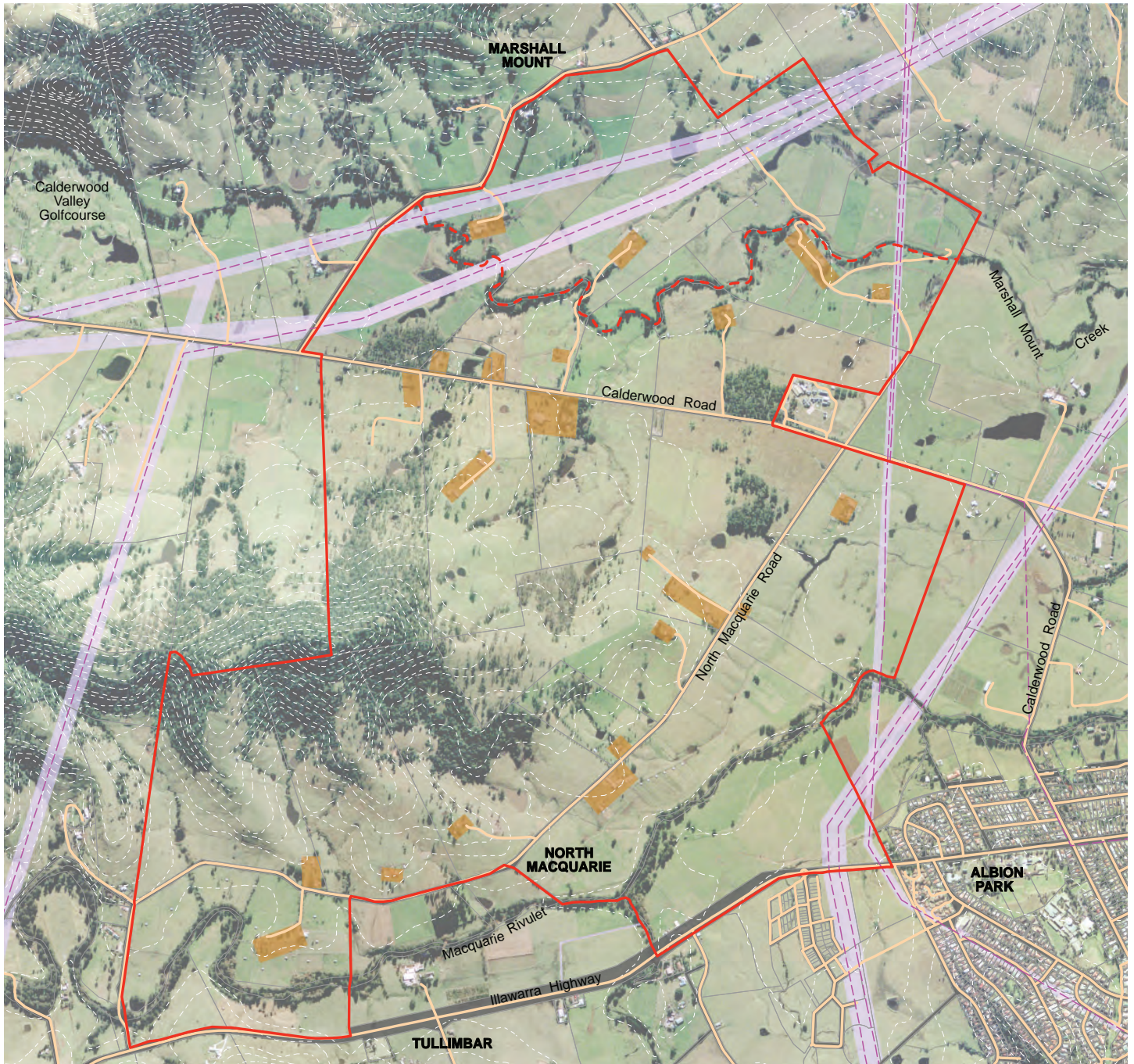


Figure 2.5 Infrastructure and Built Elements

2.5 Infrastructure and built elements

Key points for consideration

- high voltage power easements cross the site - in particular in north

LEGEND	
	Road / reserve
	Powerlines / easement
	Rural building complexes
	Site boundary



Infrastructure within Calderwood Valley





Figure 2.6 Landscape Character

2.6 Landscape character

Key points for consideration

- majority of site is rural in character having been cleared for agriculture and grazing.
- backdrop of wooded ridgelines are key element of character of valley



Rural and natural landscapes in the Calderwood Valley

20.00	Existing contours
	LPMA Drainage
	Existing roads
	Natural landscape
	Rural landscape
	Heritage landscape
	Vegetation stands
	Site boundary

2.7 Summary of landscape and open space values

The Calderwood site described in this report is one of strong individual identity and character. Foremost is the urban development area's:

- visual relationship to adjoining rural areas,
- visual enclosure by the Illawarra Escarpment to the north west to south west,
- traversal by creeklines to the north and south,
- penetration by a wooded ridgeline called Johnstons Spur.

Planning, design, and management strategies should respond to both the physical and cultural values of the Calderwood site.

The following summary values should be addressed in open space planning.

Natural Values

- biodiversity conservation and enhancement
- appropriate conservation of natural vegetation
- water cycle management

Cultural values

- European cultural heritage
- views from higher ground to coast and rural valleys
- visual context of rural valley enclosed by Illawarra Escarpment

Connectivity

- potential for open space corridors serving multiple functions
- potential for off road cycle and pedestrian linkages
- potential access to Johnstons Spur and beyond
- potential for regional connections including to Lake Illawarra and coast

Multi- use facilities

- potential for linkages between local and district facilities
- diversity of open space types that respond to rural and escarpment setting
- practical / functional open space
- adaptability to meet future needs

Responsiveness to needs

- family recreation in a variety of settings
- cater for increased participation in organised sports
- access and fitness trails for informal recreation
- a focus on open space quality and robustness - not just quantity
- adaptability
- sustainability

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3.0 Local Government requirements

3.1 Background

Open Space planning background

Open space and recreation policy development by Local Government is informative in developing an approach to open space provision and arrangement to meet community needs for the Calderwood development. Wollongong Council referred to the most recent planning for West Dapto.

In 2008-09 Shellharbour Council prepared a Draft Open Space and Recreation strategy which at time of writing was awaiting final adoption. Council officers advised that this is imminent and that the document should be considered in open space planning.

General objectives

Parks and recreational spaces:

- provide a balance of natural and structured areas
- provide a range of parks and recreational opportunities
- cater for all sections of the community
- incorporate public art and cater for public events
- provide for social interaction
- consider sustainability and encourage awareness of sustainable practises

Sporting grounds:

- cater for organised recreational pursuits
- consider sustainability and provide awareness of sustainable practises

Review of existing open space:

- reduction of excess
- targeted funding for higher quality open space areas
- whole of life applied to maintenance

Background Design Principles

Safety

- surveillance
- access control
- territorial reinforcement
- space / activity management

Access

- safe and convenient
- locate with shops schools and other facilities (to reduce parking and walking distances)

Spatial distribution

- equitable access to type, location and quality

Sustainability

- respond to environmental values and conditions, community aspirations and economic considerations
- remain viable in the long term.
- In certain locations and as part of an integrated design, open space areas should provide for and assist in the detaining and cleansing of stormwater.

Place Making

- build on special attributes
- provide long term amenity
- connect people with locations
- recognise local indigenous, cultural, and historical attributes

Physical attributes

- fit for purpose related to site conditions

Clustering

- cluster sports facilities to maximise flexibility and reduce wider spread impact
- locate large parks adjoining centres / schools to enable shared use of parking

Integration

- linked pedestrian and cycle access between open space
- vegetation links between open spaces
- links of access and vegetation into regional systems

Variety

- variety of spaces to serve range of roles / and flexibility within individual spaces to meet changing needs

Trends

Broad Trends

- increased active sports participation particularly females
- smaller houses with smaller private space
- increased demand for informal recreation – in particular walking and cycling
- ongoing shifts in specific participation – flexibility required
- increased expectations on local government
- increased pressure for after hours use of facilities
- increased expectation for higher quality facilities

Local Trends

- defined areas of high growth with new spaces to target families with children
- existing areas with aging population where facilities may need to adjust to meet demand for higher quality of facilities
- tendency to under utilise local open space – but increasing with facilities and activities provision

Trends within user groups - Younger children – 0-4 years

- sensory richness
- variety and diversity

Older children – 4-12 years

- provision of linear pathways
- informal tracks and mounds for BMX and active games
- adventure opportunities
- observation places and structures

Teenagers

- similar to 4-12 but allow for places for social interaction eg BMX, courts etc

Adults

- convenient comfortable spaces
- shelter from sun and wind
- quality landscape and facilities
- use of adjoining natural areas and views
- options for fitness
- provision of spaces for larger gatherings

Older people

- convenient and safe access
- consideration of traditional garden / park elements to larger parks
- protected areas for rest and contemplation

People with disabilities

- access to and movement within park

3.2 Principles for open space provision and distribution

The Shellharbour study outlines the following categories of open space and related requirements

i. Local Parks

- available at maximum 400m distance from the majority of residences – may need to be increased in areas of medium density
- generally users walk to park
- minimum of 3000m² (eg 54m x 54m square) and minimum width of 40m (75m long)
- grassed areas less than 1:20 and greater than 1:50
- 50% of park frontage oriented to street
- avoid rear fences onto park

Embellishments

- walk / cycle pathways
- landscape improvements
- informal play areas (no fixed playground equipment)
- signage
- basic seating, bins and tables

ii. District Parks

- available at generally 800m distance from other district parks to provide even distribution
- users walk to park also may drive (on street parking)
- locate in a physically prominent or landmark area
- minimum of 10000m² (eg 100m x 100m square) and minimum width of 50m (200m long) and regular in shape
- at least 2 park frontages adjoin street
- avoid rear fences onto park

Embellishments

- walk / cycle pathways
- high quality landscape improvements
- playground equipment catering to a range of age groups
- signage
- combined seating, bins, tables, barbecues and shade structures
- generally lighting of key paths

iii. Citywide Parks

- strategically located park responding to its unique setting & physical attributes providing a regionally significant resource
- centre piece of park system – location to be accessible and linked to open space corridors
- distributed based on opportunity, need, and setting requirements
- users walk to park and also may drive if appropriate
- provide access by major road to avoid impacts on local residents
- locate in a physically prominent or landmark area
- assumed larger than 10000m² (eg 100m x 100m square) and minimum width of 50m (200m long) and regular in shape
- at least 2 park frontages adjoin street
- avoid rear fences onto park

Embellishments

- develop to a level consistent with user expectations

iv. Icon Parks

- parks that have a special purpose or place within the community
- can be within any level of hierarchy
- may receive higher levels of design and finishes

v. District Sporting Grounds

- used by a number of teams on a regular basis
- provide access by major road to avoid impacts on local residents
- serve a district catchment
- located to meet requirements of LGA – in new areas locate to avoid local roads and frontage to residences
- users generally drive – provide parking, at minimum one complete frontage to adjoining street

Embellishments

- vehicular access and parking
- sporting grounds and facilities to appropriate standard for sports
- amenities building including referee room, change rooms, toilets, equipment storage and canteen facilities
- training facilities as applicable (eg cricket nets)
- playing field lighting to appropriate standard

vi. Citywide Sporting Grounds

- clustered together and located away from residential areas
- used by senior teams
- cater for sports at high level
- located to meet requirements of LGA

Other Open Space

Open space areas are likely to be required or already exist within an integrated system which cannot be included in the above park and sporting ground hierarchy. These areas are typically smaller environmental areas, minor landscape improvements or service easements.

i. Environmental Reserves

- public open space not specifically embellished and managed as parkland or sports grounds and which may include natural areas or areas that provide an informal landscape setting to adjacent urban development
- manage, conserve and protect natural areas including native bushland and foreshore reserves
- generally not counted towards the provision of public open space as they may not provide any recreational values.

ii. Ancillary Reserves (Open Space Corridors)

- residual public open spaces which include drainage and service easements, local infrastructure sites, various buffer areas such as bushfire asset protection zones (APZ) and similar setbacks for maintenance purposes, road side landscaping and other areas that do not have any specific recreational uses nor defined provision standards.
- generally not counted towards the provision of public open space as they may not provide any recreational values.

3.3 Open space baseline requirements

The Shellharbour City Council 2009 Draft Open Space and Recreation Plan plan identifies the following baseline requirements for each category of open space based on projected populations (refer Figure 2.1 below). Wollongong Council noted that planning for the West Dapto Release area incorporated a provision of **2.83 ha / 1000** population minimum. No more specific breakup within park types was provided.

Baseline Open Space Provision								
No	Component	Projected Development Population		Base requirement /1000		Baseline Open Space Provision		Total
		Shell	Woll	Shell	Woll	Shell	Woll	
1	Local Parks	10,600	1,800	0.33 ha		3.50 ha	0.59 ha	4.09 ha
2	District Parks	10,600	1,800	0.5 ha		5.30 ha	0.90 ha	6.20 ha
3	Citywide parks	10,600	1,800	0.3ha		3.18 ha	0.54 ha	3.72 ha
4	Sports grounds	10,600	1,800	1.7ha		18.02 ha	3.06 ha	21.08 ha
	Total	10,600	1,800	2.83	2.83	30.00 ha	5.09 ha	35.09 ha

Figure 3.1 Baseline Open Space Provision

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4.0 Open Space Strategy

4.1 Open space and landscape vision

Vision

The open space and landscape network shapes an identity and character responsive to the rural valley and escarpment setting and integrating a liveable, robust network of parks, reserves, open space corridors, and streetscapes.

Open spaces and landscape celebrate the special qualities of a diversity of landform and views, providing continuity connectivity through a combination of blue (creek / water) and green (bushland) links that optimise the communities mobility and interaction.

Open space and landscape objectives for Calderwood site

Objectives identified by the urban design team to be addressed in the open space plan include:

Recognition of natural values

- retention of significant landscape features and landforms (including appropriate and integrated conservation of natural canopy and understorey for flora and fauna protection and biodiversity enhancement)
- optimisation of topography and elevation to add variety to open space
- optimisation of role and benefit of open space to environmental management (eg. water, soils, salinity management)

Recognition of Cultural Values

- recognise rural heritage in character and identity of new community
- interpretation of cultural heritage values to enhance community experiences
- open space system to assist in development of sustainable and vibrant community

Network Connectivity

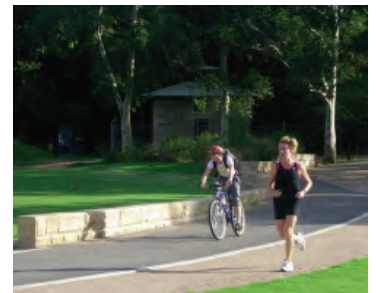
- serving a practical user catchment (ie within walking distance)
- high level of accessibility through open space and road system
- linked to broader regional network of open space and access

Responsiveness to Needs

- well sited and integrated open space network
- cater for family use (playgrounds, kickabout, shaded seating, some parking)
- cater for personal fitness (walking, cycling, jogging, exercise)
- potential to cater for new active trends (skate uses, adventure playgrounds)
- community gathering spaces
- flexibility and adaptability in planning to cater for changing community needs
- provide safe and secure recreation environment

Multi-use Facilities

- provide a balanced and usable range of recreational facilities and amenity
- combination of open space types to provide opportunity for a variety of facilities
- be of practical dimensions to achieve the recreational / landscape role intended
- open space / recreation linked to other community facilities

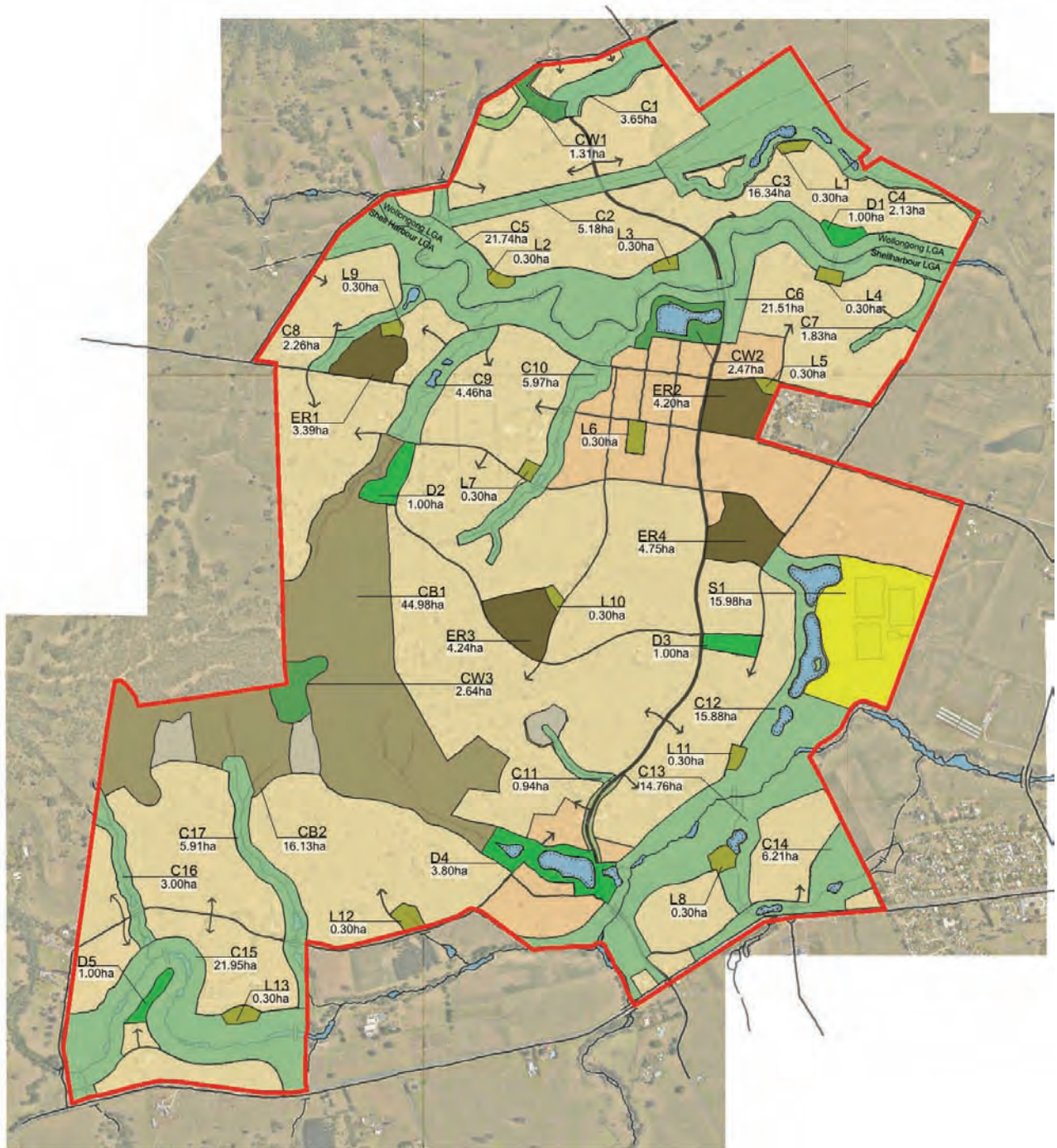


4.2 Open space masterplan

The proposed open space plan develops the following principles in locating open space:

1. Local or District Park accessible to each neighbourhood as recreational, civic, and landscape focus
2. The majority of the residents within walking distance (5-10 minutes) of quality open space
3. Focal active recreational parkland that provides for clustering of sports facilities and relates to the Town and Village Centre community and educational facilities.
4. Locate parklands to take advantage of existing landscape features where possible
5. Provide access to recreational and environmental amenity of Johnstons Spur ridge top via corridor path system to complement local open space provision
6. Integrate parklands where possible with the internal network of open space corridors to enhance continuity of pedestrian / cycle and environmental links
7. Supplement open space corridor connectivity with off road pedestrian / cycle access to "parkway" style road corridors with tree lined verges
8. Provide adequate buffer zones between creek lines and the recreational open space where parklands adjoin open space corridors
9. Balance quantum of open space for residential population against quality of open space settings, experiences, diversity and the range of recreation and lifestyle opportunities available
10. Optimise the effective use of specific site characteristics and values in provision of open space - that is, the site has high potential to provide quality passive recreational spaces such as to Johnstons Spur - but less potential to provide large scale multi-facility sports fields due to undulating landform and extent of floodplains
11. Provide a sustainable quantum of open space that does not place undue demand on Council's maintenance resources without tangible benefit for the community

Figure 4.1 opposite describes the accessibility of indicative locations of open space



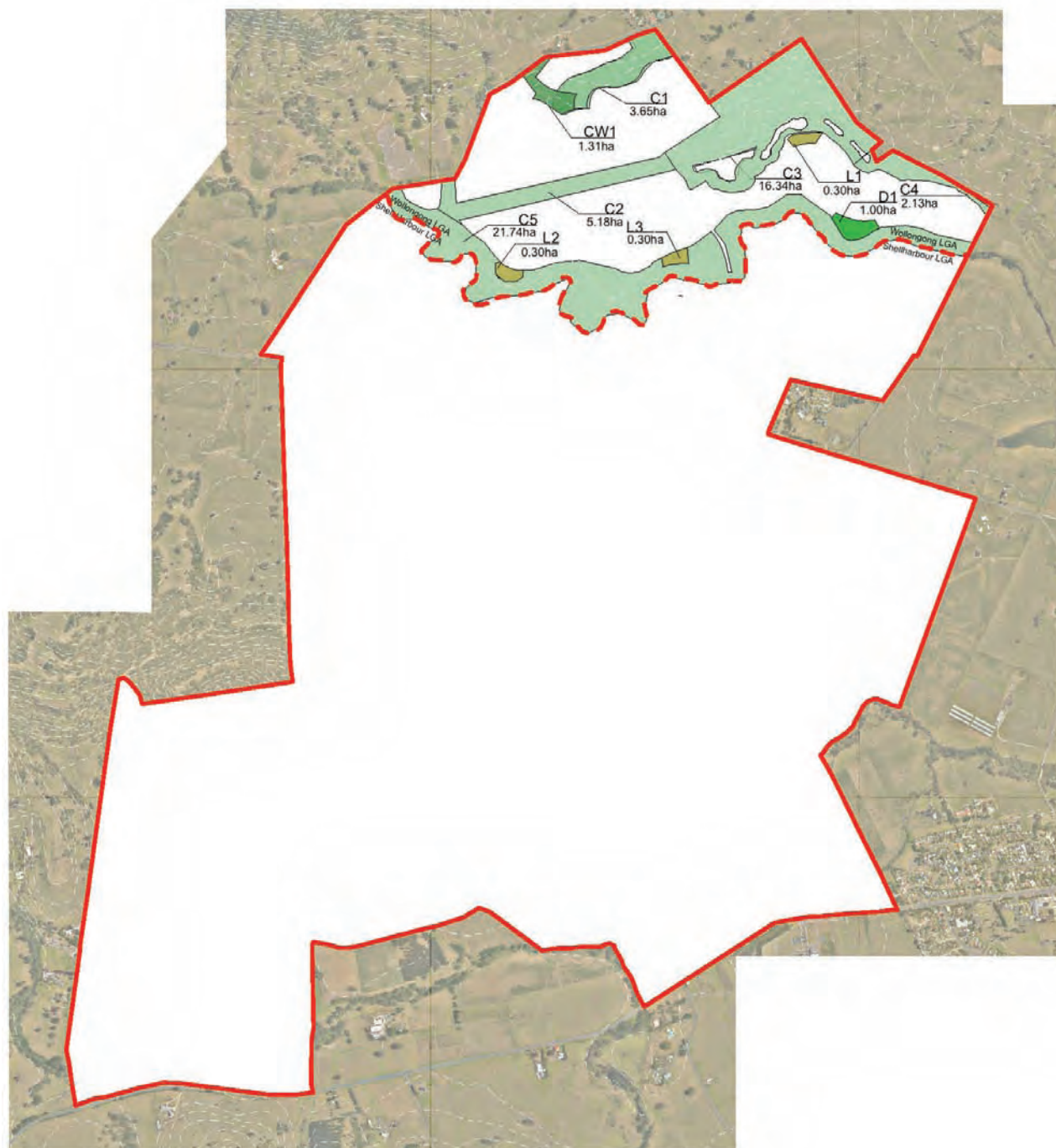
Disclaimer: Final locations of sites subject to detailed design

Proposed Open Space - Whole Development

02.03.2010

Key	Code	Type	Parameters	Base Requirement eg. Shellharbour (12,400 total pop'n)	Provision
	L1	Local Parks	0.3ha min 400m radius	4.09ha	3.90ha
	D1	District Parks	1.0ha min 800m radius	6.20ha	7.80ha
	CW1	Citywide Parks	1.0ha min	3.72ha	6.42ha
	S1	Sporting Grounds (Active Recreation)		21.08ha	15.98ha
		Paths in open space corridors (Active Rec - refer access plan)			4.43ha
		Total		35.09ha	38.53ha
	C1	Open Space Corridor		n/a	153.72ha
	ER1	Environmental Reserves		n/a	16.58ha
	CB1	Citywide Bushland		n/a	61.11ha
		Total			231.41ha

Figure 4.1 Open Space Masterplan - Calderwood development

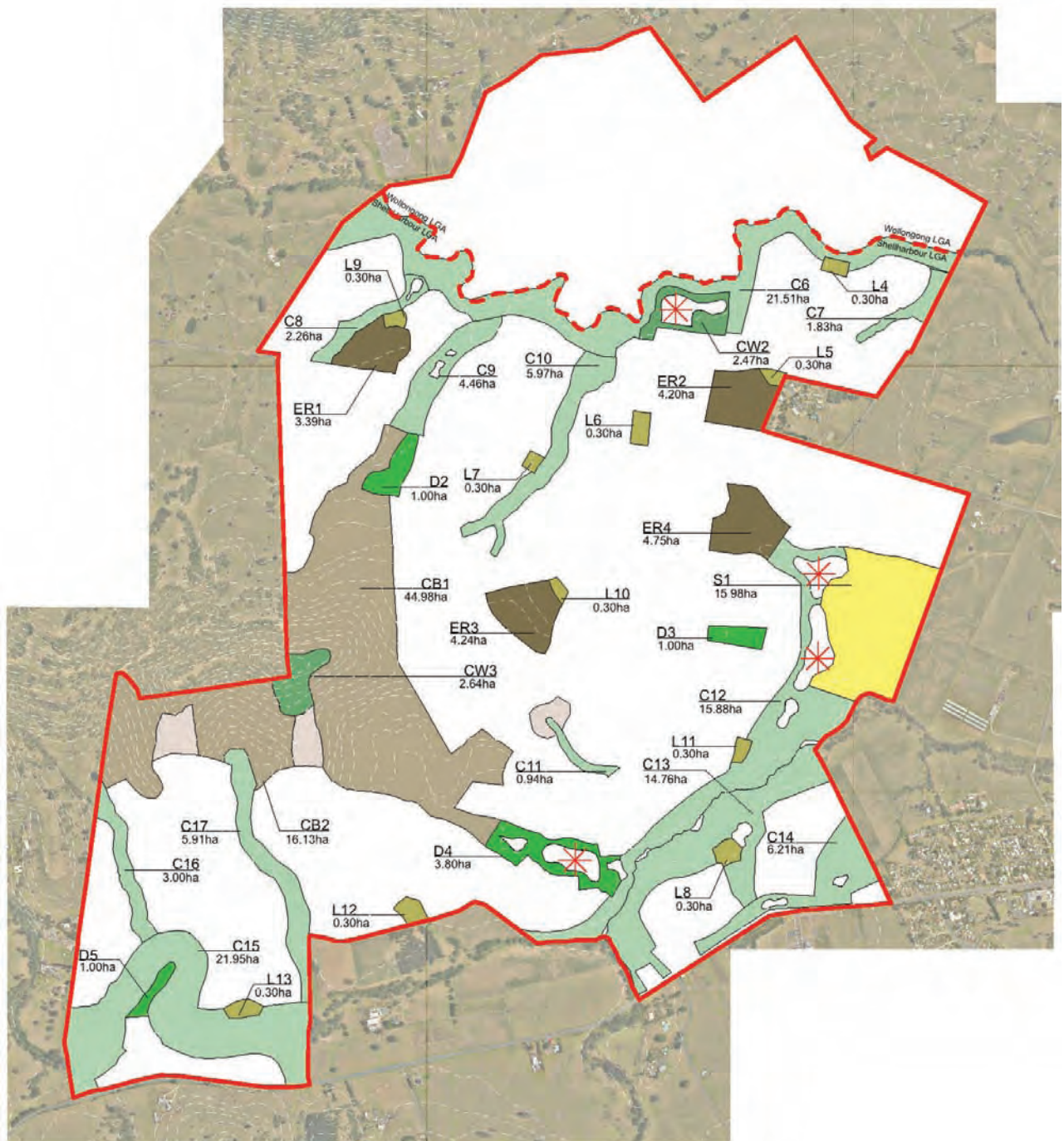


Proposed Open Space - Wollongong City Council

26.02.2010

Key	Code	Type	Parameters	Provision
	L1	Local Parks	0.3ha min 400m radius	0.90ha
	D1	District Parks	1.0ha min 800m radius	1.00ha
	CW1	Citywide Parks	1.0ha min	1.31ha
	S1	Sporting Grounds (Active Recreation)		0.00ha
		Paths in open space corridors (Active Rec - refer access plan)		0.82ha
		Total		4.03ha
	C1	Open Space Corridor		49.04ha
	ER1	Environmental Reserves		0.00ha
	CB1	Citywide Bushland		0.00ha
		Water Management/Basins		

Figure 4.2 Open Space Masterplan - Wollongong LGA



Proposed Open Space - Shellharbour City Council

26.02.2010

Key	Code	Type	Parameters	Provision
	L1	Local Parks	0.3ha min 400m radius	3.00ha
	D1	District Parks	1.0ha min 800m radius	6.80ha
	CW1	Citywide Parks	1.0ha min	5.11ha
	S1	Sporting Grounds (Active Recreation)		15.98ha
		Paths in open space corridors (Active Rec - refer access plan)		3.61ha
		Total		34.50ha
	C1	Open Space Corridor		104.68ha
	ER1	Environmental Reserves		16.58ha
	CB1	Citywide Bushland		61.11ha
		Water Management/Basins		

Figure 4.3 Open Space Masterplan - Shellharbour LGA

4.3 Quantum of open space

Figure 4.4 summarises the indicative proposed provision of open space within each Local Government Area.

Open Space Provision by LGA						
Item	Shellharbour		Wollongong		Total	
	No.	Area	No.	Area	Area	
Local Parks (> 0.3 ha)	10	3.00 ha	3	0.90 ha	3.90 ha	
District Park (> 1.0 ha)	4	6.80 ha	1	1.00ha	7.80ha	
Citywide Park	2	5.11 ha	1	1.31 ha	6.42 ha	
Sporting Grounds	1	15.98 ha	-	-	15.98 ha	
Paths in open space corridors		3.61 ha		0.82 ha	4.43 ha	
Total		34.50 ha		4.03 ha	38.53 ha	
Total baseline requirement based on 12,400 population		30.00 ha		5.09 ha	35.09 ha	
Including non-VPA open space						
<i>Open Space Corridor</i>	12	104.68 ha	5	49.04	153.72 ha	
<i>Environmental Reserve</i>	4	16.58 ha	-		16.58 ha	
<i>Citywide Bushland</i>	2	61.11 ha	-		61.11 ha	
Total		182.37 ha		49.04 ha	231.41 ha	

Figure 4.4 Proposed Open Space Provision by LGA

4.4 Distribution of open space

General principles for location of each open space can be identified. These are outlined following against the park numbers listed on Figure 4.1. Further investigation in the detail design stage will verify the exact boundary and locations of the individual parks.

Locational Principles - Local Parks

Local Park (L1)

Located to serve the eastern neighbourhood within Wollongong LGA adjoining the large boundary corridor zone.

Local Park (L2)

Located to serve the south western neighbourhood within Wollongong LGA at the edge of the Marshall Mount Creek corridor and adjoining the pedestrian / cycle access network along Marshall Mount Creek.

Local Park (L3)

Located to serve the central western neighbourhood within Wollongong LGA at the edge of the Marshall Mount Creek corridor and adjoining the pedestrian / cycle access network along Marshall Mount Creek and with strong links to the Village Centre to the south.

Local Park (L4)

Located within Shellharbour LGA at the edge of the Marshall Mount Creek corridor. Serving the neighbourhood directly to the south and linking to the related pedestrian / cycle access network along Marshall Mount Creek, and the north south corridor linking to Johnstons Spur.

Local Park (L5)

Located within Shellharbour LGA adjoining a proposed environmental reserve and existing school. Serving the neighbourhood directly to the north

Local Park (L6)

Located within Shellharbour LGA surrounding the existing Marshall Mount Methodist Cemetery which is to be conserved. The open space will provide a sympathetic curtilage to the cemetery whilst providing urban open space within the village centre.

Local Park (L7)

Located within Shellharbour LGA serving the neighbourhood in the central west of the development. The park adjoins the north south corridor linking to the access network along Marshall Mount Creek to the north.

Local Park (L8)

Located within Shellharbour LGA serving the south eastern part of the development. The park located within open space corridor with strong connections to the Macquarie Rivulet.

Local Park (L9)

Located within Shellharbour LGA serving neighbourhoods in the north west of the development. The park lies at the edge of a nodal grouping of existing trees that will be conserved as Environmental Reserve. The park also links to the corridor linking to Johnstons Spur to the west and to the access network along Marshall Mount Creek.



Typical appearance of Local Parks

Local Park (L10)

Located within Shellharbour LGA serving neighbourhoods in the centre of the development. The park lies at the edge of a nodal grouping of existing trees that will be conserved as Environmental Reserve.

Local Park (L11)

Located within Shellharbour LGA adjoining the Macquarie Rivulet corridor and related access system and linking directly to the proposed main sports complex (S1).

Local Park (L12)

Located within Shellharbour LGA serving the neighbourhood to the north and related to the headwaters of a minor creekline flowing off site to the south and linking to Macquarie Rivulet.

Local Park (L13)

Located within Shellharbour LGA within a corridor link between Johnstons Spur and Macquarie Rivulet. The park serves the neighbourhood to the north.

Locational Principles - District Parks

District Park (D1)

Located to serve the eastern neighbourhoods within Wollongong LGA. The park adjoins the Marshall Mount Creek corridor and provides local and district park roles. The park links to the pedestrian / cycle access network along Marshall Mount Creek.

District Park (D2)

Located to serve the central western neighbourhoods within Shellharbour LGA and take advantage of views to the east. The park lies within the main east corridor linking Johnstons Spur to Macquarie Rivulet. The park links to the pedestrian / cycle access network on Johnstons Spur and along Macquarie Rivulet.

District Park (D3)

Located to serve the central eastern neighbourhoods within Shellharbour LGA to the north of Macquarie Rivulet providing local and district park roles. The park lies adjacent to a wetland system and the proposed main sports complex. Links to the pedestrian/ cycle access network along Macquarie Rivulet.

District Park (D4)

Located to serve the south central neighbourhoods within Shellharbour LGA to the north of Macquarie Rivulet. The park lies adjoining the Macquarie Rivulet corridor and links to its pedestrian / cycle access network and to a north south corridor linking to Johnstons Spur.

District Park (D5)

Located to serve the south western neighbourhoods within Shellharbour LGA to the south side of the Macquarie Rivulet corridor. The park lies adjoining the Macquarie Rivulet corridor and links to its pedestrian / cycle access network and to a north south corridor linking to Johnstons Spur.



Typical appearance of District Parks

Locational Principles - Citywide Parks

Citywide Park (CW1)

Located to serve the central neighbourhoods within Wollongong LGA in addition to responding to the opportunity of an elevated park setting with heritage interpretive opportunities. The park acts as curtilage to Marshall Mount House potentially providing a broad range of roles from local to regional, and links via a short corridor to the parkway road access corridor that traverses the site north south.



Citywide Park (CW2)

Located adjoining the Marshall Mount Creek corridor and the proposed Village Centre in Shellharbour LGA. The park is proposed to flank a permanent lake water body which will be a focal part of the village centre. The park has potential to cater for community events and gatherings.



Typical appearance of City wide parks

Citywide Park (CW3)

The proposed Citywide Park to the southern flanks Johnstons Spur in Shellharbour LGA is proposed to take advantage of the panoramic views of the valley landscape to the south and south east. The park is located in primarily existing cleared areas and would provide a district recreational destination. Path corridors linking to the spur from the north will also afford access to views to the east and coastline areas.

Citywide Bushland Park (CB1)

The proposed Citywide Bushland Park encompasses the eastern zone of Johnstons Spur in Shellharbour LGA is proposed to take advantage of the panoramic views of the valley landscape to the south and south east. Path corridors linking to the spur from the north will also afford access to views to the east and coastline areas.



Citywide Bushland Park (CB2)

The proposed Citywide Bushland Park encompasses the western zone of Johnstons Spur in Shellharbour LGA is proposed to take advantage of local views to the rural valley landscape to the south. Path corridors linking to the spur from the north will also afford access to views to the east and coastline areas.



Locational Principles - Sports Fields

Main Sports Complex (S1)

The proposed main Sports Complex is located in flatter lower lying areas to the north of Macquarie Rivulet in Shellharbour LGA. Water harvesting from adjoining wetlands offers potential for irrigation. The site has a close relationship to the village centre and educational facilities whilst being accessible of the main north south collector road - minimising impacts on residential areas of traffic. The site is linked to access networks along Macquarie Rivulet and parkway roads.



Typical appearance of Sports fields

Locational Principles - Open Space Corridors

Open space corridors primarily relate to site drainage lines formalised during the sites previous use to which native vegetation has either been retained or improved. In addition to access and habitat conservation the corridors provide a key role in the proposed water cycle management strategy for the site.

The overall width of the open space corridors will generally be greater than 30m. A minimum of 10 metres of vegetation buffer will be provided beyond the top of embankment to both sides of drainage channels. In most cases proposed open space (Local and District parks) is provided adjoining the open space corridor, but this will be located beyond the buffer zone.

The majority of the corridors provide potential for provision of off road cycle / pedestrian linkages, of which the path surface is included in complying open space.

Detail of the corridor description, function and proposed works are identified in the Riparian Corridor Study.

Corridor (C1)

Corridor flanking the main northern development entry in Wollongong LGA.

Corridor (C2)

Corridor for high voltage cables and supplementary drainage role along existing channel in the east.

Corridor (C3)

Accommodating high voltage cables as they move eastwards and consolidating drainage function and vegetation rehabilitation and an area of steep topography.

Corridor (C4)

Drainage lines and buffer zone in steeper topography on the sites northern boundary.

Corridor (C5)

The western section of Marshall Mount Creek corridor integrating drainage and vegetation habitat roles in addition to adjoining open space linking to overall access system.

Corridor (C6)

The eastern section of Marshall Mount Creek corridor integrating drainage and vegetation habitat roles in addition to adjoining open space linking to overall access system.

Corridor (C7)

Short drainage corridor linking to the Marshall Mount Creek corridor integrating drainage and vegetation habitat roles in addition to linking to overall access system.



Open Space Corridors are proposed to screen existing drainage lines which alter potential for habitat enhancement.

Corridor (C8)

Drainage and vegetation link generally along existing channel from Johnstons Spur north to Marshall Mount Creek. Incorporates access link to spur with east west pedestrian / cycle links along parkway roads, and adjoins proposed environmental reserve to existing tree stand.

Corridor (C9)

Major north south drainage corridor linking Johnstons Spur to Marshall Mount Creek. Incorporates access link to spur with east west pedestrian / cycle links along parkway roads.

Corridor (C10)

North south drainage corridor from the centre of the site to Marshall Mount Creek. Incorporates access links to east west pedestrian / cycle links along parkway roads and to the Marshall Mount Creek corridor.

Corridor (C11)

Minor drainage and vegetation link generally along existing channel.

Corridor (C12)

Drainage arm linking to Macquarie Rivulet. Incorporates proposed wetland system and major sports open space to one of the lowest lying zones of site.

Corridor (C13)

The eastern section of Marshall Mount Creek corridor integrating drainage and vegetation habitat roles in addition to adjoining open space linking to overall access system.

Corridor (C14)

Secondary drainage link to Marshall Mount Creek corridor.

Corridor (C15)

The western section of Marshall Mount Creek corridor integrating drainage and vegetation habitat roles in addition to adjoining open space linking to overall access system.

Corridor (C16)

Drainage and vegetation link generally along existing channel from Johnstons Spur linking to Macquarie Rivulet.

Corridor (C17)

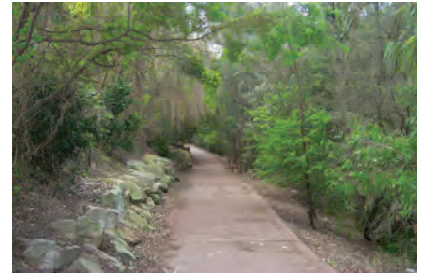
Drainage and vegetation link generally along existing channel from Johnstons Spur linking to Macquarie Rivulet. Provides open space access function although will be steeply graded in places.



Typical appearance of Environmental Reserves

Locational Principles - Environmental Reserves

The Shellharbour Open Space and Recreation Plan 2009 identifies Environmental Reserves as public open space not specifically embellished and managed as parkland or sports grounds and which may include natural areas or areas that provide an informal landscape setting to adjacent urban development. There are several areas identified for the site which primarily relate to nodes identified as being of Primary Conservation Significance in the Ecological Australia Flora and Fauna Assessment 2009.



Environmental Reserve (ER1)

Incorporating a remnant stand of Lowland Woollybutt Melaleuca Forest and linking to the Marshall Mount Creek corridor. Proposed to adjoin an access corridor link to the Marshall Mount Creek corridor.

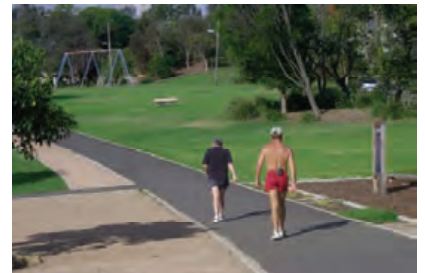


Environmental Reserve (ER2)

Incorporating a remnant stand of Lowland Woollybutt Melaleuca Forest to be conserved as a nodal "stepping stone" habitat adjoining the existing school site.

Environmental Reserve (ER3)

Incorporating a remnant stand of Coastal Grassy Red Gum Forest to be conserved as a nodal "stepping stone" habitat. Proposed to incorporate an area of Local Park to the north eastern side.



Environmental Reserve (ER4)

Incorporating a remnant stand of Lowland Woollybutt Melaleuca Forest and potentially linking to the Macquarie Rivulet corridor. Proposed to incorporate an area of District Park to the northern side.

The access network will pass through the open space corridor areas and key road corridors to link the open space system

Bush Fire Asset Protection Zone (APZ)

Detailed requirements for widths will vary subject to adjoining landuse, vegetation type and width and slope and vary from 10m (along minor drainage corridors), 25m (along major drainage corridors) and from 35 to 60m along significant stands of remnant bushland.

The zone plays a potential open space role in a number of ways:

- for consolidation with open space within the urban development to supplement open space quality; and
- for provision of additional off road cycle and pedestrian linkages.

4.6 Embellishment of open space

Baseline embellishments

Each of the open spaces will be provided with baseline embellishments to meet the objectives as identified in the OSRCFNS. Further to these baseline embellishments an approach to specific provisions is proposed to assist in meeting the specific and ongoing needs of the Wollongong and Shellharbour areas and the future Calderwood community. These are explained following:

Sports Complex

The Croom sports facility is located approximately 4km away from the centre of the Calderwood site. This existing facility includes the following:

- regional BMX circuit
- grassed athletics field (with central football field - which we understand is infrequently used)
- 1 x AFL / Cricket field
- 1 main Rugby League field
- 3 training / junior Rugby League fields
- 2-3 mini fields for Rugby League
- 2 synthetic Hockey fields (1 sand based / 1 water based)
- 6 grassed netball courts
- Indoor Centre (basketball / netball)
- 3 full size soccer fields
- Equestrian Area (Pony Club)

Consideration of this existing facility and the activities catered for is relevant to planning for the Calderwood site. The proposed Open Space masterplan for Calderwood identifies a central "clustered" sports facility of approximately 15-16ha. This facility addresses some key principles identified in Councils OSRCFNS and the draft Elton Community Report prepared in 2009.

These include:

- accessible to the Town Centre and school facilities
- accessible by Collector road system (minimise impact on local residential streets)
- clustered or consolidated space that enables optimisation of sports function and shared use of facilities

Whilst Council is not in a position to define the specific long term sporting uses of this facility it does have identified provision shortfalls in AFL and cricket currently. As such in order to optimise long term flexibility the general dimensions of the proposed open space which may allow for the following:

- up to 3 full size AFL fields which can double as full size cricket fields
- each of the AFL / cricket fields could alternatively cater for 2 rugby league or soccer fields (that is up to 6 fields) subject to future needs
- a playspace
- Picnic and BBQ areas
- recreational paths and trails
- sports amenities including public toilets

Playspaces

Local Parks:

In accordance with Councils requirements fixed play equipment is not provided to Local Parks. However these spaces are proposed to incorporate landscape settings that encourage discovery play such as gently mounded earthforms and level changes. These design features will have regard for the fundamental requirement of ease of maintenance and robust quality finishes.

District Parks, Citywide Parks and Sports Complex

Across all other open space a coordinated and themed balance of playspaces will be provided. These playspaces will combine proprietary play elements with landscape features to provide an integrated play experience that is site specific. The specific play space designs will optimise the physical features of each specific park including views, slope, and existing vegetation.

Adventure play / activities

Councils OSRCFNS and further investigations in the Elton Community Report identify the desirability of catering for Adventure Play in Calderwood. Some key opportunities may include:

Mountain biking:	The varied slopes, elevation, and bushland settings across the site in particular through the hilltop Citywide park and Citywide Bushland Park to Johnston's Spur afford opportunities for mountain bike trails to supplement bushwalking and shared (sealed) paths through this area. Tracks would be a gravel finish and would generally require some input from user groups to assist in maintenance
Track networks:	As above the diverse landscape characters across the site create opportunities for a bushwalking / hiking network that links to other access types across the site and provides opportunities for hiking, orienteering etc.
Play landscapes:	Parks provide the opportunity to create through changes in level and simple built elements environments that will encourage active play in a non-structured manner. These elements must be robust and sustainable for ongoing maintenance by Council

Embellishment of additional open space types

For those open spaces that do not have specific embellishments outlined in the Open Space, Recreation and Community Facilities Needs Study, key works envisaged are listed following.

Corridors

Corridors will vary in character across the site based on existing vegetation cover and level of adjoining earthworks as part of urban development. Key works may include a combination of:

- weed removal
- revegetation
- retention of existing pasture grass and isolated trees
- seeding
- tree canopy planting
- pathway

Asset protection zones

Requirements for APZ management are detailed in the Bushfire Planning Assessment, prepared by Ecological Australia 2009, and vary between Inner Protection Area (IPA) and Outer Protection Area (OPA):

Inner Protection Area (IPA)

- mature canopy trees providing crowns and canopies do not overlap with overall cover not exceeding 15% of areas
- understorey saplings can provide sparse cover suitable for ongoing replacement of canopy
- saplings and shrubs should be limited and not continuous
- minimal ground fuel to less than 4 tonnes / ha

Outer Protection Area (OPA)

- mature canopy trees providing crowns and canopies do not overlap with overall cover not exceeding 30% of areas
- saplings and shrubs should be limited and not continuous
- minimal ground fuel to less than 4 tonnes / ha

Citywide Bushland Parks

Will typically be bushland reserves of district significance due to their links to Johnston's Spur and escarpment. Key works may include a combination of:

- weed removal
- revegetation
- pathway

4.7 Access to open space

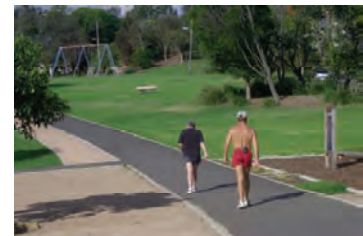
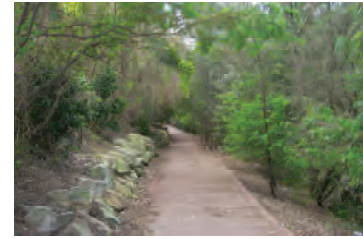
As mentioned earlier it is proposed that the open space system supports an integrated network of access linkages catering for pedestrian and cycle access between neighbourhoods, parks and the Town Centre.

Figure 4.5 Access Masterplan on the following page describes the relationship of the access network to the open space system.

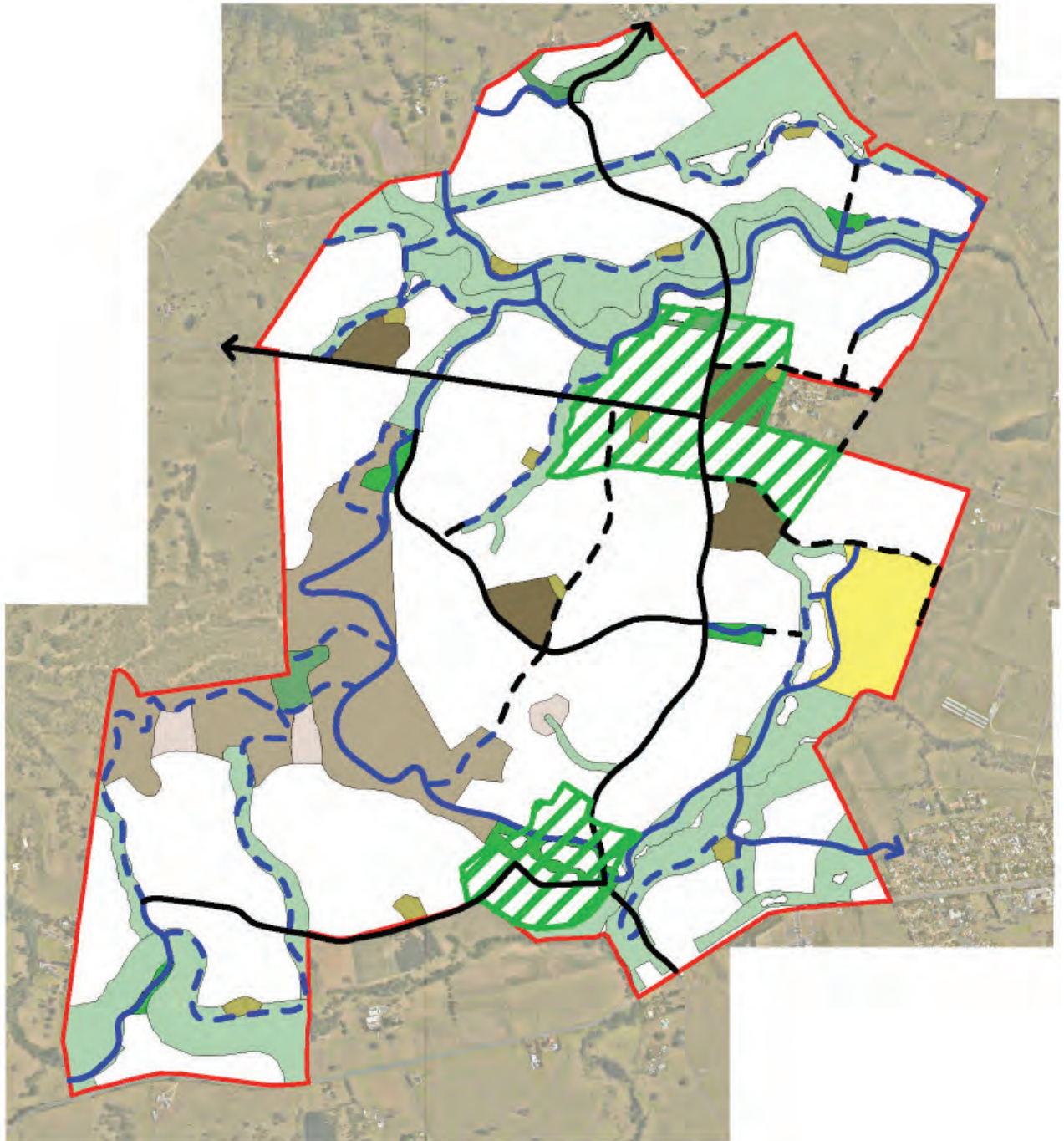
A series of access links is proposed to suit the open space categories, and road network:

- shared pedestrian / cycle path to corridors and links through park areas
- dual or split pedestrian and cycle paths where corridors or parks convert to roadside access links
- dual or split pedestrian and cycle paths to roadside situations provided by means of a wider, landscaped setback.

The access network shall be planned and designed to maximise safety and security observing all applicable width, signage, and sight line requirements. Planning shall also maximise connections to the street, and park system to optimise security and passive surveillance in accordance with CPTED principles.



The access network will pass through the drainage and vegetation corridor areas and key road corridors to link the open space system



Proposed Access Network

26.02.2010

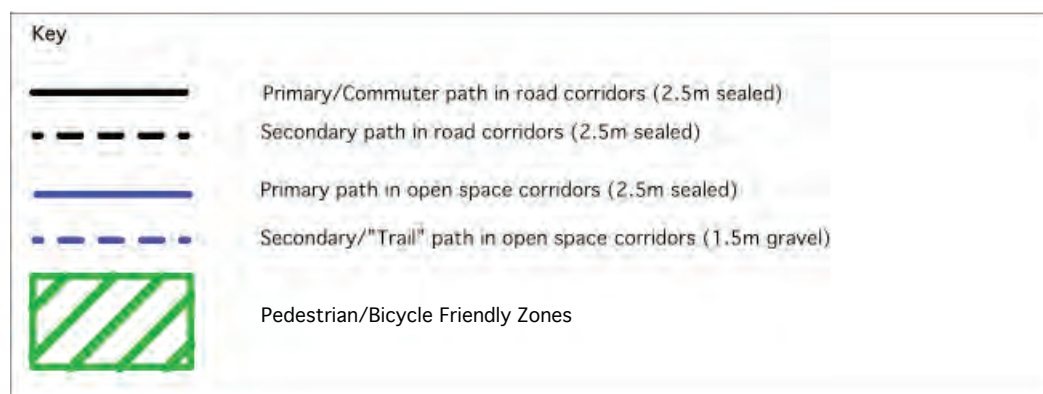


Figure 4.5 Open Space Masterplan with indicative path network

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5.0 Public Domain Character

5.1 Objectives for public domain character

Public domain is the publicly accessible network of open space, streets, paths, and squares that frames our urban environments.

The quality of public domain is influenced by a number of factors including:

- landscape including trees and lower level natural and planted vegetation
- built form
- pavements
- street and park furniture
- signage and information
- public art

The public domain for the Calderwood Urban Development Project must function at a number of levels:

- within Shellharbour LGA
- within Wollongong LGA
- within the context of adjoining residential suburbs;
- adjoining the local areas of the Calderwood Valley;

This requires that whilst developing an identifiable and appropriate landscape character for the Calderwood Urban Development Project that treatments must also have reference to and context with their local government areas.

Landscape design and materials themes should be developed in such a way that the area's natural features and site characteristics will be conserved and recognised. The open space system which the landscape themes support should have diversity, interest and accommodate the needs of a wide range of users.

The application of landscape themes to individual public domain elements should be done based on a number of criteria:

context within the development	from denser urban centre to less dense suburban outer areas	Public domain within the denser village centre should develop a more urban character in context with built form, density of development. This will be reflected in elements such as footpaths and a mix of deciduous and native evergreen plantings
the function and usage of the public domain	type and intensity of usage	Open spaces that cater for a higher intensity of usage (eg. a Civic Square) should incorporate design and materials treatments that cater for high pedestrian traffic and recurrence of use during the week. Passive recreational open spaces in less dense suburban areas will have periods of peak usage (but of a more low key nature) ie. weekends, with recovery periods ie. during the week. As such native planting and tree canopy and an emphasis on soft landscape surfaces is appropriate

The landscape character of the Calderwood Urban Development Project will need to reflect a range of scenarios of development context, use and relationship to adjoining communities and landscapes. The characters for landscape presentation which reflect these situations include:

- bushland
- woodland / rural
- parkland
- open space water
- plazas / squares



Streetscapes



Parks



Plazas squares

5.2 Presentation and maintenance

This report identifies that a key objective for open space in the Calderwood Valley is to provide **quality** experiences and facilities.

The siting of open space to take advantage of views, existing vegetation, relationship to water, and relationship to cultural features are key influences on quality of experience. However the presentation of open space through the nature and type of materials and finishes and facilities that support recreational use will also be a key determinant.

The level of presentation can be expressed in three categories. These will be aligned with the applicable level of maintenance provided by Council's recurrent programmes of maintenance in the Public Domain Plan to be prepared and issued with stage one development applications for Calderwood.

Urban presentation

Urban landscape presentation is the highest level of presentation that will apply to those open spaces which lie within the denser development zones of the site, and which serve a higher intensity and recurrence of community use. Levels of presentation and related maintenance are higher than other spaces to meet these usage demands and to compliment the urban character of their locations.

Suburban presentation

Suburban landscape presentation and maintenance will apply to active and passive recreational use spaces catering for general levels of usage including family use, social gatherings, fitness and exercise activities, and playgrounds.

This presentation type may typically encompass a combination of landscape character types. Suburban presentation will generally be located in a landscape setting that is of woodland, parkland, or open space water character or a combination of each.

Natural presentation

Natural landscape presentation and maintenance will apply to low level and intensity of use spaces areas that incorporate and adjoin natural systems.

Typically a proportion of open space corridors, environmental reserves, citywide bushland parks, and the interface areas of parks adjoining corridors may fall into this category. Retention of existing vegetation and revegetation (where applicable) with indigenous species will provide a generally self sustaining landscape with low recurrent maintenance demands.

5.3 Specific maintenance requirements for natural presentation areas

Each of the areas comprising natural vegetation stands will have varied maintenance requirements for Council after handover.

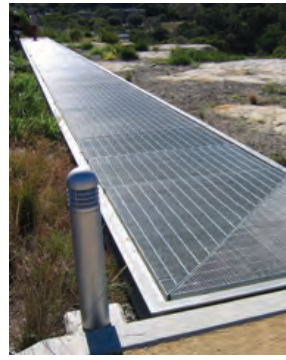
Environmental Reserves & Citywide Bushland Parks

General full strata vegetation (canopy, mid and understorey) across area conserved as bushland protection area. Recurrent maintenance will generally involve:

- weed management
- maintenance of path links where considered appropriate to the environmental attributes of the site
- maintenance of any drainage swales through area



Urban presentation and maintenance



Suburban presentation and maintenance



Natural presentation and maintenance



Corridors

Varied vegetation cover subject to existing conditions and level of earthworks required for drainage function and adjoining subdivision. Generally where areas have existing vegetation cover and are not to be disturbed this will be retained. As such the existing dominant character of semi cleared “pastoral creeklines” will be retained to approximately 60-70% of corridor areas.

Maintenance requirements will vary in corridors subject to their character:

Natural character riparian corridors (targeted regeneration and revegetation areas):

- weed management
- maintenance of path links
- maintenance of creek banks

Pastoral character riparian corridors (pastoral grasslands with pockets of tree planting and native grasses):

- regular slashing of grasslands
- weed management to grasslands
- weed management to fully vegetated areas
- maintenance of path links
- maintenance of creek banks

Asset protection zones

Refer to embellishment and management requirements outlined in section 4.5 of this report