



Concept Development Application and First Stage of Development

65 Glendale Road, Glendale

Addendum Urban Design Report

20 December 2024

prepared for

Transport for NSW (TfNSW) on behalf of Transport Asset Holding Entity (TAHE)



‘Gura Bulga’

Liz Belanjee Cameron



‘Gura Bulga’ – translates to Warm Green Country. Representing New South Wales.

By using the green and blue colours to represent NSW, this painting unites the contrasting landscapes. The use of green symbolises tranquillity and health. The colour cyan, a greenish-blue, sparks feelings of calmness and reminds us of the importance of nature, while various shades of blue hues denote emotions of new beginnings and growth. The use of emerald green in this image speaks of place as a fluid moving topography of rhythmical connection, echoed by densely layered patterning and symbolic shapes which project the hypnotic vibrations of the earth, waterways and skies.

Ethos Urban acknowledges the Traditional Custodians of Country throughout Australia and recognises their continuing connection to land, waters and culture.

We acknowledge the Awabakal people, the Traditional Custodians of Awabakal Country, the land where this project is located. We also acknowledge the Gadigal people, of the Eora Nation, the Traditional Custodians of the land where this document was prepared, and all peoples and nations from lands affected.

We pay our respects to their Elders past, present and emerging.

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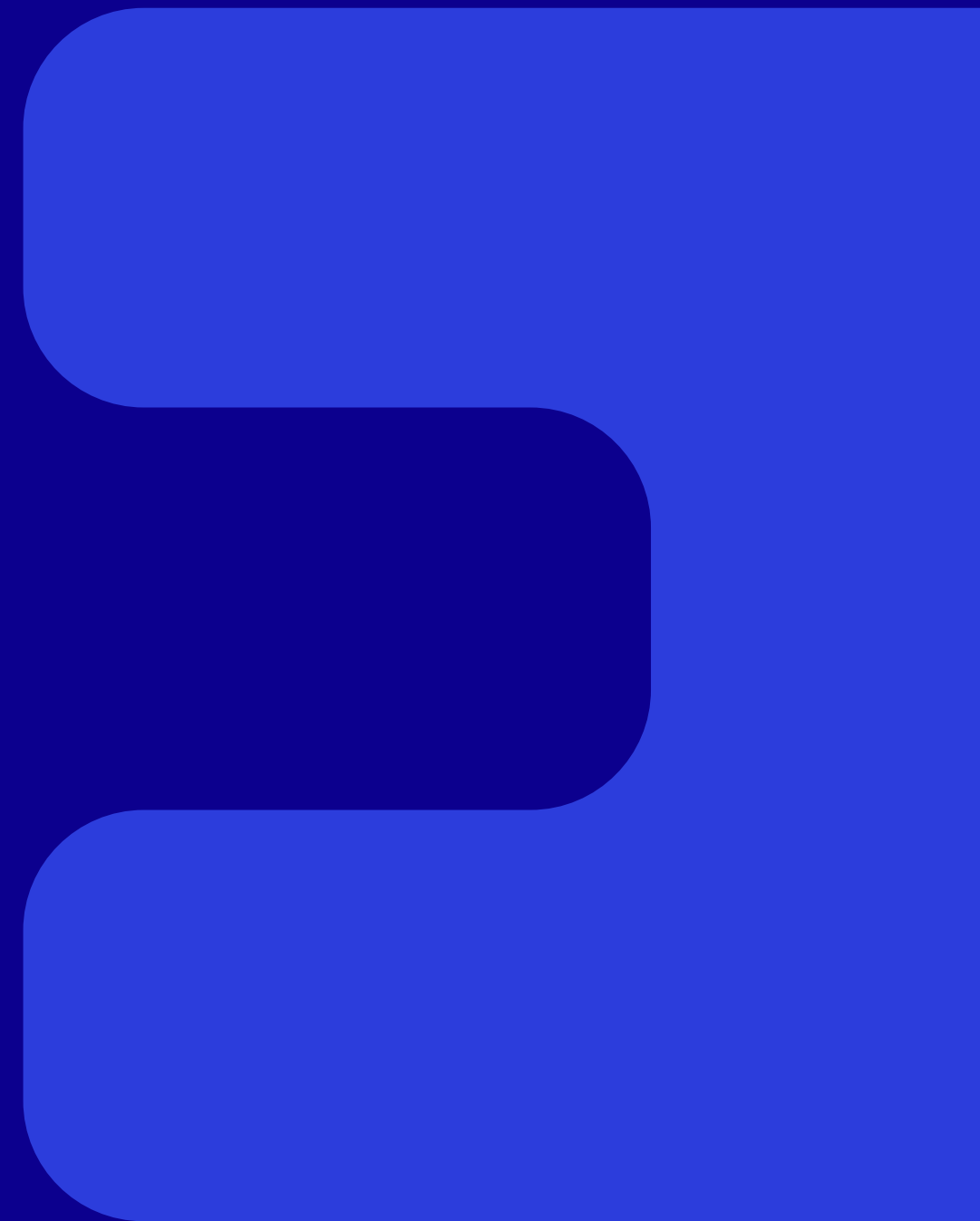
Report Purpose

Ethos Urban has been engaged by TfNSW on behalf of TAHE to undertake the concept development and development subdivision (DA/598/2024) at Lot 1 DP 1286424 65 Glendale Drive, Glendale NSW 2285 (the site) as part of a Development Application for the sites, lodged in early 2024 to Lake Macquarie Council.

The Development Application lodged included an Urban Design report as part of the submission that outlined a master planned approach for ‘the site’.

This document is an addendum to the original Urban Design Report and forms part of the TAHE response to address the Request for Information (RFI) issued by Lake Macquarie City Council dated 22 August 2024. This addendum comprises amendments to Sections 6-8 of the urban design report illustrating the changes to the reference design master plan for the Subject Site.

Section 6 — Reference Master Plan



6 Reference Master Plan

6.1 Vision

Our vision is to develop an urban precinct that is responsive to its site and surroundings while meeting the needs of future growth in the area. By retaining, preserving, and enhancing the Winding Creek riparian corridor, this precinct will provide all the important environmental and social benefits that come with close proximity and easy access to native bushland and community amenities. Glendale Precinct will deliver greater density and housing choice to future residents as well as a diversity of uses and commercial opportunities to support the local community and economy.

6.2 Design Principles



Principle 01 Diversity of Dwellings

While much of Glendale comprises of 1-2 storey detached suburban housing stock, the ability to provide greater choice in housing product will be key to meeting the growth of the area. The introduction of more urban, denser forms comprising residential flat buildings, town houses and dual occupation dwellings, will ensure greater housing choice for future residents.



Principle 02 Density close to Amenity

By locating density close to the Winding Creek riparian corridor and public open spaces, this precinct will provide all the important environmental and social benefits that come with close proximity and easy access to native bushland and community amenities.

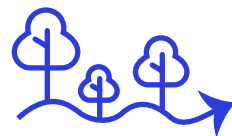
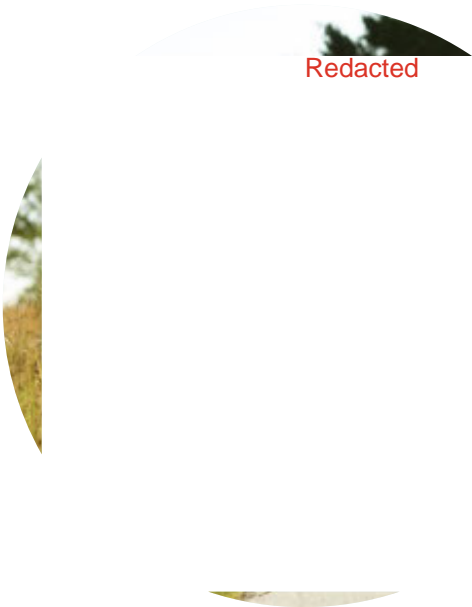




Principle 03

Establish & Connect to Regional Cycle Network

There is an opportunity to deliver a key regional cycle connection along the Winding Creek corridor to link Glendale to three existing regional cycle routes with access to Newcastle, Speers Point and Richmond Vale. The shared path will provide a key piece of active transport infrastructure to the broader region while linking the local community to the Winding Creek riparian corridor as a key piece of recreational and open space infrastructure.



Principle 04

Preserve & Enhance Riparian Corridor

By preserving the Winding Creek riparian corridor, the new neighbourhood in Glendale will retain a distinct sense of place and connection to the site's natural and indigenous heritage. The corridor will also actively function as a key piece of blue and green infrastructure to support indigenous flora and fauna and facilitate the conveyance of stormwater, while providing a valuable piece of open space infrastructure for the community.



Principle 05

Well-Connected, Walkable & Safe

The provision of a high amenity and easily accessible public domain network of streetscapes, open spaces and green links will ensure a safe, walkable and well connected neighbourhood. Activated interfaces allows for passive surveillance, while climate sensitive materials, urban furniture & signage, and substantial tree canopy will ensure that pedestrians, cyclists and vehicles can share the public domain safely.



6 Reference Master Plan

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

6.3 Reference Master Plan

The Reference Master Plan envisions an urban precinct set against the backdrop of native bushland and Winding Creek

The Reference Master Plan adopts a place-based and market-driven approach to deliver a new urban neighbourhood with a mix of uses, and greater density and diversity of built form outcomes within close proximity to high amenity public domain and open space infrastructure.

- 1

Winding Creek Conservation Area
The Winding Creek Riparian Corridor and Conservation Area will be rehabilitated to enhance its ecological and hydrological function as well as provide areas of publicly accessible native bushland for community recreation
- 2

Local Park
0.39ha local park with playground
- 3

Proposed Open Space
0.46ha proposed open space
- 4

Regional Cycleway Link
3m wide shared path linking to existing and proposed regional cycleway network
- 5

Green Link
Green link with integrated shared path
- 6

Preserved Ecological & Heritage Vegetation
High value ecological & heritage vegetation conserved
- 7

Bioretention Basins
Retention of stormwater run-off from streets
- 8

Large Format Retail
Commercial showroom or bulky goods retail
- 9

Apartments
Includes residential flat building, mixed use and shop-top housing
- 10

Multi-dwelling Housing
Townhouses and terraces
- 11

Permissible Uses
Possible uses include, but not limited to, large format retail, warehousing and budget hotel
- 12

Local High Street
Ground floor local servicing retail with apartments above
- 13

Road Acquisition
Land to be acquired by TfNSW for Main Road upgrade

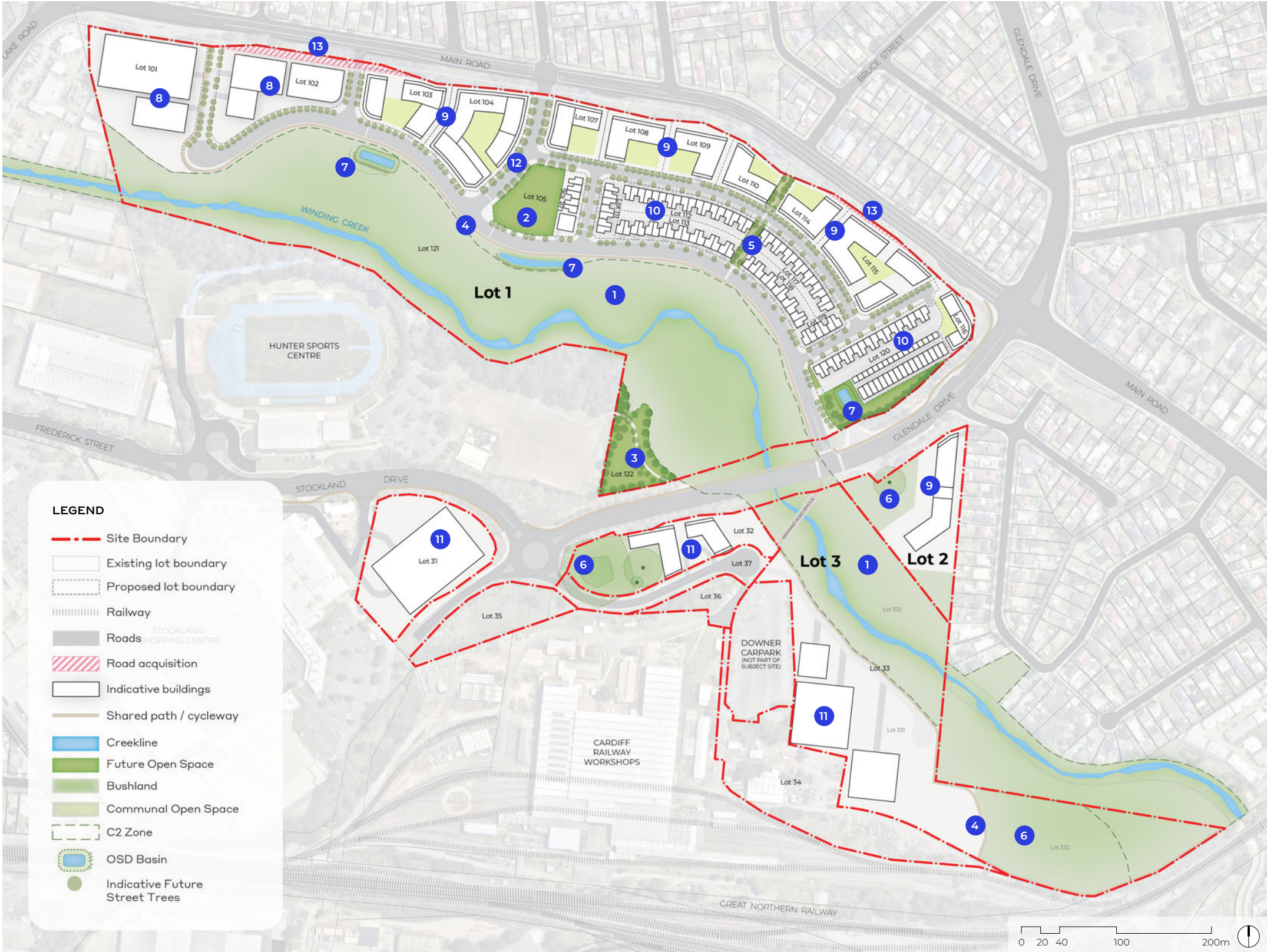


Figure 27. The Reference Master Plan

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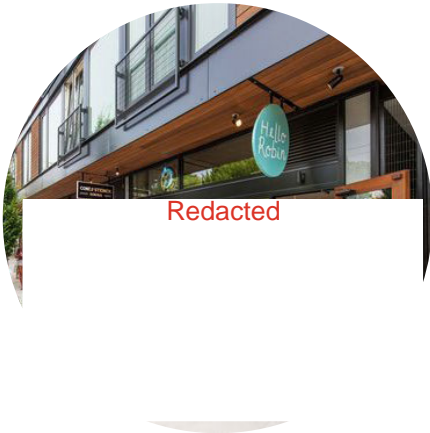
114

Multi Dwelling Homes



687

Apartments



Redacted

2,892m²

Local Shops GFA



2,072m²

Commercial GFA



9,400m²

Large Format Retail GFA



18,540m²

Other Permissable Uses GFA



Redacted

0.39ha

Proposed Local Park



0.46ha

Proposed Open Space



Redacted

2.2km

Regional Cycleway



12.7ha

Riparian Corridor

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6.4 Land Use

The land use approach takes into consideration the proposed lot structure and access points, street hierarchy and open space network to achieve a clear delineation between intended land uses

Land uses are also tied to development parcels which can assist in the staging of the site. Within the MU1 - Mixed use zoning, a range of land uses have been proposed which complement and strengthen the strategic vision for Glendale Regional Centre as a major retail centre within Lake Macquarie.

The site includes a retail focused core and commercial along the High Street which will enable active ground floor frontages and outdoor dining below apartment housing.

The concentration of activity in this area reinforces the arrival into the site and creates an urban focal point for the future community.

A mix of low to medium density apartments and multi-dwelling houses extend east-west from the urban core to offer both residential and landscape facing frontages.

The north-west corner of the site allows for large format retail uses that build upon the existing uses with high exposure at the intersection of Main Road and Lake Road.

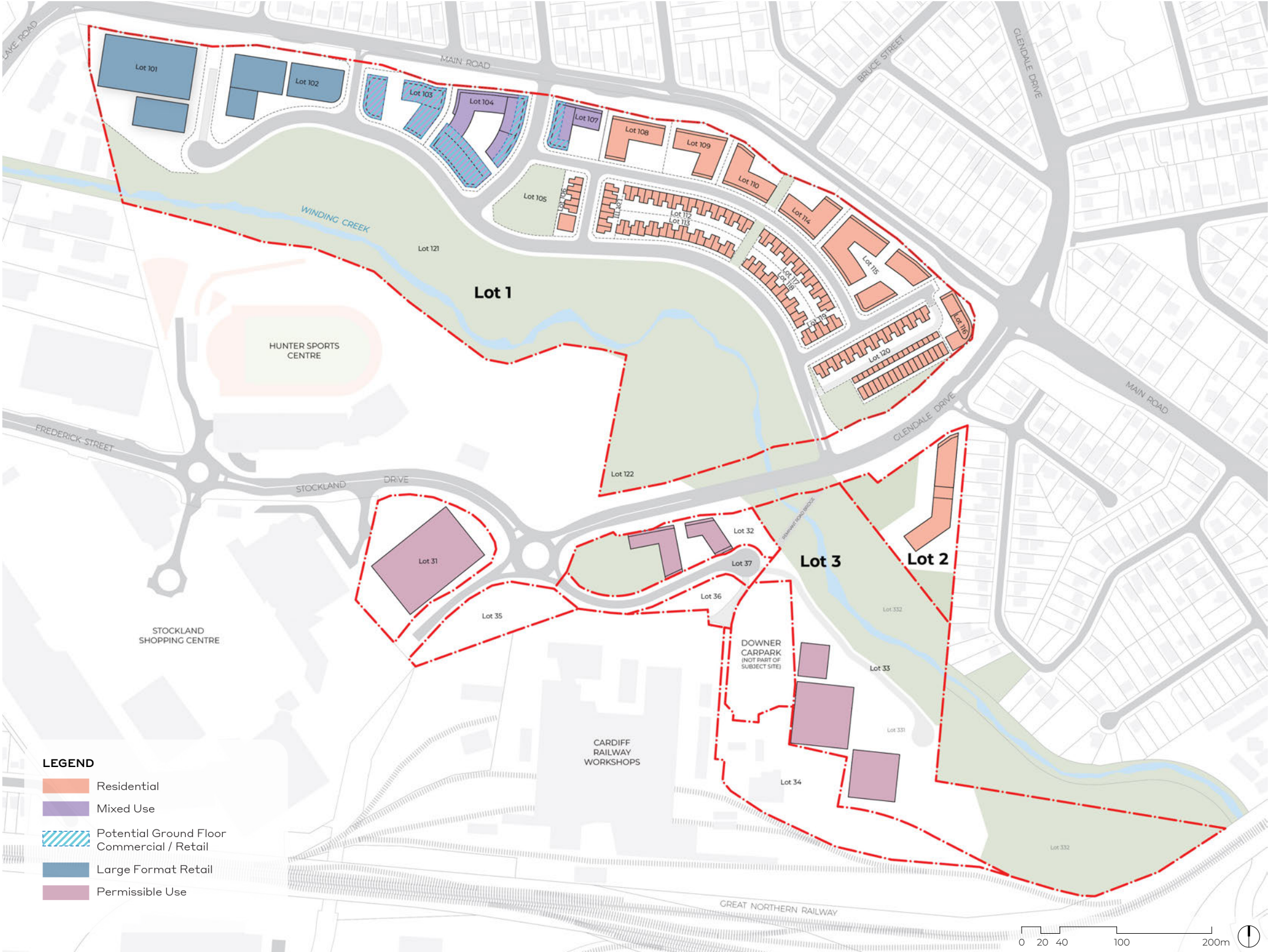


Figure 28. Land Use Diagram

6 Reference Master Plan

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6.5 Street Network

A robust road network and street hierarchy capable of supporting a mix of uses and densities while ensuring pedestrian and active transport amenity

The following street hierarchy is proposed:

- 22m wide Collector Roads include:
 - Perimeter Road - main entry road into the site from the proposed signalised intersection at Glendale Drive
 - High Street - secondary entry into the site from the proposed signalised intersection on Main Road
- 16m wide Local Streets providing local access to lots
- 6m wide Private Laneways providing access to multi-dwelling rear garages in Lot 1
- 5.5m wide Private Laneway providing access to ground level undercroft car park to the residential flat building in Lot 2

The following intersections with existing roads are proposed:

- Signalised intersection at key entry from Main Road
- Left-in & left-out intersection to/from Local Street to/from Main Road
- Signalised intersection at key entry from Glendale Drive
- Minor round-a-bout from Stockland Drive extension into Lot 3

Refer appendix - Traffic Engineering Report by TTPP for further information regarding roads and intersection recommendations.

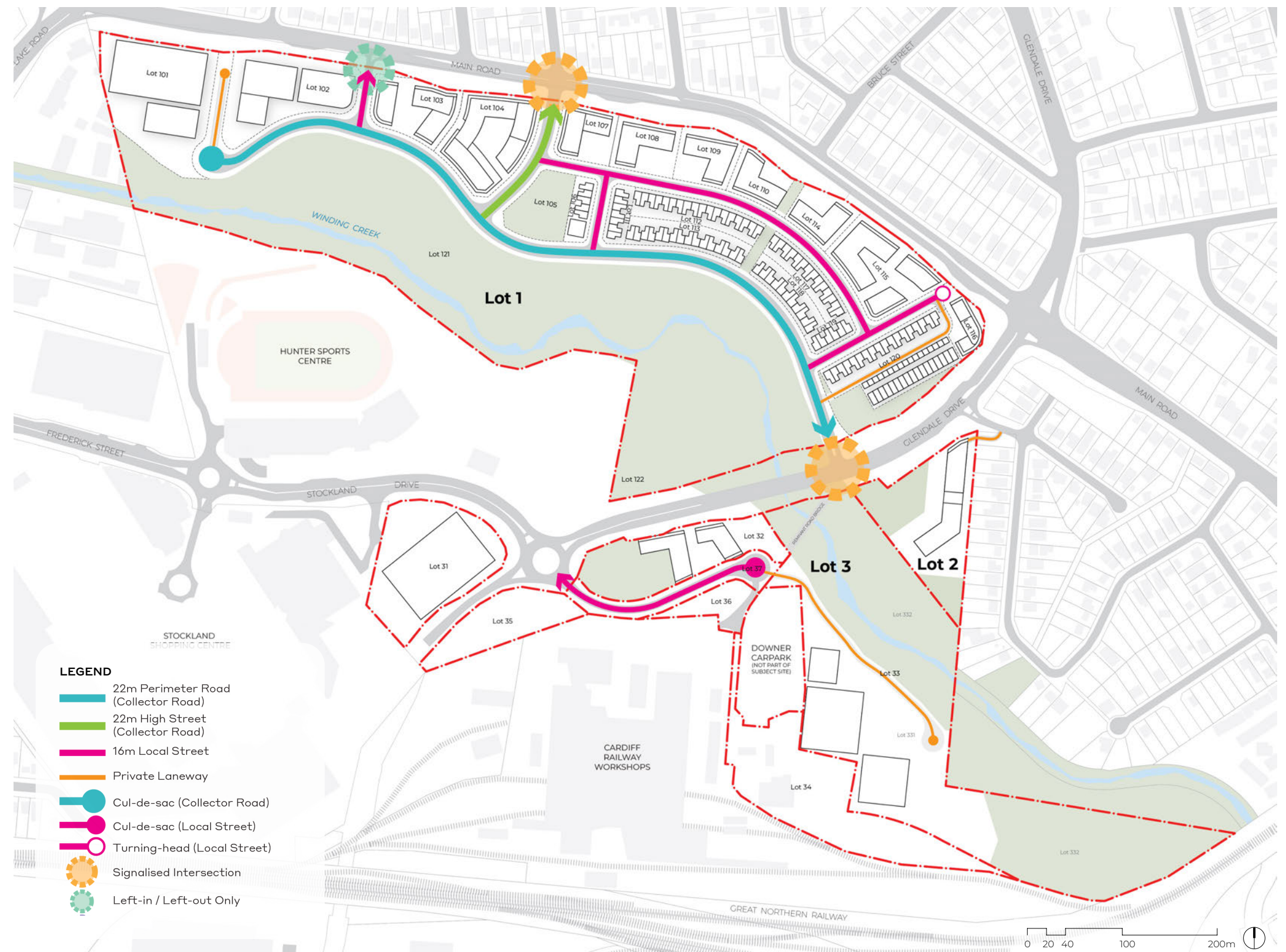


Figure 29. Street Network Diagram

6 Reference Master Plan

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6.5.1 22m High Street (Collector Road)

An urban high street with active edges and native, broad canopy street trees to provide shade for pedestrians and habitat for native fauna

- The high street is a Collector Road with 22m road reserve providing key access into Lot 1 (north) from Main Road
- Runs adjacent to the new local park at the Main Road intersection and provides a sense of arrival into the site with native, broad canopy trees lining both sides of the street and active edges
- 3.5m wide activation space for pedestrian movement and spill-out uses such as cafe seating and signage from retail frontages
- 2.5m wide car parking to both sides of road
- 8m wide carriageway with 2 lanes in each direction
- 1m wide verge with street tree and low shrub planting



Figure 30. Streetscape with activated edge & large shade trees (Source: <https://www.johnstonarchitects.com>)

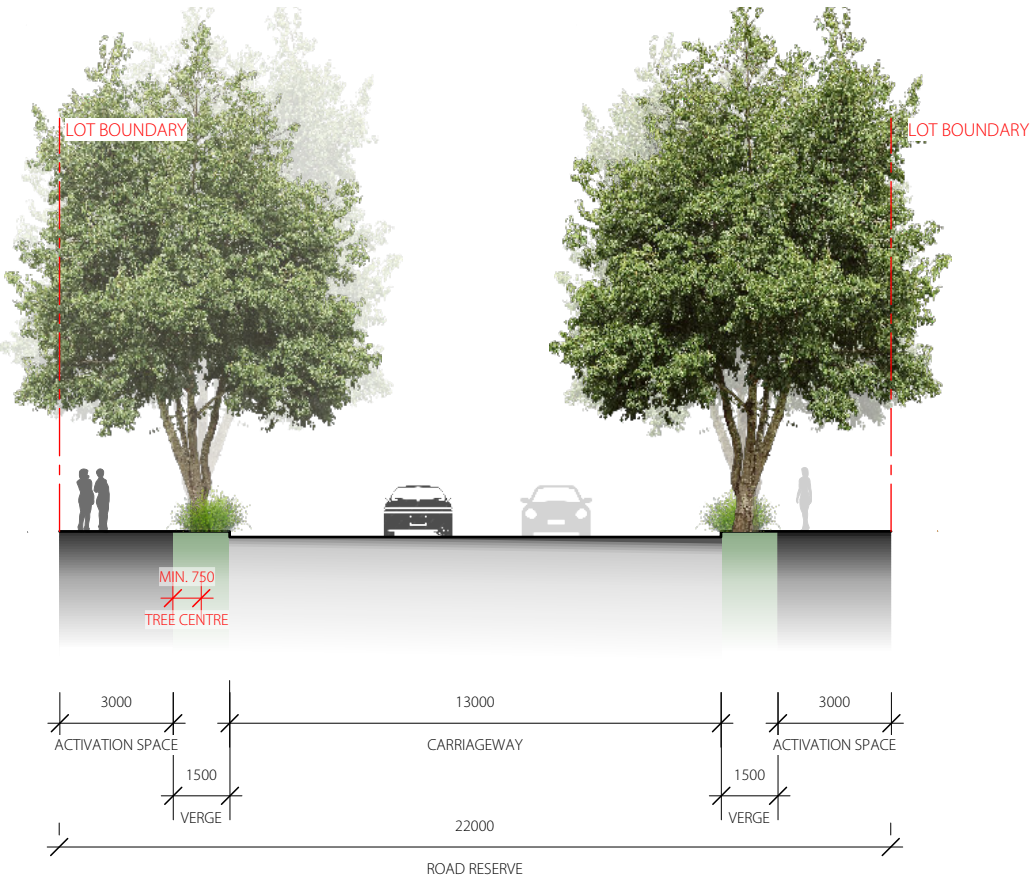


Figure 31. High Street - Typical Section (Source: Terras)

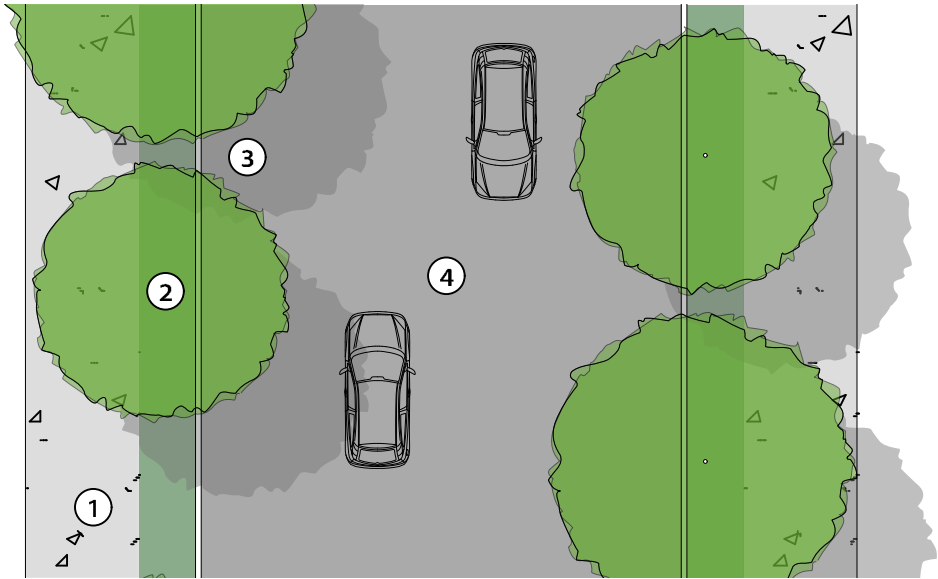


Figure 32. High Street - Typical Plan (Source: Terras)

NOTES

1. Activation space to encourage meeting places and urban liveliness
2. Unconnected canopy planting of native tree, endemic to Winding Creek corridor, to line entry drive and create sense of arrival
3. Allocated parking for vehicles
4. Single lane carriageway for vehicles

6 Reference Master Plan

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6.5.2 22m Perimeter Road (Collector Road)

A meandering road adjacent native bushland with a regional cycleway following the Winding Creek riparian corridor & conservation area

- The perimeter road is a Collector Road with a 22m road reserve providing key access into Lot 1 (north) from Glendale Drive
- This road follows the Winding Creek riparian corridor & conservation area to create a peri-urban bushland road fronted by a mix of building types and uses
- The road is a key east-west movement corridor serving multiple purposes including bushfire access, environmental buffer, bushfire asset protection zone and incorporating active transport links
- 3m wide regional cycleway adjacent the riparian corridor
- 13m wide carriageway with 2 lanes in each direction
- 2.4m wide verge with street tree and low shrub planting on the building frontage side of the road
- 1.5m wide footpath and 0.6m turf zone on the building frontage side of the road



Figure 34. Perimeter Road - Typical Section (Source: Terras)

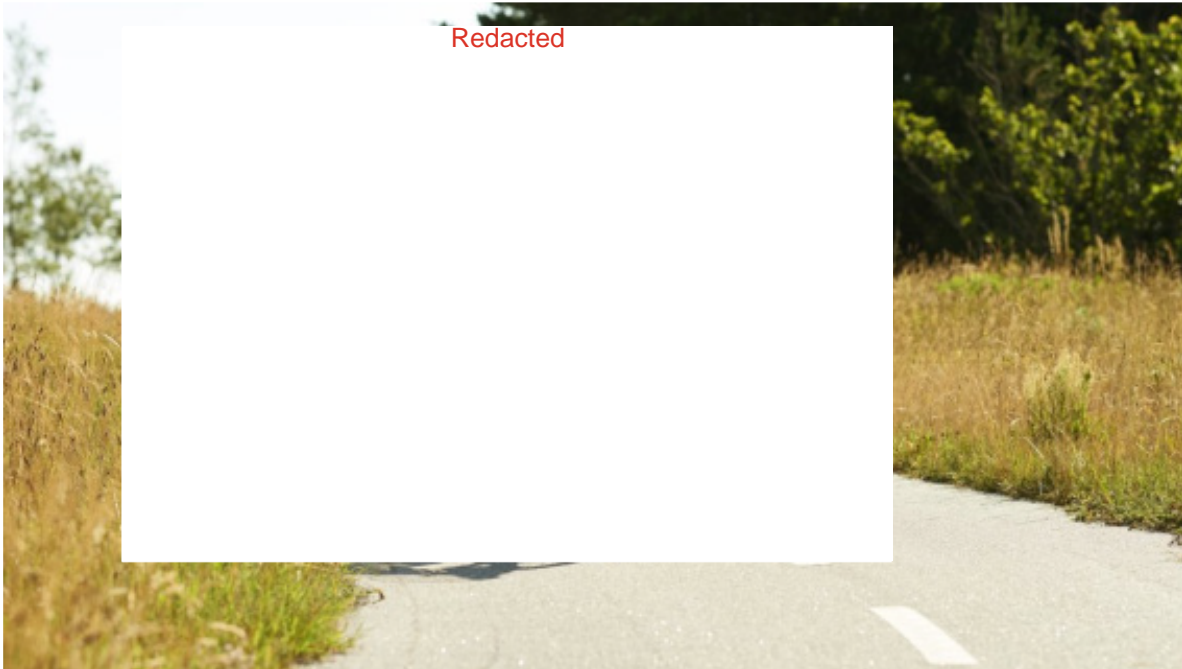


Figure 33. Cycleway / shared path adjacent bushland (Source: <https://www.kystlandet.com/experiences/cycling>)

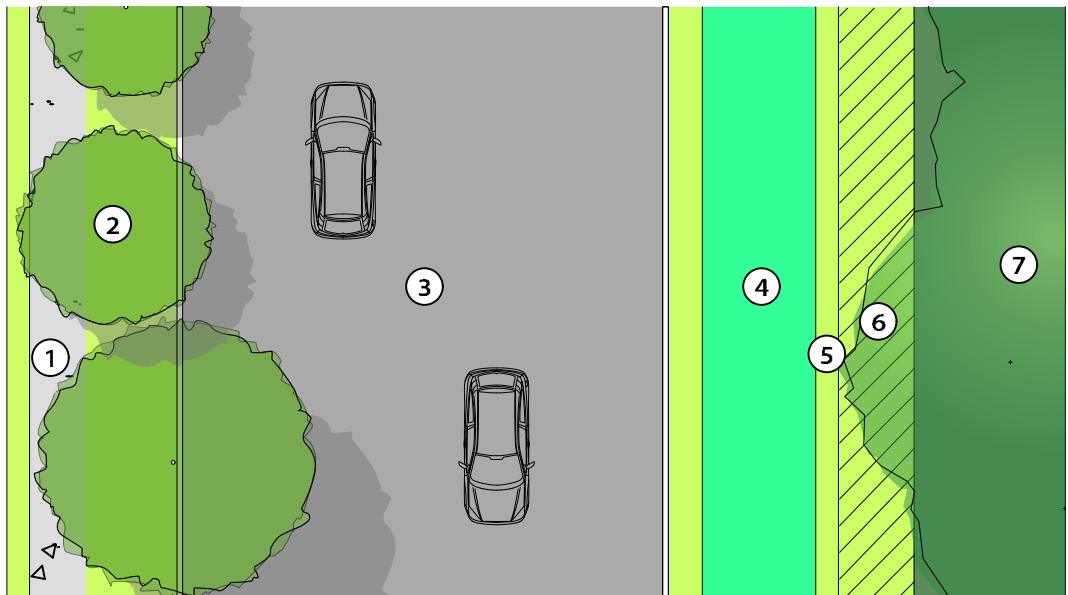


Figure 35. Perimeter Road - Typical Plan (Source: Terras)

- NOTES**
1. Pedestrian footpath
 2. Trees endemic to Winding Creek corridor provide shade to parking areas
 3. Single lane carriageway for vehicles
 4. Designated cycleway
 5. Turf buffer strip to batter edge
 6. Turf batter to riparian edge to satisfy APZ requirements
 7. Riparian and C2 Zone with existing vegetation to be retained and protected

6 Reference Master Plan

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6.5.3 Local Streets

Local streets will green streets supporting native tree species and providing local access to lots from collector roads

- 16m road reserve
- Street trees planted in 2.7-3m wide grassed verges to both sides of the street
- 8m wide carriageway with 2 lanes in each direction
- 1.2m wide footpath to one side of the street

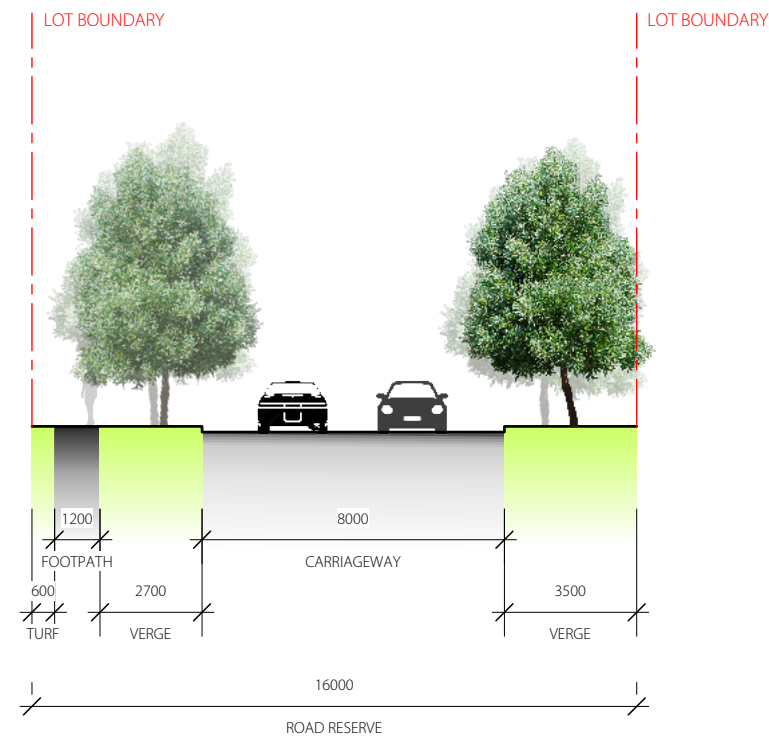


Figure 36. Local Street - Typical Section (Source: Terras)

- NOTES**
1. Footpath for pedestrians
 2. Turf to verge with unconnected canopy trees above
 3. Single lane carriageway for vehicles

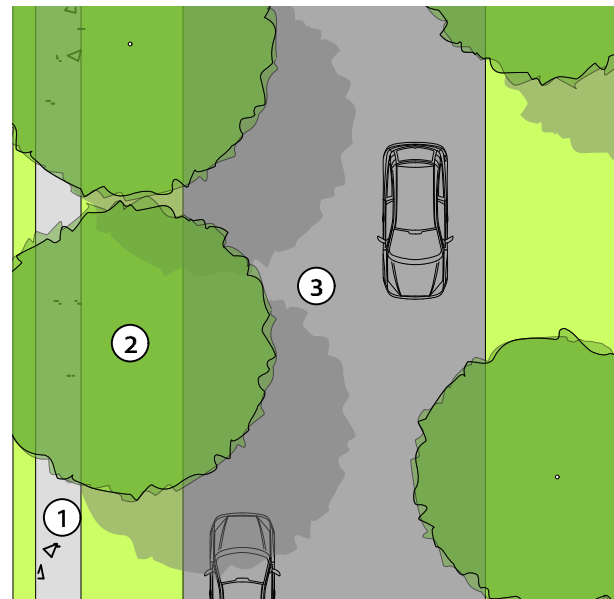


Figure 38. Local Street - Typical Plan (Source: Terras)



Figure 37. Local street with trees in grassed verge & footpath (Source: www.mavenlandscapes.com)

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6.6 Public Domain & Open Space

The public domain and open space network comprises regenerated native bushland and the Winding Creek riparian corridor, proposed open space and local parks, a regional cycleway, green links and green streets

The public domain and open space network plays a key role in delivering crucial social, environmental and ecological infrastructure for the new urban precinct - providing parks and paths for outdoor recreation, habitat for native wildlife and reducing the urban heat island effect through tree canopy and vegetation cover.

The proposed public domain network comprises approximately 50% of the site area in which 3% is public open space, 12% streets and 35% environmental conservation land as an approximate percentage of the total site area.

- 1

Winding Creek Conservation Area
The Winding Creek Riparian Corridor and Conservation Area will be rehabilitated to enhance its ecological and hydrological function as well as provide areas of publicly accessible native bushland for community recreation
- 2

Local Park
0.39ha local park with playground and existing high value ecological trees retained
- 3

Proposed Open Space
0.46ha proposed open space including playground
- 4

Regional Cycleway Link
3m wide shared path linking to the existing and proposed regional cycleway network
- 5

Winding Creek Conservation Area to Main Road Connection
Green link with integrated shared path
- 6

Preserved Ecological & Heritage Vegetation
Existing high value ecological & heritage vegetation to be preserved and protected. Note: a 30m TPZ has been preserved for the Powerful Owl roosting site as per BDAR (Biodiversity Development Assessment Report). However, a 100m buffer zone has not been accommodated in order to allow for the future development of the lot.
- 7

Bioretention Basins
Retention of stormwater run-off from streets

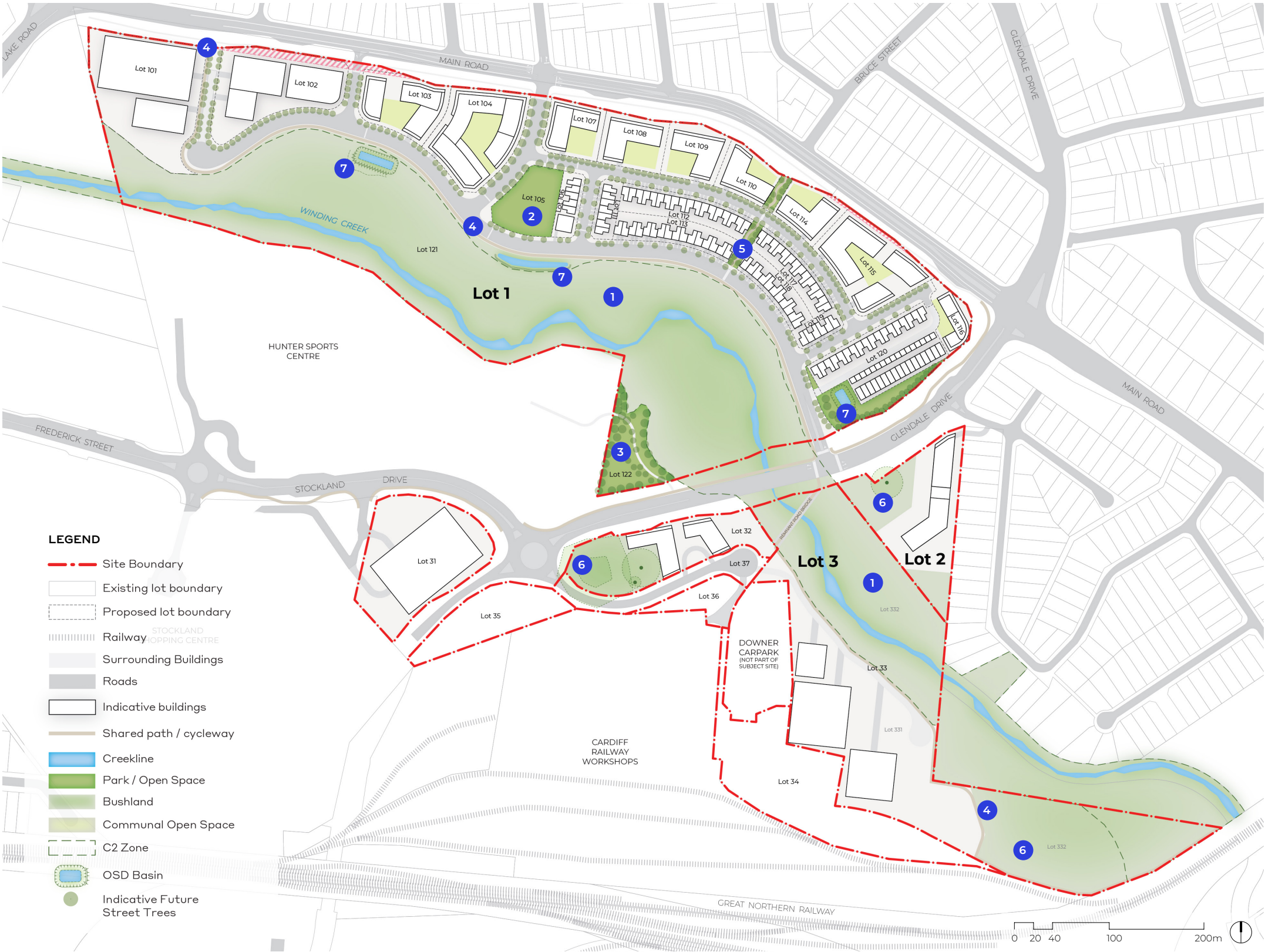


Figure 39. Public Domain Network

6 Reference Master Plan

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6.6.1 Connecting with Country

The proposed urban precinct for Glendale sits on the lands of the Awabakal people whose history and culture will be interpreted and referenced within the detailed design of the open space network

A key landscape strategy for the open space network is to integrate Connecting with Country stories and themes into public domain elements.

Aboriginal artifacts within the site evidencing camping and fishing along Winding Creek suggests that the indigenous Awabakal peoples likely traversed the site as part of the ancient travel routes from Mount Sugar Loaf to the Hunter River catchment, and Lake Macquarie to the Hunter River.

The proposed regional cycleway which runs parallel to Winding Creek, presents the opportunity to reference the ancient travel route of the Awabakal people through interpretative elements along the shared path.


There is also the opportunity to create 'rest areas' or 'meeting places' referencing Connecting with Country stories and themes, in particular, where aboriginal artefacts have been uncovered.

The *Designing with Country* workshops facilitated by Heritage Now also identified a number of other interpretation elements including:


- Caring for Country in Context
- Awabakal Material Culture and Language
- Paramaibaan (Platypus)
- Various endemic plants and vegetation
- Tactile interpretation: hearth, shells, tools

Refer to *Designing with Country* report by Heritage Now for more detailed information regarding workshop process & outcomes, Aboriginal stakeholder input and design recommendations.

LEGEND



OPPORTUNITY FOR CONNECTION TO COUNTRY INTERPRETATION



OPPORTUNITY FOR CONNECTION TO COUNTRY-INSPIRED MEETING POINT/REST AREA



Rammed earth with imbedded site material as sculptural element



In-situ imprints of endemic flora and fauna to hardscape



Curved, raised beds with endemic sedges for movement



Materials that invite an all sensory experience



Abstraction of site to custom furniture design

Figure 40. Connecting with Country Diagram (Source: Terras)

6 Reference Master Plan

6.6.2 Indicative Illustration of Local Park

The proposed local park will include a playground, open grass areas and native garden beds

As part of Lake Macquarie City Council's *Parks and Play Strategy* (2021) and *Active Recreation Strategy* (2024), local park will need to be larger than 0.5ha where possible. Two open spaces were provided in Lot 1 including a local park with a size of 0.39 ha and a proposed open space with a size of 0.46ha. The total size of proposed open space is 0.85ha.

The indicative local park concept (by Terras) meets the above minimum requirements while adding substantial value and integration with the broader open space network.

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LEGEND

- SITE BOUNDARY
- PROPOSED TREE PLANTINGS AS SPECIFIED
- TURF AREA
- MASS PLANTING
- FOOTPATH / CONCRETE
- SAND
- PROPOSED SIGNAGE WALL
- PROPOSED FENCE
- DECO GRANITE



- 1. Nature play style climbing equipment and swings
- 2. Concrete seating wall
- 3. Connections provided through to commercial centre
- 4. Mass planting of low grasses and groundcovers provide vegetation buffer between park and entry road
- 5. Open turf area for ball games sloping north south
- 6. Feature wall provides signage to park
- 7. Bubbler & bicycle rack at entry
- 8. Bench seats
- 9. Picnic shelter area: including bbq, picnic benches and rubbish bins
- 10. Indicative fencing for road safety to playground.
- 11. Street trees proposed

Figure 41. Indicative illustration of Local Park (Source: Terras)

6 Reference Master Plan

6.6.3 Indicative Illustration of Proposed Open Space

The Proposed Open Space is a priority item in Lake Macquarie City Council's Development Contributions Plan

Lake Macquarie City Council's Development Contributions Plan identifies the following items directly or indirectly relating to the Proposed Open Space:

Item Ref.	Description
OS-021	Park - Glendale - Land east of Hunter Sports Centre - New Civic Park (4,000m²)
OS-064	Shared Path and Bridge - Glendale - Lake Rd to Sturt Rd Cardiff along Winding Ck, Hunter Sports Centre, proposed Civic Park - new (2,190 lm)

The Reference Master Plan addresses the above Development Contributions items with the proposal of a new Proposed Open Space within 0.4ha of land east of Hunter Sports Centre. The indicative Proposed Open Space concept (by Terras) includes an integrated shared path linking to the broader proposed regional cycleway, a skate park (OS-040) and additional park features such as a nature play area, internal path network, park furniture, park trees and garden bed mass planting.

LEGEND

	SITE BOUNDARY
	PROPOSED TREE PLANTINGS AS SPECIFIED
	TURF AREA
	MASS PLANTING
	FOOTPATH / CONCRETE
	SAND
	MULCH
	COLOURED CONCRETE



Figure 42. Indicative Illustration of Civic Park (Source: Terras)

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Redacted



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6 Reference Master Plan

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6.7 Walking & Cycling Network

The Reference Master Plan proposes an interconnected active transport network that prioritises pedestrian and cyclist amenity

The proposed pedestrian and cycle path network includes:

- 1.5m wide footpaths along local and collector roads to facilitate the ease of north-south and east-west pedestrian movement across the site
- 3m wide regional cycleway / shared path identified as priority items in Lake Macquarie City Council's Development Contributions Plan to deliver 2,370 lm of shared paths. This Reference Master Plan proposes to locate the regional cycleway / shared path link:
 - along the perimeter road adjacent the Winding Creek riparian corridor to facilitate east-west movement across the entire length of the site
 - from Winding Creek riparian corridor to Main Road via greenlinks to facilitate north-south movement across the Winding Creek riparian corridor
- Typically, blocks are between 30 and 60m in depth and broken up every 100-200m to create a walkable grid

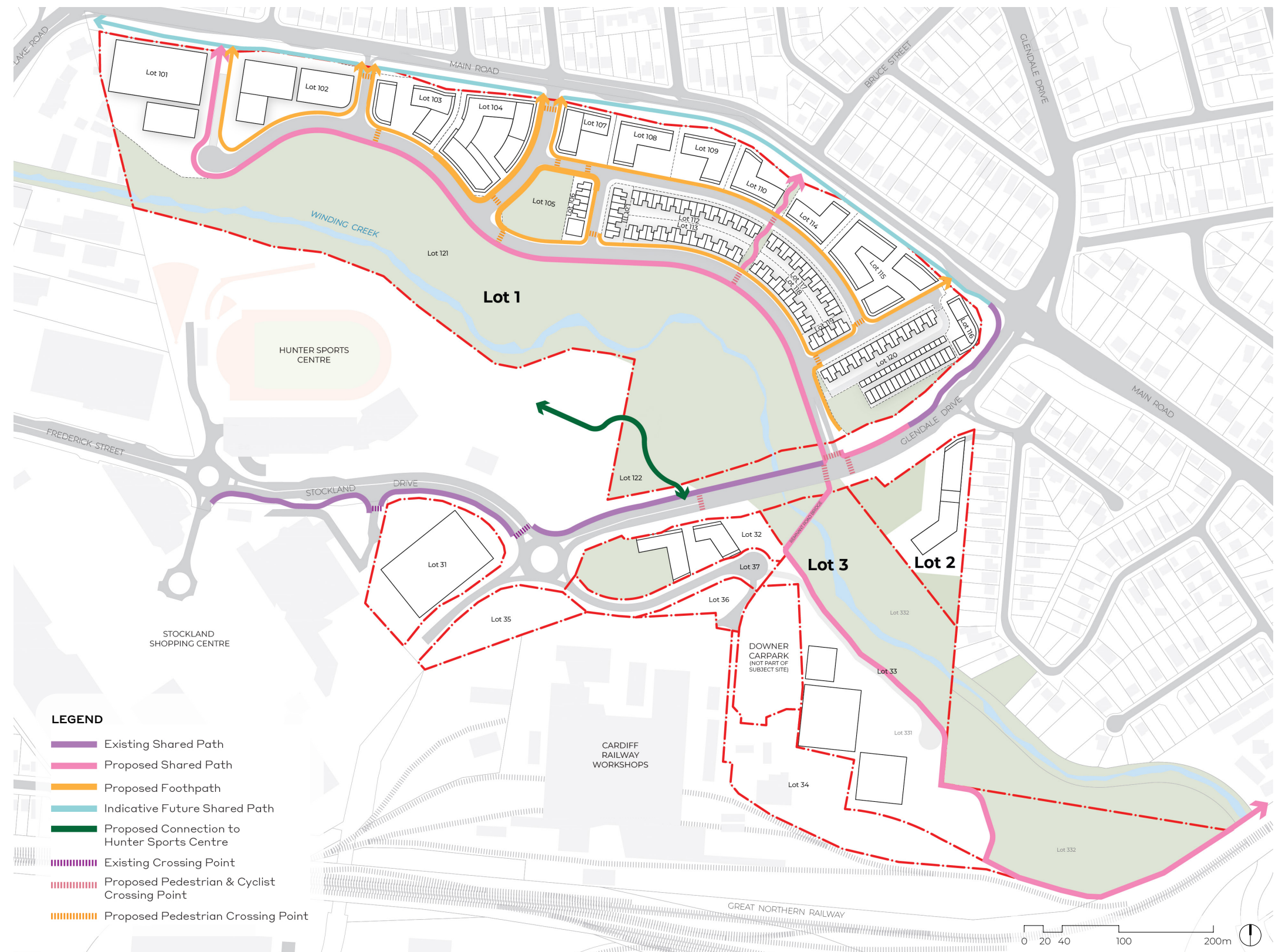


Figure 43. Walking & Cycling Network Diagram

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6.8 Built Form Typology

The Reference Master Plan proposes a diversity of low to mid-rise building typologies to meet the demand of a changing demographic profile and to cater for a wide range of lifestyles and employment opportunities

The proposed built form accommodates a range of 1-4 storey medium density building typologies in alignment with the development control of a maximum 13 metre permissible building height. In addition, as part of the Clause 4.6 request, the proposed built form also accomodates a range of 6-8 storey medium density buildings at key locations to provide built form variation and key gateway corner.

The Reference Master Plan shows an arrangement of indicative building envelopes that align with land uses and reinforce the urban form, such as:

- buildings orientated to front or frame the streetscape, or to capture views towards the Winding Creek
- reinforcing key nodes, such as large format retail near the intersection of Lake and Main Road and an entry statement residential flat building at the intersection of Main Road and Glendale Drive
- creating a vibrant local high street with active frontages in the form of shop-top apartment housing

There are 4 indicative housing typologies proposed:

1. Multi-dwelling housing in the form of 2-storey row housing such as townhouses and terraces
2. Apartment housing in the form of 4-8 storey residential flat buildings with ground floor maisonettes with front doors, and shop-top housing with commercial and retail street frontages to create a fine grain urban neighbourhood character
3. Large format retail typology such as commercial showrooms or bulky goods retail
4. Other permissible use typology which may include:
 - large format retail
 - medium density budget hotel
 - distribution warehousing

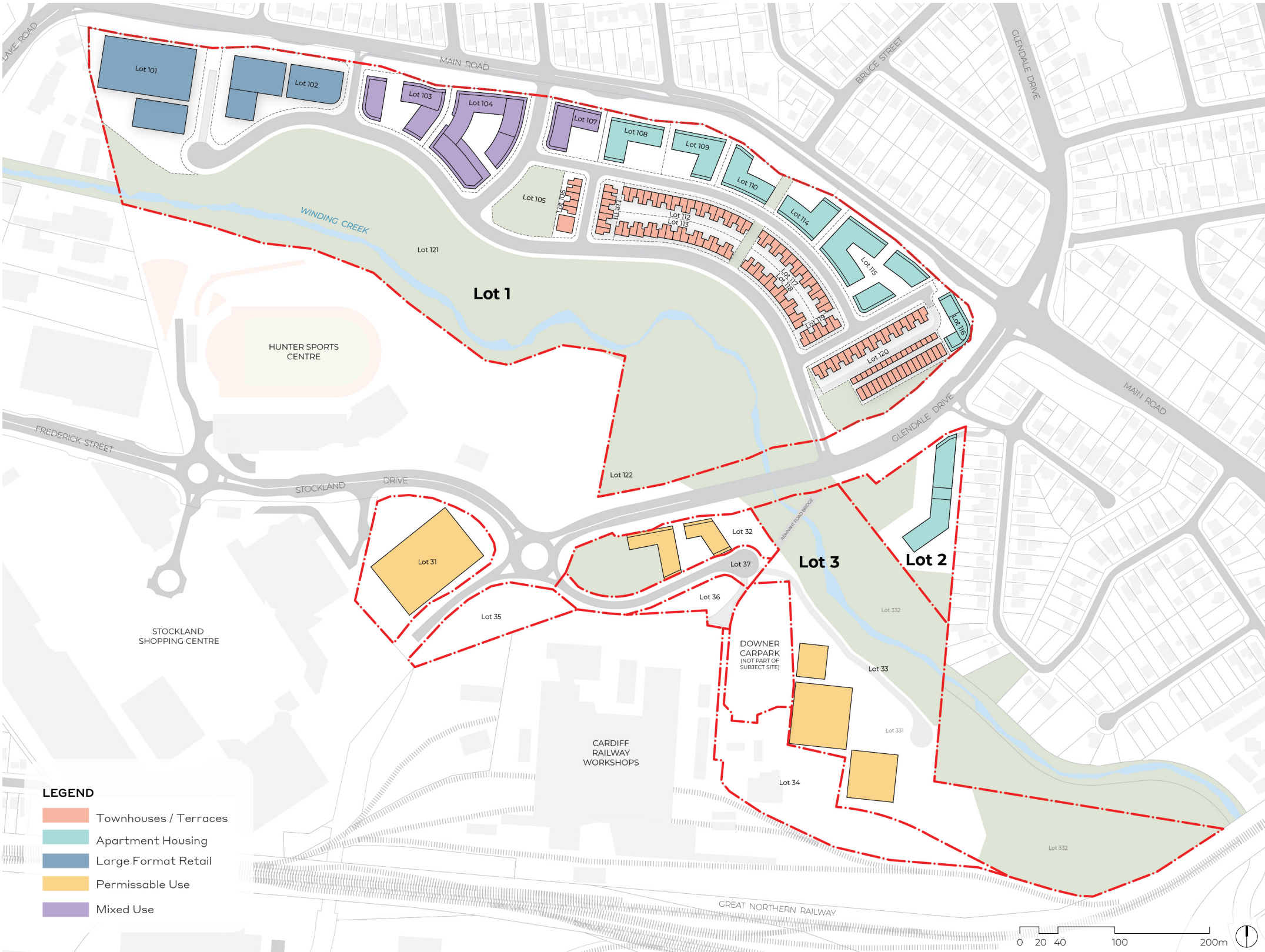
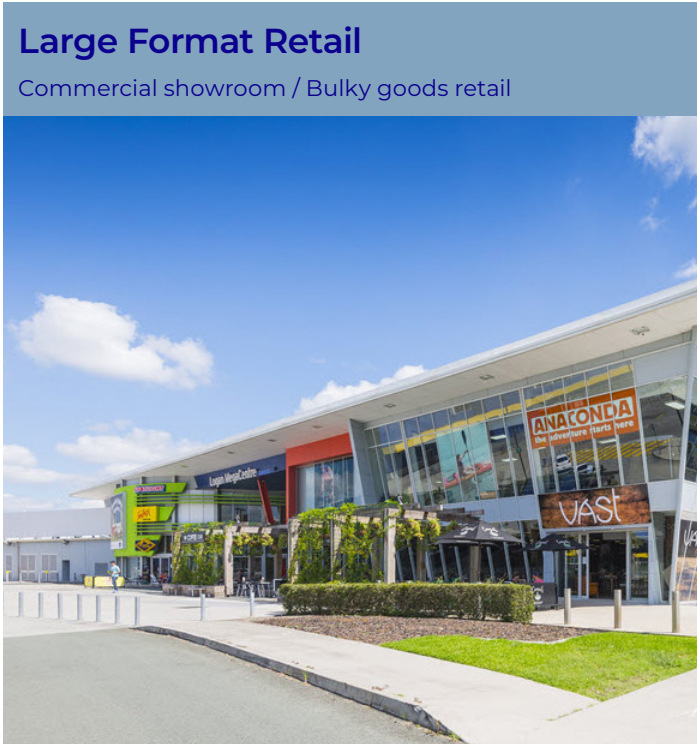
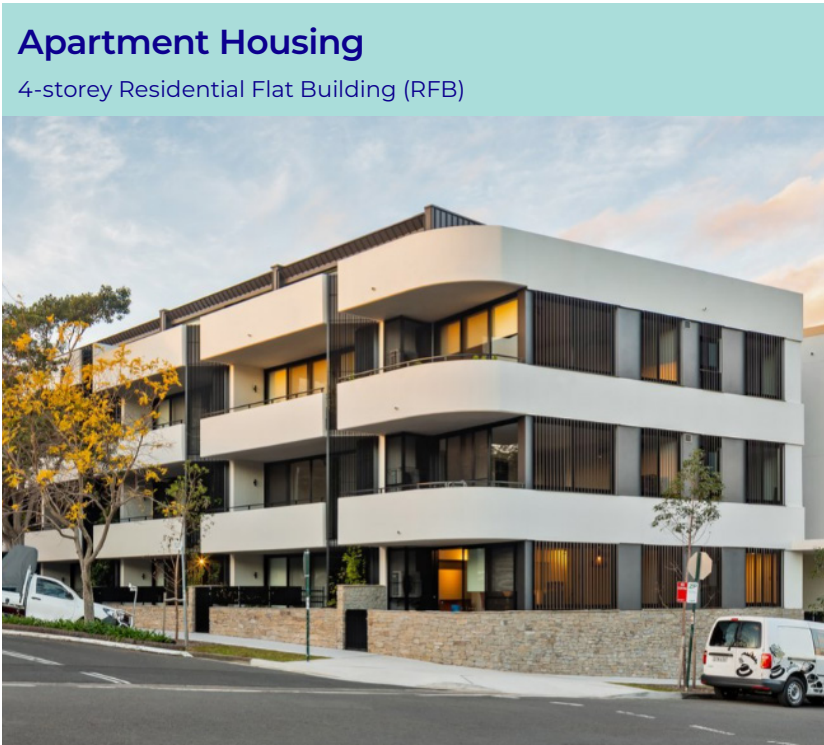


Figure 44. Built Form Diagram

6 Reference Master Plan

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6.8.1 Built Form Typology Precedent Imagery



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6.9 Building Heights

The site has a maximum permissible building height of 13 metres. As part of the Clause 4.6 request, the Reference Master Plan proposes building height ranging from one to four storeys for the centre of the site and 6-8 at key locations to provide variation in built form and key gateway corner.

The purpose of proposing a range of building heights is to allow the flexibility to accommodate a diversity of housing and commercial typologies outlined in the previous chapter.

Working within the limits of a 13m building height, the typical floor-to-floor heights proposed are as follows:

- 3.7m - Typical Ground floor
- 3.1m - Typical Upper Levels
- 6m - Ground floor large format retail
- 2.5m - basement & undercroft car parking

In general, the proposed building heights reflect the following building typologies and land use:

- Large format retail and permissible use buildings are typically 1-4 storeys high
- Apartment housing including residential flat buildings and shop top housing are 4-8 storeys high with a 2 storey street wall
- Multi-dwelling housing in the form of row housing (townhouses and terraces) are 2-3 storeys high

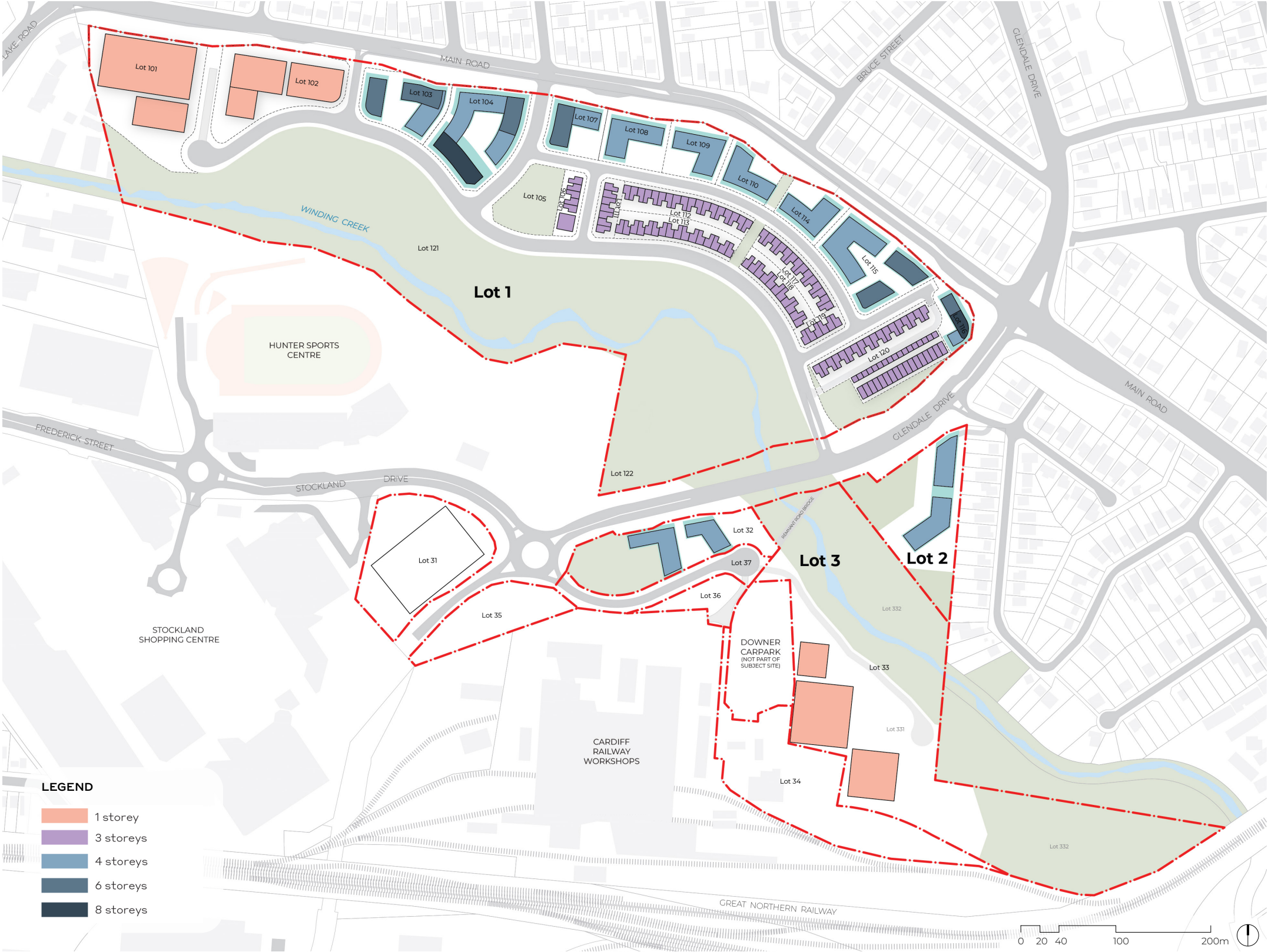


Figure 45. Building Heights Diagram

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

6.10 Building Setbacks

The Lake Macquarie DCP 2014 setback controls apply to the Reference Master Plan*

Building setbacks relate to land zoning and building typology to establish the streetscape building line and ensure adequate sunlight, ventilation, privacy & deep soil zones are achieved.

Multi-dwelling - MU1 zone

Front Setbacks	4m street setback 2m min. secondary street setback for corner allotments
----------------	---

Side Setbacks	0m
---------------	----

Rear Setbacks	0m
---------------	----

RFBs & Shop-top Housing - MU1 zone

Front Setbacks	4m Ground & Level 1 setback 3m upper level setback
----------------	---

Side Setbacks	3m min.
---------------	---------

Setback from Residential Zoned Land	3m Ground & Level 1 setback 6m Level 2 setback 9m Level 3 setback
-------------------------------------	---

Gateway Entry	0m (corner Main Road & Glendale Drive)
---------------	--

Large Format Retail - MU1 zone

Front Setbacks	4m Ground & Level 1 setback 3m upper level setback
----------------	---

Side Setbacks	0m Ground & Level 1 setback 3m upper level setback
---------------	---

Permissible Uses - E2 zone

Front Setbacks	0m Ground & Level 1 setback 3m upper level setback
----------------	---

Side Setbacks	0m Ground & Level 1 setback 3m upper level setback
---------------	---

Rear Setbacks	1.5m min. Ground level setback 3m upper level setback
---------------	--

*Lake Macquarie DCP 2014
Part 4 - Development in Business Zones
Part 8 - Subdivision Development / 8.11 - Multi-Dwelling Housing
Part 9 - Specific Land Uses / 9.11 - Residential Flat Buildings
Part 10 - Town Centre Area Plans - Glendale Regional Centre

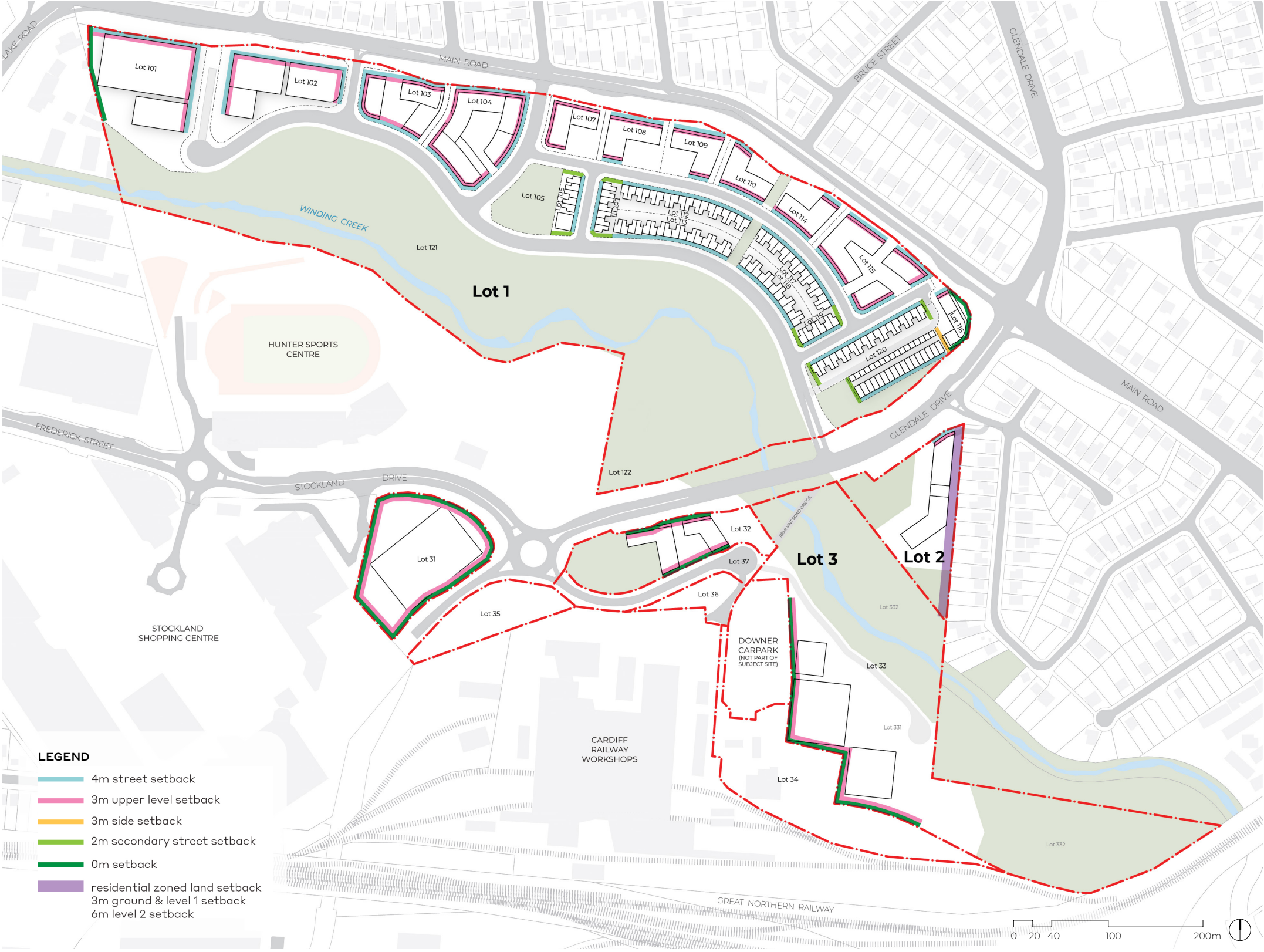


Figure 46. Building Setbacks Diagram

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

6.11 Communal Open Space

Communal open space will provide residential apartments with safe, accessible, and high quality landscaped open space within the development lot.

The following Lake Macquarie DCP controls apply to communal open space (CoS) for residential flat buildings:

- CoS should be provided principally at ground level, except where no residential uses are required
- Development must provide a landscape area that is at least 20% of the total lot area (in addition to principal private open space) at ground level

Proposed CoS in Lot 1 (north):

- All apartments contain CoS at ground level built on-structure above basement car parking
- Six apartments comprise of CoS as rooftop gardens

Proposed CoS in Lot 2:

- a communal terrace on Level 1 built on-structure above ground floor undercroft car park (required to prevent localised flooding of habitable space)
- both apartment comprise of CoS as rooftop gardens

The following table summarises CoS area relative to site area for each apartment development lot:

Development Lot no.	Site Area m2	CoS Area m2	CoS %
103	5390	1525	28
104	8145	2050	25
107	3360	775	23
108	3735	840	23
109	3595	985	27
110	2800	725	25
114	3050	945	30
115	7465	1875	25
116	2220	600	26
2	12740	2500	20

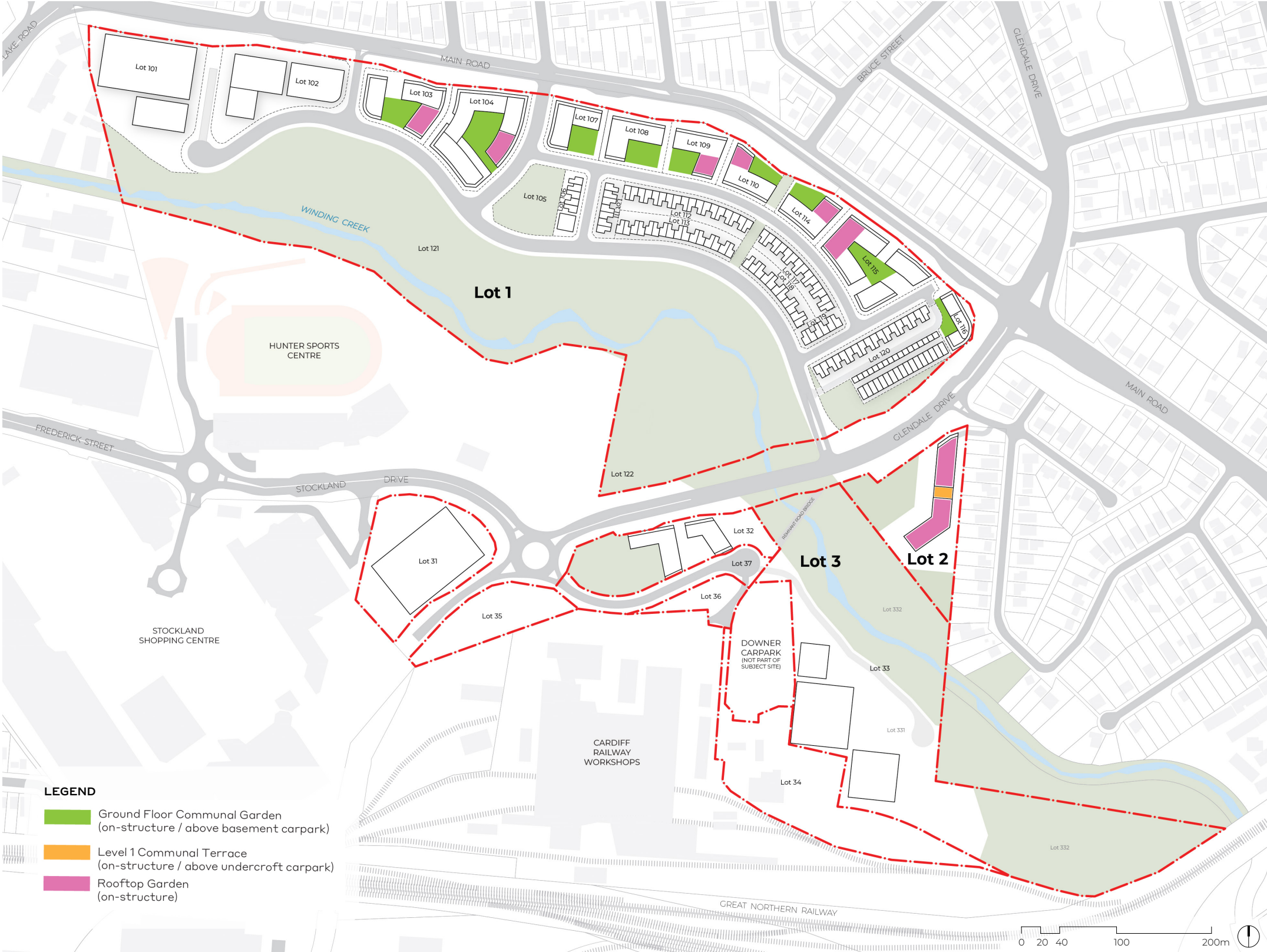


Figure 47. Communal Open Space Diagram

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

6.12 Basement & Deep Soil
(Landscaped Areas)

All proposed basement footprints ensure that development lots will deliver a minimum 20% landscaped area in addition to private communal open space, of which at least 50% will be deep soil as required in the Lake Macquarie DCP 2014 controls

Basement carparking is proposed on 12 of the 23 development lots. All proposed development lots (excluding multi-dwelling lots*) have been designed to ensure that there is a minimum 20% landscaped area in addition to private communal open space. Future detailed design will need to further ensure that at least 50% of this landscaped area will be deep soil.

*Note that the multi-dwelling lots have been excluded from this analysis as these development lots are subject to future detailed design and informed by different controls.

Development Lot no.	Site Area m2	Landscaped Area m2	% of Landscaped Area
101	13135	2885	21
102	9575	2285	23
103	5390	1245	23
104	8145	1690	20
107	3360	950	28
108	3735	1115	30
109	3595	1070	29
110	2800	760	27
114	3060	785	25
115	7465	1960	26
116	2230	585	26
2	12745	4770	37
31	13975	3615	25
32	10705	2165	20
331	12745	4725	24



Figure 48. Basement & Ground Level Footprints and Landscaped Areas

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

6.13 Concept Site Sections

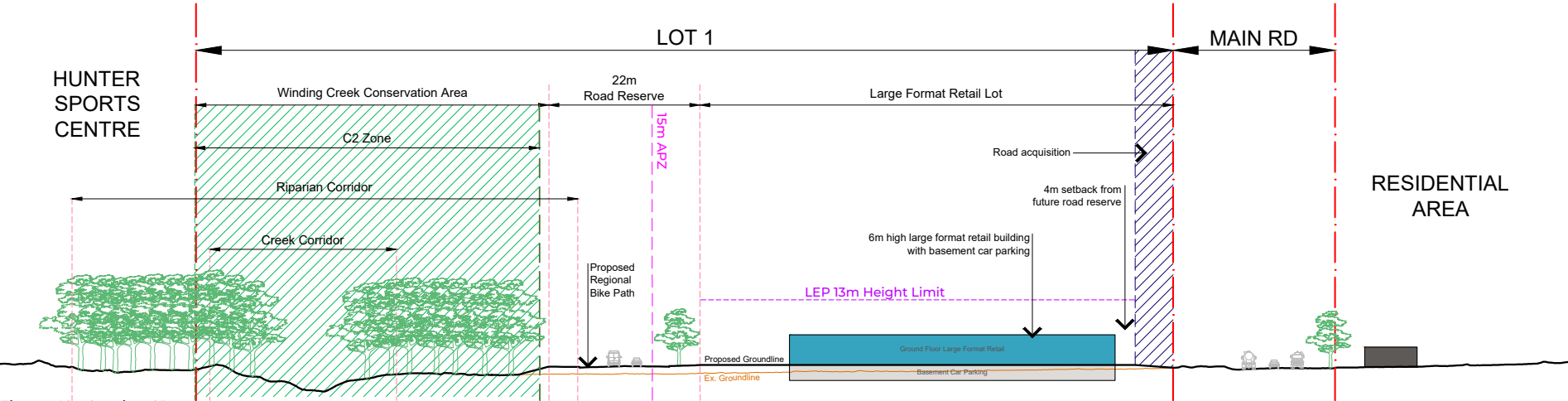


Figure 49. Section 01

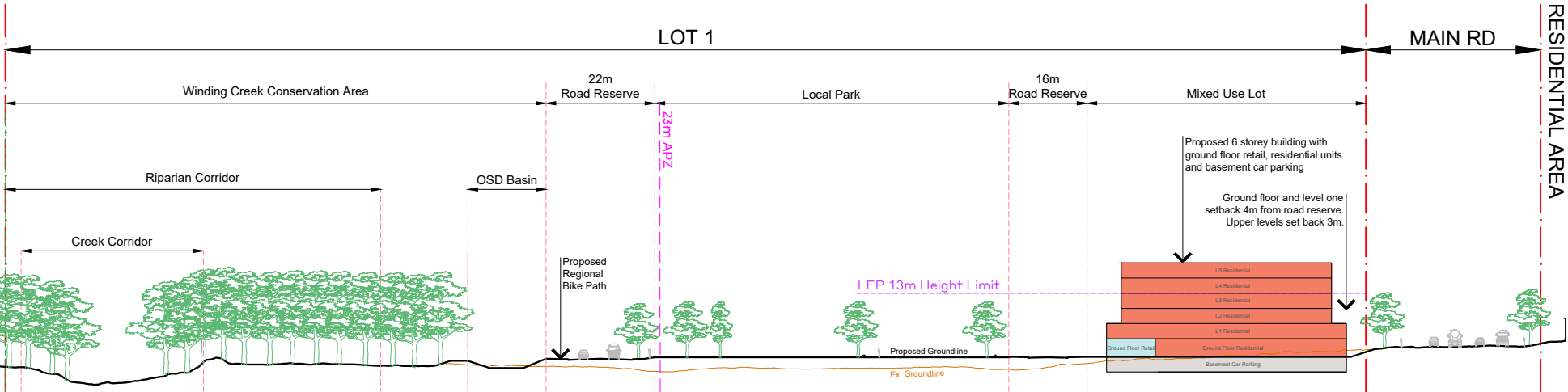
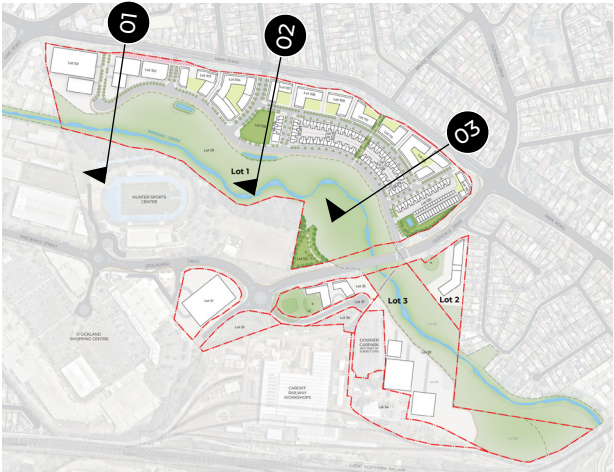


Figure 50. Section 02



Key Plan

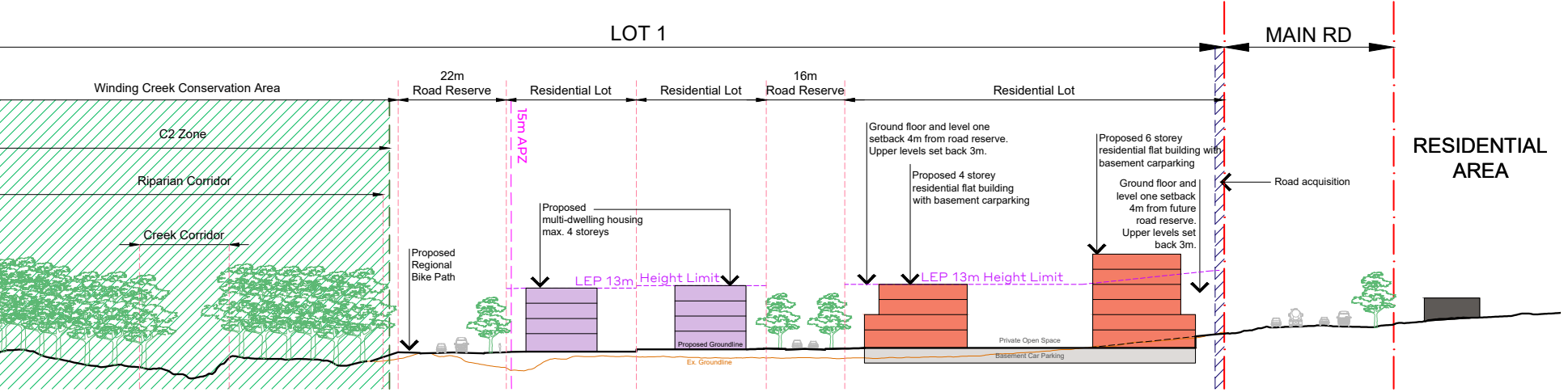


Figure 51. Section 03

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

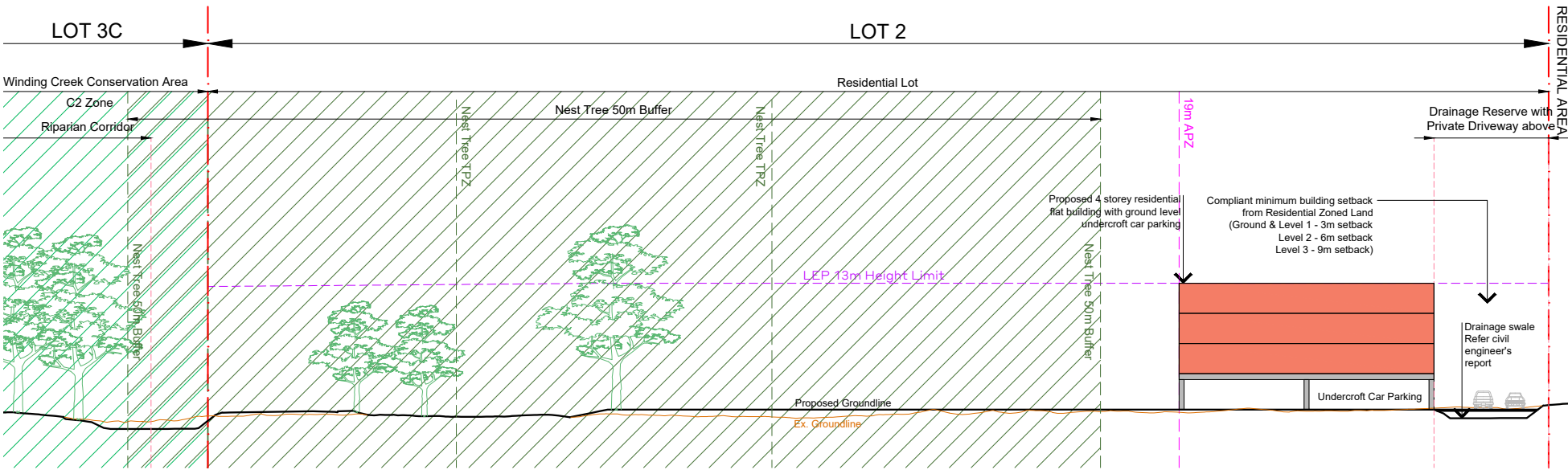


Figure 52. Section 04

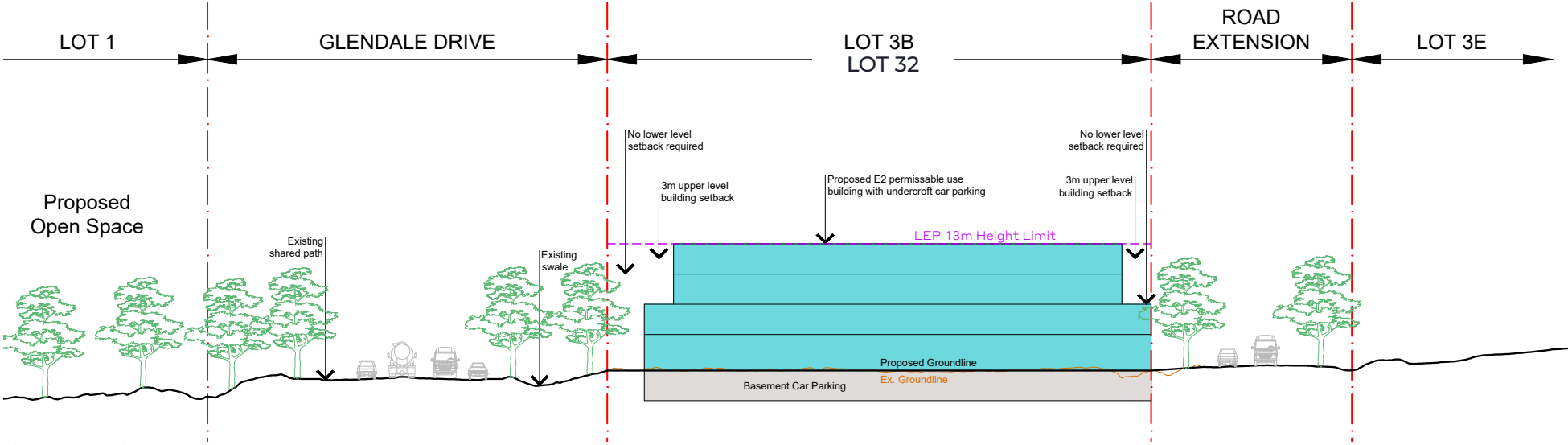


Figure 53. Section 05



Key Plan

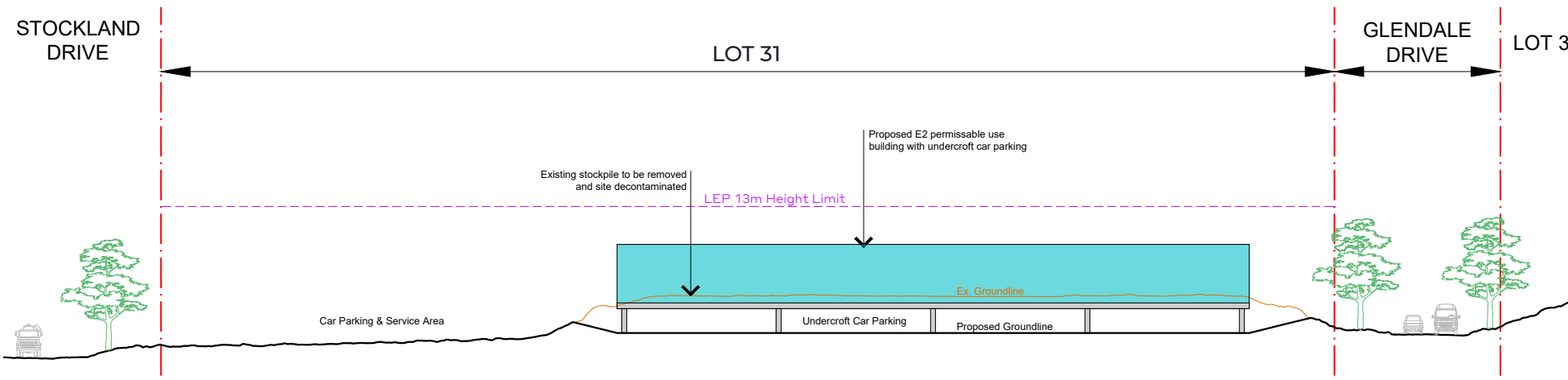


Figure 54. Section 06

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

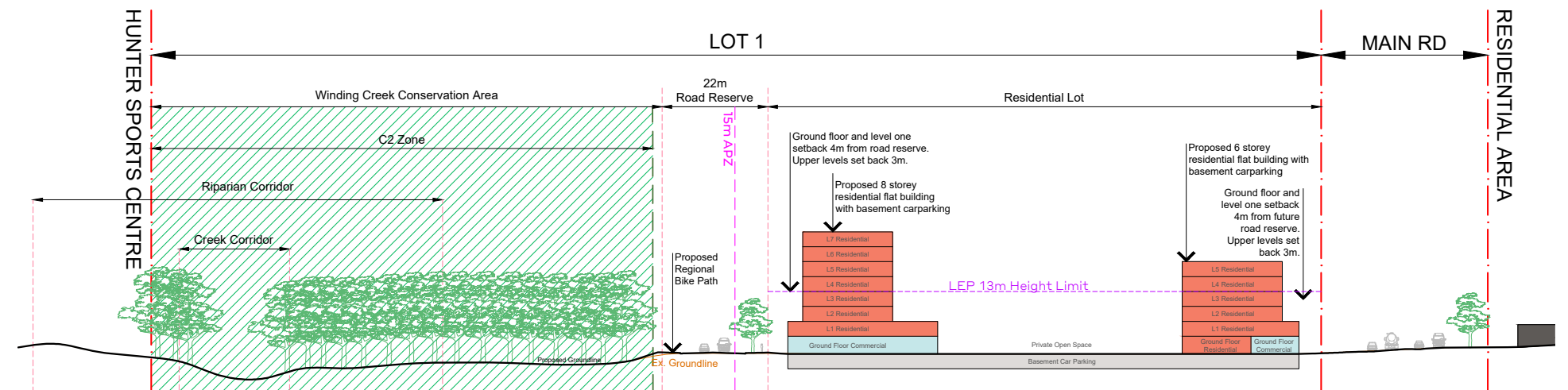


Figure 55. Section 07



Key Plan

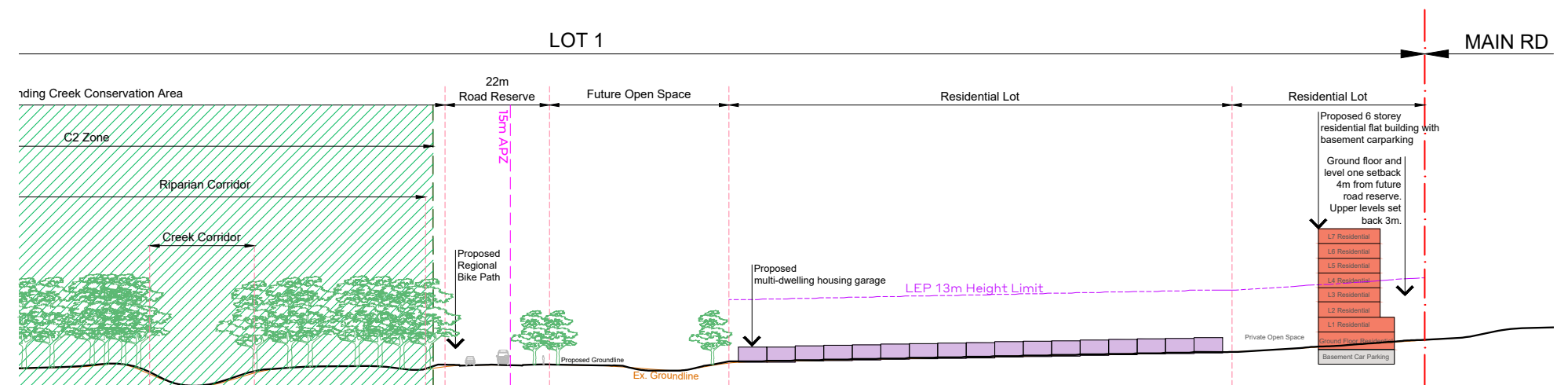


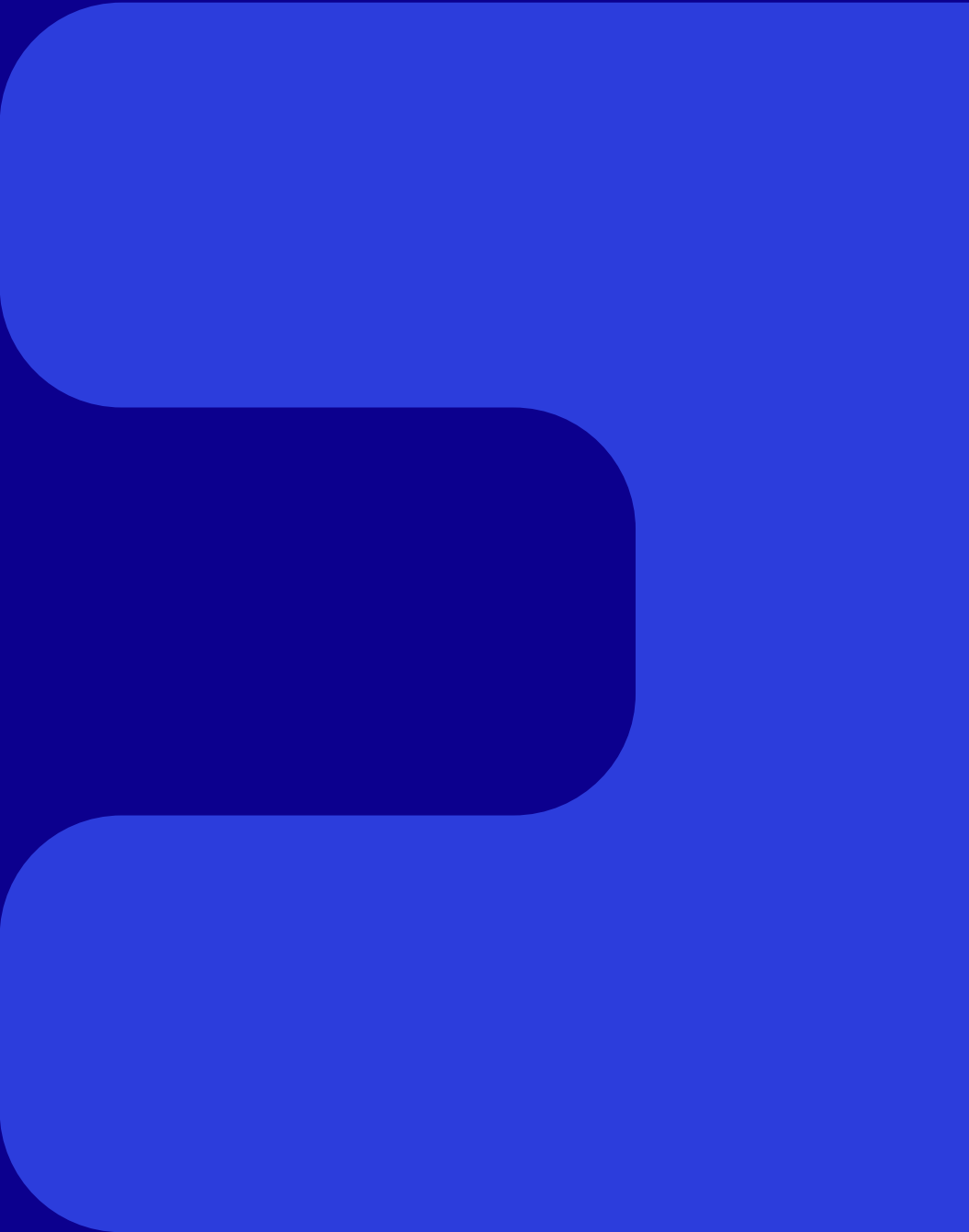
Figure 56. Section 08

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Concept development application and first stage of development for approval.

6.14 Development Massing & Metrics

Proposed Glendale Master Plan Metrics			Note	Car Parking Rates (Lake Macquarie DCP 2014 Part 4 Development in Business Zones Section 5.5)	
Yield Summary	Use	GFA/GLA	<p>The assumptions and parameters used in the calculation of the yield is as below.</p> <p>Residential Flat Buildings</p> <ul style="list-style-type: none">70% efficiency has been applied for ground level residential use.75% efficiency has been applied for typical level residential use.85% has been used as the conversion rate from GFA to NSA.Apartment units have been calculated based on 10/80/10% mix for 1bed/2bed/3bed.Apartment units have been calculated based on 55/85/110m² internal area for 1bed/2bed/3bed.Actual number of apartment units is subject to further architectural design. <p>Multi Dwelling Housing (MDH)/ Manor House</p> <ul style="list-style-type: none">GBA and GFA numbers for MDH has been reversed engineered from the internal area provided by macroplan.95% conversion rate has been used for GFA > NSA for MDH.82% conversion rate has been used for GBA > GFA for MDH.Parking / garages does not form part of this calculation as indicative sizing has been provided by macroplan. <p>Retail, Commercial & Hotel</p> <ul style="list-style-type: none">80% efficiency has been applied for large format retail.85% efficiency has been applied for shopfront retail.90% efficiency has been applied for local distribution centre.70% efficiency has been applied for ground level hotel use.75% efficiency has been applied for typical hotel level.Total number of hotel rooms have been calculated at 50m² GFA per room.Ground level of hotel use has been assumed to be lobby and amenity use.	<p>Residential flat buildings, Multi dwelling housing and Shop top housing. Including, as a component of Mixed Use Developments</p> <p>Hotel or Motel Accommodation</p> <p>Large format Premises</p> <p>Neighbourhood Shops</p> <p>Light Industries</p>	<ul style="list-style-type: none">Within E2 and MU1 Zones where the dwelling is less than 400 metres from a railway station, transport interchange or a major bus route0.5 average vehicle spaces per dwelling for 1 bed or studio apartment0.75 average vehicle spaces per dwelling for 2 bedrooms1.0 average vehicle spaces per dwelling for 3 bedrooms0.25 visitor parking per dwelling for residential flat buildings and shop top housingWhere providing accommodation - 1 space per short-stay room, plus 1 space per 2 staff.May include dining facilities, outdoor eating areas or beer gardens - 1 space per 25m² of GFANote – Where a mixture of these activities occurs calculate vehicle parking requirements based on activity mix.2 spaces per tenancy or lot, plus 1 space per 40m GFA.Where the total area is less than 5000m² GFA - 1 space per 25m² GFA1 space per 100m² GFA, plus 1 space per 50m² ancillary office space
	Multi Dwelling Housing	14,383m ²			
	Apartments	66,896m ²			
	Commercial	2,072m ²			
	Local Shops	2,892m ²			
	Large Format Retail	9,400m ²			
	Other Permissible Uses	18,540 m ²			
	Total GFA	114,183m²			
	Indicative Total Residences	no.			
	Total Apartment Units	687			
Total Multi Dwelling Houses	114				

**Section 7 —
Assessment**



7 Assessment

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

7.1 SEPP 65 compliance

7.1.1 Summary

Any new residential flat buildings proposed on the site will be subject to the requirements of State Environmental Planning Policy No. 65 (SEPP 65), which sets out ten urban design criteria for new build residential flat buildings.

The Apartment Design Guideline (ADG) is the supporting document to this policy which provides clear guidelines for best practice urban design in the development of new apartment buildings. The ADG is divided into three sections:

- 1. Local Context
- 2. Site Design
- 3. Building Design

The key guidelines of each section, which inform the early stages of a residential development are described in the following pages.

7.1.2 Part 01: Local Context

7.1.2.1 Building Depth

As a rule of thumb residential flat buildings should be between 10-18 metres internally from glazing line to glazing line. This ensures that satisfactory day lighting and natural ventilation can be achieved.

Building depths beyond 18m may be able to be achieved where appropriate access to light and ventilation can be demonstrated: for example in a corner location.

7.1.2.2 Building Separation

Building separation is an important factor in achieving high quality amenity. These controls vary depending on the overall height of the buildings in question. The separation dimensions are measured from the outer most edge of the building, i.e. from the balcony edge or the building wall.

- **Buildings to 12 metres in height (4 storeys)**
 - 12 metres between habitable rooms/balconies
 - 9 metres between habitable rooms/ balconies and non-habitable rooms
 - 6 metres between non-habitable rooms
- **Buildings to 26 metres in height (5 - 8 storeys)**
 - 18 metres between habitable rooms/balconies
 - 12 metres between habitable rooms/ balconies and non-habitable rooms
 - 9 metres between non-habitable rooms
- **Buildings over 25 metres in height (9 storeys and over)**
 - 24 metres between habitable rooms/balconies
 - 18 metres between habitable rooms/ balconies and non-habitable rooms
 - 12 metres between non-habitable rooms

7.1.2.3 Front Setbacks

Front setbacks are determined by the predominant building line established by the street. In denser local centres with non-residential uses at ground level, the setback is generally zero and built to the street edge.

7.1.2.4 Side and Rear Setbacks

These setbacks are determined by taking into account surrounding context and building relationships so as to respond to streetscape, sunlight, ventilation and privacy issues. These setbacks also help in achieving deep soil zones / site coverage rations which are usually required under councils landscaping controls.

7.1.3 Part 02: Site Design

7.1.3.1 Deep Soil Zones

These allow for the natural penetration of storm water into the ground and the provision of substantial landscaping. A minimum of 25% of the open space area should be a deep soil zone.

7.1.3.2 Open Space

The inclusion of appropriate communal open space in residential developments. The area of common open space should generally be at least between 25 and 30% of the site area.

The minimum area of private open space for each apartment at ground level is 25 m², with the minimum dimension in one direction being 4 metres.

7.1.3.3 Landscape Design

To contribute to the overall amenity of residential developments particularly in regards to privacy, outlook and views. Landscape also greatly contributes to the ecological sustainability of our cities flora, fauna, air and water quality.

7.1.3.4 Fences and Walls

To allow for the appropriate definition between public and private spaces which encourage a comfortable and humane pedestrian environment. This is particularly important from a safety and security perspective.

7.1.3.5 Orientation

The optimisation of solar access to residential apartments and open space

7.1.3.6 Visual Privacy

Visual privacy within a new development protects residents ability to carry out private functions within all rooms and private spaces without compromising views, outlook, ventilation and solar outlook.

Visual privacy relates not only to the dwellings within the new development, but also those existing dwellings surrounding the site.

7.1.3.7 Building Entry

The building entry should provide a clear identifiable entry point for the development. It should facilitate easy orientation for the visitor and contribute positively to the streetscape and building design overall.

7.1.3.8 Parking

The parking strategy for the development should take into account the site's proximity to public transport and minimise car dependency where possible.

The development should provide adequate car parking for the buildings users and visitors, and should integrate the location and design of parking into the design of the site and the building.

The impact of on-grade car parking should be minimised and preference to underground parking where possible. Design considerations should ensure that this does not impact the potential for deep soil zones and allows for safe and clear access to building entries.

7.1.3.9 Vehicle Access

The width of driveways should be limited to a maximum of 6 metres. Vehicle entries should be located away from main pedestrian entries and on secondary frontages.

7.1.4 Part 03: Building Design

7.1.4.1 Apartment Sizes

Apartment sizes are generally determined via a variety of factors including geographic location and market demands.

The Apartment Design Guideline has a number of ‘rule of thumb’ dimensions and internal areas, including;

- Single aspect apartments should be not greater than 8 metres in depth (from a window).
- The back of a kitchen should be no more than 8 metres from a window.
- The width of through apartments over 15 metres from glazing line to glazing line should be greater than 4 metres in width.

Minimum apartment sizes are approximately:

- 1 bed apartment: 50m²
- 2 bed apartment: 70m²
- 3 bed apartment: 95m²

7.1.4.2 Apartment mix

Developments should incorporate a variety of apartment types so as to encourage cultural and social diversity. Councils often have desired mix targets.

7.1.4.3 Balconies

Balconies and private open space should be designed as ‘outdoor rooms’ so as to contribute usable spaces which contribute to the overall amenity of the living environment. The primary balcony is a natural extension of the primary living space.

Balconies should aim to be a minimum of 2.4 metres in depth to allow for outdoor dining, with an minimum of 2 metres in depth.

Minimum balcony sizes based on apartment area are given as follows:

- 1 bed apartment: 6-10m²
- 2 bed apartment: 11-33m²
- 3 bed apartment: 24m²

7.1.4.4 Ceiling Heights

Minimum ceiling heights measured from Finished Floor Level (FFL) to Finished Ceiling Level (FCL) are as follows:

- Mixed use buildings
 - Ground floor retail/commercial and for first floor residential/ retail/commercial so as to provide future flexibility 3.3 metres FFL to FCL.
- Residential Flat Buildings
 - 3.3 metres FFL to FCL for ground level in a mixed use area
 - 2.7 metres FFL to FCL for all habitable rooms
 - 2.4 metres FFL to FCL for all non-habitable rooms (2.25 is permitted)Parking

As a rule of thumb this would require at a minimum:

- 4 metre floor to floor for ground level (4.2m desirable)
- 3 metre floor to floor for upper levels at a minimum.(3.2m desirable)

7.1.4.5 Storage

Some Councils have their own minimum requirements for separate private storage areas, the ADG suggests the following rules of thumb:

- studio apartment: 6m²
- 1 bed apartment: 6m²
- 2 bed apartment: 8m²
- 3+ bed apartment: 10m²

7.1.4.6 Daylight Access

- A maximum of 10% of the apartments are to be single aspect and south-facing.
- 70% of apartments in a development should receive a minimum of three hours direct sunlight between 9am and 3pm in mid-winter (may be varied to 2 hours in dense urban areas).

7.1.4.7 Natural Ventilation

- Building depths should be between 10 – 18 metres
- 60% of residential units should be naturally cross ventilated
- 25% of kitchens in a development should have access to natural ventilation

7.2 Building Separation

All proposed residential flat buildings achieve a min. 12m building separation between habitable rooms

The separation between apartment buildings in this Reference Master Plan range from 12-30m. This is compliant with the ADG separation control of a minimum 12 metres between habitable rooms / balconies for buildings up to 12 metres in height (4 storeys); and a minimum 18 metres between habitable rooms / balconies for building up to 26 metres in height (8 storeys)



Figure 57. Building Separations

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

7.3 SEPP 65 Solar Assessment

Consideration has been taken to the form, placement and orientation of the proposed residential flat buildings envelope to ensure the SEPP 65 requirements for solar access and natural ventilation are met.

In accordance with the Apartment Design Guide (ADG), for site outside of Sydney Metropolitan Area and the Newcastle and Wollongong local government areas, living rooms and private open spaces of at least 70% of apartments in a building must receive a minimum of 3 hours direct sunlight between 9am to 3pm on winter solstice (21 June).

The table below outlines the percentage of the vertical surface of the building envelope capable of achieving 3 hours of direct sunlight mid-winter between 9am to 3pm.

This is a high level analysis and is subject to further architectural design for actual ADG solar compliance. This is demonstrated in the next 3 pages.

Building no.	1.3	1.4	1.7	1.8	1.9
Percentage of facade surface capable of achieving 3 hour direct sunlight mid winter between 9am - 3pm	43%	46%	47%	45%	43%

Building no.	1.10	1.14	1.15	1.16	2.0
Percentage of facade surface capable of achieving 3 hour direct sunlight mid winter between 9am - 3pm	44%	50%	45%	42%	45%

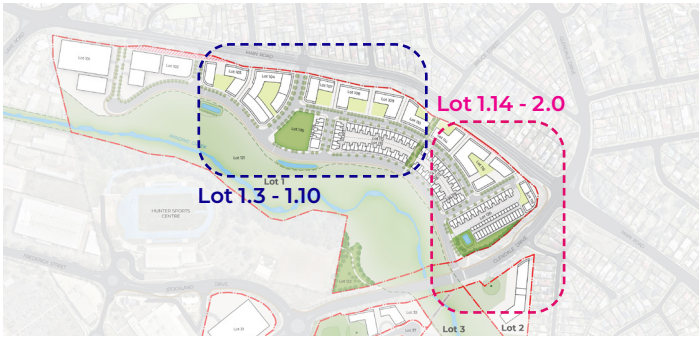


Figure 62. Key Plan



Figure 58. Solar Assessment of Lot 1.3 - 1.10 (View from North East)

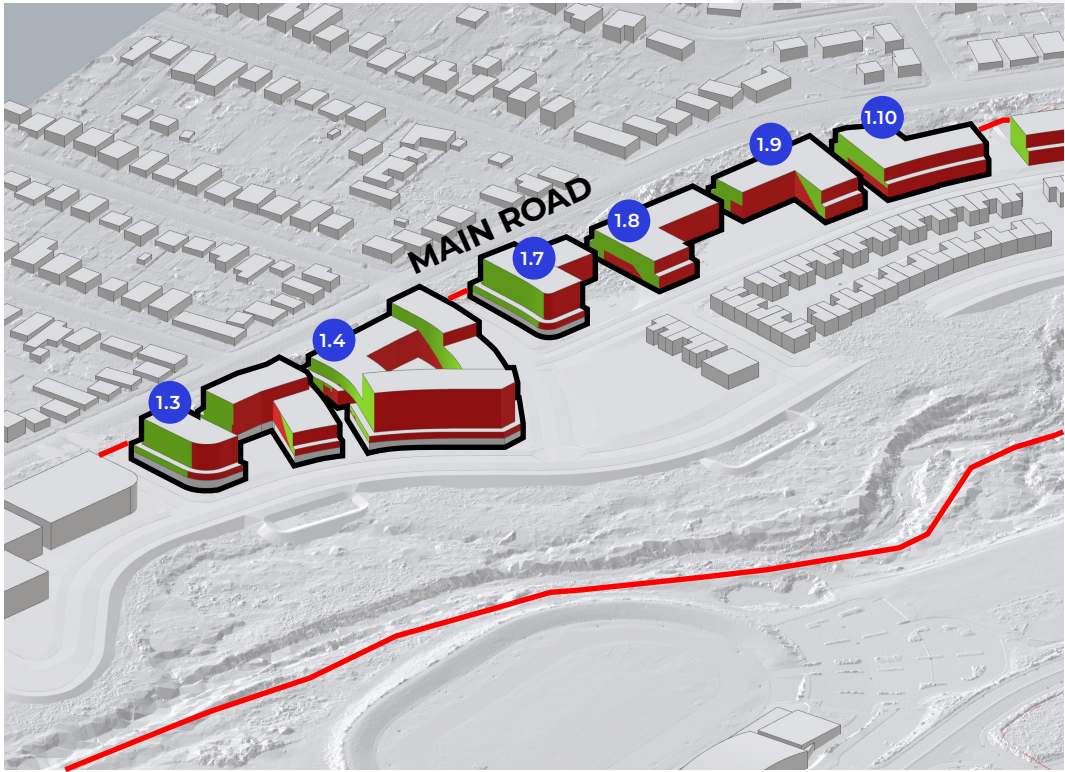


Figure 60. Solar Assessment of Lot 1.3 - 1.10 (View from South West)

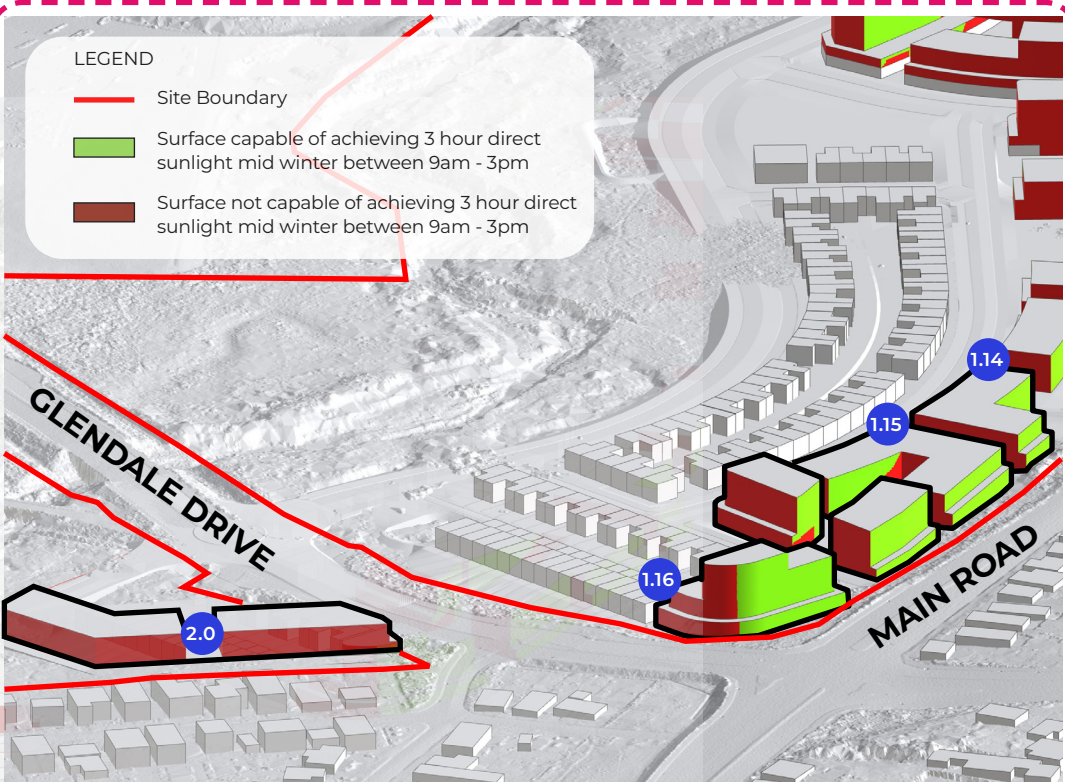


Figure 59. Solar Assessment of Lot 1.14 - 2.0 (View from North East)

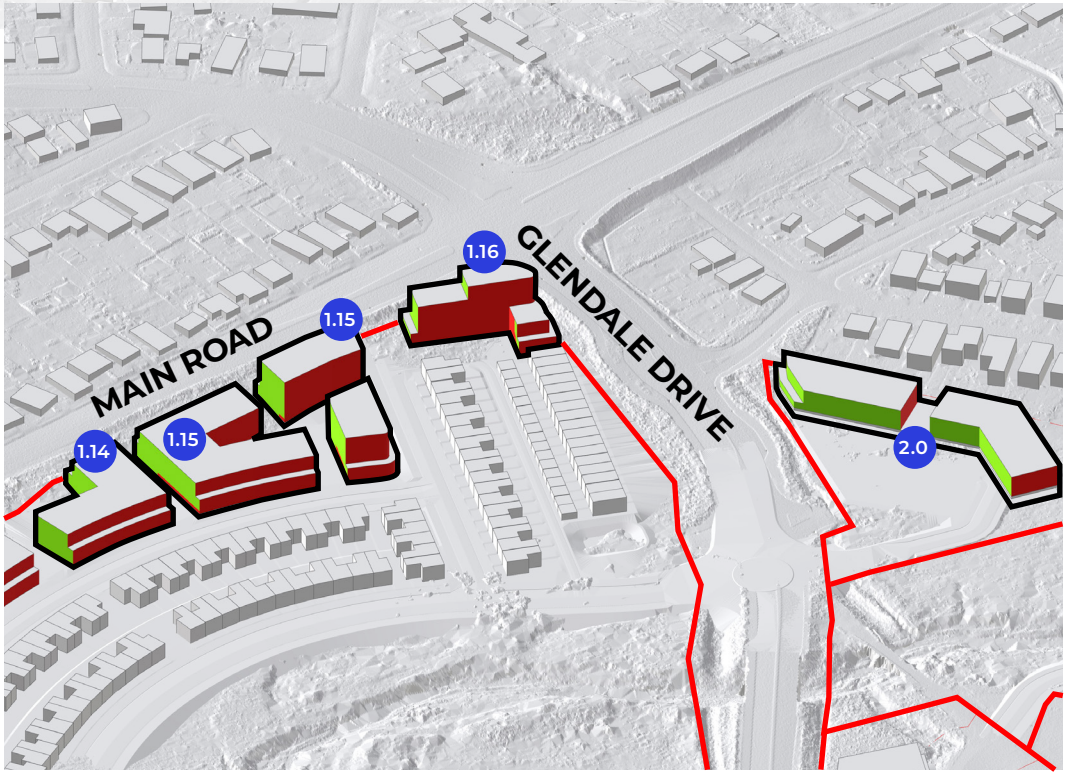


Figure 61. Solar Assessment of Lot 1.14 - 2.0 (View from South West)

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

7.4 RFB on Lot 1.4

7.4.1 Solar Access

69% of apartments achieve required solar access

The proposed envelope of the residential flat building on Lot 1.4 has been assessed for winter solstice (21 June) from 9am to 3pm as per the ADG. A minimum of 70% of apartments must receive at least 3 hours direct sunlight.

The indicative floor plan illustrates the potential internal layout of the proposed apartment building. The Ladybug analysis (isometric views) demonstrates that a total of 18 apartments out of 26 are capable of achieving 3 hour of direct sunlight to living area and private open space.

Compliant apartments	Total apartments per floor	Compliance (Yes / No)
18	26	Yes

7.4.2 Cross Ventilation

62% of apartments achieve cross-ventilation requirement

The ADG requires a minimum of 60% of apartments within the first nine storeys of the building to be naturally cross ventilated.

The indicative floor plan demonstrates the capability of the building envelope to achieve the requirement above.

Compliant apartments	Total apartments per floor	Compliance (Yes / No)
16	26	Yes



Figure 63. Key Diagram

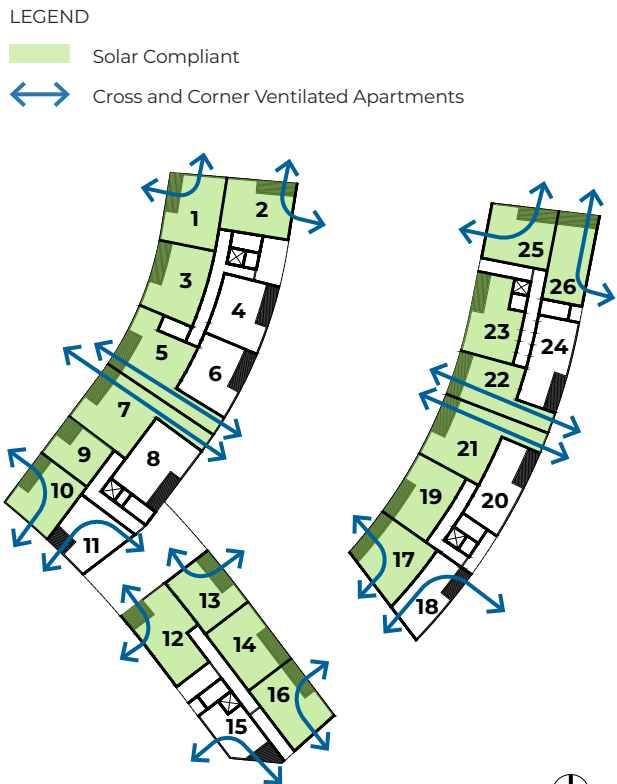


Figure 64. Lot 1.4 Apartment Internal Layout

NTS

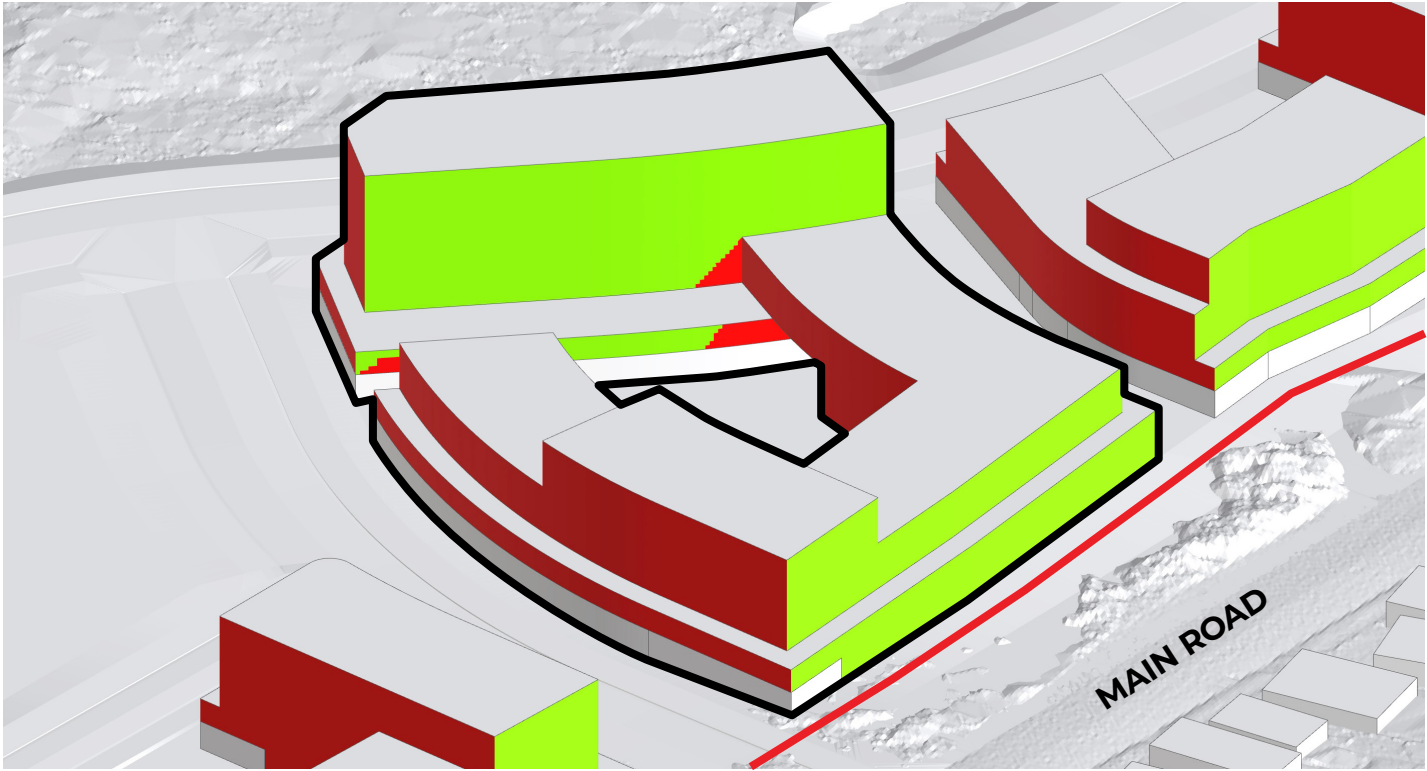


Figure 65. Solar Assessment of Lot 1.4 (View from North East)

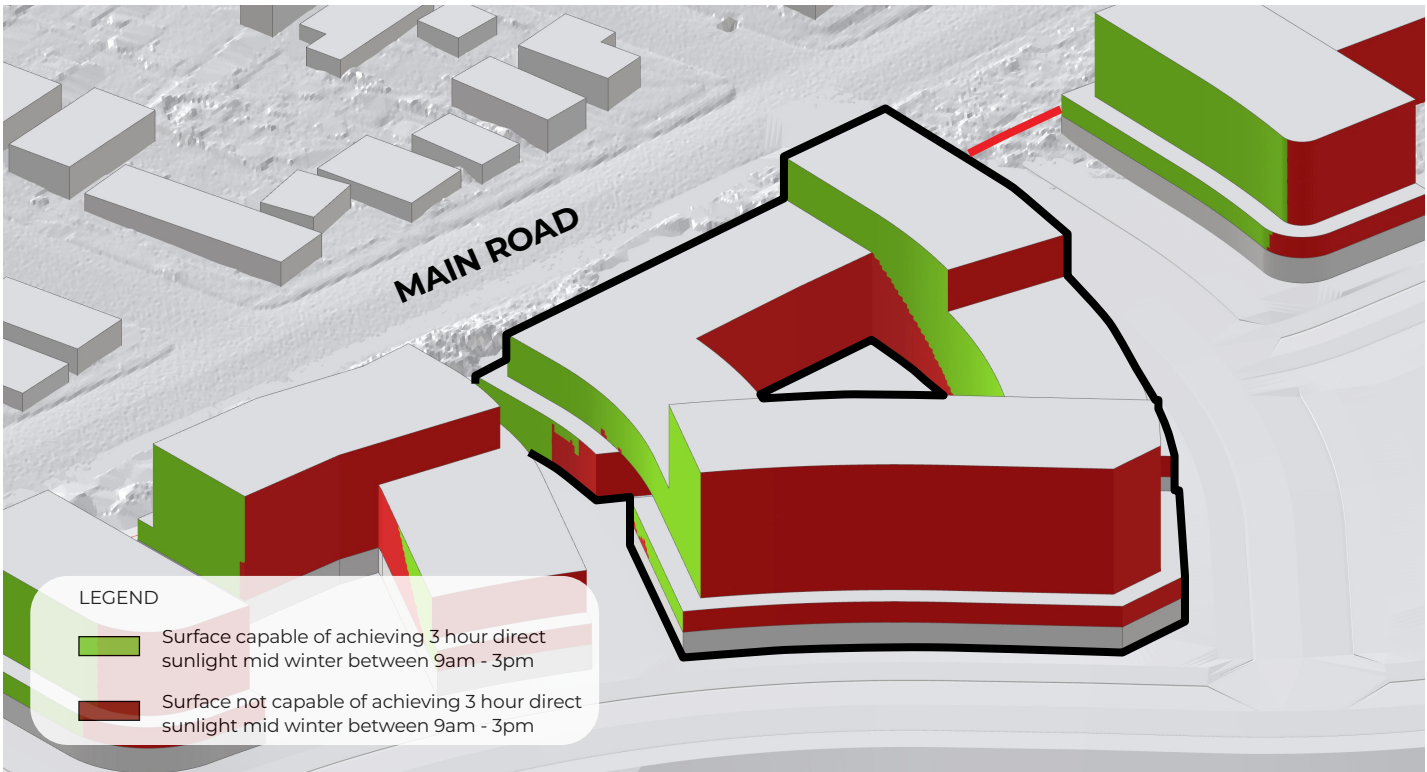


Figure 66. Solar Assessment of Lot 1.4 (View from South West)

7 Assessment

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

7.5 RFB on Lot 1.8

7.5.1 Solar Access

70% of apartments achieve required solar access

The proposed envelope of the residential flat building on Lot 1.4 has been assessed for winter solstice (21 June) from 9am to 3pm as per the ADG. A minimum of 70% of apartments must receive at least 3 hours direct sunlight.

The indicative floor plan illustrates the potential internal layout of the proposed apartment building. The Ladybug analysis (isometric views) demonstrates that a total of 7 apartments out of 10 are capable of achieving 3 hour of direct sunlight to living area and private open space.

Compliant apartments	Total apartments per floor	Compliance (Yes / No)
7	10	Yes

7.5.2 Cross Ventilation

60% of apartments achieve cross-ventilation requirement

The ADG requires a minimum of 60% of apartments within the first nine storeys of the building to be naturally cross ventilated.

The indicative floor plan demonstrates the capability of the building envelope to achieve the requirement above.

Compliant apartments	Total apartments per floor	Compliance (Yes / No)
6	10	Yes



Figure 67. Key Diagram

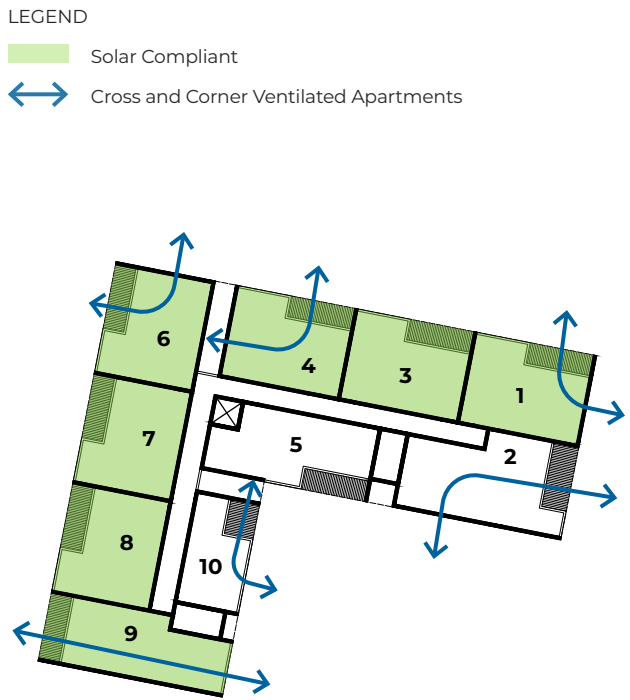


Figure 68. Lot 1.8 Apartment Internal Layout

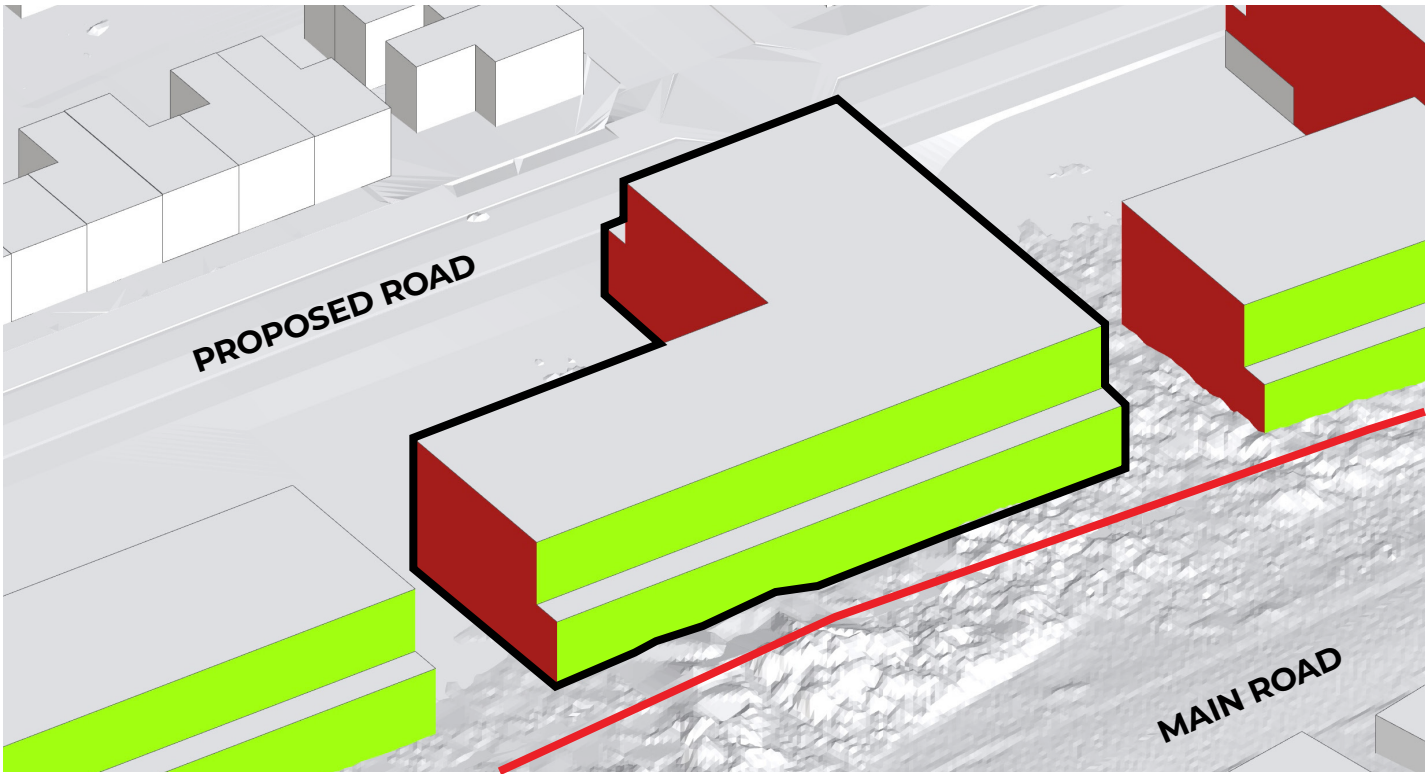


Figure 69. Solar Assessment of Lot 1.8 (View from North East)

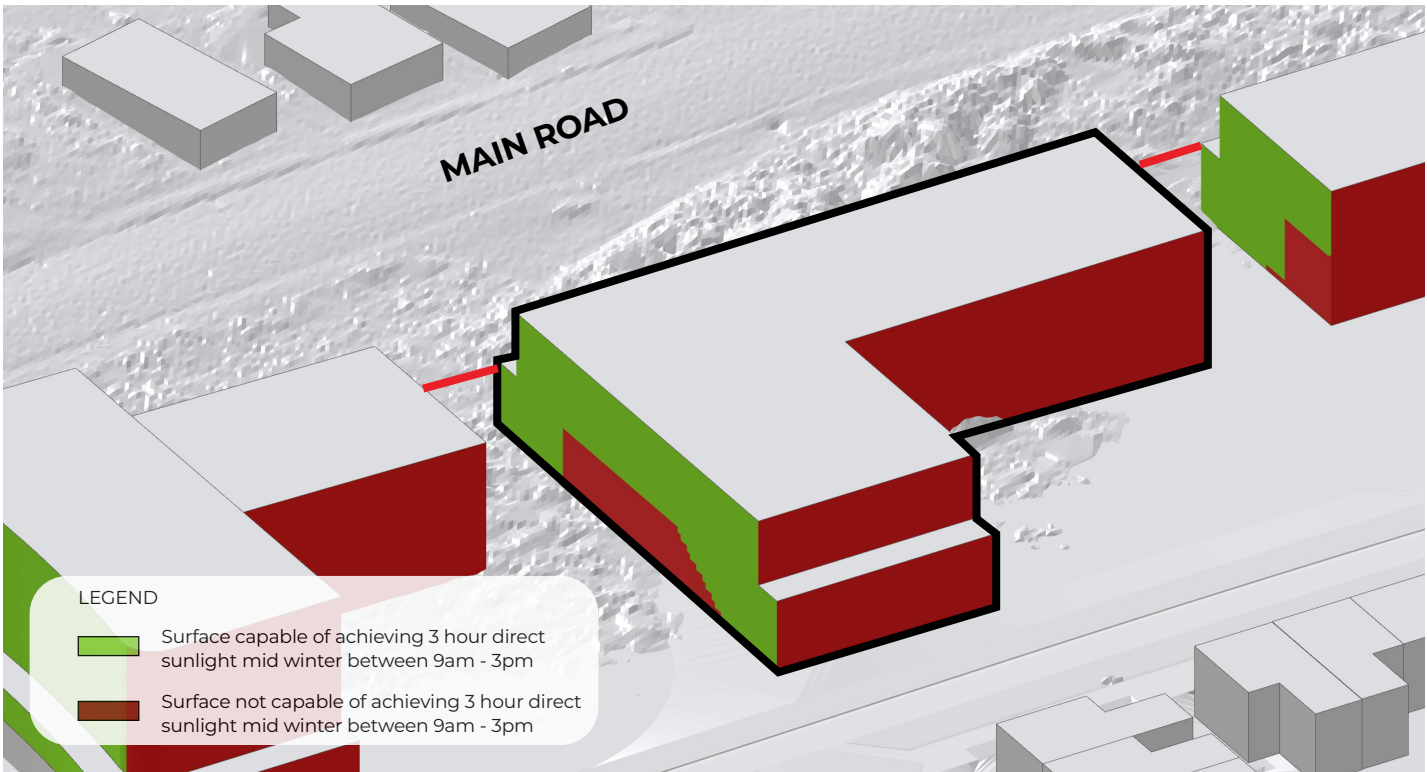


Figure 70. Solar Assessment of Lot 1.8 (View from South West)

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

7.6 **RFB on Lot 1.16**

7.6.1 **Solar Access**

75% of apartments achieve required solar access

The proposed envelope of the residential flat building on Lot 1.4 has been assessed for winter solstice (21 June) from 9am to 3pm as per the ADG. A minimum of 70% of apartments must receive at least 3 hours direct sunlight.

The indicative floor plan illustrates the potential internal layout of the proposed apartment building. The Ladybug analysis (isometric views) demonstrates that a total of 6 apartments out of 8 are capable of achieving 3 hour of direct sunlight to living area and private open space.

Compliant apartments	Total apartments per floor	Compliance (Yes / No)
6	8	Yes

7.6.2 **Cross Ventilation**

75% of apartments achieve cross-ventilation requirement

The ADG requires a minimum of 60% of apartments within the first nine storeys of the building to be naturally cross ventilated.

The indicative floor plan demonstrates the capability of the building envelope to achieve the requirement above.

Compliant apartments	Total apartments per floor	Compliance (Yes / No)
6	8	Yes



Figure 71. Master Plan Precincts

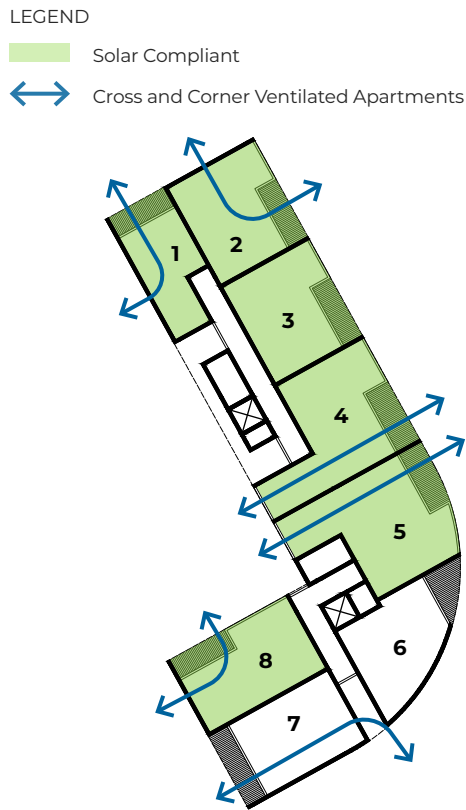


Figure 72. Lot 1.16 Apartment Internal Layout

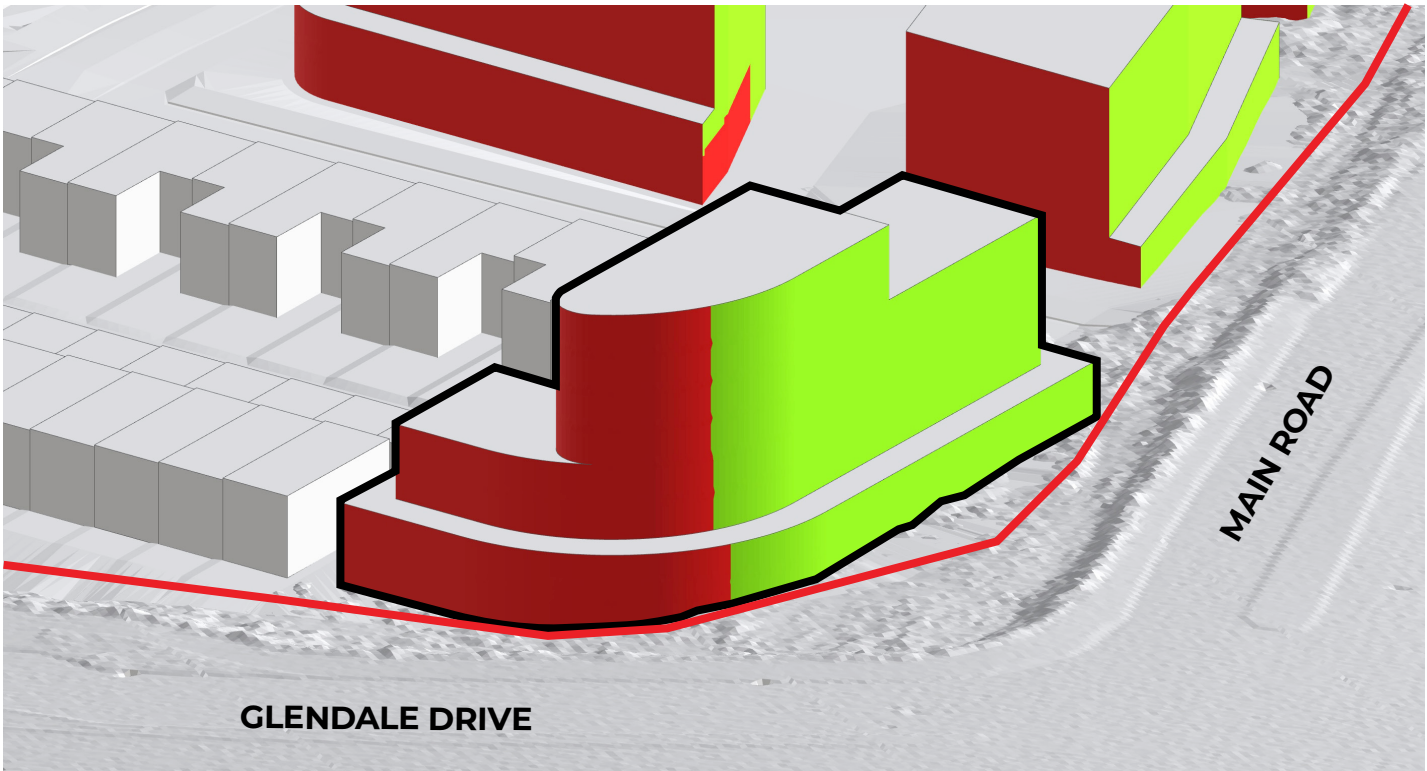


Figure 73. Solar Assessment of Lot 1.16 (View from North East)

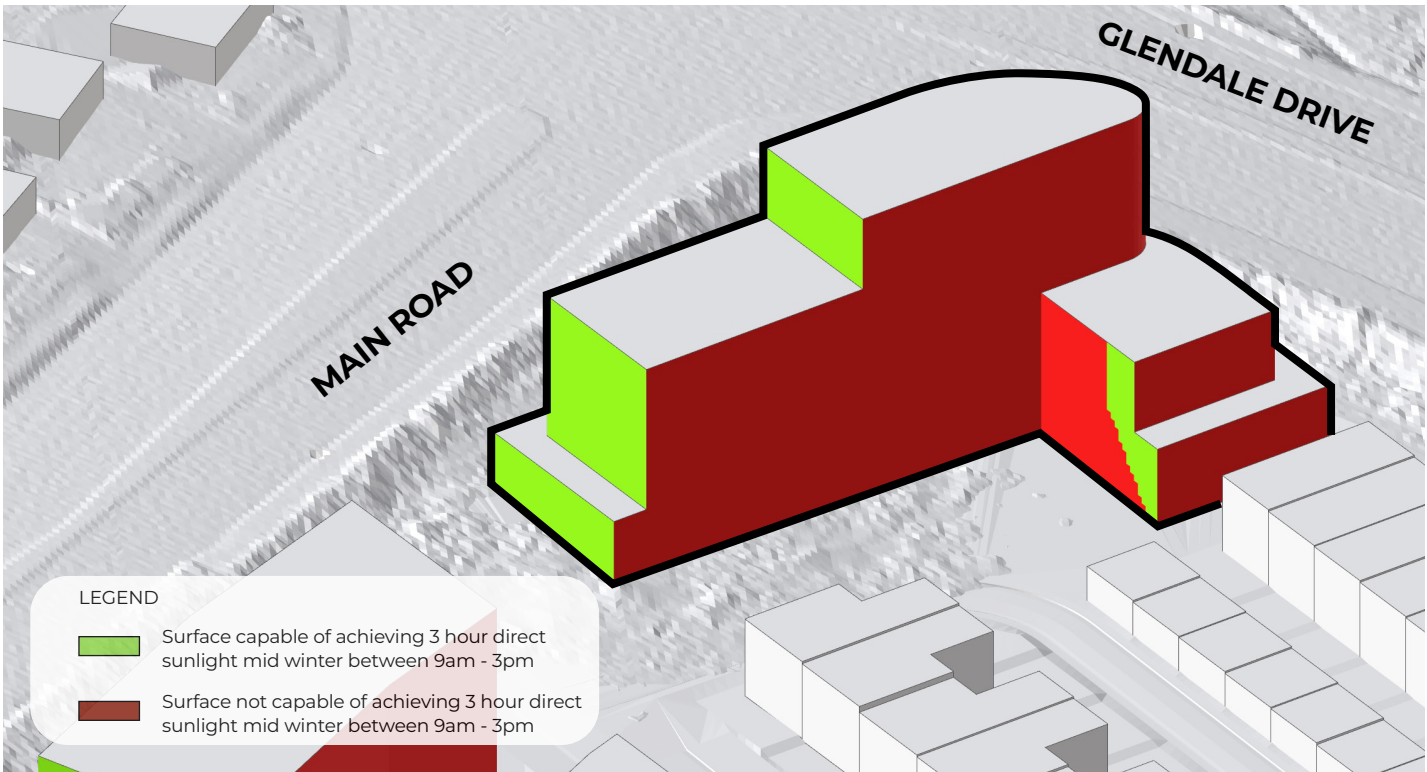


Figure 74. Solar Assessment of Lot 1.16 (View from South West)

7 Assessment

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

7.7 Overshadowing to New Local Park And Riparian Corridor

This section analyses the impact of shadow cast by the proposed built form on the neighbouring areas, specifically the local park, riparian corridor and the single detached dwellings along Cedar St. The assessment is done during winter solstice (21 June) from 9am to 3pm.

Principal usable part of the communal open space for proposed apartment buildings are assumed to be on rooftop.



Figure 75. Overshadowing diagram (21 June at 9.00am)

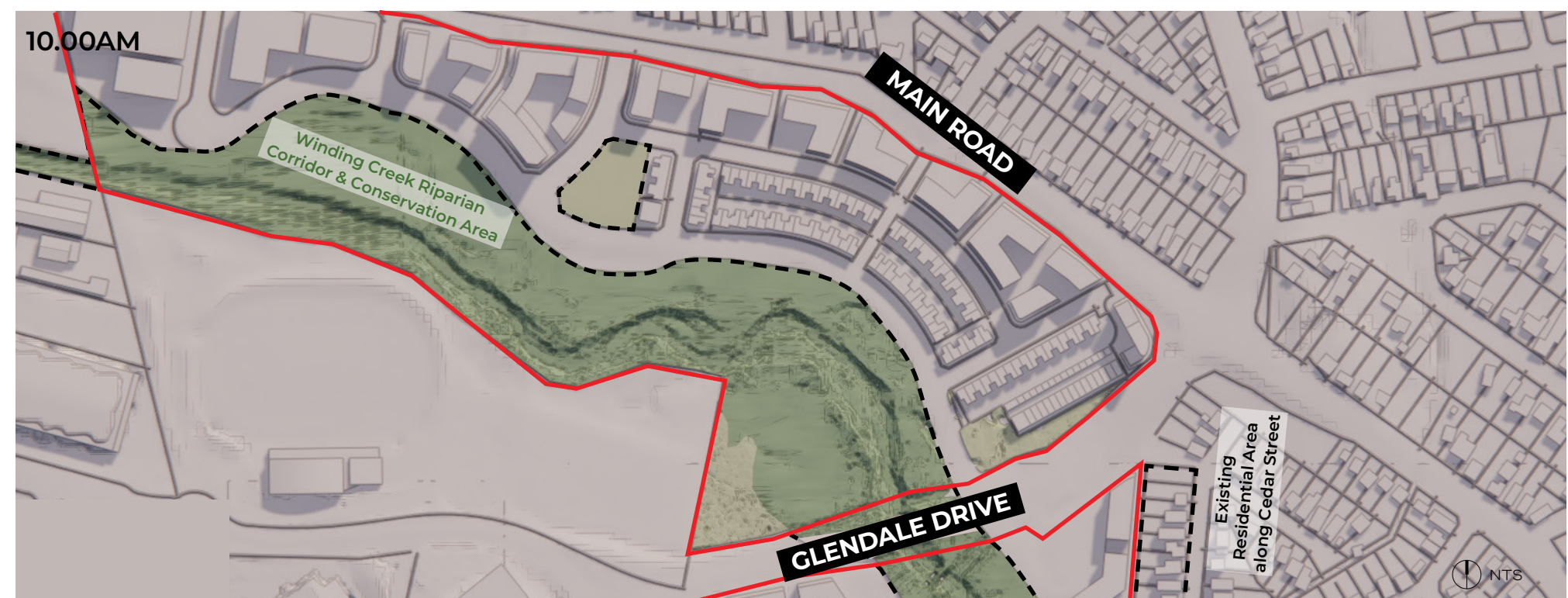


Figure 76. Overshadowing diagram (21 June at 10.00am)

LEGEND
 — Site Boundary
 — Open Space / Riparian Corridor

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

Overshadowing to New Local Park And Riparian Corridor

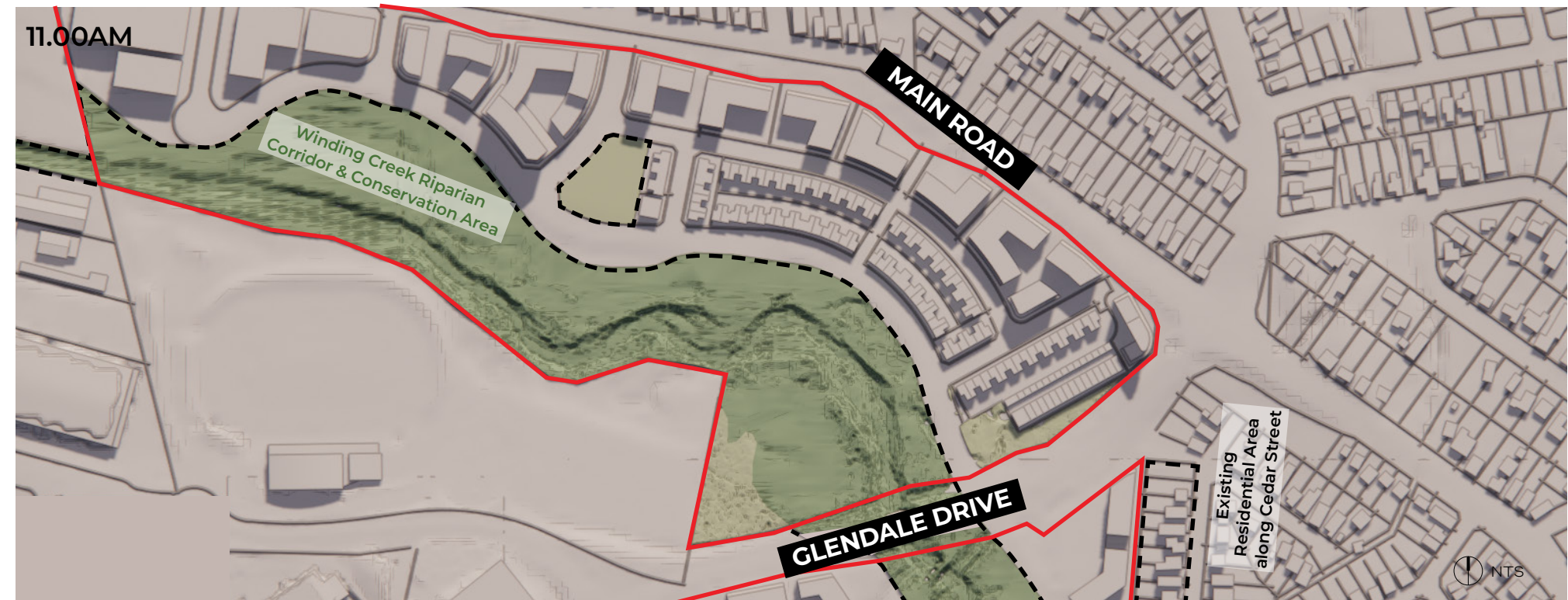


Figure 78. Overshadowing diagram (21 June at 11.00am)

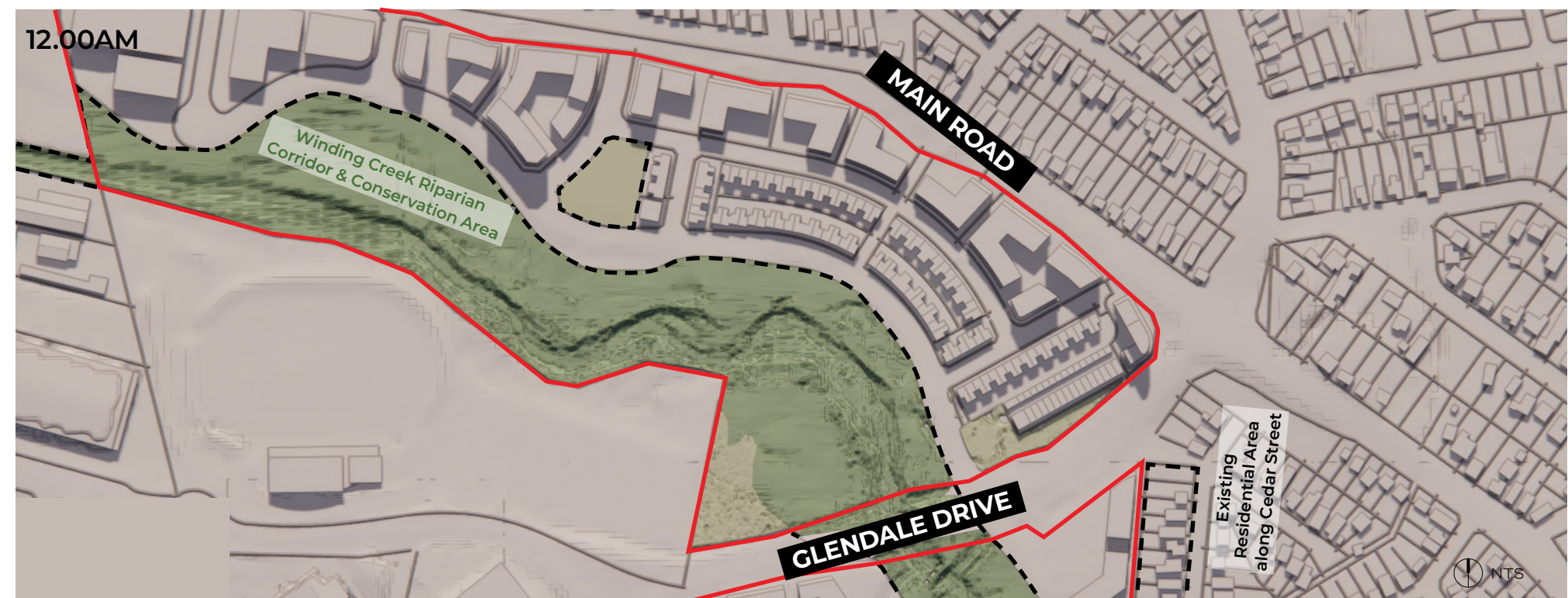


Figure 77. Overshadowing diagram (21 June at 12.00pm)

LEGEND
 — Site Boundary
 — Open Space / Riparian Corridor

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

Overshadowing to New Local Park And Riparian Corridor

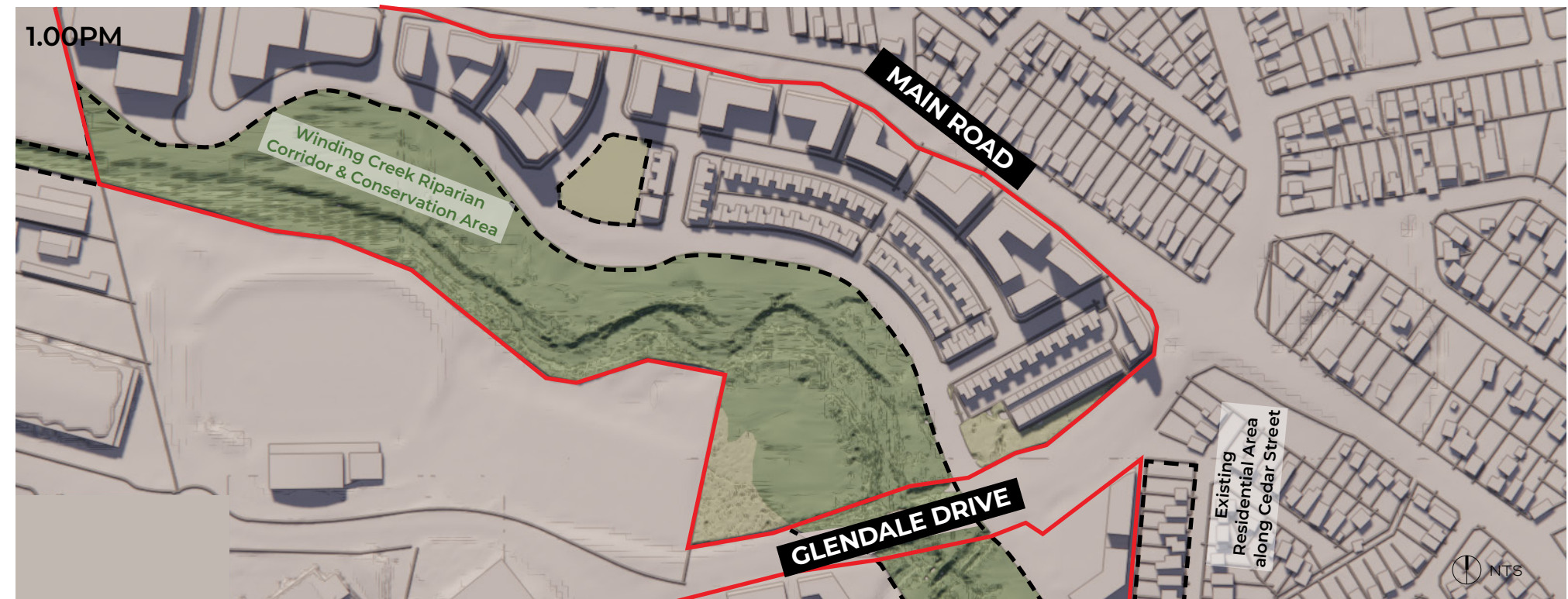


Figure 80. Overshadowing diagram (21 June at 1.00pm)

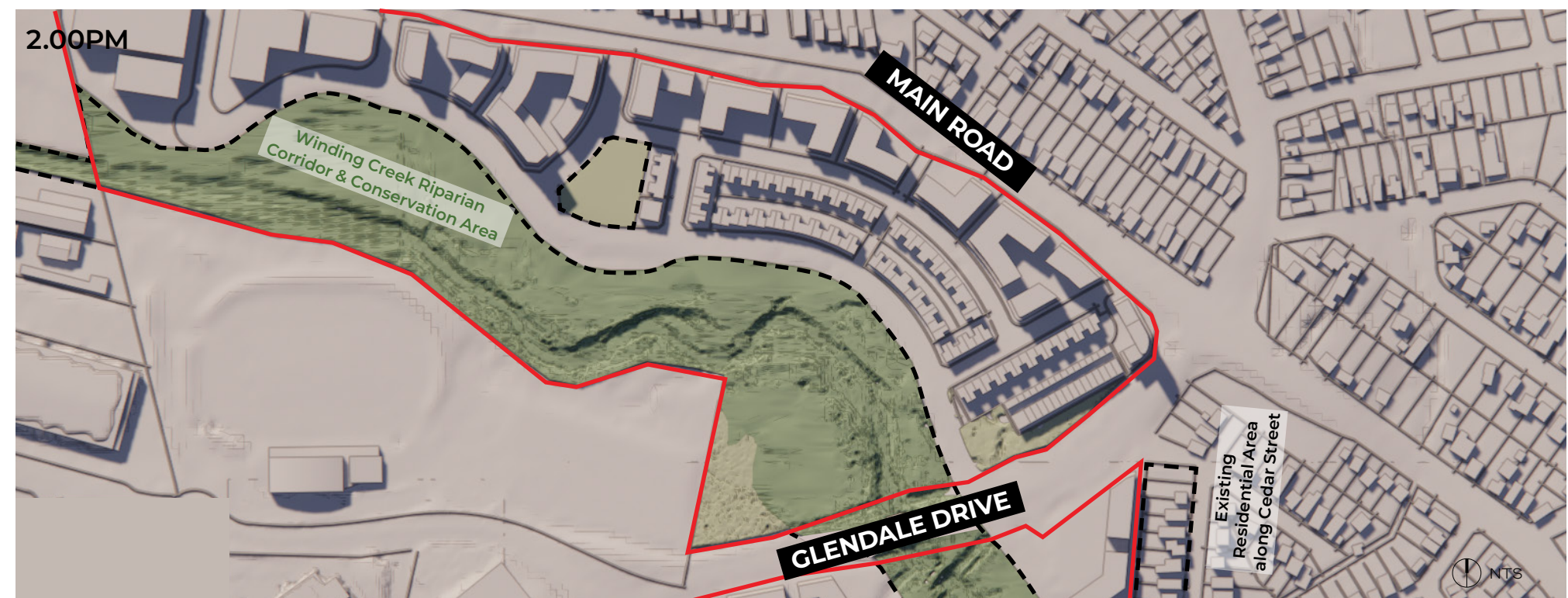


Figure 79. Overshadowing diagram (21 June at 2.00pm)

LEGEND
 — Site Boundary
 — Open Space / Riparian Corridor

NOTE: The Reference Master Plan in this report is an indicative reference design only. It is not the Glendale Concept & Stage 1 Development Application Master Plan for approval.

Overshadowing to New Local Park And Riparian Corridor

The study indicates that during the winter solstice, the built form has minimal to no impact on the proposed open space, riparian corridor and residential area.

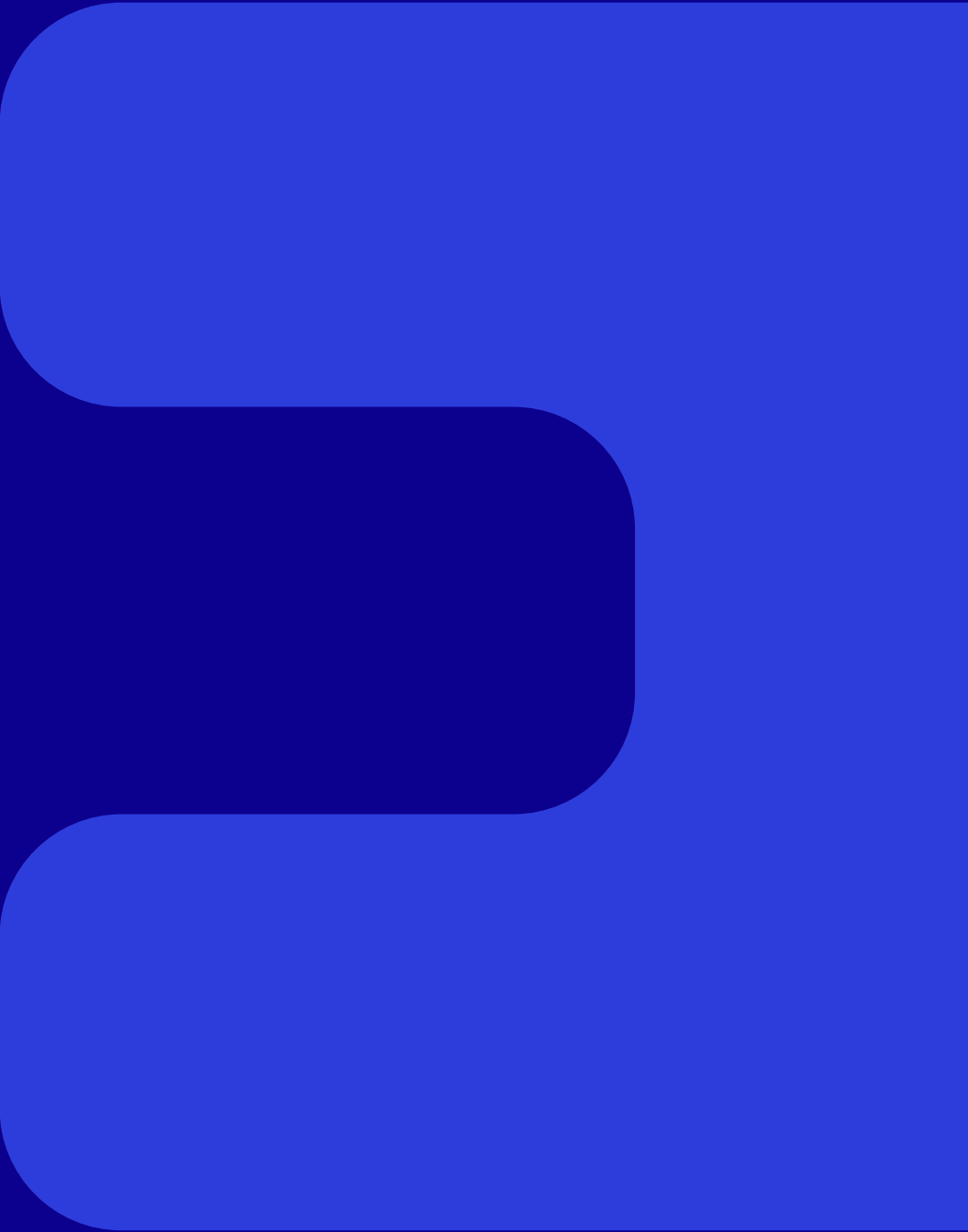


Figure 81. Overshadowing diagram (21 June at 3.00pm)

Summary of Shadow Impacts	9am	10am	11am	12pm	1pm	2pm	3pm
Riparian Corridor	- Low impact	- Low impact	- Low impact	- No impact	- No impact	- No impact	- No impact
Proposed Local Park	- Low impact	- Low impact	- Low impact	- Low impact	- Low impact	- Low impact	- Medium impact
Single Detached Dwellings along Cedar Street	- No impact	- No impact	- No impact	- No impact	- No impact	- Low impact	- Medium impact

- LEGEND
- Site Boundary
 - Open Space / Riparian Corridor

Section 8 —
Conclusion



8 Conclusion

This Urban Design Report positions the site within its strategic context to identify development opportunities and constraints based on rigorous urban design analysis to define a vision and design principles for the preparation of a Reference Master Plan

8.1 Compliance

The urban design investigations and analysis undertaken for this concept and Stage 1 DA has generated a Reference Master Plan that demonstrates compliance with the following State and Local Government policies and guidelines applicable to the site and subject to future stage development applications:

- Lake Macquarie LEP 2014 (LMLEP 2014)
- Lake Macquarie DCP 2014 (LMDCP 2014)
- State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development (SEPP 65)
- NSW Apartment Design Guide (ADG)

8.2 Strategic Alignment

To support the anticipated population growth and demographic change of the region, the Reference Master Plan envisions an urban mixed-use and commercial precinct set against a backdrop of native bushland and the Winding Creek riparian corridor.

The following urban design principles were developed to underpin the Reference Master Plan and ensure its strategic alignment with the broader context:

1. Diversity of dwellings
2. Density close to amenity
3. Establish & connect to regional cycle network
4. Preserve & enhance riparian corridor
5. A well-connected, walkable & safe neighbourhood

8.3 Proposed Outcomes

The proposed Reference Master Plan adopts a place-based and market-driven approach to deliver a new urban neighbourhood comprising a diversity of uses and commercial opportunities, including greater density and housing choice within close proximity to valuable open space infrastructure.

The Reference Master Plan proposes the following mix of uses and high quality built form outcomes:

- multi-dwelling housing;
- shop-top housing;
- residential flat buildings;
- mixed use buildings;
- large format commercial offerings; and
- other permissible uses.

The Reference Master Plan proposes the following public domain elements:

- rehabilitated Winding Creek riparian corridor and conservation area;
- regional shared path & cycleway link;
- local park with playground;
- proposed open space; and
- tree-lined streetscape network

Important Note

Note that the proposed Reference Master Plan in this report is a reference design only and not the master plan for approval in this development application.
The purpose of the Reference Master Plan is to illustrate the potential and viability of developing the site and is subject to future stage detailed design and development application approval.

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