REPORT

Calderwood Valley - Urban Design Assessment

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No: 133413
Version: 5
Date: 8th August 2018

Prepared for: LENDLEASE NSW




Document Status

Version	Purpose of Document	Approved by	Reviewed by	Review Date
1	Draft	Stephen Barwell	Ben Craig	14th June 2018
2	Draft	Felix Kuo	Laura Zumbo	3rdJuy 2018
3	Draft	Felix Kuo	Laura Zumbo	16h July 2018
4	Issued Report	Felix Kuo	Laura Zumbo	24th July 2018
5	Revised Report	Felix Kuo	Laura Zumbo	8th August 2018

Approval for issue

Name	Signature	Date

Contents

Introduction

This report accompanies an Environmental Assessment Report (EAR) for a proposed S75W Modification Application to the Calderwood Concept Plan Approval (MP09_0082) (Approved Concept Plan) for the Calderwood Urban Development Project (CUDP).

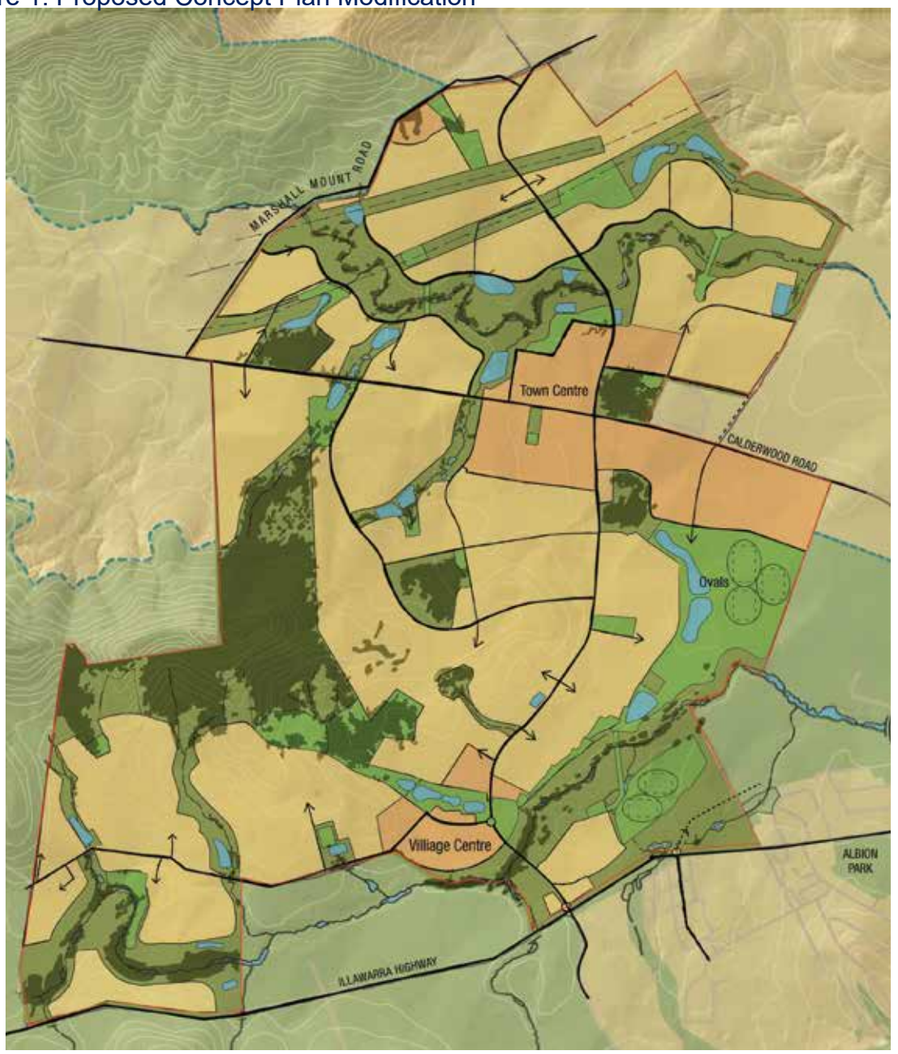
A modification is sought to the Approved Concept Plan to allow for increased and more diverse housing supply at Calderwood. The increase in housing supply is proposed to ensure that the existing area of urban zoned land at Calderwood is efficiently used for the continued supply of a range of housing types and sizes that both meet market demand and will assist address housing affordability pressures in the Illawarra region.

Site Description

The CUDP site is located within the Calderwood Valley in the Illawarra Region. It is approximately 700 hectares in area with approximately 107 hectares of land in the Wollongong LGA (15%) and the balance in the Shellharbour LGA (85%). An aerial photograph of the site is provided at Figure 1.

Calderwood Valley is bound to the north by Marshall Mount Creek (which forms the boundary between the Shellharbour and Wollongong LGAs), to the south by the Macquarie Rivulet, to the south-west by Johnston's Spur and to the west by the Illawarra Escarpment. Beyond Johnston's Spur to the south is the adjoining Macquarie Rivulet Valley within the locality of North Macquarie. The CUDP site extends south from the intersection of North Marshall Mount Road and Marshall Mount Road to the Illawarra Highway.

Figure 1: Proposed Concept Plan Modification



Concept Plan (MOD 4)

Town and Village Centres
Mixed Uses including Retail, Employment, Residential, Learning and Community Amenities

Residential Neighbourhoods

Parks
eg Citywide, district and local parks

Principal Open Space and Drainage
eg Environmental Conservation, Environmental Management and Drainage Corridors

Indicative Water Bodies

lendlease

n

1 ha

0 100 500 1000m

Subject to verification and detailed site survey 1:20,000 @ A4 10m Contours July 2018

(Source: Taylor Brammer Landscape Archtiects)

1.0 Site Analysis

The Site Analysis diagrams have been produced to illustrate the intent of the development pattern against the existing site constraints and opportunities. Many of these have not changed, however some areas have been revisited and the findings are summarised below.

1.1 Constraints

1.1.1 SLOPE

Figure 2 illustrates the slope of the Calderwood Concept Plan Area. The slope categories have been classified as shown on the legend. Most of the site comprises a gradient of 1:8 or less, which is suitable to accommodate economic and efficient urban development. The steepest gradients are predominantly in the southern, western and northern sections of the Calderwood development area. These are readily depictable in Figure 2, as shown by the darker pink to red colours. These have not changed from the Concept Plan. Principles adopted in the subdivision pattern to accommodate steep slopes include:

- Town Centre/Village Centre and higher density land on the flat test area of the site
- Larger lots on the steep slopes
- Roads are aligned parallel to slope to run along the contour on grades greater than 1:6
- In addition, retaining walls and lots are designed to accommodate the building product to suit the grades. Guidelines to assist homeowners and builders are contained in Appendix A.
- Environmental areas designated to protect steepest areas such as Johnstons Spur and the major riparian features.

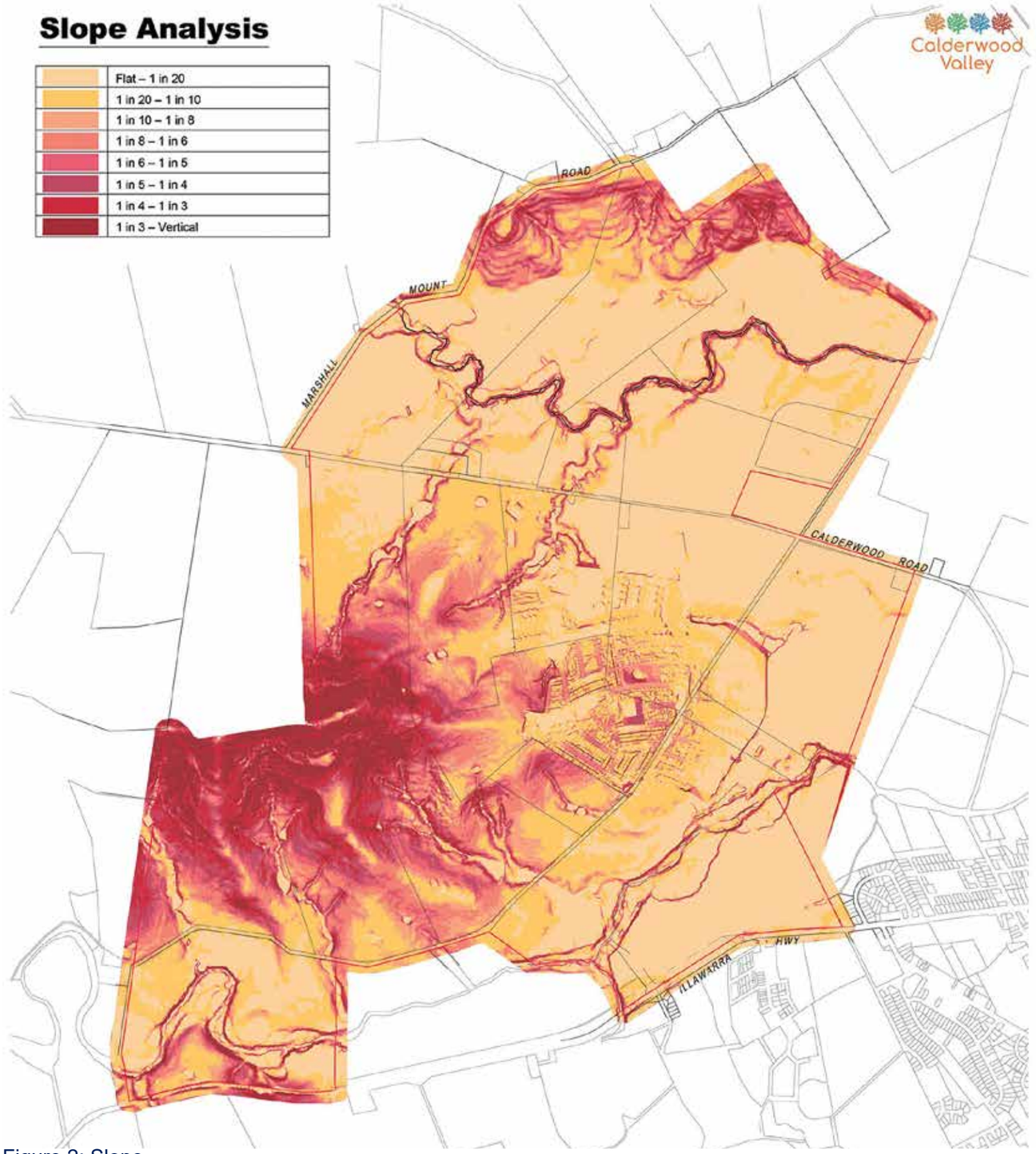
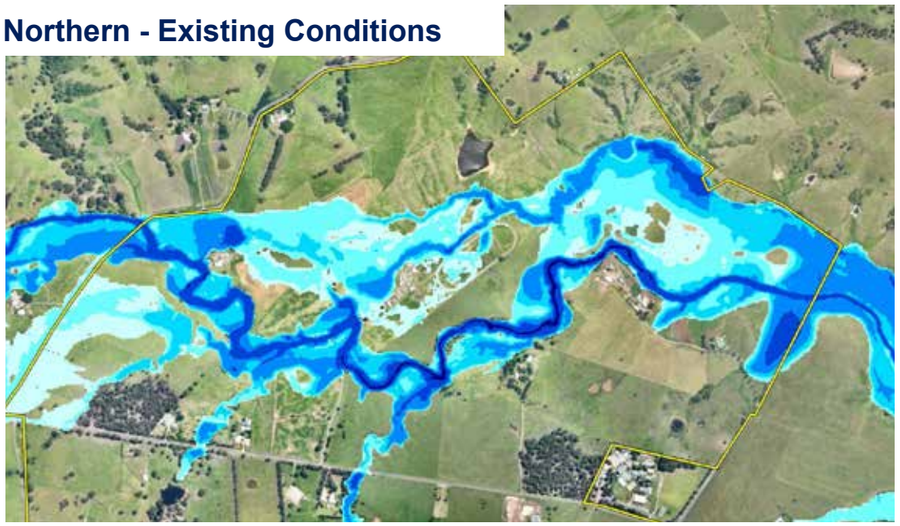


Figure 2: Slope

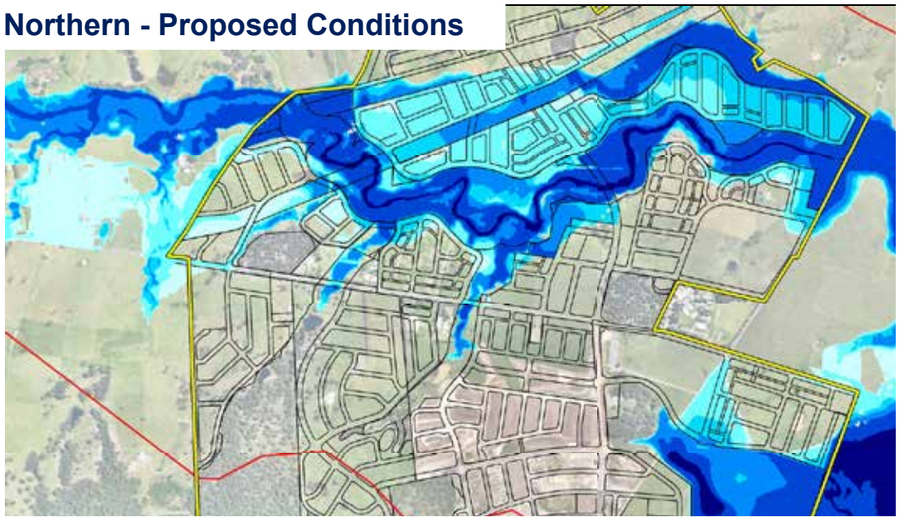
1.1.2 FLOOD INNUNDATION

Flooding is shown on Figure 3. The development footprint respects the flooding constraints and stormwater strategy. Minor changes over the northern and southern part of the site are shown and have been adopted to alter the development footprint as illustrated in Figure 4.

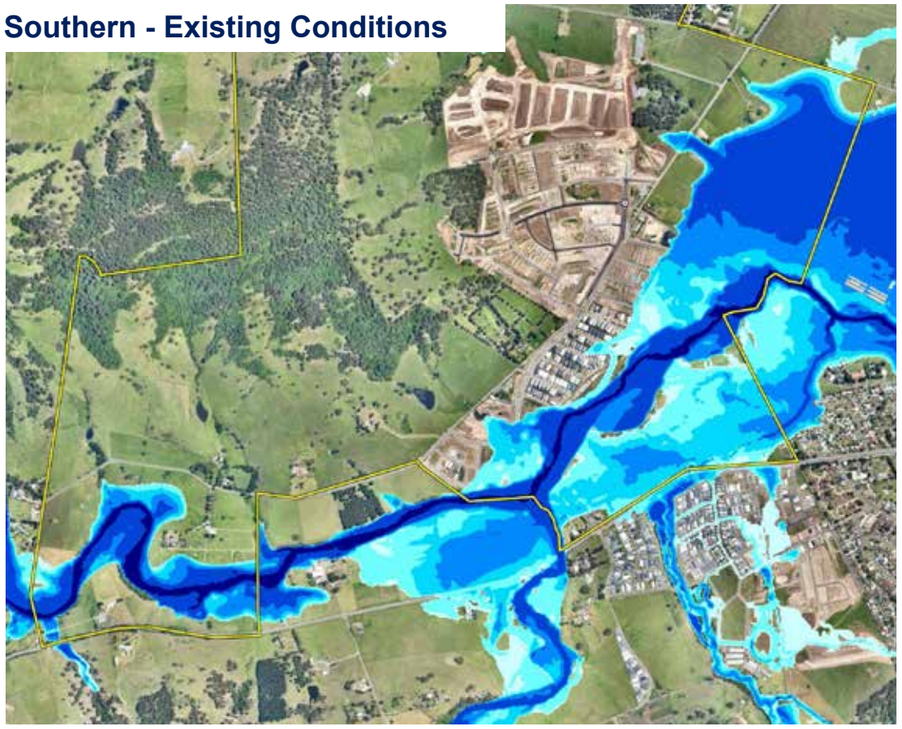
Northern - Existing Conditions



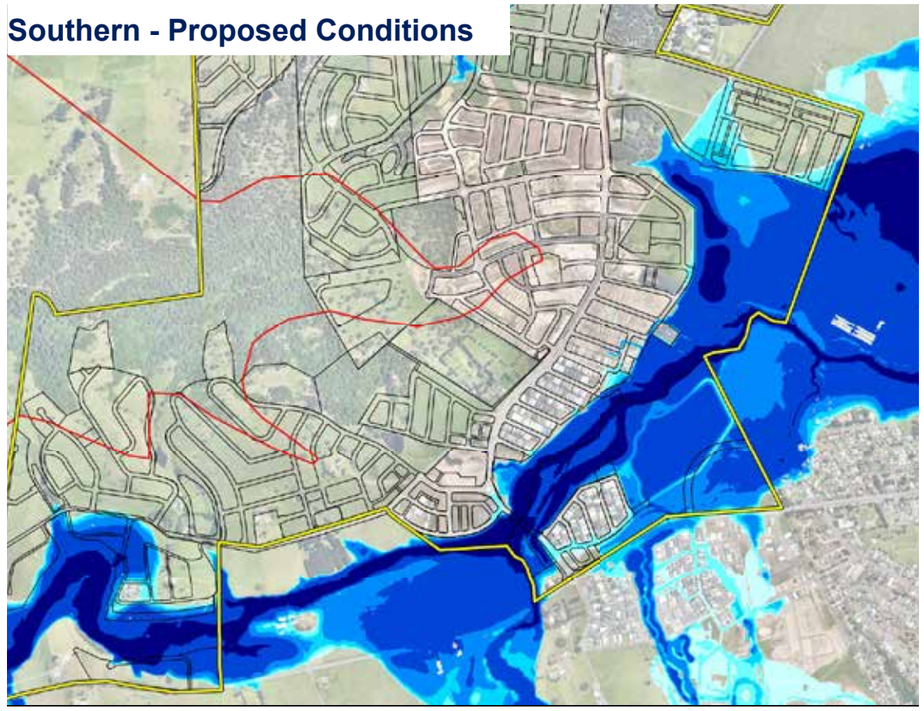
Northern - Proposed Conditions



Southern - Existing Conditions



Southern - Proposed Conditions



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LEGEND

- Site Boundary
- TUFLOW Boundary

Depth (m)

- 0.0 to 0.2
- 0.2 to 0.5
- 0.5 to 1.0
- 1.0 to 2.0
- 2.0 to 3.0
- 3.0+

Figure 3: Existing Flood Conditions

Figure 4: Proposed Flood Model

1.1.3 RIVERS, CREEKS AND DRAINAGE LINES

These have not changed from the Concept Plan and the development foot print respects these natural features within the necessary riparian corridors. The subdivision pattern allows for local drainage as part of the intended stormwater strategy as per the existing stages already completed. These riparian areas are shown in Figure 5.

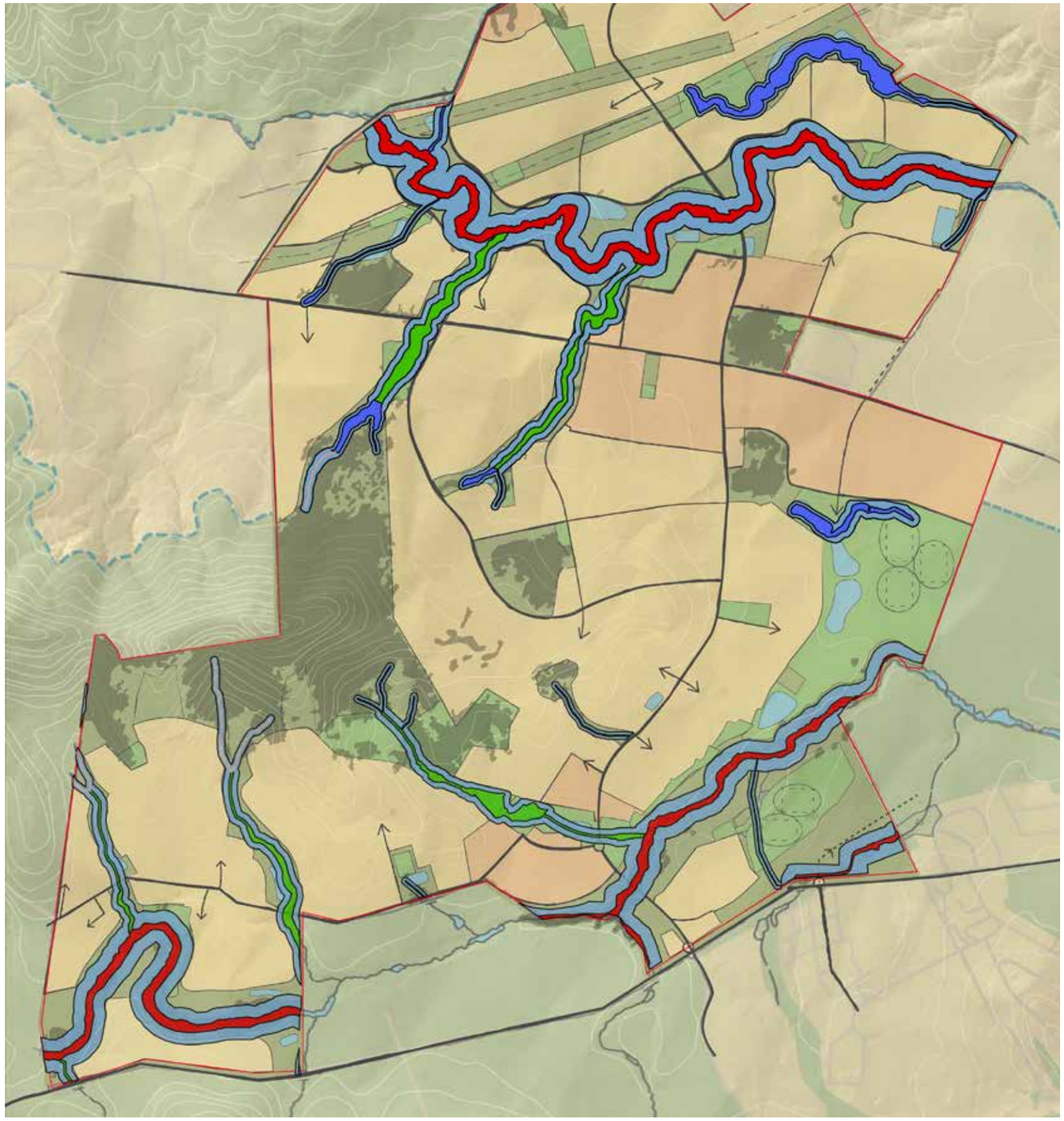


Figure 5: Rivers, Creeks and Drainage Lines (Source: Taylor Brammer Landscape Architects)

1.1.4 VEGETATION CONDITIONS

Figure 6 illustrates the vegetation communities located on site as per the approved Concept Plan

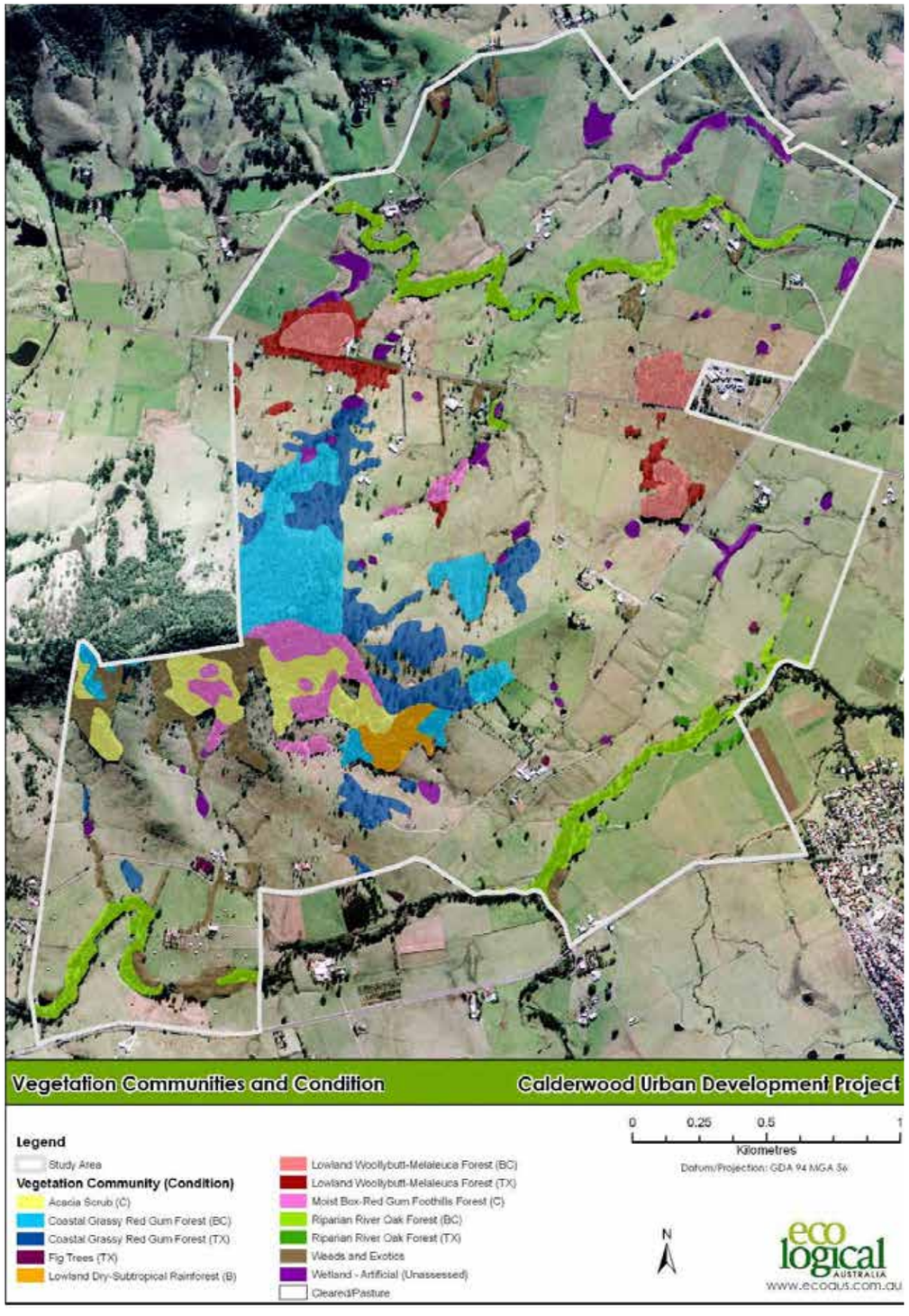


Figure 6: Vegetaton Conditions (Source: Eco logical)

1.1.5 GEOTECHNICAL

No further constraints have been identified and the geotechnical findings do not impact on the development footprint as per the previous Concept Plan. See Figure 7.

1.16 ACID SULPHATE SOILS

This has not changed and the development footprint is unaltered from the Concept Plan. See Figure 8.

1.1.7 ARCHAEOLOGY

This has not changed and the development footprint is unaltered from the Concept Plan.

1.1.8 BUSHFIRE

This has not changed and the development footprint is unaltered from the Concept Plan. See Figure 9.

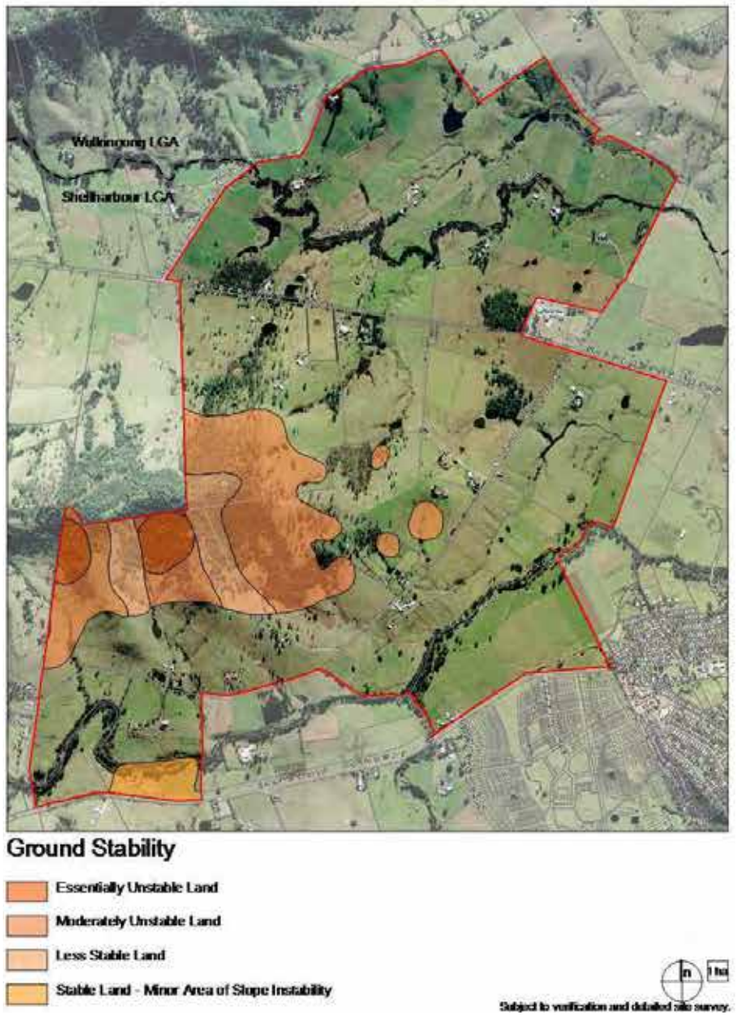


Figure 7: Ground Stability

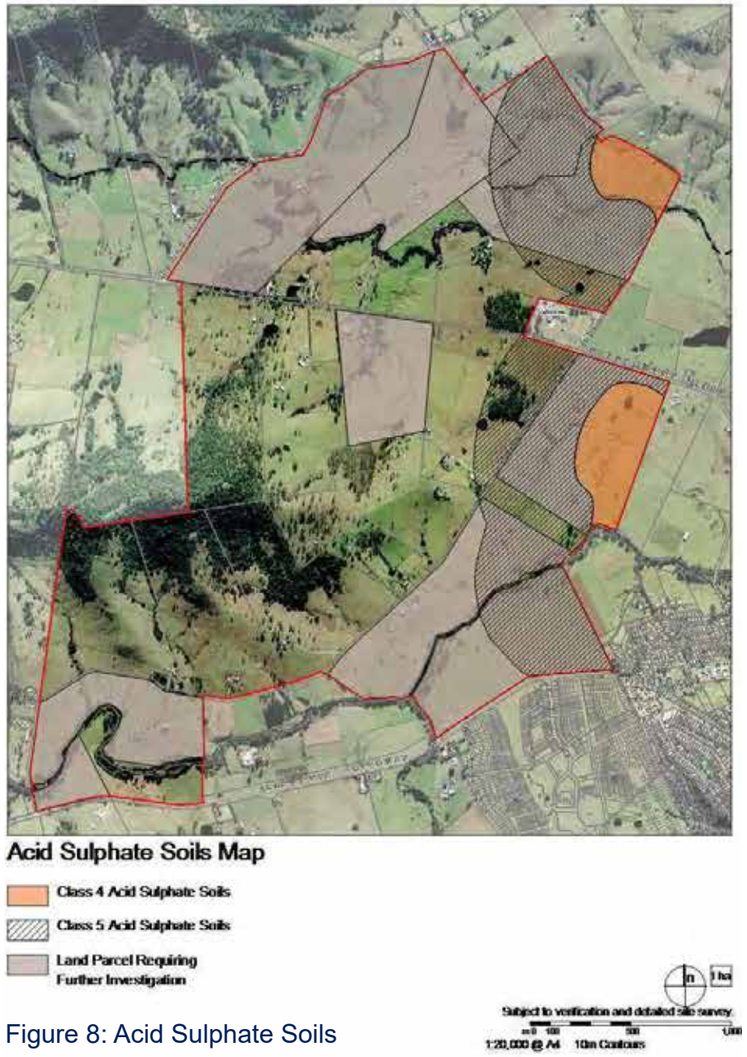


Figure 8: Acid Sulphate Soils

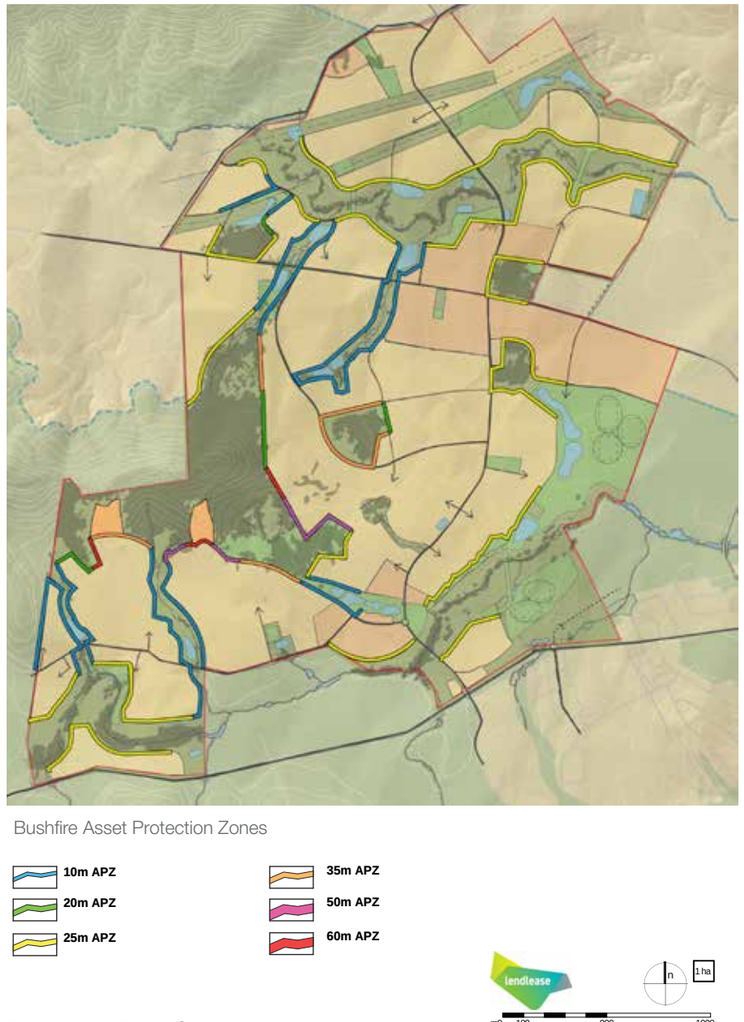


Figure 9: Bushfire

1.1.9 EXISTING ELECTRICAL EASEMENTS

This has not changed and the development footprint is unaltered from the Concept Plan. See Figure 10. Once developed the land ownership for the easement will vary and is anticipated to accommodate many purposes including:

- Public Open Space - Some drainage and recreational use such as walking and cycling trails
- Road Reserve
- Private Lot – larger lots with the easement retained.

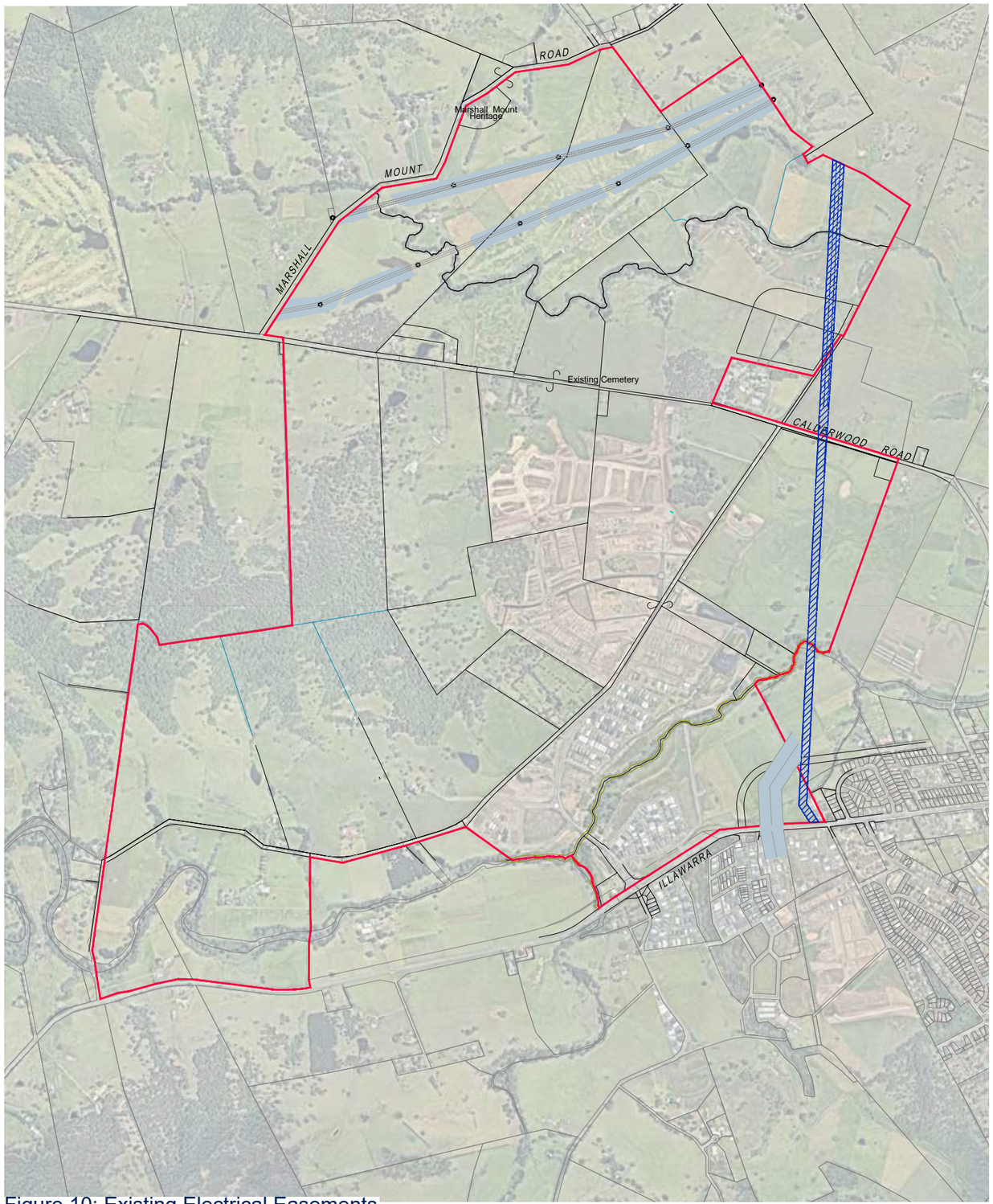


Figure 10: Existing Electrical Easements

1.1.10 HERITAGE ACTIVATION

There are two key sites within the Calderwood Development that are of heritage value and kept in their current form. These are the existing cemetery and the Marshall Mount Heritage lot. Both sites have some road frontage that allows the public to interact and recognise their heritage value to the area. This also avoids the sites from being isolated and hidden away from the public eye.

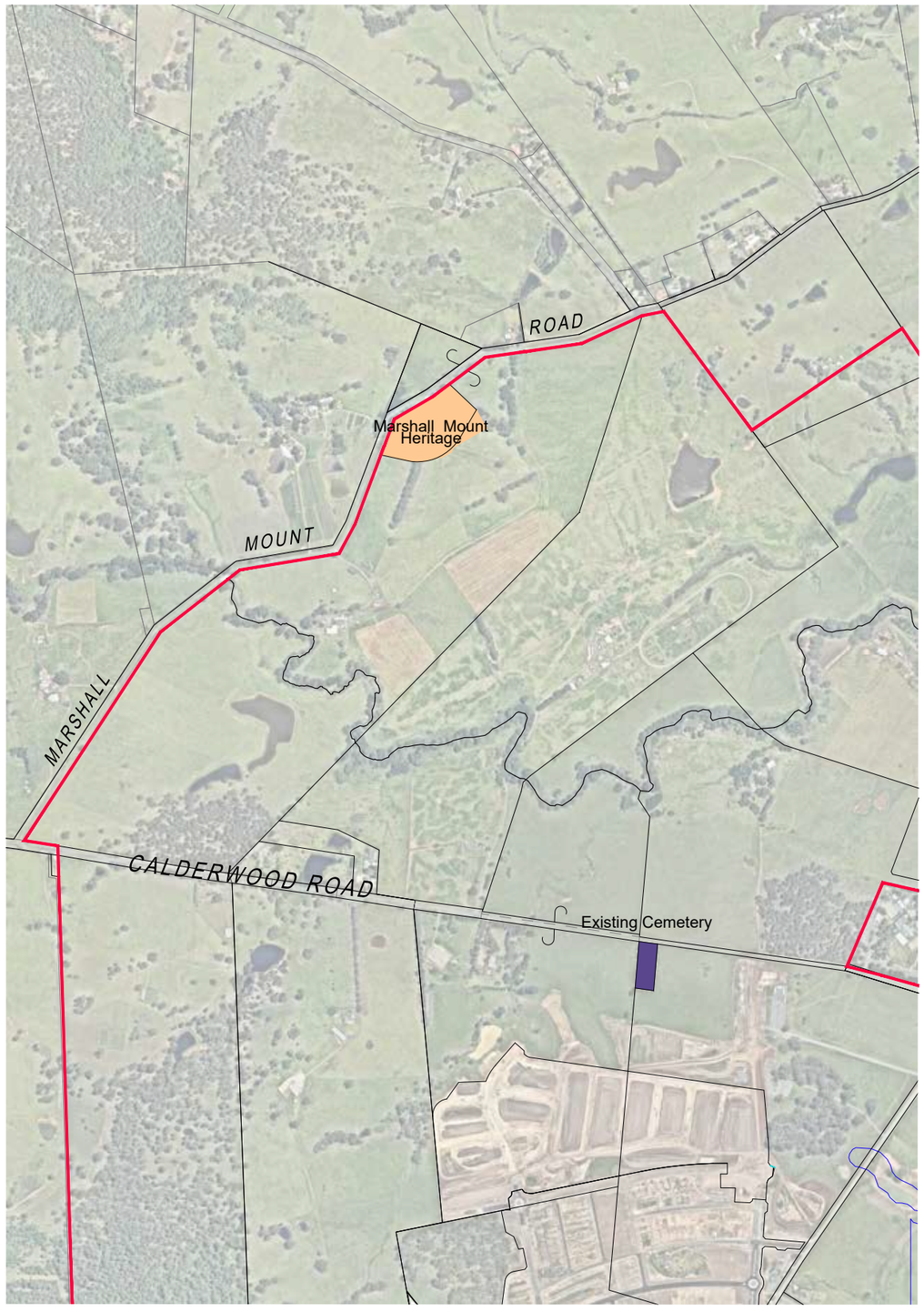


Figure 11: Heritage

1.2 Opportunities

1.2.1 VIEWS AND VISTAS

The site observations of Calderwood Valley highlight the existing conditions and potential views that will form an integral part of the structure plan and development. Calderwood Valley feature visual and landscape character that demonstrates the transitioning of the site to an urban development. Views extend from the top of the valley towards the Illawarra Escarpment which are a significant feature if the visual and landscape character of Calderwood Valley.

Johnstons Spur ridgeline and upper reaches of the area will assist in reducing the impacts of the development and assist in maintaining the natural ridgeline. Key open spaces will be visible from Marshall Mount Road, Calderwood Road and Illawarra Highway. The red arrows in Figure 12 highlight the opportunities created by the development with internal roads having visual connection to open spaces. The development of the Escarpment will be a dominant visual feature for the site. Marshall Mount House and City Wide Parks terminate on public realm vistas maintain these ridgelines and vistas are a crucial part in creating landmark opportunities for the development. As the site natural topography is varied and covers various areas of the development the importance of creating views and vistas to the lower area adds value to the project.

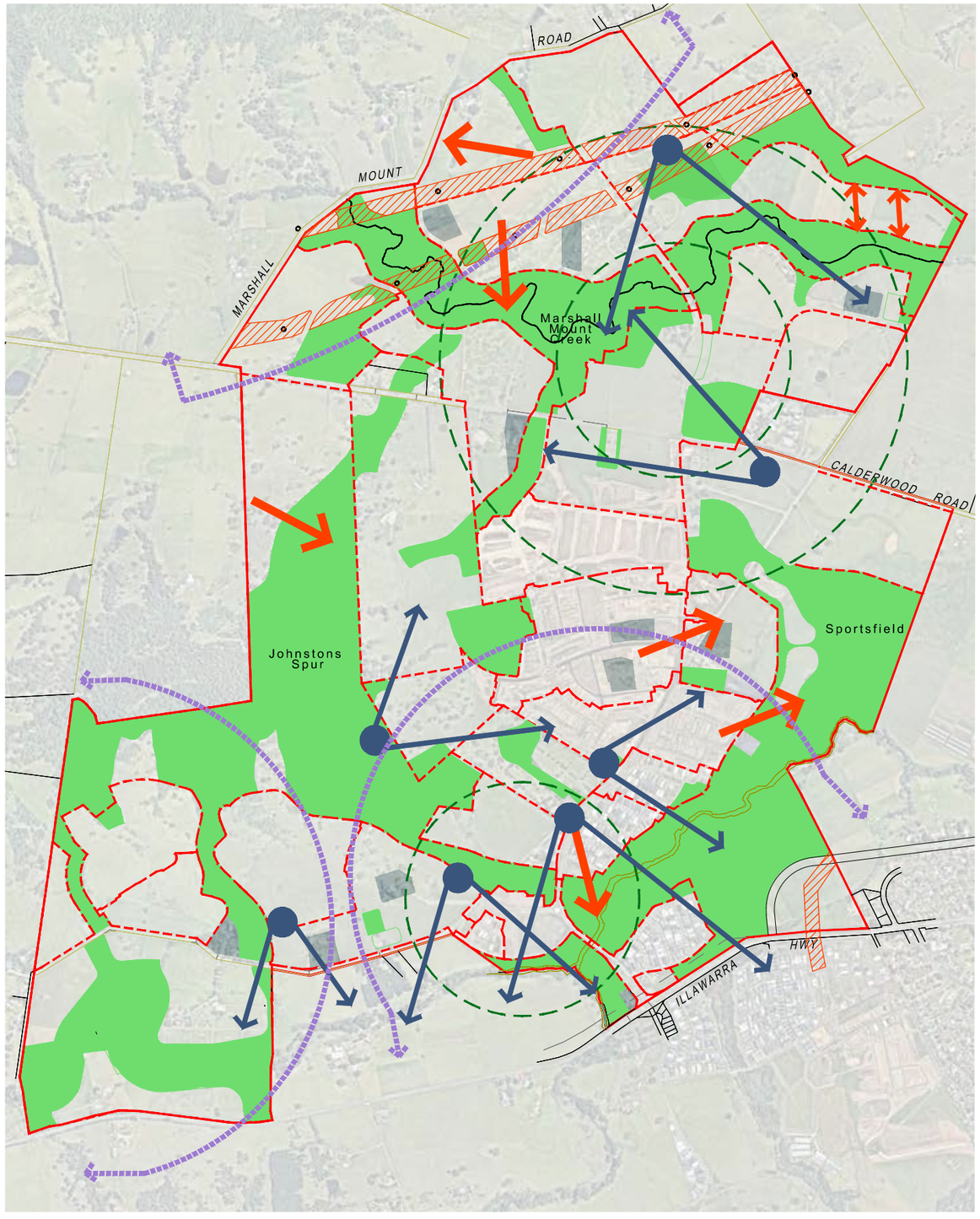


Figure 12: Views and Vistas

1.2.2 ACCESS AND CONNECTIVITY

Movement throughout the Calderwood Development is primarily along a north/south and east/west road system. The sub-arterial road connects the Illawarra Highway along the southern boundary through the middle of the site, joining Marshall Mount Road on the northern boundary. This central spine does not allow direct-lot access yet forms an important function in connecting residents to most of the stages within the project.

Calderwood Road is an existing road that will be upgraded to no direct-lot access in the future. Connecting to broader catchments, this major collector prioritises pedestrian-friendly movement for the schools, town centre and open spaces. Numerous minor collectors accommodate for bus routes and local streets are connected to enhance pedestrian linkages between residents and areas of amenity.

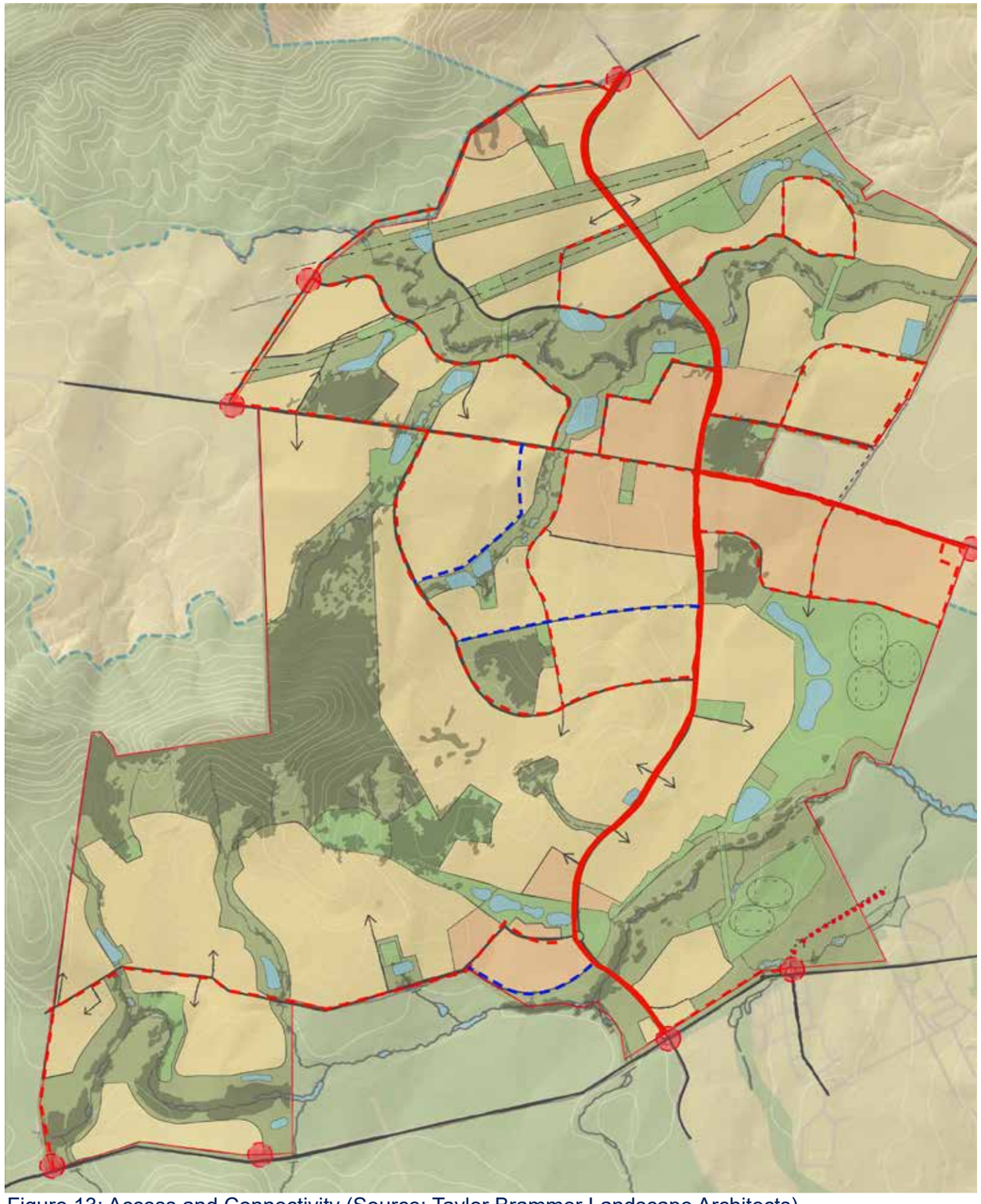


Figure 13: Access and Connectivity (Source: Taylor Brammer Landscape Architects)

1.2.3 PUBLIC OPEN SPACE

Required Public Open Space are shown on Figure 14

OPEN SPACE- ACTIVE
ADDITIONAL AREA REQUIRED: 7.86ha

KEY	PARKS SCHEDULE	VPA APPROVED	AREA AS PER LAND USE PLAN (ORIGINAL)	ADDITIONAL OPEN SPACE	COMMENTS
	ACTIVE				
	SP1	15.84	23.6327		BASINS EXCLUDED
	SP2			+6.7707	RU2 LAND UTILISED
	TOTAL			**6.7707**	
	ADDITIONAL ACTIVE SPACE				
	SP1 ADDITIONAL SPACE			+7.7927	BASINS EXCLUDED
	TOTAL			**7.7927**	
	OVERALL TOTAL (EXISTING AND POTENTIAL ADDITIONAL ACTIVE SPACE			**14.5634**	

OPEN SPACE- PASSIVE
ADDITIONAL AREA REQUIRED: 5.87ha

KEY	PARKS SCHEDULE	VPA APPROVED	AREA AS PER LAND USE PLAN (ORIGINAL)	ADDITIONAL OPEN SPACE	COMMENTS
	PASSIVE				
	DISTRICT PARKS				
	DISTRICT PARK 1 (WCC) (D1)	1.00	3.9501	+ 2.9501	RELOCATED AWAY FROM CREEK AND UNDER EASEMENT
	DISTRICT PARK 3 (D3)	1.00	1.00		
	DISTRICT PARK 4 (D4)	3.80	3.80		BASINS EXCLUDED
	DISTRICT PARK 2 (NON CORE LAND) (D2)	1.00	1.3962	+ 0.3962	NON CORE LAND
	DISTRICT PARK 5 (NON CORE LAND) (D5)	1.00	2.0133	+ 1.0133	NON CORE LAND, INCLUDES L13
	LOCAL PARKS				
	LOCAL PARK 1 (L1)	0.20	0.30	+ 0.10	
	LOCAL PARK 2 (L2)	0.20	0.3029	+ 0.1029	
	LOCAL PARK 3 (L3)	0.20	0.5577	+ 0.3577	MOVED TO ELECTRICAL EASEMENT
	LOCAL PARK 4 (L4)	0.20	0.5289	+ 0.3289	
	LOCAL PARK 5 (L5)	0.20	0.4568	+ 0.2568	
	LOCAL PARK 6 (L6)	0.20	0.20		CEMETARY PARK
	LOCAL PARK 7 (L7)	0.20	0.4142	+ 0.2142	NON CORE LAND
	LOCAL PARK 8 (L8)	0.20	0.3185	+ 0.1185	COMPLETED
	LOCAL PARK 9 (L9)	0.20	0.8508	+ 0.6508	MOVED TO ELECTRICAL EASEMENT
	LOCAL PARK 10 (L10)	0.20	0.20		
	LOCAL PARK 11 (L11)	0.20	0.4988	+ 0.2988	CONSTRUCTION COMPLETED
	LOCAL PARK 12 (L12)	0.20	0.4568	+ 0.2568	
	LOCAL PARK 13 (L13)	0.20		- 0.20	COMBINED WITH D5 - NON CORE LANDS
	LOCAL PARK 13 (L14)			+ 0.50	NEW LOCAL PARK
	CITYWIDE PARKS				
	CITYWIDE PARK 1 (CW1)	2.00	2.10	+ 0.10	
	CITYWIDE PARK 2 (CW2)	2.00	2.00		BASINS EXCLUDED
	CITYWIDE PARK 3 (CW3)	3.43	3.43		
	TOTAL	17.83	**24.775**	**+ 7.445**	
	POTENTIAL ADDITIONAL OPEN SPACE LOCATIONS				
	CW3 EXTENSION			+ 8.2532	BETTER LINK TO JOHNSTONS SPUR
	LINK D4 TO L11 (L16)			+ 0.9336	
	EXTENSION OFF SP1			+ 4.3339	E3 ZONE - BETTER CONNECTION TO TOWN CENTRE
	LINEAR 1			+ 0.6928	BETTER CONNECTION TO SPORTS AND TOWN CENTRE
	LINEAR 2			+ 0.3105	BETTER CONNECTION TO SPORTS AND TOWN CENTRE
	LINEAR 3			+ 0.2505	BETTER CONNECTION TO SPORTS AND TOWN CENTRE
	TOTAL			**+ 14.7745**	
	OVERALL TOTAL (EXISTING AND POTENTIAL ADDITIONAL OPEN SPACE)			**22.2195**	

Figure 14: Open Space Analysis (Source: Taylor Brammer Landscape Architects)

1.2.4 PEDESTRIAN AND CYCLE CONNECTIONS

Figure 15 highlights the indivative pedestrian and cycle routes throughout the site.

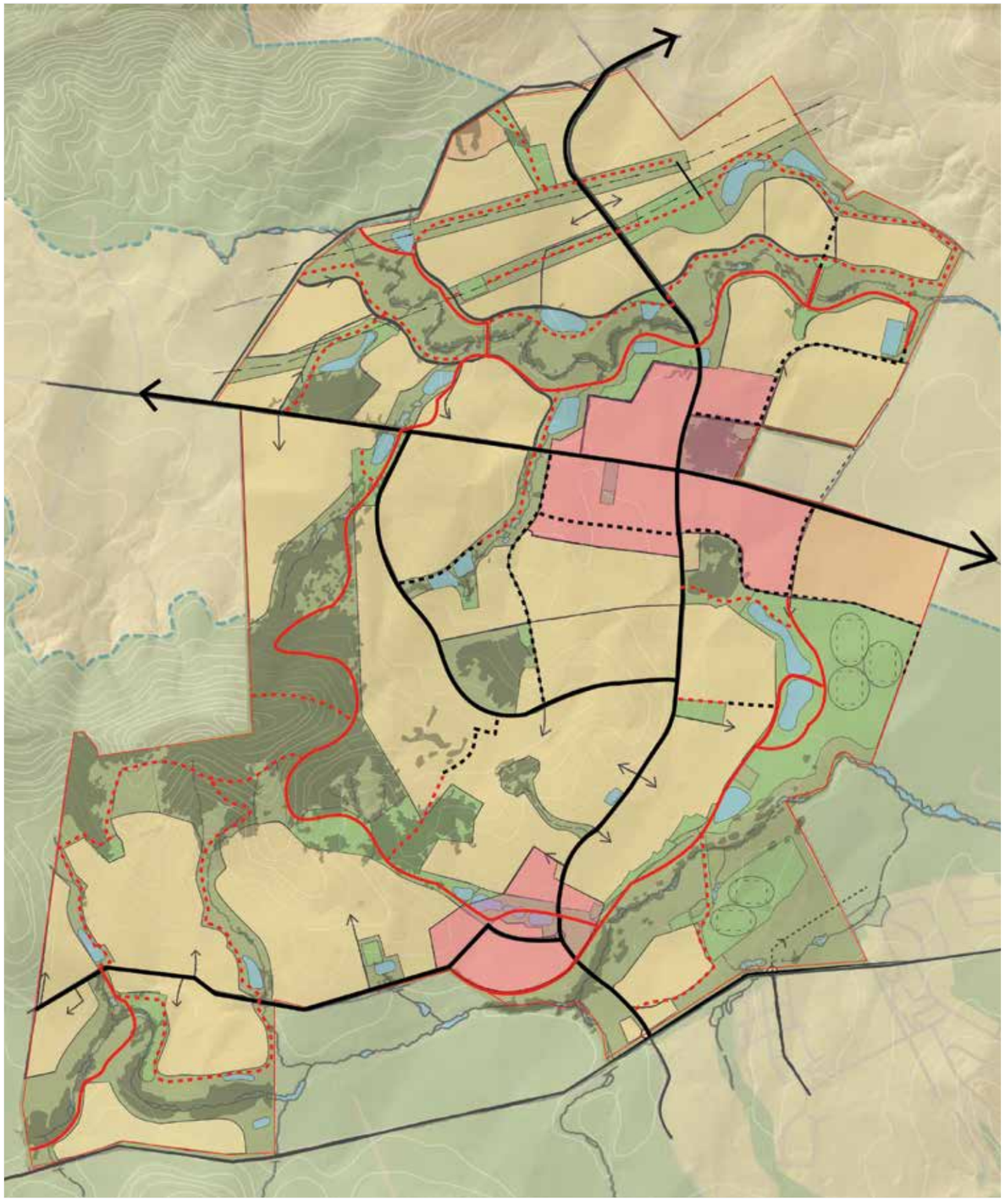


Figure 15- Pedestrian and Cycle Connections (Source: Taylor Brammer Landscape Architects)

1.2.5 EDUCATION AMENITY

All three of the education sites are located along Calderwood Road as one of the main spines for the development. This increases the exposure of the sites in drawing in other residents from a wider catchment. The primary and high school are co-located together, opposite the town centre and main sports field / recreation precinct. A hub of activity is therefore surrounding these two sites, creating a core education precinct. The other primary school is on the western edge of the site and all three of these schools are situated on flat land with grades no greater than 1:20.

Figure 16: Proposed School Locations (Source: Taylor Brammer Landscape Architects)

1.2.6 PUBLIC TRANSPORT NODES / LOCATIONS / WALKING DISTANCES

Figure 17 showing indicative public transports route and 400m walking catchment from a bus stop

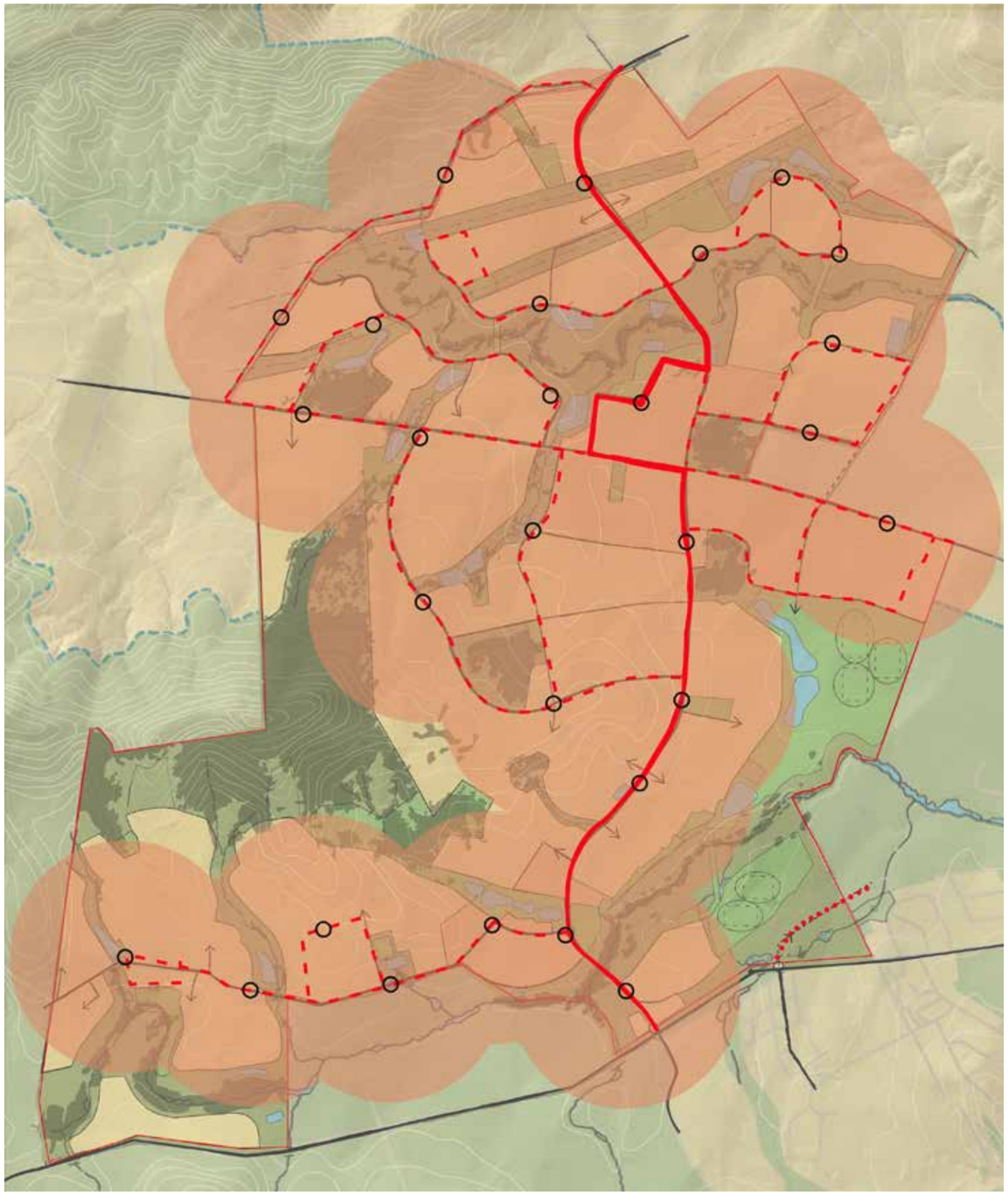


Figure 17: Public Transport Bus Service (Source: Taylor Brammer Landscape Architects)

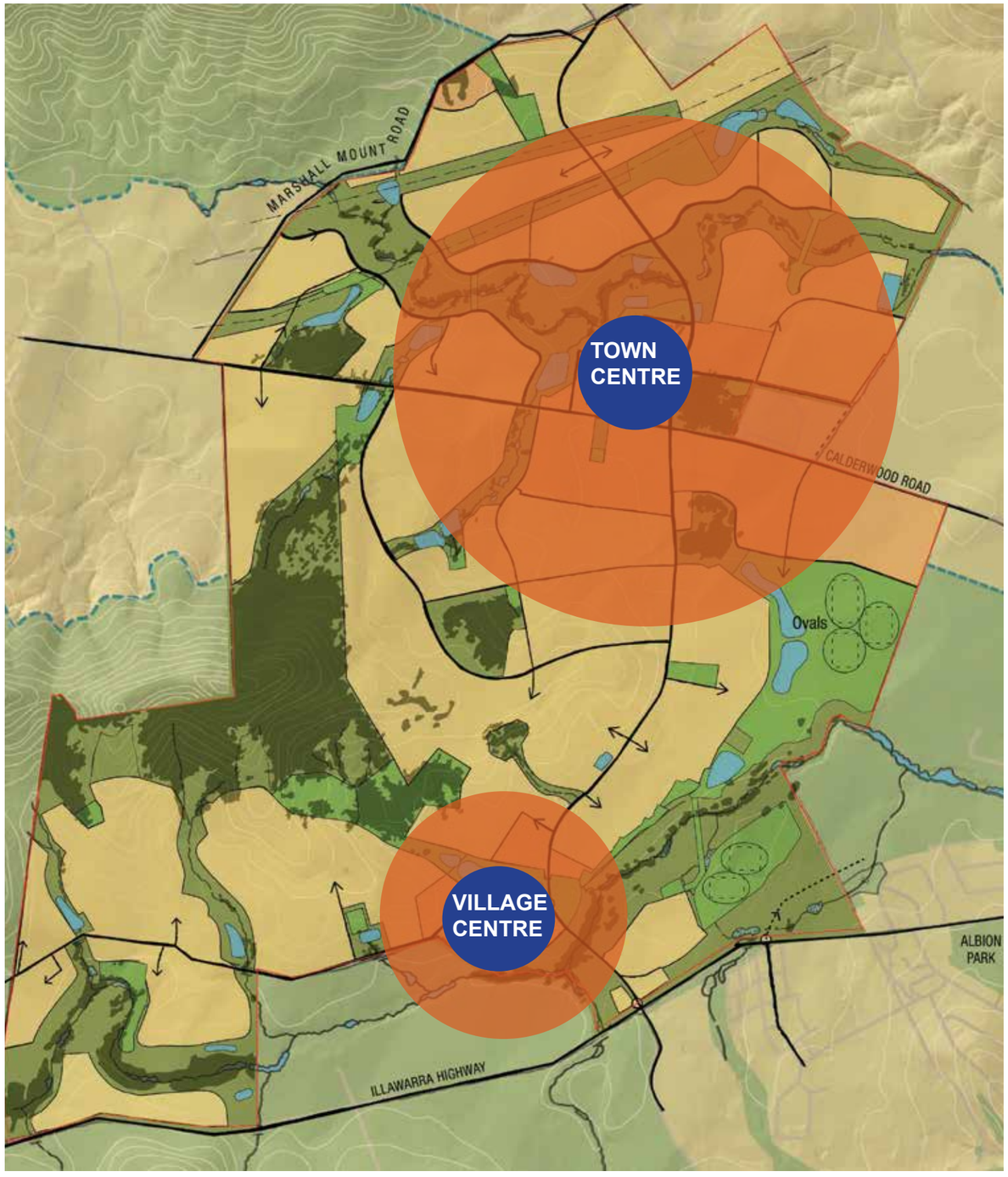
3.0 Dwelling Types, Residential Character, Dwelling Density and Placement

3.1 Dwelling Types

The revised Development Control Strategy (DCS) does introduce new dwelling typologies. There is a diverse range of dwelling types to respond to a variety of living conditions and community expectations as described below. The types of dwellings are contained within Appendix B of the revised Calderwood DCS.

- Affordability within a master planned community with convenient access to open space, recreation, education, shopping and health.
- Smaller household types including families downsizing, semi-retired households and those entering the property market for the first time
- Diversity in ownership and maintenance of housing to meet the lifestyle expectations of owners
- Increase density around mixed use centres, Local Parks and along public transport corridors to sustain economic prosperity and efficiencies in infrastructure

Smaller Household Diversity



Source: Taylor Brammer Landscape Architects

3.2 Residential Character

The previous Concept Plan envisaged a higher proportion of dwellings on allotment sizes of 300m2 in land area, and above. In comparison the proposed Concept Plan increases the number of smaller dwellings in areas that suit the constraints and the within the proposed urban characters of the Village and the Town Centre. Regarding the existing Residential Character Areas Plan in the DCS, there will be no change to the intent of the Character Areas, apart from allowing for an increase in smaller dwellings for those development areas unconstructed, and within 800m or a 10minute walk of the Town Centre. These areas are shown in pink in Figure 18.

The pink coloured areas are intended to remain within the General Residential character areas but due to the characteristics listed below they are suited to comprise a mix of smaller dwellings on allotments less than 300m2 in land size, on a mix of tenures:

- Within 800m or a 10-minute walk of the Town Centre – see dashed circle in Figure 18
- Opposite Parks and Open Space Amenity
- Along major roads and public transport corridors
- Along pedestrian and cycle linkages
- Suitable topography and landform

These characteristics allow for higher densities than the remaining areas of General Residential

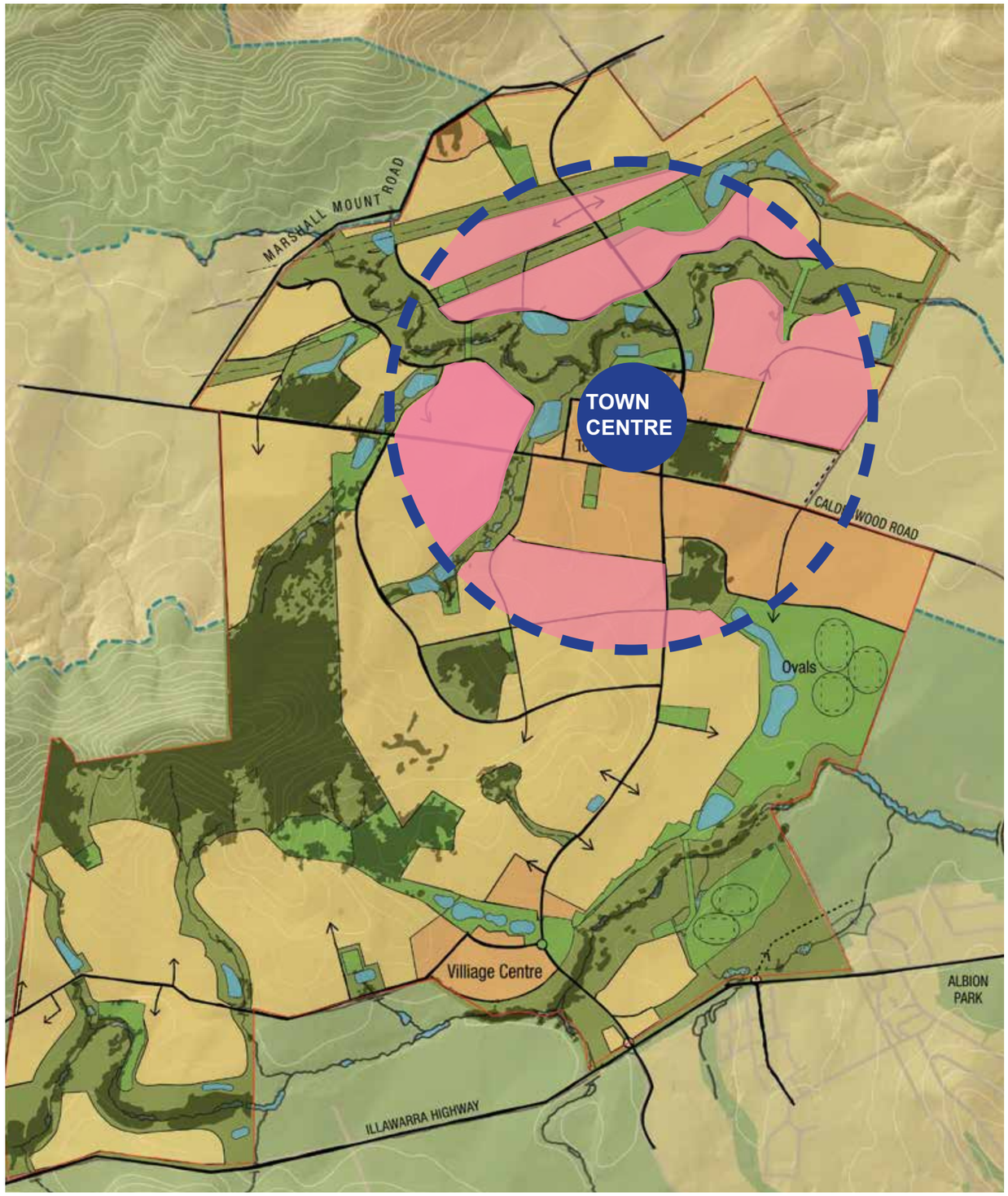


Figure 18: General Residential/ Town Centre Proximity (Source: Taylor Brammer Landscape Architects)

3.3 Dwelling Density and Placement

As discussed above dwelling type placement and dwelling density varies according to the Residential Character. Figure 19 demonstrates how the dwellings have been distributed throughout the Concept Plan, considering the character and constraints. This Plan highlights the following:

- Residential character type.
- The dwelling types that are applicable to each area,
- The dwelling numbers in each area.

It also separates the Town and Village Centre Character area into Mixed-Use Areas and Town Centre/Village Residential areas. It also identifies Retirement Living and landholdings not owned by
Lendlease.

Section 4 outlines the indicative subdivision and potential lot layouts for each Residential Character Type as contained in Figure 19.

Standard Density Residential

Dwelling type suitable close to Town and Village Centre, Local Parks and flatter topography

Residential Type	Dwelling Types	Dwelling Numbers	Denisty Range
Existing Stages	**Existing**	1384	15-17dw/ha
Non LL Core Lands	**N/A**	902	15- 17 dw/ha
Landowner Lots	**Standard Residential**	215	15-17dw/ha
	C1 - C9		
	Integrated Housing subject to locational criteria - Local Park C10-C21		
Retirement Living	**As per land use**	270	25-30dw/ha
Slope Sensitive	**Standard Residential**	279	Various
	C3-C9		
General Residential	**Standard Residential**	1215	15-17dw/ha
	C1 - C7		
	Integrated Housing subject to locational criteria - Local Park C10-C21		
Village Centre Mixed Use	**Integrated Housing**	60	30-250dw/ha
	C1+C2, C10-C26		
Village Centre Residential	**Standard Residential**	111	22-30dw/ha
(existing B4 Zone)	C1 - C7		
	Integrated Housing		
	C10-C26		
Town Centre Mixed Use	**Integrated Housing**	450	30-250dw/ha
	C1+C2, C10-C26		
Town Centre Residential	**Standard Residential**	838	22-30dw/ha
(existing B4 Zone)	C1 - C7		
	Integrated Housing		
	C10-C26		
General Residential / Town Centre Proximity	**Standard Residential**	776	17-22dw/ha
Lots below 300m2 permitted subject to additional locational criteria. 800m of Town Centre, opposite Parks and Open Space Amenity, along major roads and public transport corridors, along ped/cycle linkages, suitable topography - greater than 1:10	C1-C7		
	Integrated Housing		
	C10-C22		
TOTAL		**6500**	

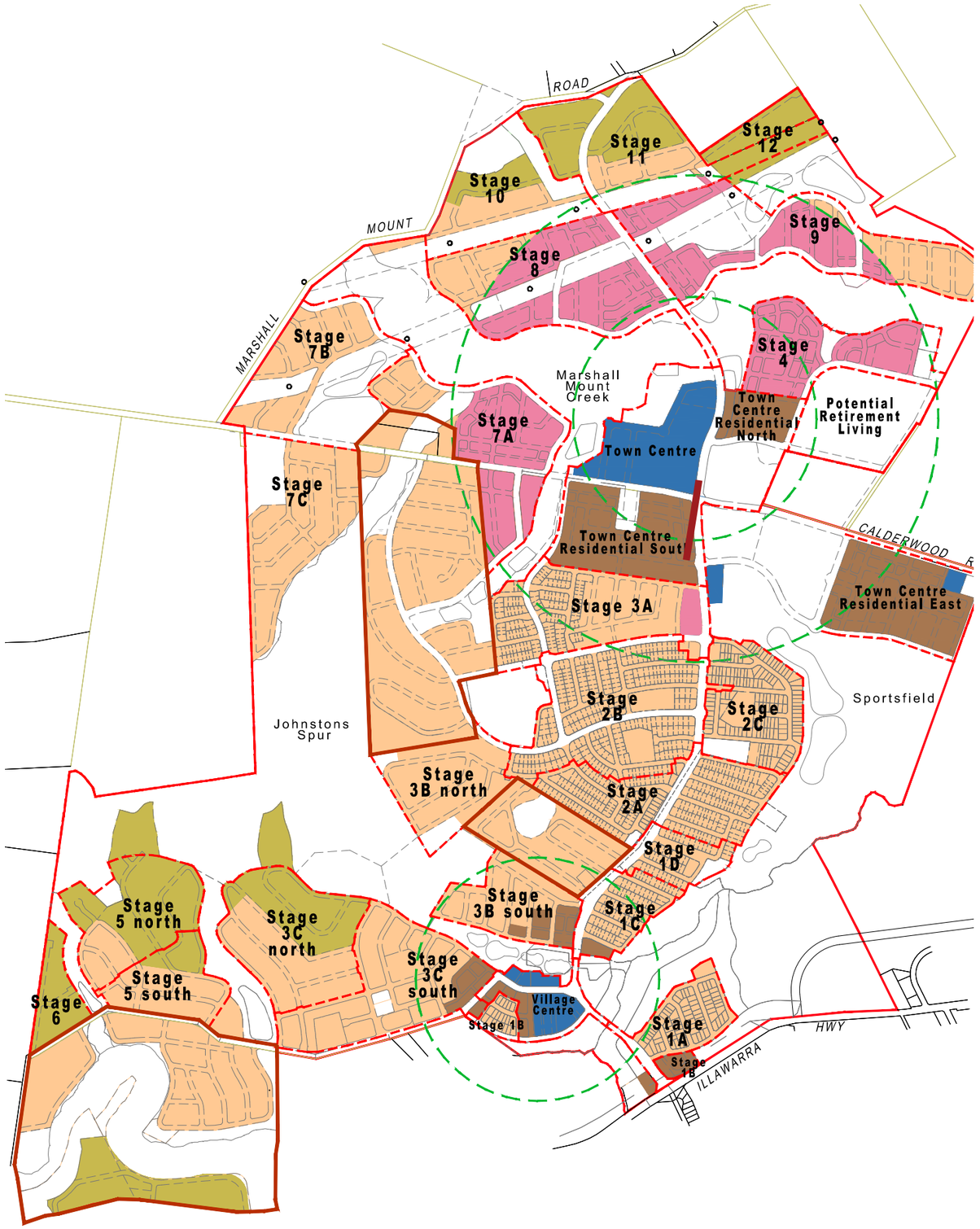


Figure 19: Dwelling Distribution

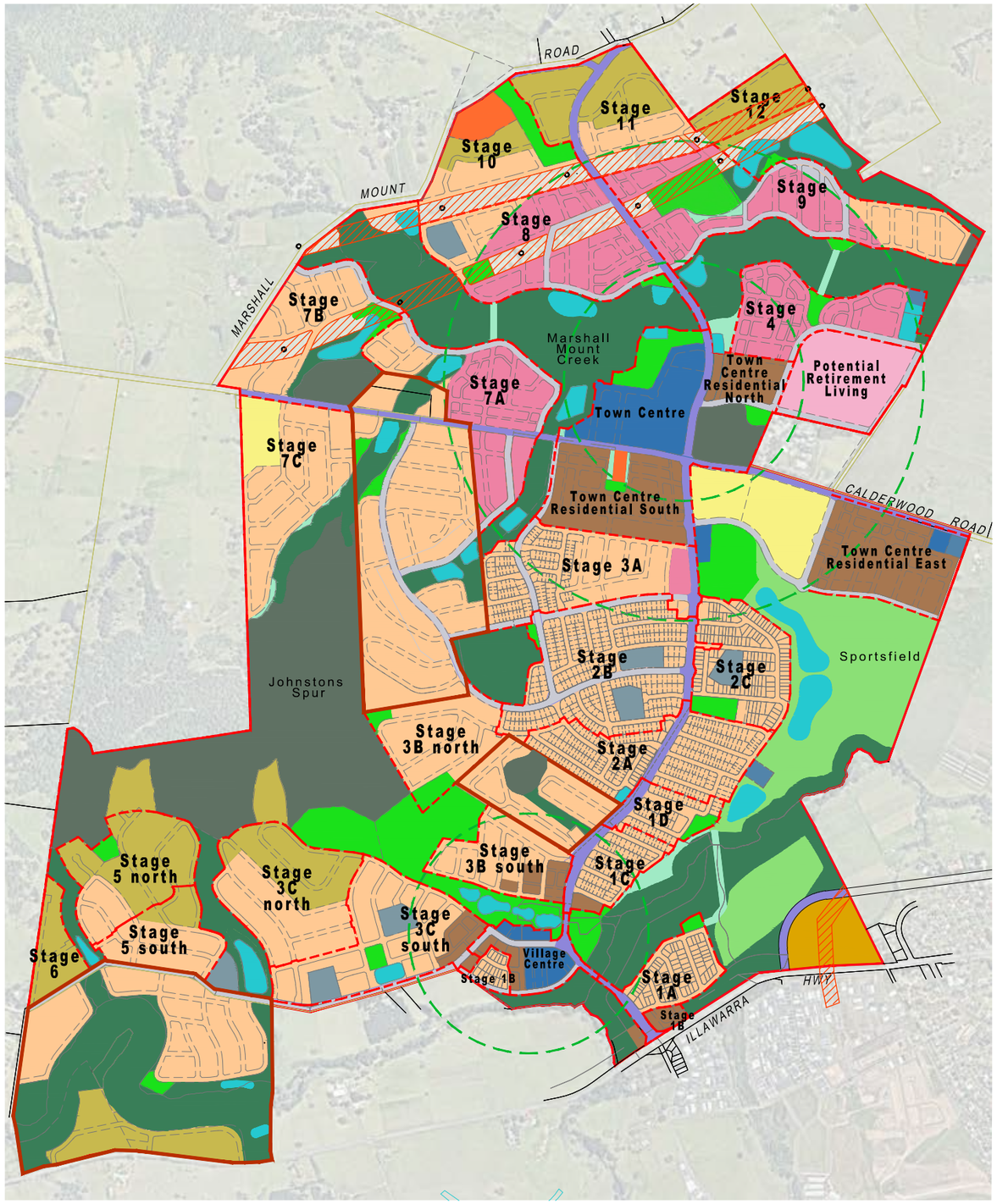
NOTE: The Dwelling Types listed above refer to Appendix B of the Revised DCS

4.0 Indicative Subdivision Pattern

The Indicative Subdivision Pattern has been refined to reflect the changes that have been made to structuring elements such as major roads and flooding.

The approach to the layout has not altered from the Urban Design Principles contained in the DCS. The location of roads and lots are influenced by many factors including site constraints and housing density.

Figure 20 illustrates the indicative subdivision layout overlaid on the constraints. This section provides examples and demonstrates how the indicative subdivision pattern conforms to the site and achieves the dwelling density.



Legend

- Site Boundary
- General Residential
- General Residential Town Centre Proximity
- Town Centre and Village Centre Residential
- Town Centre and Village Centre Mixed Use
- Retirement Living
- Slope Sensitive General Residential
- School
- Heritage
- Environment Conservation - Riparian
- Environment Conservation - Bushland
- Open Space Passive
- Open Space Active
- Open Space Linear
- Drainage
- Major Roads (Escarpment Drive and Calderwood Road)
- Minor Roads
- Local Roads
- Electricity Easement
- Infrastructure
- Rural
- Non-Core Lands
- Existing Landholders

Figure 20: Indicative Subdivsion Pattern

4.1 General Residential

The General Residential area comprises of three sub-categories:

- Existing Stages approved and/or constructed
- Land not owned or to be developed by Lendlease
- Undeveloped Lendlease land

Figure 21 highlights where these areas are located.

The number of dwellings per hectare generally ranges between 15 and 17 dwellings per hectare.

It should be noted that the Net Developable Area is defined as the number of dwellings divided by the land area of local roads and residential lots.

Residential Type	Dwelling Types	Dwelling Numbers
Existing Stages	Existing	1384
Non LL Core Lands	N/A	902
Landowner Lots	Standard Residential	
	C1 - C9	
	Integrated Housing subject to locational criteria - Local Park C10-C21	215
General Residential	Standard Residential	
	C1 - C9	
	Integrated Housing subject to locational criteria - Local Park C10-C21	1215

NOTE: The Dwelling Types listed above refer to Appendix B of the Revised DCS

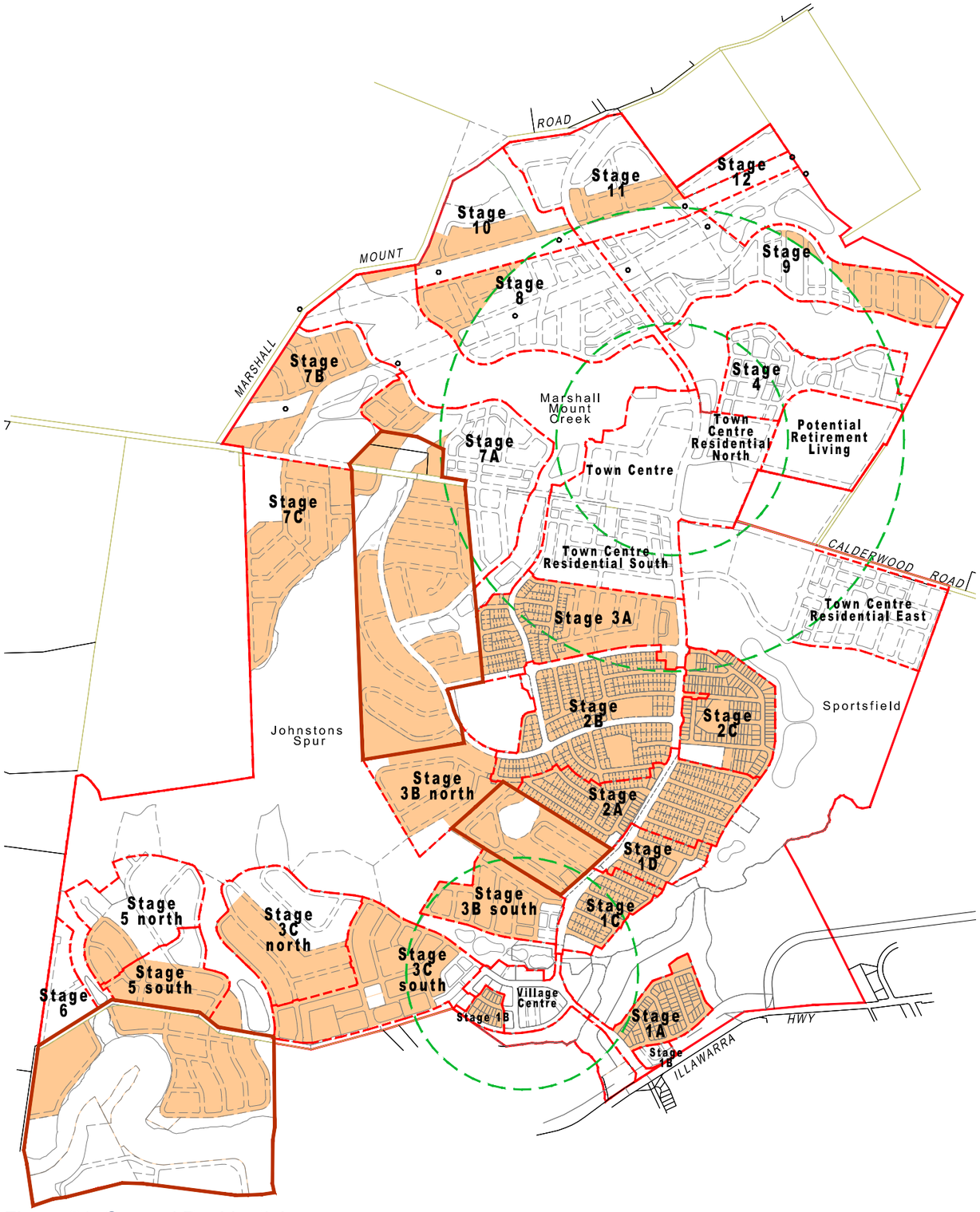


Figure 21: General Residential

4.1.1 GENERAL RESIDENTIAL EXAMPLES

The dwelling types include the Standard Residential Types of C1 to C7 and the Integrated Housing Types C10 to C21, subject to being located opposite a Local Park. These dwelling types and the densities being achieved have already been approved and are currently being constructed. It is intended that this form of residential continue to be developed in the future Stages of 7B, 7C, and parts of Stages 9, 10, 11, 3 and 5 (in those areas not slope sensitive).

Lots above 300m² - Dwelling Types C1-C7

4.2 General Residential - Town Centre Proximity

As indicated in Section 3.2, these areas are intended to remain within the General Residential character areas but due to the characteristics listed below they are suited to comprise a more diverse mix of dwellings including smaller dwellings on allotments less than 300m2 in land size, on a mix of tenures.

- Within 800m or a 10-minute walk of the Town Centre - the outer dashed circle shown in Figure 22.
- Opposite Parks and Open Space Amenity
- Along major roads and public transport corridors
- Along pedestrian and cycle linkages
- Suitable topography and landform

Figure 22 highlights where these areas are located.

The number of dwellings per hectare generally ranges between 17-22 dwellings per hectare.

It should be noted that the Net Developable Area is defined as the number of dwellings divided by the land area of local roads and residential lots.

Residential Type	Dwelling Types	Dwelling Numbers
General Residential / Town Centre Proximity	**Standard Residential**	
Lots below 300m2 permitted subject to additional locational criteria. 800m of Town Centre, opposite Parks and Open Space Amenity, along major roads and public transport corridors, along ped/cycle linkages, suitable topography - greater than 1:10	C1 - C9	776
	Integrated Housing	
	C10-C26	

NOTE: The Dwelling Types listed above refer to Appendix B of the Revised DCS

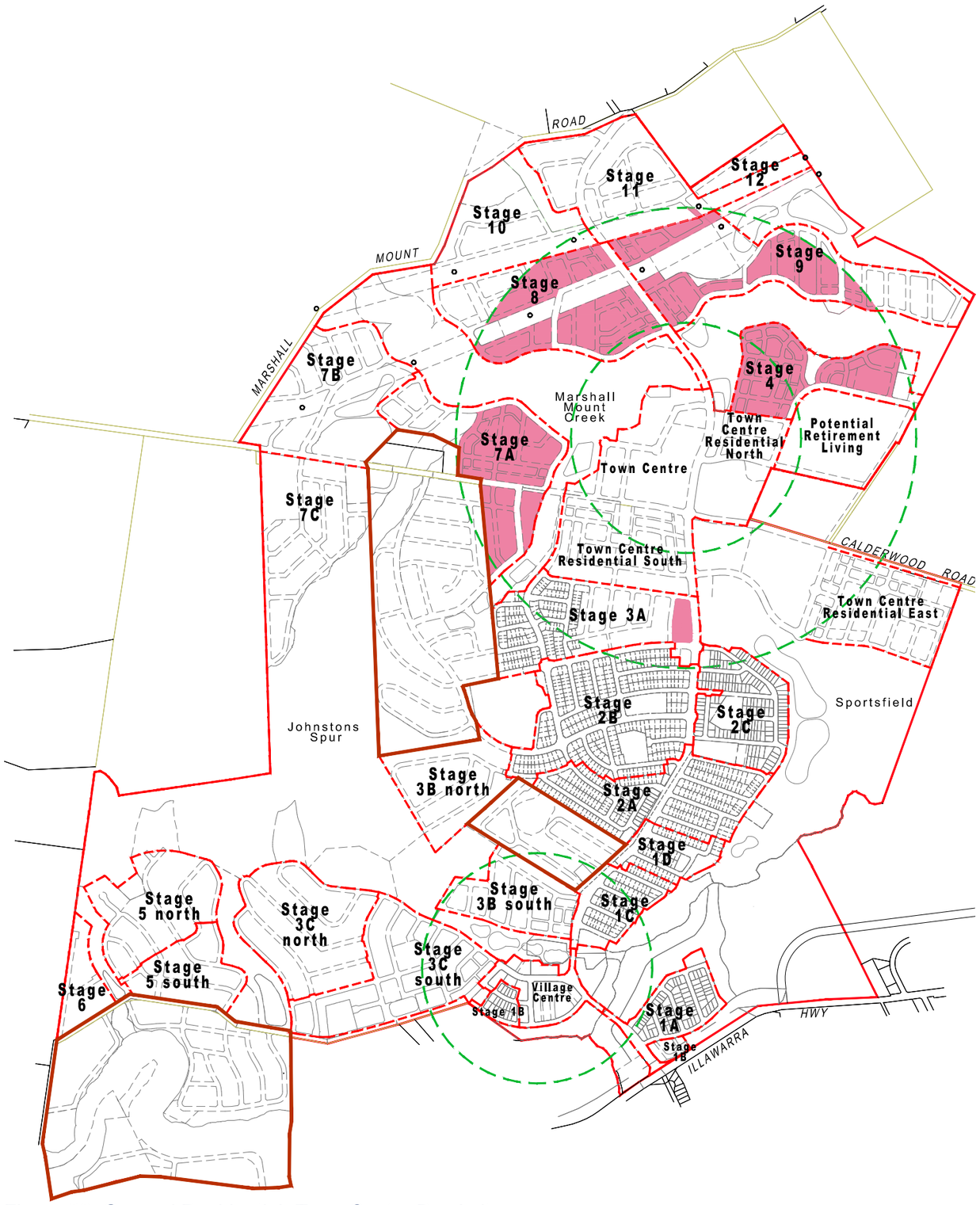


Figure 22: General Residential- Town Centre Proximity

4.2.1 GENERAL RESIDENTIAL
- TOWN CENTRE PROXIMITY EXAMPLES

The dwelling types include the Standard Residential types of C1 to C7 and the Integrated Housing types of C10 to C26. These dwelling types are illustrated in the images below.

Lots above 300m² - Dwelling Types C1-C7

Lots below 300m²- Dwelling Types C10-C26 Terraces within 800m of Town Centre and fronting major transport corridor

Dwellings overlooking Open Space

4.3 Town Centre and Village Centre Residential

The Town Centre and Village Centre Residential comprises the most diverse dwelling mix with the highest proportion of smaller dwellings on lots below 300m2. Contained within the existing B4 Residential Zones Figure 23 highlights where these areas are located.

The number of dwellings per hectare generally ranges between 22 to 30 dwellings per hectare.

It should be noted that the Net Developable Area is defined as the number of dwellings divided by the land area of local roads and residential lots.

Residential Type	Dwelling Types	Dwelling Numbers
Village Centre Residential	**Standard Residential**	111
(existing B4 Zone)	C1 - C7	
	Integrated Housing	
	C10-C26	
Town Centre Residential	**Standard Residential**	838
(existing B4 Zone)	C1 - C7	
	Integrated Housing	
	C10-C26	

NOTE: The Dwelling Types listed above refer to Appendix B of the Revised DCS

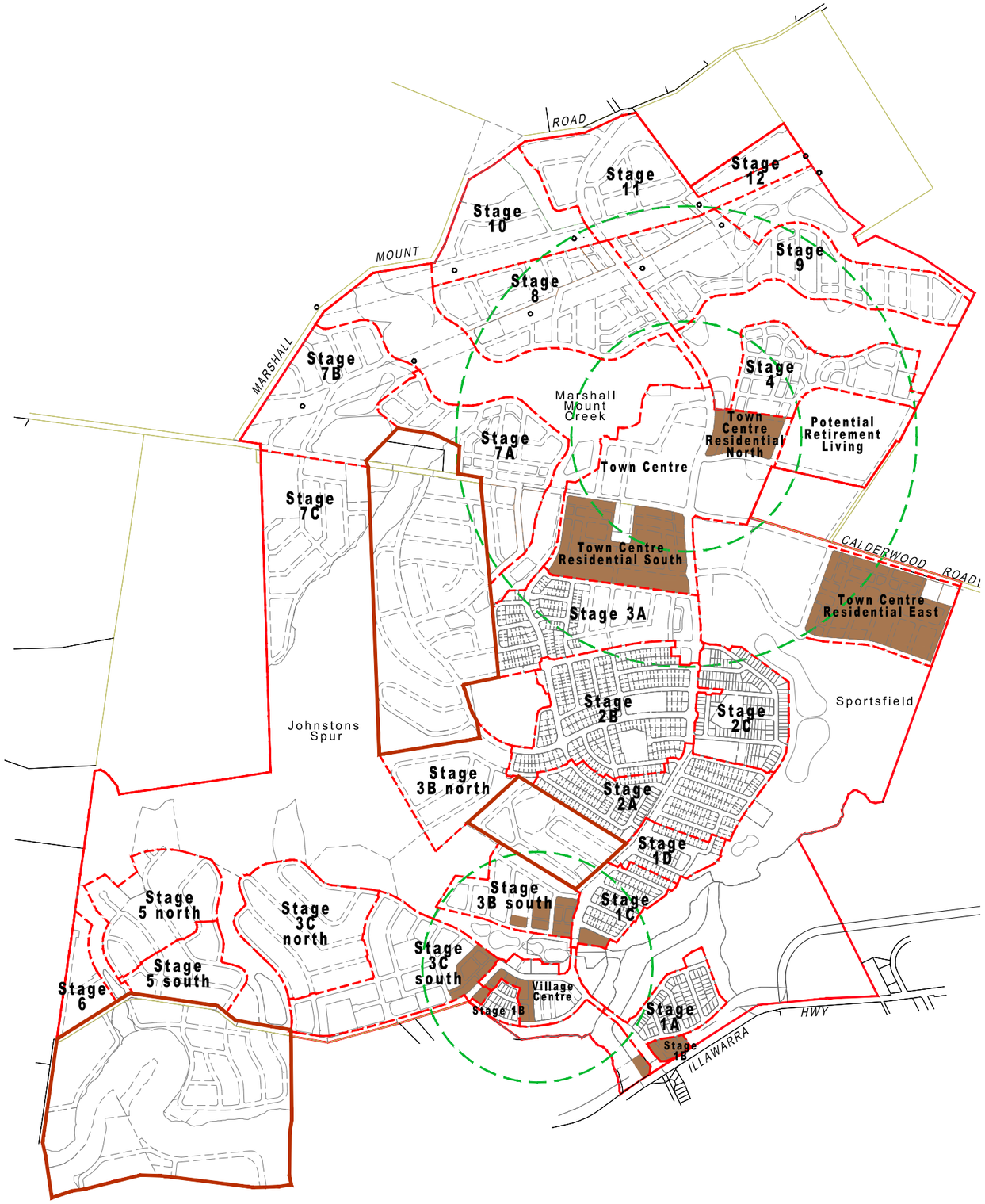


Figure 23 - Town Centre and Village Centre Residential

4.3.1 TOWN CENTRE AND VILLAGE CENTRE RESIDENTIAL EXAMPLES

The dwelling types include the Standard Residential types of C1 to C7 and the Integrated Housing types of C10 to C26. These are like the dwelling types highlighted in the General Residential – Town Proximity area. The difference will be an increase in the number of smaller lots below 300m2 which will achieve a higher density of dwellings per hectare.

Town Centre Residential East Indicative Lot Layout

4.4 Town Centre and Village Centre Mixed Use

The Town Centre and Village Centre Mixed Use areas comprises the densest dwelling mix. Contained within the existing B4 Residential Zones Figure 24 highlights where these areas are located.

Given the mixed-use nature of the centres the dwelling densities will vary considerably depending on ultimate dwelling design composition between the various Integrated Housing Types. It is proposed that the Village Centre will comprise 60 dwellings and the Town Centre 450 dwellings as shown in the blue areas in Figure 24.

The number of dwellings per hectare will generally vary considerably on a site by site basis. Generally, these can range from 30 dwellings per hectare for terrace style homes to 250 dwellings per hectare for 4 to 5 storey apartments depending on parking and mixed-use arrangements.

In this case dwellings per hectare excludes roads and is defined as the residential lot only

Residential Type	Dwelling Types	Dwelling Numbers
Village Centre Mixed Use	Integrated Housing	60
	C1+C2, C10-C26	
Town Centre Mixed Use	Integrated Housing	450
	C1+C2,C00-C26	

NOTE: The Dwelling Types listed above refer to Appendix B of the Revised DCS

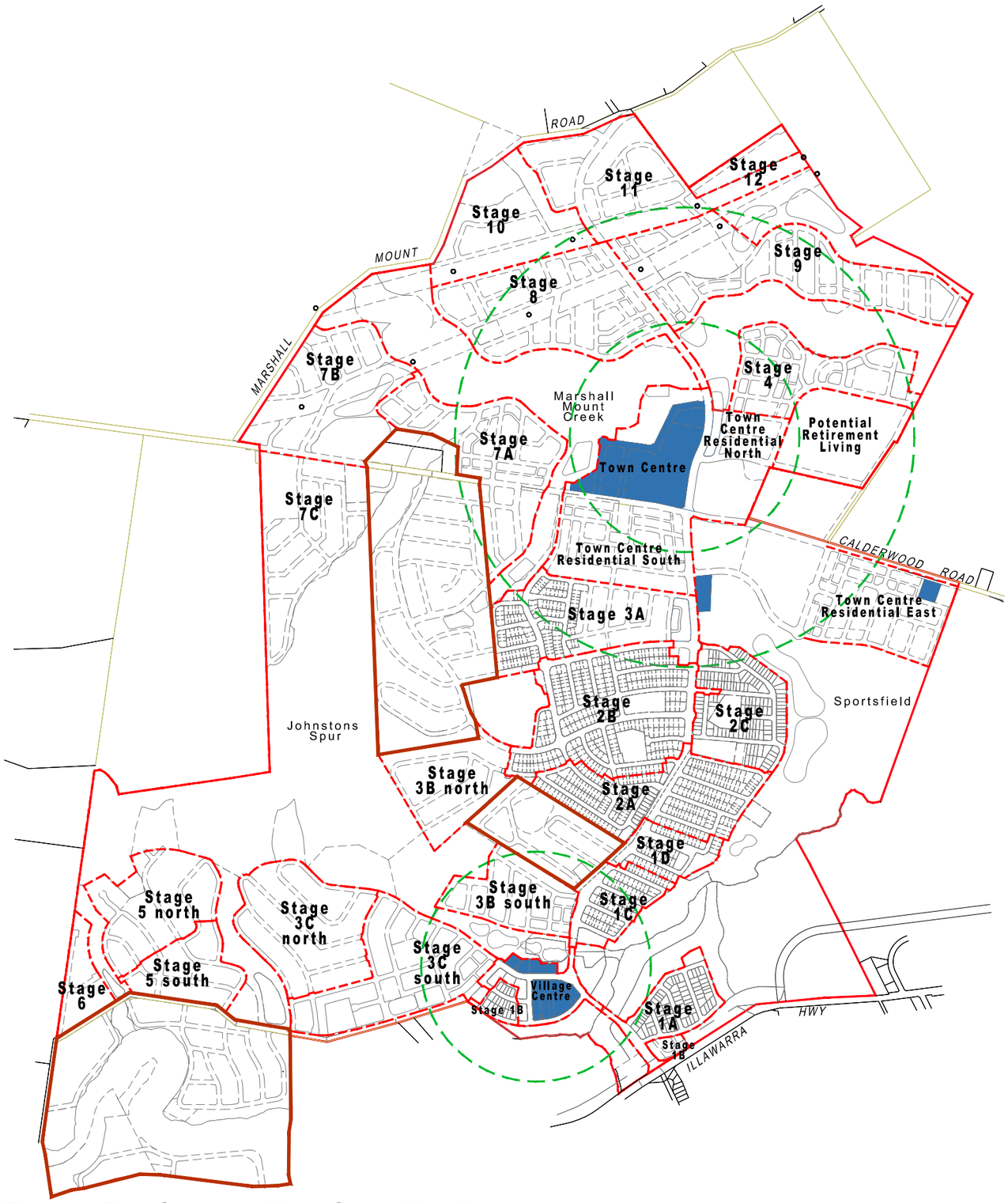


Figure 24- Town Centre and Village Centre Mixed Use

4.4.1 TOWN CENTRE MIXED USE EXAMPLES

The dwelling types include the Integrated Housing Dwelling Types of C10 to C26 contained in the Appendix of the Revised DCS.

Live/ Work Opportunities

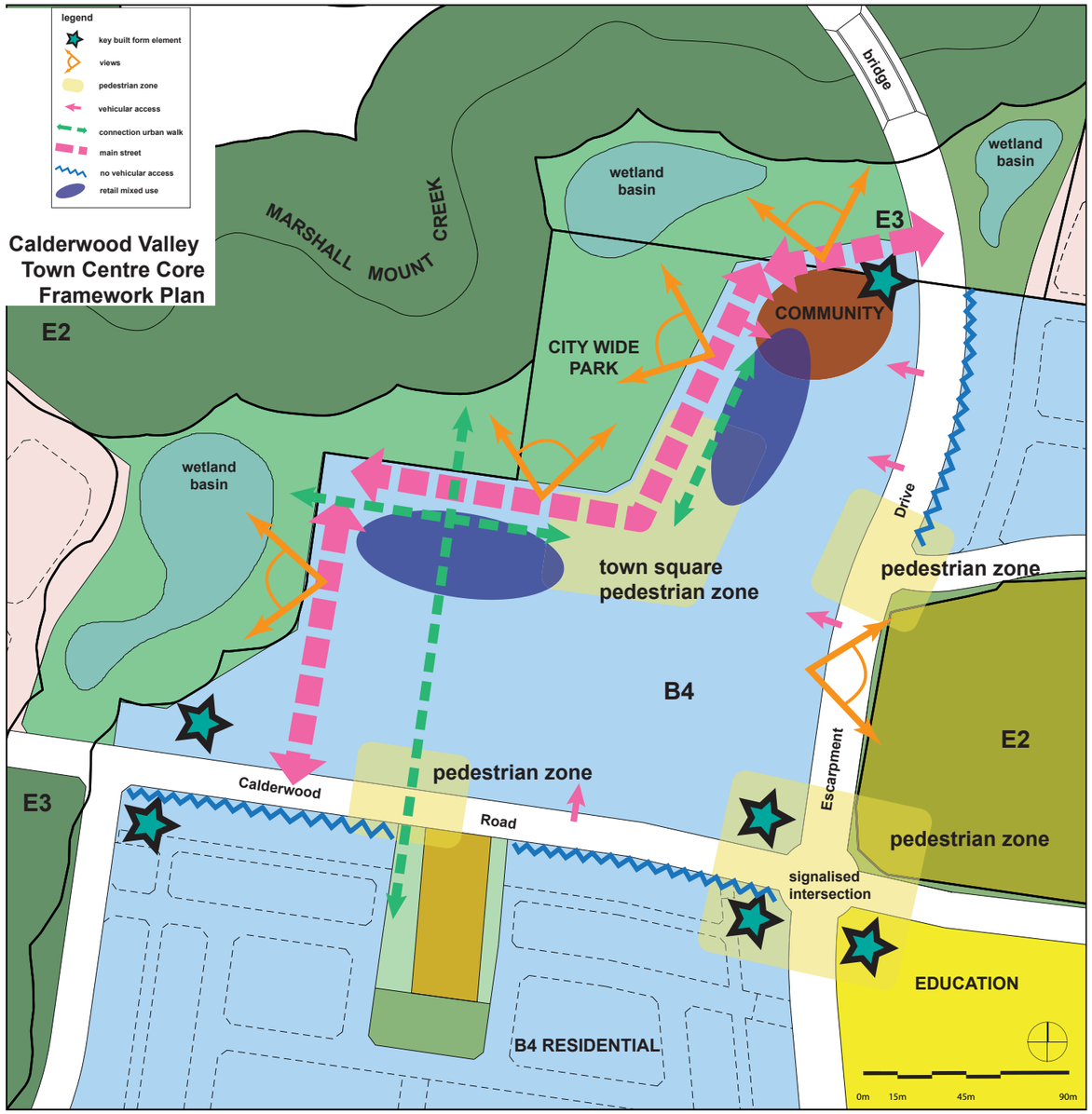
Terrace

3 storey apartments

3-4 storey apartments

4 storey apartments

4.4.2 VILLAGE CENTRE MIXED USE EXAMPLES



Examples of mixed use

4.5 Retirement Living

A potential retirement living area is located on suitable flat topography and within 400m or 5-minute walking distance of the Town Centre.

It comprises 270 dwellings at 25-30 dwellings per hectare.

The dwelling types include the Integrated Housing Dwelling Types of C8 to C21 as well as those specific to Retirement Living.

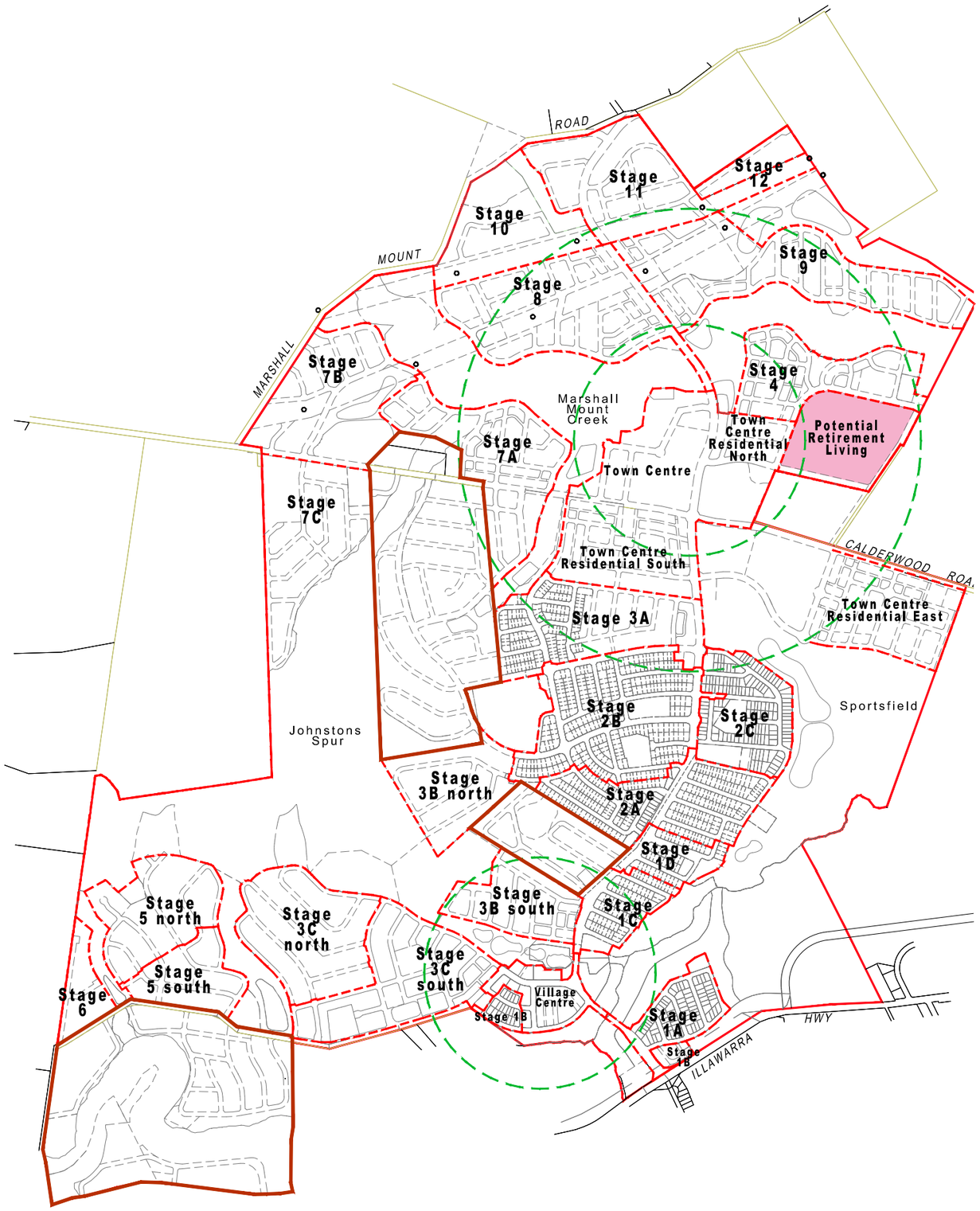


Figure 25- Retirement

Residential Type	Dwelling Types	Dwelling Numbers
Retirement Living	As per land use	270

4.6 Slope Sensitive

The slope sensitive land comprises land that are too steep for General residential development. The number of dwellings per hectare varies and depends on a site by site basis.

Residential Type	Dwelling Types	Dwelling Numbers
Slope Sensitive	Standard Residential	279
	C3-C9	

NOTE: The Dwelling Types listed above refer to Appendix B of the Revised DCS

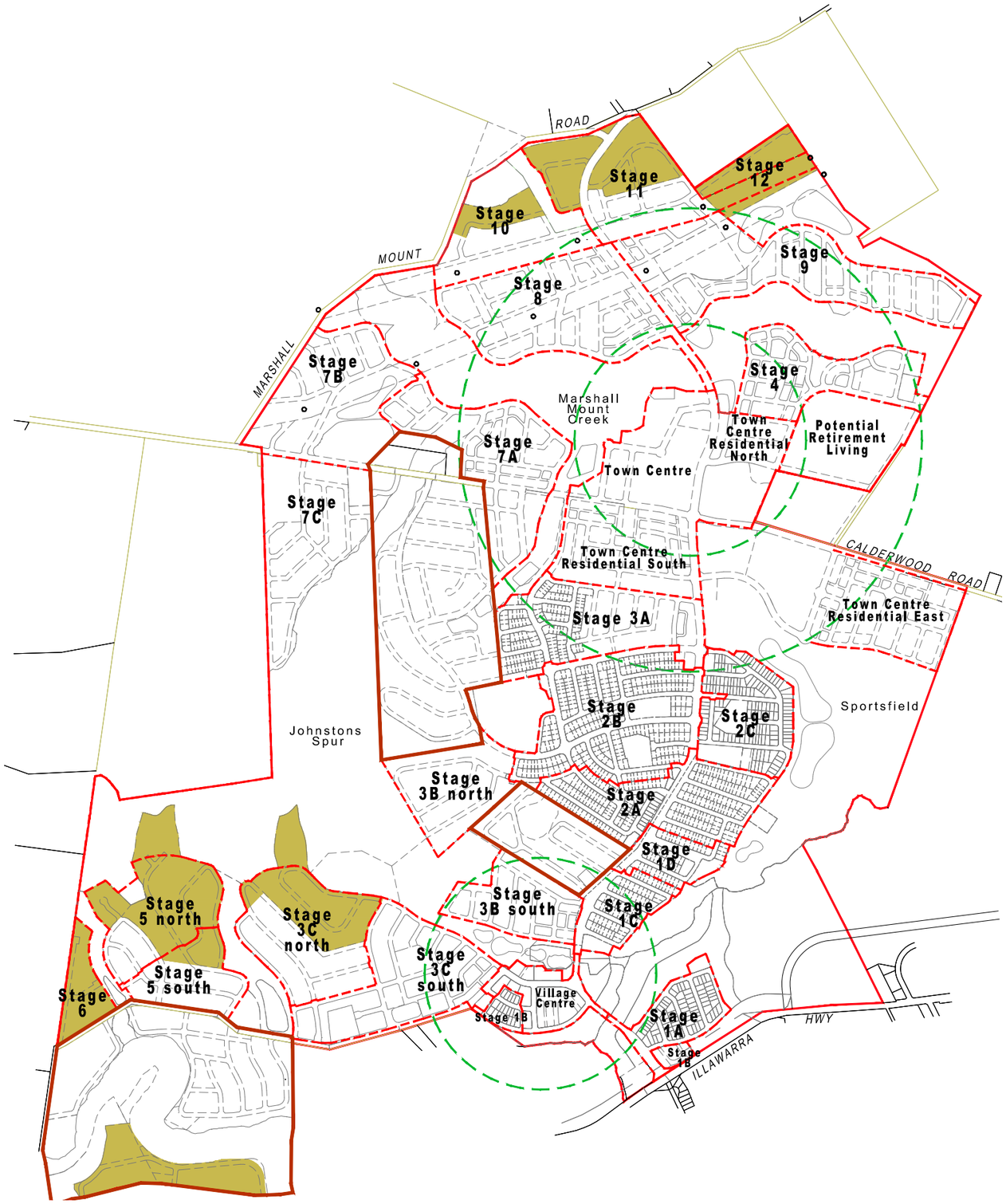


Figure 26- Slope Sensitive

Housing on large lots above 1000m²

Housing slopes from 1:6 to 1:5

5.0 SEPP 65 and Better Placed

5.1 SEPP 65

State Environmental Planning Policy No. 65 are applicable for development within the Town Centre and Village Centre. Relate detailed design of apartment dwellings which would be assessed in further approvals.

Principle 1: Context and Neighbourhood Character

Good design responds and contributes to its context. Context is the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions.

Responding to context involves identifying the desirable elements of an area's existing or future character. Well designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood. Consideration of local context is important for all sites, including sites in established areas, those undergoing change or identified for change.

Principle 2: Built Form and Scale

Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings.

Good design also achieves an appropriate built form for a site and the building's purpose in terms of building alignments, proportions, building type, articulation and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.

Principle 3: Density

Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context.

Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.

Principle 4: Sustainability

Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs. Other elements include recycling and reuse of materials and waste, use of sustainable materials, and deep soil zones for groundwater recharge and vegetation.

Principle 5: Landscape

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood.

Good landscape design enhances the development's environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values, and preserving green networks. Good landscape design optimises usability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity, provides for practical establishment and long term management.

Principle 6: Amenity

Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well being.

Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas, and ease of access for all age groups and degrees of mobility.

Principle 7: Safety

Good design optimises safety and security, within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety.

A positive relationship between public and private spaces is achieved through clearly defined secure access points and well lit and visible areas that are easily maintained and appropriate to the location and purpose.

Principle 8: Housing Diversity and Social Interaction

Good design achieves a mix of apartment sizes, providing housing choice for different demographics, living needs and household budgets.

Well designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people, providing opportunities for social interaction amongst residents.

Principle 9: Aesthetics

Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures.

The visual appearance of well designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.

6.0 Better Placed

The NSW Architect has prepared Better Placed which is structured to work in many ways, with the purpose of achieving better places for the people of NSW by:

- Advocating the importance of design for better places, spaces and outcomes.
- Supporting industry and government to deliver good design for people.
- Enabling effective design processes to be established and supported in the planning system.

To achieve these outcomes seven distinct objectives have been created for consideration in the creation of place.
These are discussed below in the context of Calderwood Valley.

5.2.1 BETTER FIT - CONTEXTUAL, LOCAL AND OF ITS PLACE

LOCAL - A building, place or space that relates to an area, or neighbourhood.
CONTEXTUAL - A building, place or space that responds to the context in which it is designed.
OF ITS PLACE - A building, place or space that relates to its surrounds.

The design of Calderwood Valley responds to better fit with the following:

- Calderwood Valley draws upon the natural landscape of the area with key view corridors towards the Illawarra escarpment, Johnstons Spur, Macquarie Rivulet and the wider Illawarra region. Open space corridors are prominent throughout the site including connections from Johnstons Spur down towards the two creek systems running through Calderwood Valley – Macquarie Rivulet and Marshall Mount Creek. Residents will have easy access to these systems creating a sense of place for the area and surrounding neighbourhoods.
- Calderwood Valley is a twenty-minute drive from the heart of Shellharbour with further roadway connections proposed to better connect the development with surrounding areas. The design and layout of the estate is functional and cohesive, allowing natural integration with open space corridors and recreational activities. The layout responds to the natural slope and geology of the site creating larger residential allotments in steeper areas. A point of difference for Calderwood Valley is therefore created by seeking to retain the characteristics that sets the development apart.
- The Illawarra escarpment is a key element to the south and west of the project. Whilst this feature is not within the project site itself, it forms an important view corridor, attraction and sense of place for the Calderwood Valley residents. There are also two heritage places that enhance the character and attachment for residents in the project – Marshall Mount Homestead and the existing cemetery on Calderwood Road. Calderwood Valley also aims to create a sense of identity by connecting residents to the vast amount of conservation and open space areas.

5.2.2 BETTER PERFORMANCE- SUSTAINABLE, ADAPTALE AND DURABLE

SUSTAINABLE - Relates to the endurance of systems, buildings, spaces and processes – their ability to be maintained at a certain rate or level, which contributes positively to environmental, economic and social outcomes.
ADAPTABLE - A building, place or space that is able to adjust to new conditions, or to be modified for a new purpose.
DURABLE - A building, place or space that is built to be able to withstand wear and pressure.

- The three facets of sustainability (environmental, economic and social) are fundamental elements to the design of the Calderwood Valley project. The layout responds to natural aspects like slope, geology, drainage corridors and solar orientation. This seeks to reduce development, energy and water costs for not only Lendlease but also the residents calling Calderwood Valley their home in the future. Where possible, residential lots are designed with a north/south orientation to maximise sunlight and higher density buildings centralised into two centres to minimise the overshadowing effects. Calderwood Valley is targeting a 6 Star Green Star rating in the future, outlining Lendlease's ambition and intention for a sustainable development.
- Calderwood Valley is like any other long-term, large-scale residential developments in the sense that new technologies and improvements may become available across the lifetime of the project. The framework set for Calderwood at the Concept Plan level allows for the structure to remain in place with flexibility for the delivery.
- The calderwood Valley urban design and place making strategies seek to embrace the local natural features of the communities extensive bushland vegetation and riparian corridors. Focussed environmental management activites including weed removal and vegetation, coupled with robus water cycle and flood mitigation strategies ensure that the new community is durabl and productive over time.

5.2.3 BETTER FOR COMMUNITY- INCLUSIVE, CONNECTED AND DIVERSE

INCLUSIVE - A building, place or space that embraces the community and individuals who use it.
CONNECTED - A building place or space that establishes links with its surrounds, allowing visitors and residents to move freely and sustainably.
DIVERSE - A building, place or space that embraces a richness in use, character and qualities

- We propose a diverse range of housing products is incorporated into the development targeting different levels of affordability for future residents. These products range from apartment living and terrace allotments to standard residential homes found in most developments. This improves the social sustainability of Calderwood Valley and promotes a sense of inclusiveness for the community and enhance the strength of the neighbourhood.
- Combining the natural elements of the site with a design that is safe and durable enhances the feel of the Calderwood Valley development and better links it to its residents. With key view corridors, walkability to open spaces and accessibility to a variety of amenities, Calderwood Valley encourages residents to explore the outside surroundings and all that the project has to offer. Whether this be exploring Johnstons Spur, the creek systems or walking between the town and village centres, people should feel a sense of place in discovering new things and getting to know their neighbourhood.
- Different precincts throughout the Calderwood Valley project are intended for a diverse range of uses. These range from core areas such as the town and village centre to lower density housing closer to the natural edges of the site. In between, the project offers medium to high density housing and standard residential allotments creating a wide-ranging community.

5.2.4 BETTER FOR PEOPLE- SAFE, COMFORTABLE AND LIVEABLE

SAFE - A building, place or space that protects its people from harm or risk of harm.
COMFORTABLE - A building, place or space that provides physical and emotional ease and well-being for its people.
LIVEABLE - A built environment which supports and responds to people's patterns of living, and is suitable and appropriate for habitation, promoting enjoyment, safety and prosperity.

Calderwood Valley has been designed to put people first. To be safe, comfortable and liveable the following aspects have been considered in its design:

- Accessibility and connectivity to public spaces and buildings are a key deliverable for safety. Calderwood provides the following:
  1. Neighbourhoods that are supported by convenient public transport options and local services,
  2. Town and Village Centres are serviced by public transport and street infrastructure that provides for a comfortable street amenity for pedestrians and cyclists as well ensuring function for vehicles.
  3. Neighbourhoods, Open Space, Town and Village Centre's, education and employment nodes are linked by walking, cycling, local road and public transport routes.
  4. Streets are interconnected
  5. A diverse open space strategy provides for active and passive recreational opportunities with ease of access.
- The public realm is activated with streets fringing Parks, allowing for buildings to overlook the public spaces.
- Strong sense of place created out of respect for contextual and natural features, provision of housing choice, employment opportunities and transport options promoting diverse population demographics.
- Built form and development patterns respect and respond to climatic elements. Subdivision pattern is orientated where possible along a north-south and east/west access. In some cases this is not achievable due to slope or riparian orientation.
- Neighbourhoods and Villages have equitable access to a variety of open space and community facilities.
- Walkability encourages feet and peddles as an alternative to vehicles.

5.2.5 BETTER WORKING- FUNCTIONAL, EFFICIENT AND FIT FOR PURPOSE

FUNCTIONAL - A building, place or space that is designed to be practical and purposeful.
EFFICIENT - A building, place or space that is constructed and functions with minimal wasted effort.
FIT FOR PURPOSE - A building, place or space that works according to its intended use.

Calderwood Valley provides for land use diversity to meet the changing needs of communities allowing for a mix of living, business and recreational activities. The spatial arrangements consider accessibility, existing and future character of the urban and open space areas and allow for flexibility in land use types by providing a range of housing and commercial opportunities.
The design of Calderwood:

- responds and respects contextual, topographic,
- environmental and climatic features.
- recognizes and promotes the cultural and historic heritage of the site.
- uses natural features to assist with edge, node and landmark creation,
- considers the efficient use of infrastructure through appropriate spatial allocation of land uses and appropriately sized land use areas for the development of the built environment.
- provides diversity in housing = affordable and accessible options,
- allow for a range of social, recreation and entertainment opportunities,
- gives access to core community services and facilities,
- allows for the provision of education opportunities.

5.2.6 BETTER LOOK AND FEEL- ENGAGING, INVITING AND ATTRACTIVE

ENGAGING - A building, place or space that draws people in with features that generate interest.
INVITING - A building, place or pace that is welcoming to visitors, community and individuals.
ATTRACTIVE - A building, place or space that is aesthetically pleasing, or appealing.

Calderwood focuses on delivery of a community at human scale. Places that are engaging, inviting and attractive are key outcomes as considered in the design and outlined below:

- Activities - The Public Realm in Calderwood Valley provides a myriad of opportunities for activities such as sitting, picnicking, playing, walking, skating, biking, phoning, informal and formal sports, jogging, watching people, eating, drinking, reading, working, etc.
- Architecture - For a vibrant public space it is important that there is a good interaction between the buildings, the outdoor space and the users. The design of the surrounding buildings can play an important role in determining the attractiveness of the public space. Housing fronting open space will overlook Parks with clear entrances. The design of the Town and Village Centres at ground level will ensure that there is a smooth transition between the building (private) and the street (public).
- Accessibility - As mentioned previously Calderwood valley ensures that pedestrians, cyclists and vehicles can easily get to places which makes them inviting. In addition to the accessibility of the various modes of transportation, it is also important that a public space is easy to enter and be discovered. Calderwood Valley ensure this by surrounding destinations with multiple entries through its public realm interface.
- Space for the pedestrian - A public space can only flourish if the pedestrian is the starting point of the design, the facilities and the programming. Calderwood Valley's starting principle in its design for space is its residents and visitors. More people are going to use these public spaces. People get the chance to meet other people.