Department of Planning, Housing and Infrastructure

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Macquarie Park Design Guide

Rev. R, 15 November 2024

Acknowledgement of Country

The NSW Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Macquarie Park Design Guide

First published: November 2024

Contents

1. Introduction

1.1. Citation

This document may be referred to as the Macquarie Park Design Guide ('Design Guide').

1.2. Commencement

This Design Guide commences on the day on which the State Environmental Planning Policy Amendment (Macquarie Park Transport Oriented Development Precinct) 2024 is published on the NSW Legislation website.

1.3. Land to which this Guide Applies

This Design Guide applies to the land identified in **Figure 1. Land Application Map**. This land is also referred to as the Macquarie Park Transport Oriented Development Precinct ('the Precinct').

1.4. Purpose of the Design Guide

The purpose of the Design Guide is to supplement the provisions of the City of Ryde Local Environmental Plan 2014 (RLEP2014) as well as the City of Ryde Development Control Plan 2014 (RDCP2014) by providing detailed provisions to guide development in the Precinct.

1.5. Relationship to Ryde LEP 2014 and Ryde DCP 2014

This Design Guide sets out specific guidance to inform future development within the Precinct. Development will need to have regard to:

- relevant provisions in the RLEP2014 and other relevant environmental planning instruments;
- relevant provisions in the RDCP2014;
- and to all provisions in this Design Guide.

In the event that RLEP2014 and/or RDCP2014 is superseded, development within the Precinct will need to comply with the corresponding provisions in any new LEP and/or comprehensive DCP.

In the event of an inconsistency between the Design Guide and the RDCP2014, the objectives and provisions in this Design Guide prevail to the extent of that inconsistency. Where the Design Guide refers to terms that are also used in in RLEP2014, the definitions in RLEP2014 are adopted. All other terms used throughout the Design Guide are defined either in this document or in Part 10: Dictionary of the RDCP2014.

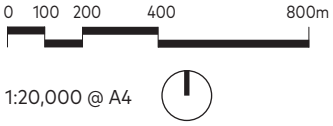
Land Application Map

KEY

LAND APPLICATION

NEIGHBOURHOODS:

1. NGALAWALA ('RECIPROCITY')
2. BUTBUT ('HEART')
3. WARAGAL BIRRUNG ('EVENING STAR')
4. GARI NAWI ('SALTWATER CANOE')
5. BURBIGAL ('MORNING')
6. GARUNGUL ('UNBREAKABLE')
7. NARRAMI BADU-GAMADA ('CONNECTING WATER SPIRIT')



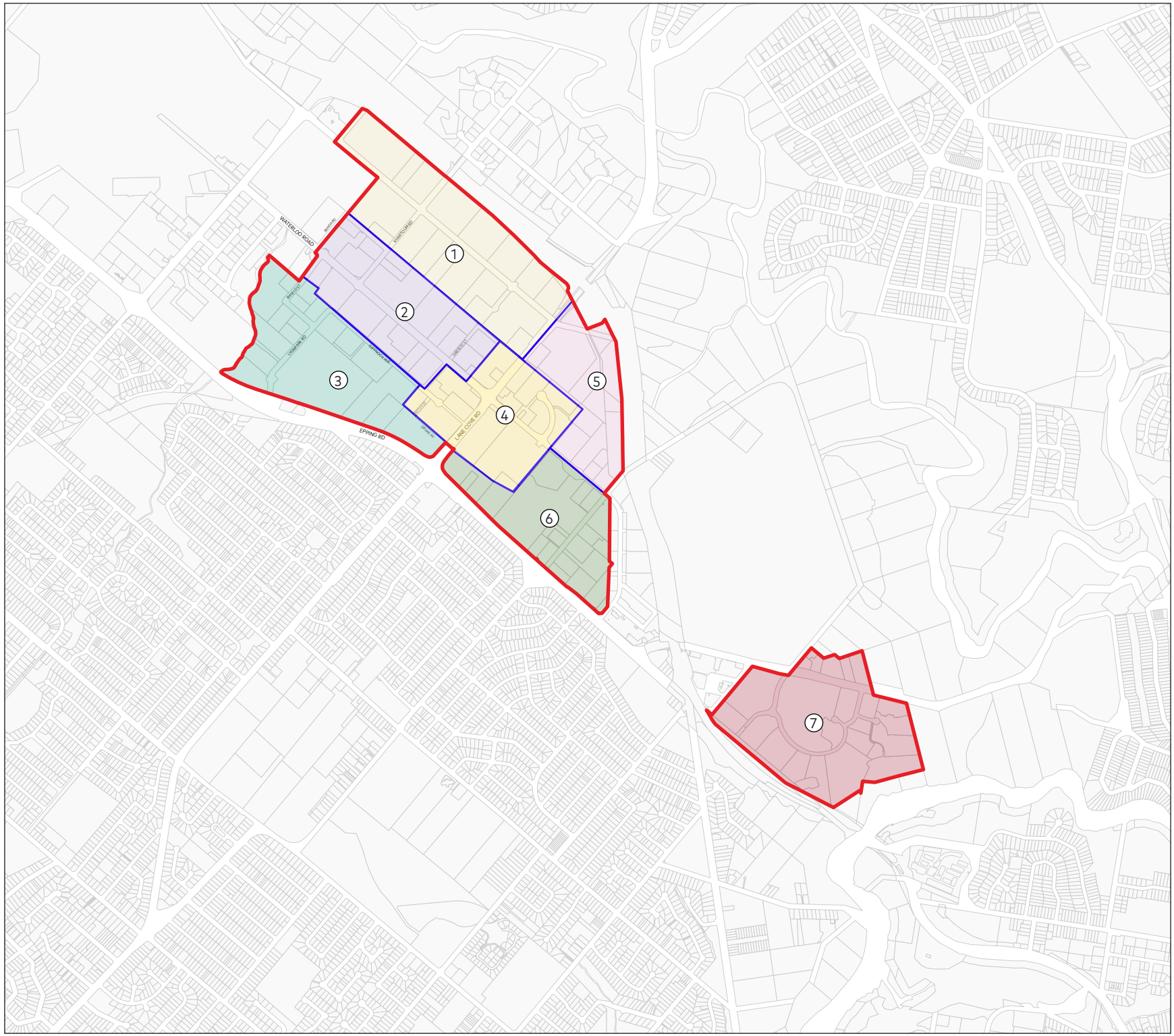


Figure 1. Land Application Map

2. Desired Future Character

2.1. Vision for the Precinct

The land on which Macquarie Park stands today is Wallumattagal Country.

The Wallumattagal Country of Macquarie Park was significantly obscured by a 20th century 'science park' development model that prioritised large buildings surrounded by wide expanses of surface parking across crudely benched sites. The vision for the Precinct is to progressively redefine the area as 7 distinct neighbourhoods, each using nomenclature from the Sydney language to foreground the traditional custodians of Country. As new streets and public open spaces are introduced they will re-establish a more natural topography, with the long forgotten, largely underground, lines of Shrimptons Creek, Industrial Creek and Porters Creek brought to the surface as natural creeks or interpretive landscapes and returned to public ownership. These and other new open spaces will expand the greenery in Macquarie Park, prioritising native planting, while improving wayfinding, walkability and pedestrian amenity throughout. Sustainability will be introduced to the precinct through the design of the public realm and future buildings, reprioritising the long-term health and vitality of Wallumattagal Country.

Ultimately, the Precinct will consist of seven interconnected but distinct neighbourhoods that are distinguished by a high-quality, well-designed, safe, and liveable urban environment that reveal Country and showcase Macquarie Park's position as a leading centre for innovation in Australia.

2.2. Locality Statement

The Neighbourhoods of the Precinct are: Ngalawala, Butbut, Waragal Birrung, Gari Nawi, Burbigal, Garungul and Narrami Badu-Gamada

Neighbourhood 1: Ngalawala, meaning 'Reciprocity', is the supportive business-focus fringe of Macquarie Park, with non-residential land uses associated with the productivity support land use zone.

This neighbourhood has strong relationship with the Lane Cove river corridor and catchment, and forms a richly landscaped limiting edge to the Precinct. The future character of this area will respond to its proximity to Lane Cove River and National Park, focusing on the rich biodiversity and the ability to connect Macquarie Park's natural systems.

Proximity to bushland, access beyond the M2 corridor and Woven Ways being a central aspect to this precinct, there is opportunity for this precinct to showcase these aspects within the public domain. An open space above the Shrimptons Creek Woven Way corridor will greet visitors arriving into the Precinct from the northwest, while landscaped setbacks and publicly accessible open spaces along both sides of Khartoum Road to create a green gateway into the core of the Precinct from the northern approach.

Talavera Road, running northwest-to-southeast, will progressively evolve into a more pedestrian-oriented street, with new public streets and through-site links connecting through to the next Macquarie Park neighbourhood to the southeast.

Neighbourhood 2: Butbut, meaning 'Heart', will remain the commercial centre of the Precinct, as new commercial buildings continue to be developed alongside the integration of Build-to-Rent apartment towers. The Neighbourhood connects Herring Road to Macquarie Park Station, cutting across the ridges between Industrial Creek and Shrimptons Creek. The neighbourhood is divided by the Waterloo Road Corridor, which will form a new 'green' focus for Macquarie Park, a connecting link for the commercial core, and a welcoming space of arrival into Wallumattagal Country.

A line of commercial properties of increasing scale and density will be linked by the expanded corridor, with major public spaces on both sides. Waterloo Road will become the central green boulevard of the precinct, forming the key movement corridor for pedestrians, cyclists and public transport. This street will become an iconic green statement of a streetscape, with central median, and linear parks to either side of the corridor providing well vegetated public domain space. The nature of the public domain and open spaces will be civic and urban; highly active city spaces. With a diverse range of users, the civic public domain open spaces will support the activities generated by the commercial buildings around them.

A community facility located opposite Catherine Hamlin Park will provide large multi-purpose space appropriate for both indoor sports as well as corporate events like trade shows and poster sessions. This will expand a daytime business park environment into an 18-hour activity hub, with the core commercial hub of Macquarie Park becoming a hive of activity. The Industrial Creek Woven Way travels through Butbut and visually connects it to the adjoining neighbourhoods.

Neighbourhood 3: Waragal Birrung, meaning 'Evening Star', is the neighbourhood that sits between two creeks: the northern boundary of Shrimptons Creek and the southern boundary of Industrial Creek. The neighbourhood is characterised by its landscaped edges, proximity to stations and distributed open spaces.

Shrimptons Creek is the signature element for this neighbourhood, with the opportunity to celebrate the physical water body through revitalisation, improved access and connections across. A new district-scale park will be created along the Creek, expanding and linking to Wilga Park to the west. The connection to nature shall inspire the neighbourhood character and materiality. The public domain will transition from civic materials of the north and east into a wilder, more natural landscape environment as it approaches Shrimptons Creek. The residential core of Waragal Birrung will be positioned around the new park, with the tallest buildings of the rezoning positioned directly east. Smaller towers will be clustered around smaller open spaces to provide variety further into the neighbourhood as well as a transition into Gari Nawi. A northern commercial edge buffers the transition from Waragal Birrung into the commercial core of Butbut.

Neighbourhood 4: Gari Nawi, meaning 'Saltwater Canoe', is characterised by high levels of metro connectivity and access to strategic bus routes.

The precinct has the transit interchange activity at its core, celebrating the energy and density of movement as people emerge into Macquarie Park from the Metro Station below. The intersection of Waterloo Road and Lane Cove Road creates the opportunity for a noticeable gateway statement through tall buildings, welcoming open spaces and public art. The public domain will be civic in nature, supporting the pedestrian, cyclist and public transport activity generated by the interchange. Beyond these, open spaces at the edges of the neighbourhood will reflect the mix of urban and residential users, with passive parks and streetscapes. A landscape buffer to Lane Cove Road will extend a line of spectacular mature trees, retaining a level change to the busy road with an alternative pedestrian pathway. Within this buffer local vantage points provide views north along to Lane Cove National Park, acknowledged with formalised resting spaces. Woven Ways are knitted into the north-east Metro Precinct open space and will connect to future neighbourhoods. Selective uses of surfaces, colours, textures and vegetation will reveal the Woven Way as well as signpost the gateway into Macquarie Park. Above this, towers will face onto the four station plazas.

Separate to the interchange, a residential activity hub of Gari Nawi is positioned along the northwestern edge along the Industrial Creek woven way. Here the neighbourhood transitions from the commercial core into the more residential neighbourhood of Waragal Birrung.

Neighbourhood 5: Burbigal, meaning 'Morning', sits along the within the Macquarie Park Metro Station catchment, at the perimeter of the urban core.

At the perimeter of the urban core, this neighbourhood will offer a peaceful natural environment within the urban setting. An existing water-focused central open space will be expanded along the Porter Creek Woven Way, naturalising part of the creek and providing continuous public open space that connects into the adjacent neighbourhood's movement network through to the Metro Station. A new residential community will provide activation of that space, with residential towers facing onto the Woven Way.

Neighbourhood 6: Garungul, meaning 'Unbreakable', will become the southeastern anchor of Macquarie Park and connect the emerging community of Lachlan's Line into the Precinct.

Garungul will become both a destination and a transitional precinct. It will provide the Precinct's largest public open space ('Wicks Park'), with multi-purpose active uses expanding from the existing hockey field. A second linear local park ('Link Park') will integrate the existing high-density residential fringe of Lachlan's Line into the Precinct, with a Woven Way cutting across its centre.

Tall residential towers will front the southern edge of both parks, orienting density around landscape amenity and providing year-round activation of the new open spaces.

Neighbourhood 7: Narrami Badu-Gumada, meaning 'Connecting Water Spirit', will remain a secondary employment zone at the southeastern edge of the Precinct, providing a diversity of non-residential uses to the east alongside a limited residential area in the flatter portions of the neighbourhood nearest the Metro Station.

The residential typologies will offer an urban gateway moment, extending from the existing North Ryde Metro precinct, before reducing in scale to a more intimate and restful campus character towards the southeast. Here, the area's bushfire risks and swathes of ecologically important land will require the area to remain relatively restrained, with mid-rise commercial buildings enjoying a distinct relationship with the immediate bushland and Lane Cove River.

Notable views across the bushland from the vantage points on the higher ground shall be retained, as sites step down towards the river. Meandering but still-steep future public streets will allow connections between sites, as well as to existing walking tracks within the National Park and Lane Cove River corridor.

2.3. Design Principles

Objectives

a) To ensure development is principles based, balancing landowner specific needs against the overall vision for the Precinct.

Provisions

1. Development is to demonstrate how it is consistent with and/or builds upon the principles listed in **Table 1. Precinct Design Principles** below.

Table 1. Precinct Design Principles

Category	Principle	
Design with Country	Principle 1:	Value Hierarchy: Acknowledge that all Country is important, while prioritising areas with the greatest significance for Aboriginal people: Rivers, Mountains and Swamplands.
	Principle 2:	Share the Country: Preserve natural areas for public use, avoiding building near rivers or hills. These can be future parks and recreation spaces.
	Principle 3:	Orientation and High Points: Understand prevailing winds and solar pathways. Design with respect to solar orientation, wind and views.
	Principle 4:	Promote Biodiversity: Design with diverse plants and resources, that can be cultivated to ensure year-round availability.
	Principle 5:	Promote Culture: Design Country to enhance our sense of culture, of our diverse and rich differences, and our commonalities.
	Principle 6:	Let Country Be: Let the low areas be wet, the high areas be forested, the plains be wide and open. High value areas can be planned from the central point out.
Green Macquarie Park	Principle 7:	Increase Open Space: Create additional open spaces to support future growth and fill in walkability catchments.
	Principle 8:	Strengthen Tree Canopy & Create Green Linkages: Use tree canopies and linear parks to link open spaces via streets and ameliorate effects of urban heat island.
	Principle 9:	Revitalise, Reveal & Interpret Creeks As Woven Ways: Encourage residential development near creek lines (while being sensitive to flooding), referencing the water bodies through open streetscape design and pedestrian linkages.

Category	Principle	
Connected Neighbourhoods	Principle 10:	Create Fine Grain Urban Grids: Prioritise pedestrians by introducing new streets and through-site links while increasing the number of crossing points and street connections.
	Principle 11:	Enhance Public & Active Transport: Improve and expand Macquarie Park's safe, legible and highly utilised active transport network.
	Principle 12:	Design Arrival Experience & Emphasise Gateway Moments: Acknowledge different scale and arrival experiences of diverse individuals and visitors, emphasising crossing neighbourhood boundaries and entering activity hubs.
Create Critical Mass	Principle 13:	Density Around Amenity: Maximise activity levels by introducing a mixture of land uses, supported by facilitating social infrastructure. Position density around open spaces and other areas of high amenity, both to ensure its activation and maximise the number of residents benefiting from it. Avoid positioning residential uses along major roads.
	Principle 14:	Accentuation: Locate height around the precinct's gateways and major open spaces to provide moments of arrival, contribute to area wayfinding, and improve the precinct's image. Create points of difference to help give character to Macquarie Park as a visually interesting, stimulating environment.
	Principle 15:	Retention: Support Macquarie Park's existing assets by retaining its medium and large scale buildings. Retain existing building stock as far as possible.
	Principle 16:	Variety: Create environments that are visually interesting, stimulating, and offer a range of different experiences.
	Principle 17:	Diversity: Provide a range of building typologies, sizes, uses and price points to support the varying needs of businesses and residents.
Grow Sustainably	Principle 18:	Climate Positive: Foster climate positive outcomes in construction and operation; be industry-leading in resource efficiency.
	Principle 19:	Resilient: Thrive despite short term shocks from weather and acute events and can adapt to longer term stresses like climate change.
	Principle 20:	Biodiverse & Regenerative: Prioritise natural systems, maintain a net positive impact on biodiversity, and foster local ecology to create a biophilic environment.
	Principle 21:	Integrated Mobility: Facilitate the movement of people and goods in ways that are easy, healthy, efficient, and zero emission.
	Principle 22:	Vibrant & Healthy: Support different tenant requirements with places that are able to respond to future changes in the social, economic, technological and environmental context.

2.4. Structure Plan

General

The Structure Plan for the Precinct takes into account and builds upon the existing land uses and established functions within the Precinct. It seeks to address the acute deficit of open space in the Precinct and to break up the large business park style lots into smaller blocks more appropriate to a high-density urban area, improving opportunities for canopy coverage, connectivity and walkability.

Objectives

a) Create distinct identities for each separate 'neighbourhood' through their streets, through-site links, public open spaces, wayfinding and street furniture, as well as the built form.

b) Reveal and celebrate the creek lines running through and underneath Macquarie Park, by locating public open spaces, walkways and through-site links along them.

c) Create a central green boulevard along Waterloo Road that provides the key movement corridor for pedestrians, cyclists and public transport as well as an iconic green statement of a streetscape.

d) Continue to develop the commercial activity centre in Butbut around Catherine Hamlin Park, also introducing community uses to provide greater activation.

e) Create a new activity hub in Gari Nawi, mixing residential and commercial uses around new public open spaces.

f) Create a new residential activity hub located around a large new public park on Shrimptons Creek.

g) Position tallest buildings and highest densities around the areas of highest amenity as well as at gateways into the Precinct, particularly above and around the Macquarie Park Metro station.

h) Maintain a commercial core within the Butbut neighbourhood.

i) Protect and enhance the existing economic value of the Precinct by supporting existing tenants via an improved urban and commercial environment.

Provisions

1. Development, including distribution of land uses, is to be in accordance with **Figure 2. Structure Plan**.
2. Public open spaces as well as Privately Owned Publicly-Accessible Spaces ('POPS') are to be provided in accordance with **Figure 2. Structure Plan**.
3. Public streets are to be provided in accordance with **Figure 2. Structure Plan**.
4. Separated bicycle lanes are to be provided in accordance with **Figure 2. Structure Plan**.

Structure Plan Map

Figure 2a. Structure Plan Map (Page 1 of 2)

Structure Plan Map

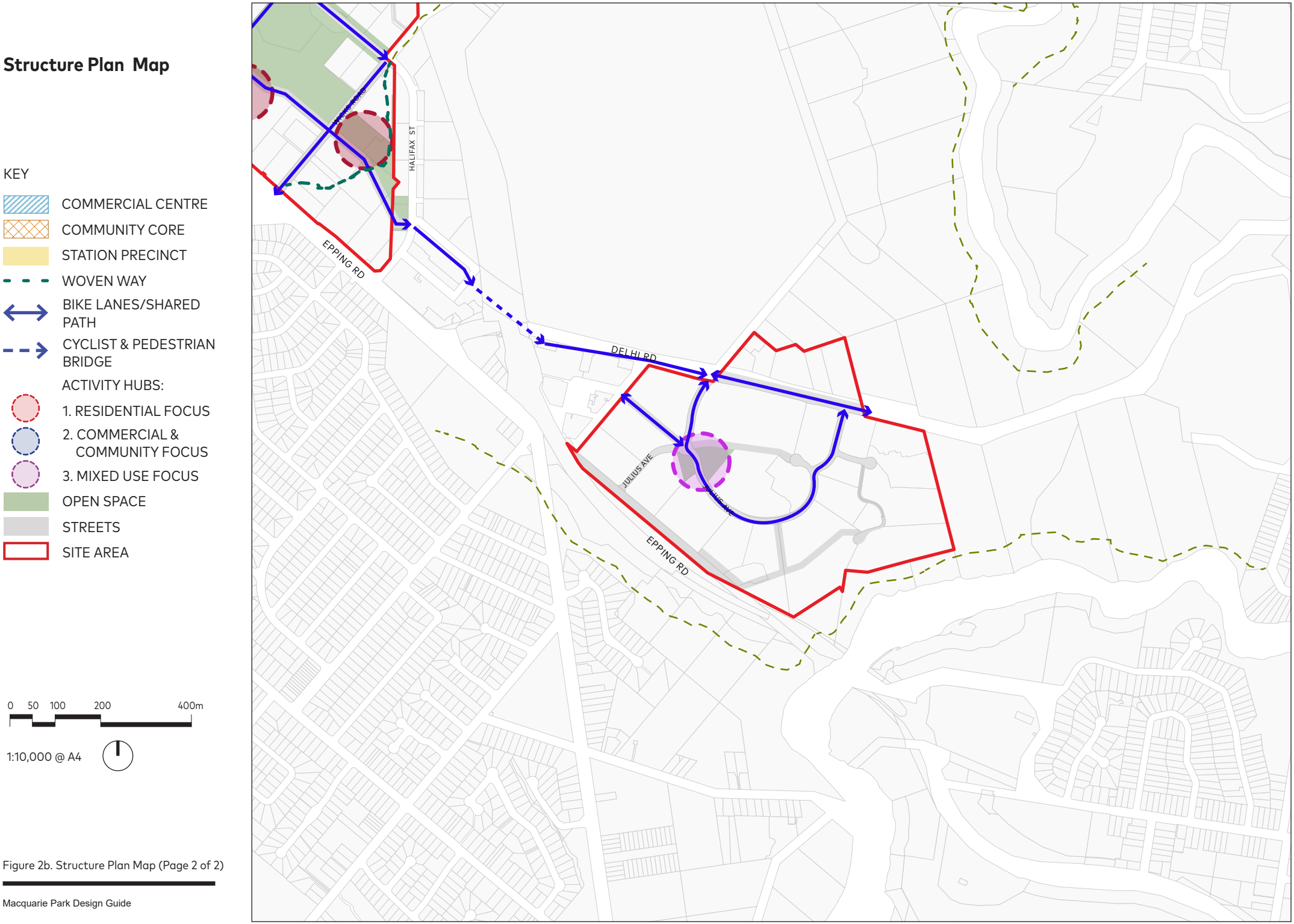


Figure 2b. Structure Plan Map (Page 2 of 2)

3. Connecting with Country

> "The Ryde area was known as the place where the clever men would meet. The clever men, or Koradgi in the Darug tongue were believed to have special powers and could visit the sky country - the abode of the ancestors and home of the sky father Biami."
> – Chris Tobin (Darug artist) 2005, quoted in WSP Connecting with Country Framework.

General

Development projects in the Precinct should acknowledge, celebrate and help heal the Aboriginal Country, culture and people that have largely been obscured by the Precinct's history of 20th century business park style development. By embedding Country throughout the design process, development projects can acknowledge Country and reveal their sites' latent Aboriginal history.

This Design Guide describes certain Objectives and Provisions to assist development to engage with Aboriginal people and Country. However, ongoing consultation and permission must be sought from the authorised local elders and cultural knowledge holders. The identification of relevant individuals and groups with connections to Country should happen in the earliest stages of a project. The ideas set out in this Design Guide should be seen only as an introduction to the engagement process.

3.1. Designing with Country

Objectives

a) Acknowledge, celebrate and restore Wallumattagal Country.
b) Embed and foreground Aboriginal knowledge in the built and natural environment.
c) Reveal sites' latent Aboriginal histories.
d) Support the health and wellbeing of Country by valuing, respecting, and being guided by Aboriginal cultural knowledge.

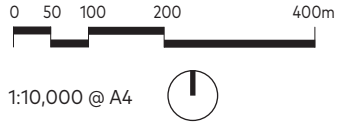
Provisions

1. Development is to demonstrate how it is consistent with and builds upon the Connecting with Country strategies identified in **Figure 3. Connecting with Country Map**.
2. Development should seek to be guided, co-designed and informed by the Aboriginal community and their cultural knowledge. Aboriginal people are to lead or co-lead all Indigenous design elements.
3. Tell the story of Country and its people at Entry Statements and Meeting Places, through the protocols of Ngurra. This could include signage, surface treatments and artworks.
4. Use Aboriginal language or implement dual naming in the built environment, including streets, public places, community facilities and wayfinding signage.
5. Where appropriate, incorporate bold pavement design at thresholds/entrances that reference Aboriginal language, colour and patterns.
6. Incorporate storytelling elements into wayfinding devices, to both orientate people to Country today as well as inform them of the stories and history that came before.
7. Provide communal and public outdoor spaces with areas to celebrate culture such as a viewing, yarning or sitting place.
8. Include the use of majority locally indigenous vegetation to enhance public and private open spaces' relationships with and acknowledgements of Country.
9. Development applications are to include a Designing with Country statement that details how the applicant has responded to the provisions above, including a description of:
    a. consultation activities and outcomes (if consultation has occurred), and how these have informed planning and design of the proposed development;
    b. opportunities to enhance Aboriginal cultural values;
    c. mitigation measures to reduce any impacts to areas of Aboriginal cultural value.
10. Seek to respect Indigenous Cultural and Intellectual Property (ICIP) rights throughout the delivery process of the entire precinct.

Connection with Country Map

KEY

- WOVEN WAY
- WOVEN WAY (OUTSIDE THE SITE AREA)
- PHYSICAL WOVEN WAY CONNECTION
- EPHEMERAL WOVEN WAY CONNECTION
- ENTRY STATEMENT
- MEETING PLACE
- HIGH POINT
- PATHWAY
- OPEN SPACE
- STREETS
- SITE AREA



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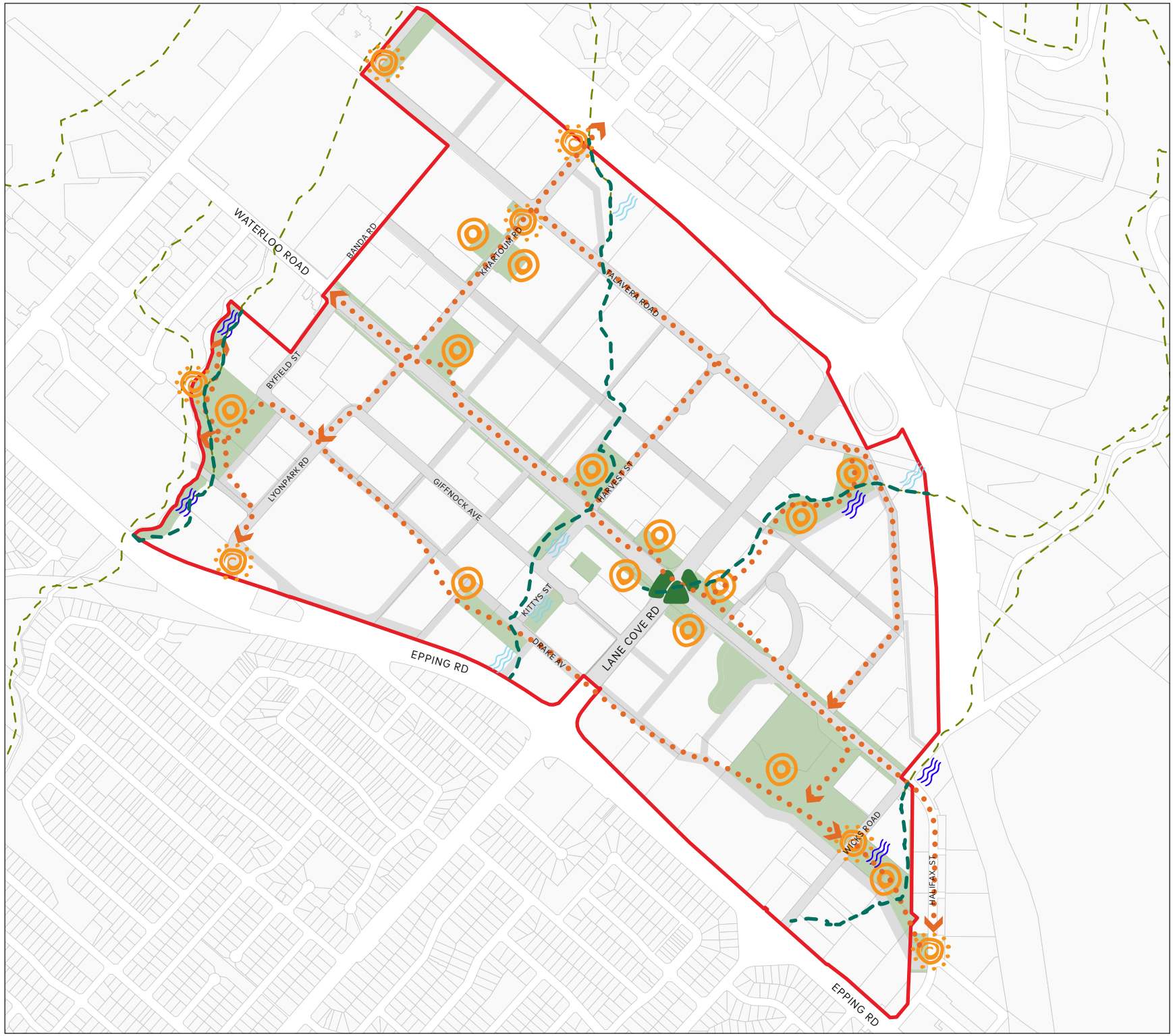

Figure 3a. Connecting With Country Map
(Page 1 of 2)

Connection with Country Map

KEY

- WOVEN WAY
- WOVEN WAY (OUTSIDE THE SITE AREA)
- PHYSICAL WOVEN WAY CONNECTION
- EPHEMERAL WOVEN WAY CONNECTION
- ENTRY STATEMENT
- MEETING PLACE
- HIGH POINT
- PATHWAY
- OPEN SPACE
- STREETS
- SITE AREA

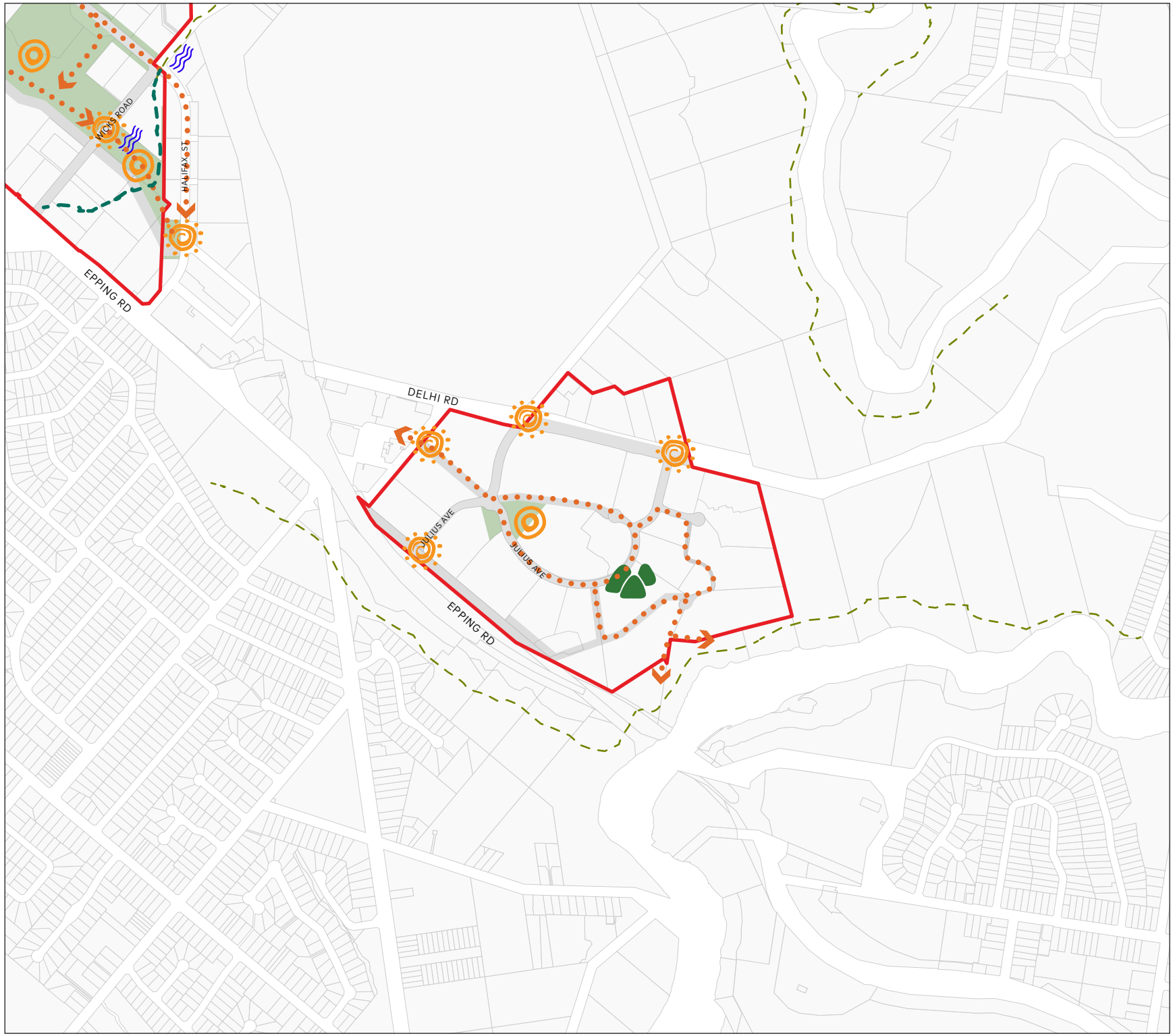

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Figure 3b. Connecting With Country Map
(Page 2 of 2)

Table 2. Connecting with Country Design Concepts

Concept	Description
Entry statement	Site markers to signify the Country of Macquarie Park. May be delivered through sculptural or murals, message sticks, as well as landscape architecture communicating stories and design.
Pathway	Pathways to signify connections between spaces within Macquarie Park. May be delivered via wall treatments, murals, abutment, noise walls, patterned and coloured asphalt.
Physical Woven Way Connection	Refer to **Section 3.2 Woven Ways.**
Ephemeral Woven Way Connection	Refer to **Section 3.2 Woven Ways.**
Meeting Place	Spaces to celebrate culture, such as a viewing, yarning or a sitting place. May be delivered through the use of design treatments in pavement, seating, and public art.

3.2. Woven Ways

General

The 'Woven Ways' refer to the creek lines crossing Macquarie Park, as approximately located in **Figure 3. Connecting with Country Map**. Shrimptons Creek remains partially a natural creek, while other water lines through Macquarie Park have been channelled and buried underneath development sites.

Objectives

a) Restore or recall, and then foreground, obscured elements of the Wallumattagal Country.

b) Let underlying Country inform and direct development.

c) To embed and slow down natural water, acknowledging water as both a permanent and ephemeral part of Country.

Provisions

1. A through-site link, public open space, privately owned publicly-accessible space (POPS) or other fully publicly accessible route shall be provided along the approximate line of each Woven Way as identified in **Figure 3. Connecting with Country Map**.
2. Where possible, restore and/or re-wild sections of above and underground creeks as 'physical Woven Way connections'. These should take the character of open air natural creeks with public access into and circulation through the area.
3. Where naturalisation of creeks is not possible, 'ephemeral Woven Way connections' may be created, with interpretive design solutions such as a landscape architecture (including riparian features such as swales and reed beds) and public art that express Woven Ways in open spaces, streets and built form.
4. Provide wayfinding and interpretive signage that identifies each individual space along a Woven Way as a component of the larger Woven Way network.
5. Position buildings away from Woven Ways and related water lines – including flooding and overland flow – above and below ground.

3.3. Waterloo Road Corridor

General

The Waterloo Road Corridor refers to a Ryde Council strategy to provide privately-owned publicly-accessible spaces (POPS) within landscaped front setbacks of properties fronting Waterloo Road.

Objectives

a) To provide resting places and gathering opportunities along Waterloo Road.
b) To improve the visual character of Waterloo Road.
c) To create a pedestrian friendly environment along a major distributor street.
d) To connect the larger local open spaces distributed along Waterloo Road.
e) To retain and enhance existing vegetation within developable area along Waterloo Road.

Provisions

1. Maintain a minimum landscaped setback of 10m along 90% of the property boundary with Waterloo Road.
2. Landscaped setbacks are to be provided with a public access easement across their entire length and be directly accessible from the pedestrian pathways within the Waterloo Road road reserve.
3. Provide new tree planting, positioned where it best increases summer shading of the public realm, improves visual amenity along the corridor, and/or provide a buffer from adjoining vehicle space.
4. Retain all medium-to-large existing trees within the landscaped setback.
5. Provide publicly-accessible formal and informal seating opportunities within the landscaped setback.
6. Integrate landscape design with entrance sequence into buildings, which should have direct identifiable DDA-compliant building access.
7. Position internal building cafeterias and canteens along frontage with landscaped setbacks. Avoid blank or service frontage types along landscaped setbacks.
8. Minimise vehicular crossings of landscaped setback, using level surfaces and traffic calming devices to ensure obviously visible prioritisation of pedestrians.
9. Acknowledge the interface with a Woven Way wherever this occurs, for instance via changed paving patterns and/or different planting palettes.
10. Refer to the City of Ryde's Waterloo Road Active Street Master Plan indicative designs for the Corridor including designation of 'Urban Path', 'Urban Dwell Zone', 'Forest Path', and 'Forest Dwell Zone' spaces.

4. Streets & Landscape

4.1. Street Network

Objectives

a) Progressively transition the Precinct from a large-lot business park into a high-density urban environment, with a legible street network creating smaller, walkable blocks.

b) Provide a vibrant, activated street network that supports multiple uses and users, including as public spaces for community enjoyment and social gathering.

c) Provide streets that allow for events and all types of activation.

d) Complete identified missing links in the street network and improve pedestrian permeability

e) Encourage pedestrian movement and increase share of active and public transport movements within the neighbourhoods.

f) Prioritise pedestrian amenity, pedestrian crossings, tree canopy coverage, and active transport routes over the supply of on-street car parking.

g) Support minimum necessary vehicle movements through the Precinct.

h) Accommodate the identified Woven Ways through street locations and design.

Provisions

1. Streets are to be provided and designed to be in accordance with **Table 3. Street Network Characteristics** and **Figure 4. Street Network Map**.
2. Ensure new streets effectively accommodate the requirements of the identified Woven Ways, and use gateway points in the street network to celebrate Country.
3. Provide for bicycle and other active transport infrastructure where identified in **Figure 15. Active Transport Network Map**, working with Transport for NSW and providing for sufficient site area to be dedicated to that use.
4. Incorporate Water Sensitive Urban Design (WSUD) techniques and planting integrated into all streets to maximise stormwater capture, and further emphasise this in the streets that align with Woven Ways.
5. All pedestrian and cycle crossing points should be safe, accessible and convenient.
6. Way-finding signage must be provided at logical and visible points along main streets and at key intersections.

7. Materials, furnishings, public art and landscaping within each road reserve must be of a high-quality and consistent palette and should seek to reflect the local character of each neighbourhood.
8. All publicly accessible areas must meet Disability Discrimination Act (DDA) standards of universal access.
9. CPTED principles must be achieved including encouraging passive surveillance, effective lighting, management of public areas and boundary demarcation.
10. Pedestrian scaled lighting must be included along all pedestrian and cyclist routes.
11. Tree canopy coverage is to be prioritised over street parking, with tree blisters provided between every two-to-three on-street parking spaces.
12. The design of streets are to provide appropriate soil volumes and subsoil drainage to support street tree planting, where provided.
13. Bicycle lanes shall be designed with:
    a. Design speeds of 30 km;
    b. Clearly demarcated with strong and consistent visual cues;
    c. Bicycle priority demarcated at intersections with strong and consistent visual and physical clues and supportive directional and associated road signage;
    d. Vehicle crossovers should be minimised where they intersect with cycle paths/shared paths;
    e. Where bicycle parking facilities are provided, they should be paired with self-maintenance hubs in locations with weather protection, passive surveillance and lighting.

Table 3. Street Network Characteristics

Street Type	Description	Design Guide Figure Reference
ST1	30m Waterloo Road Green Corridor	Figure 5. Street Type ST1, Indicative Plan & Section
ST2	20m Waterloo Road Green Corridor	Figure 6. Street Type ST2, Indicative Plan & Section
ST3	25m Secondary Green Boulevard	Figure 7. Street Type ST3, Indicative Plan & Section
ST4	23.7m Secondary Circulation Route	Figure 8. Street Type ST4, Indicative Plan & Section
ST5	20m Secondary Circulation Route with WSUD Integration	Figure 9. Street Type ST5, Indicative Plan & Section
ST6	20m Green Link	Figure 10. Street Type ST6, Indicative Plan & Section
ST7	20m Secondary Circulation Route with Separate Cycleway	Figure 11. Street Type ST7, Indicative Plan & Section
ST8	20m Secondary Circulation Route	Figure 12. Street Type ST8, Indicative Plan & Section
ST9	17.5m Local Street	Figure 13. Street Type ST9, Indicative Plan & Section
ST10	14.5m Local Street	Figure 14. Street Type ST10, Indicative Plan & Section

Street Network Map

KEY

- ST1 - 30M WATERLOO ROAD GREEN CORRIDOR
- ST2 - 20M WATERLOO ROAD GREEN CORRIDOR
- ST3 - 25M SECONDARY GREEN BOULEVARD
- ST4 - 23.7M SECONDARY CIRCULATION ROUTE
- ST5 - 20M SECONDARY CIRCULATION ROUTE
- ST6 - 20M GREEN LINK
- ST7 - 20M SECONDARY CIRCULATION ROUTE
- ST8 - 20M SECONDARY CIRCULATION ROUTE
- ST9 - 17.5M LOCAL STREET
- ST10 - 14.5M LOCAL STREET
- FUTURE ROADS IN CASE OF MAJOR DA/ REZONING
- OPEN SPACE
- SITE AREA

0 50 100 200 400m

1:10,000 @ A4

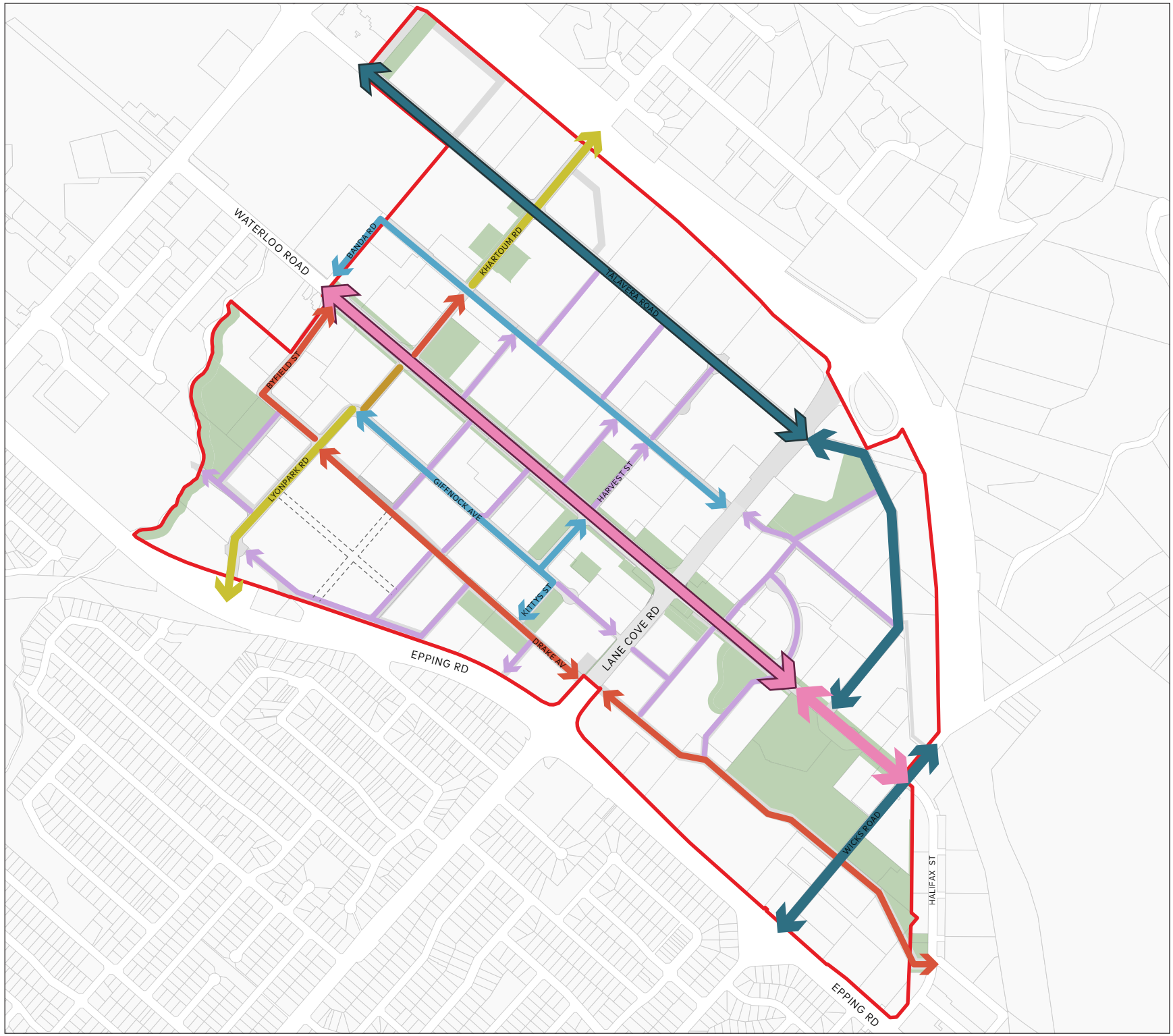


Figure 4a. Street Network Map (Page 1 of 2)

Street Network Map

KEY

- ST1 - 30M WATERLOO ROAD GREEN CORRIDOR
- ST2 - 20M WATERLOO ROAD GREEN CORRIDOR
- ST3 - 25M SECONDARY GREEN BOULEVARD
- ST4 - 23.7M SECONDARY CIRCULATION ROUTE
- ST5 - 20M SECONDARY CIRCULATION ROUTE
- ST6 - 20M GREEN LINK
- ST7 - 20M SECONDARY CIRCULATION ROUTE
- ST8 - 20M SECONDARY CIRCULATION ROUTE
- ST9 - 17.5M LOCAL STREET
- ST10 - 14.5M LOCAL STREET
- FUTURE ROADS IN CASE OF MAJOR DA/ REZONING
- OPEN SPACE
- SITE AREA

0 50 100 200 400m

1:10,000 @ A4

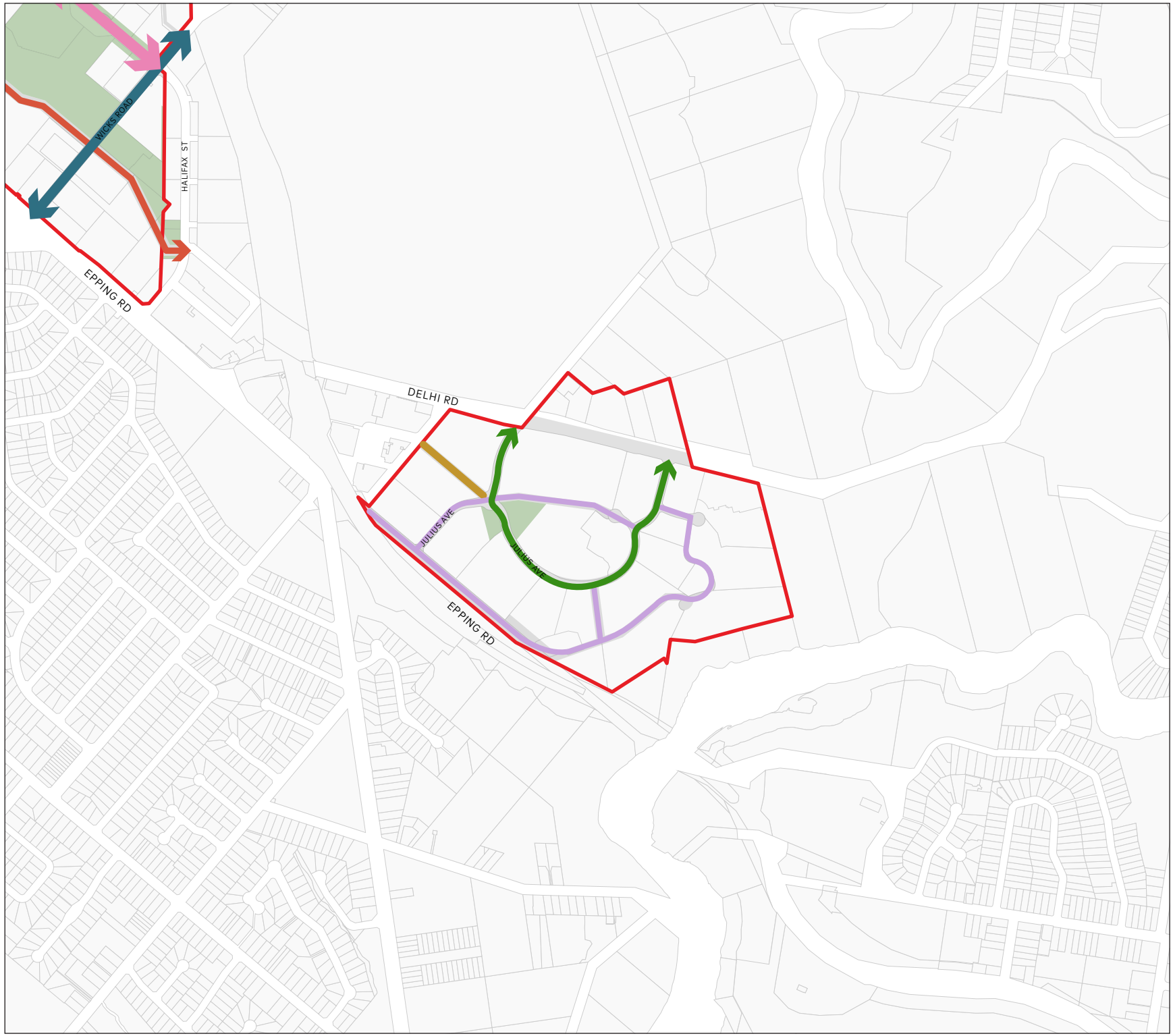
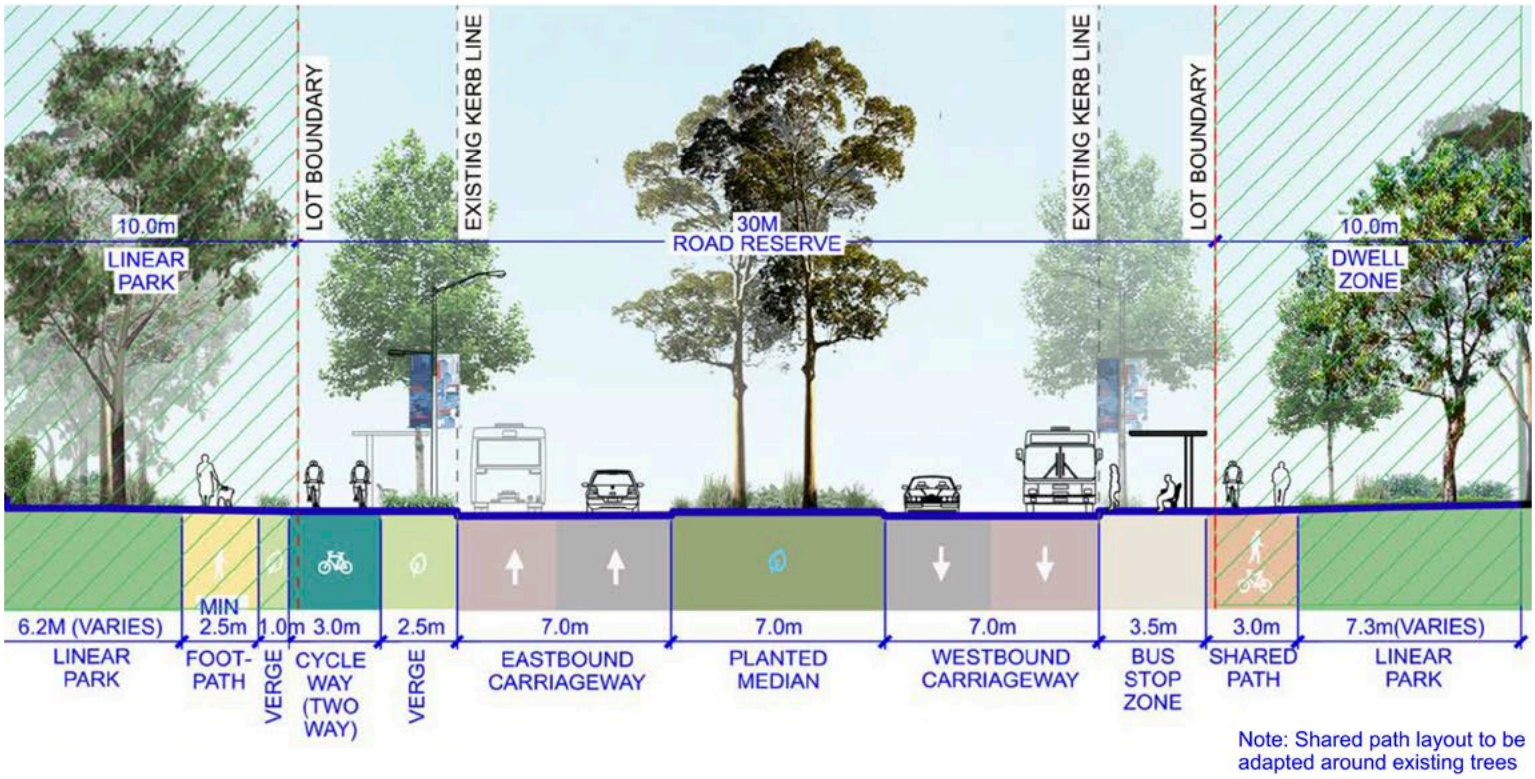


Figure 4b. Street Network Map (Page 2 of 2)



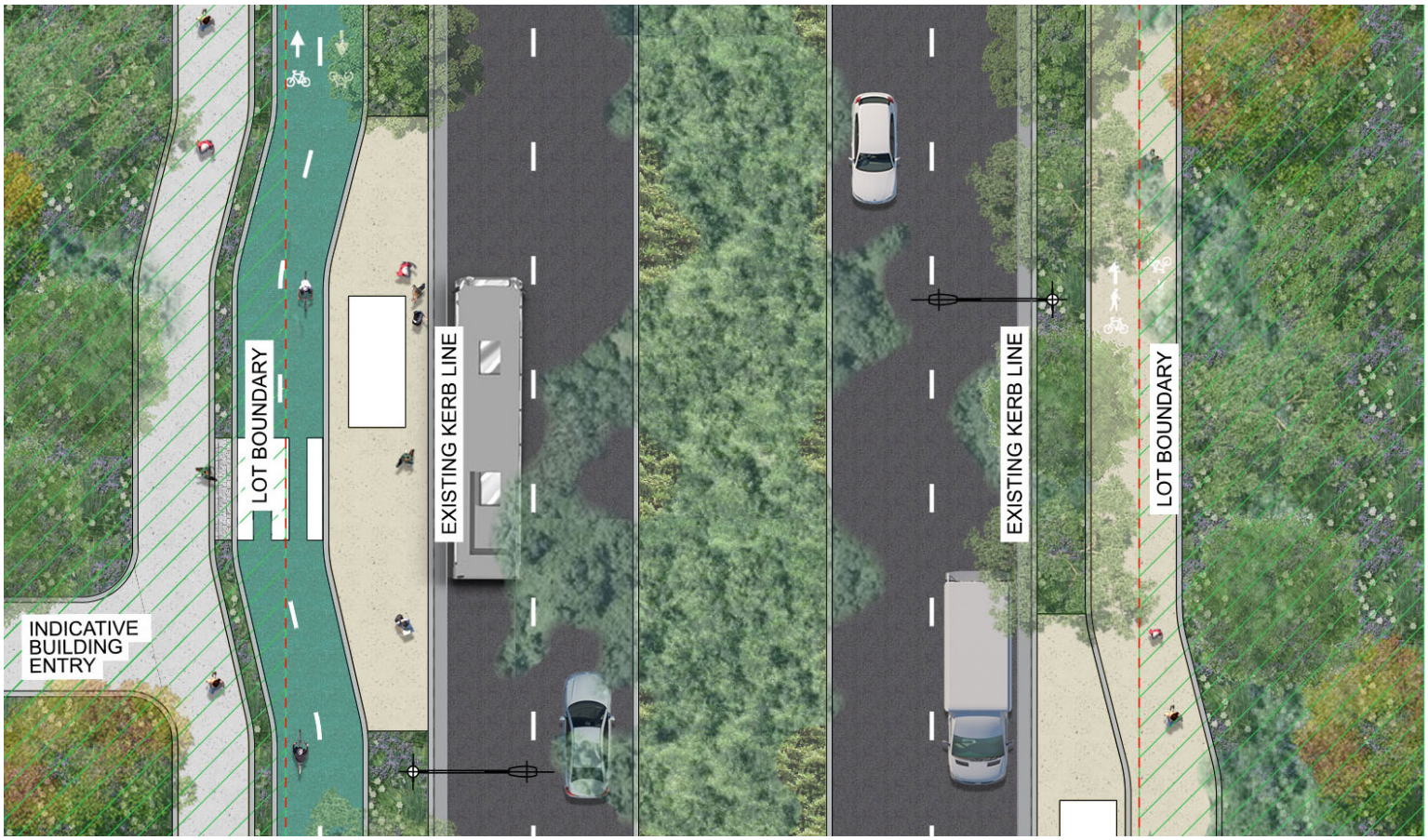
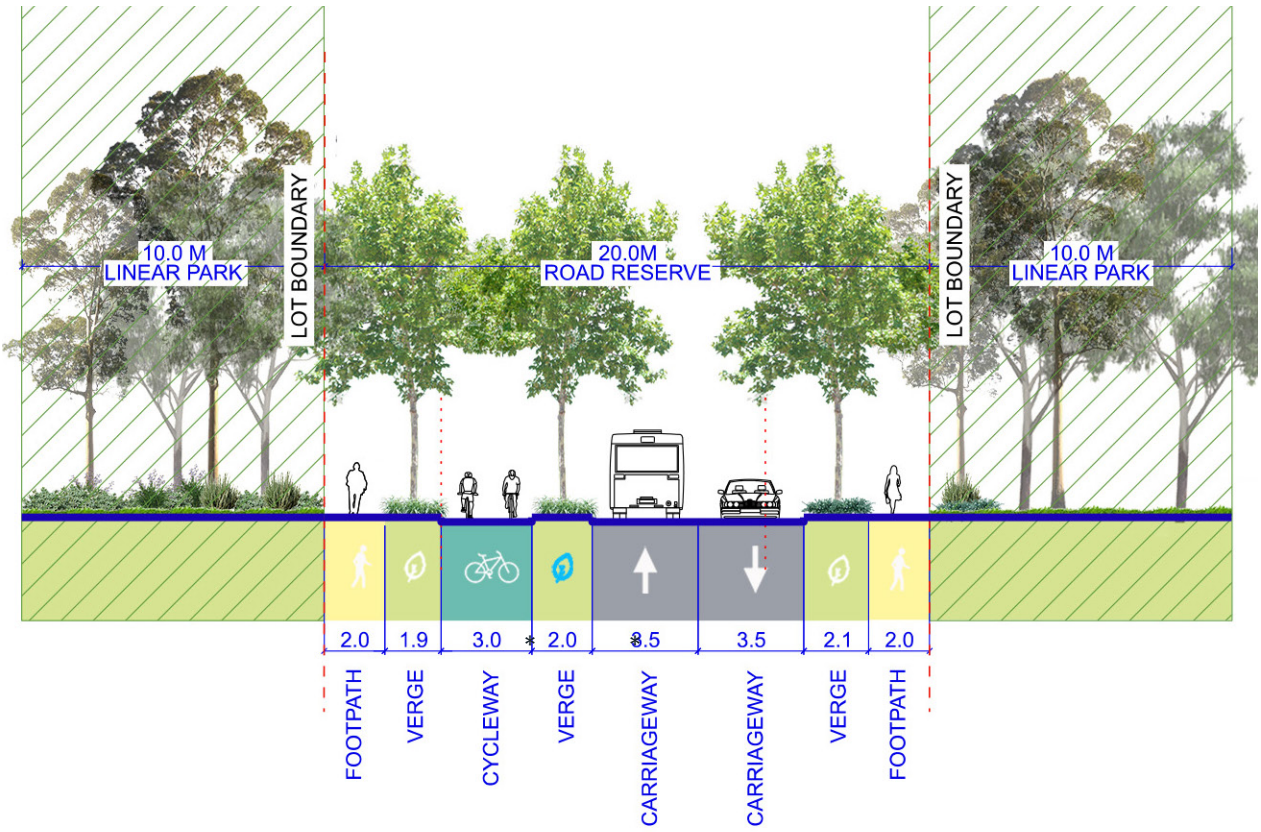


Figure 5. Street Type ST1, Indicative Plan & Section



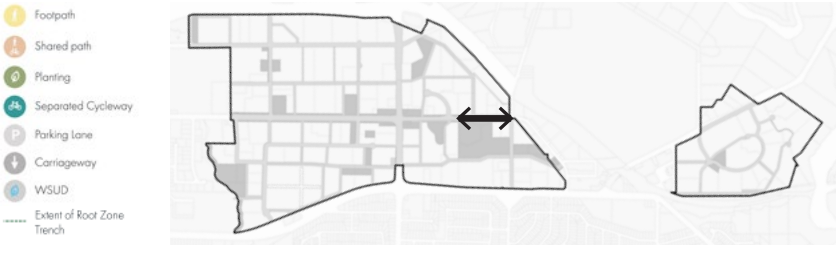


Figure 6. Street Type ST2, Indicative Plan & Section

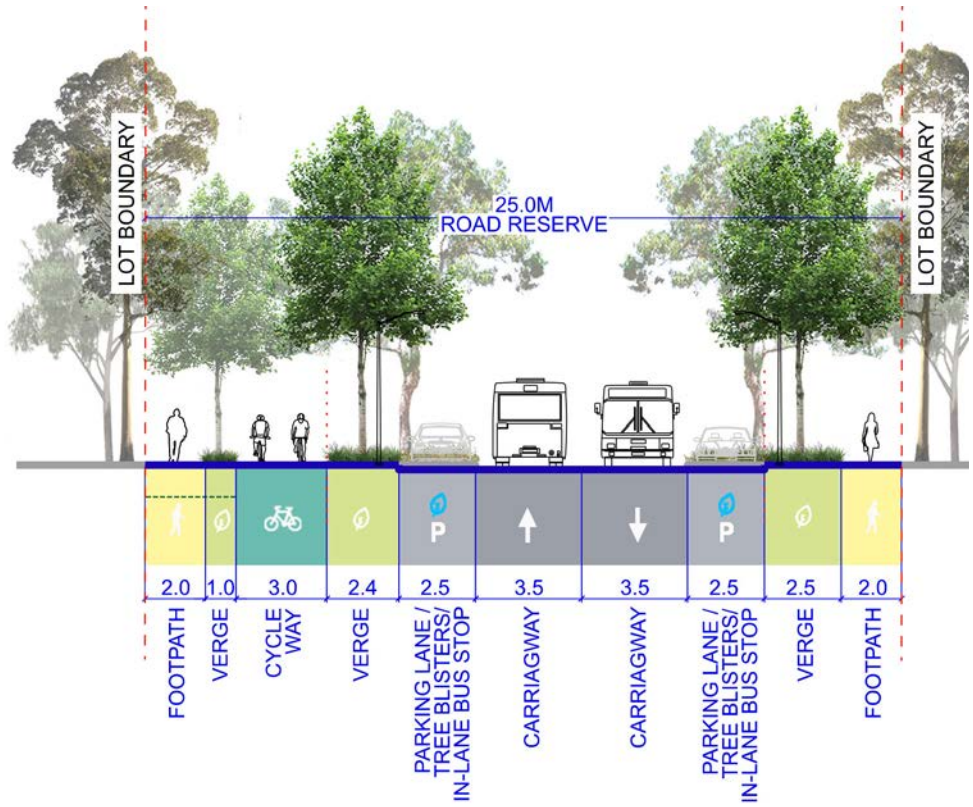
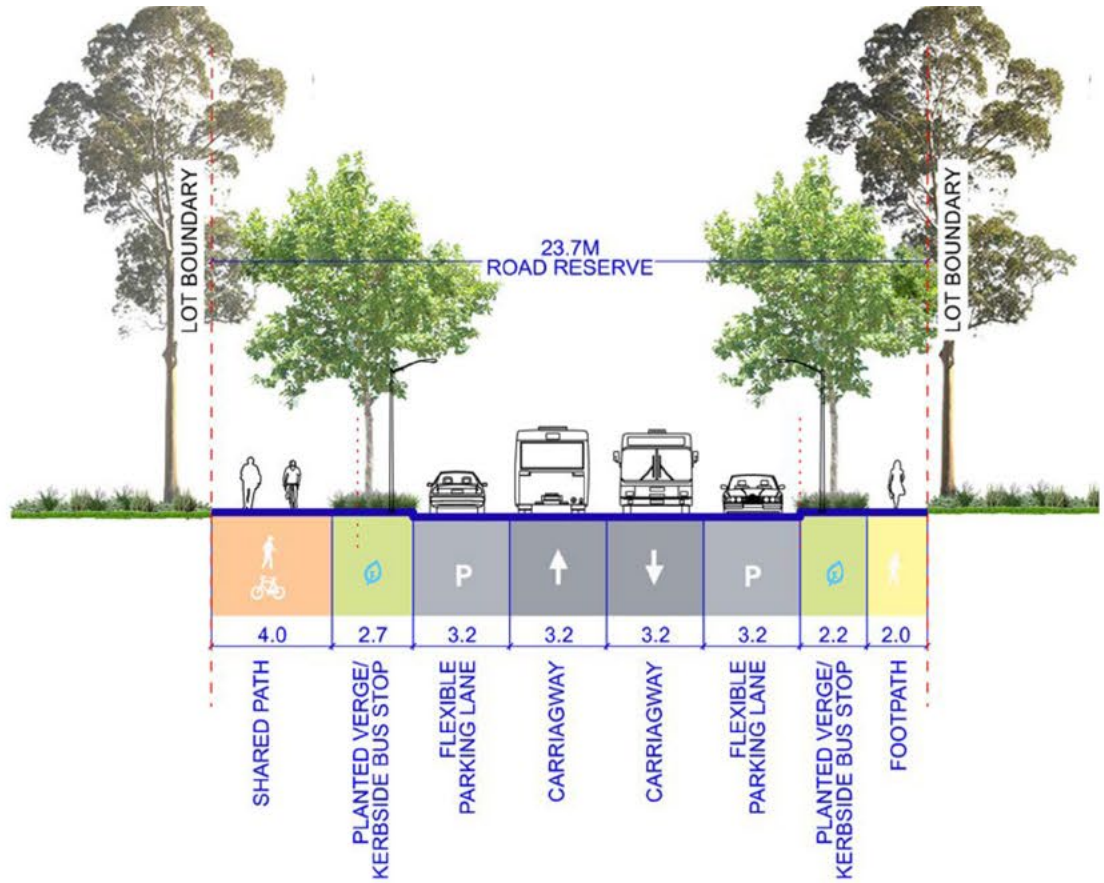
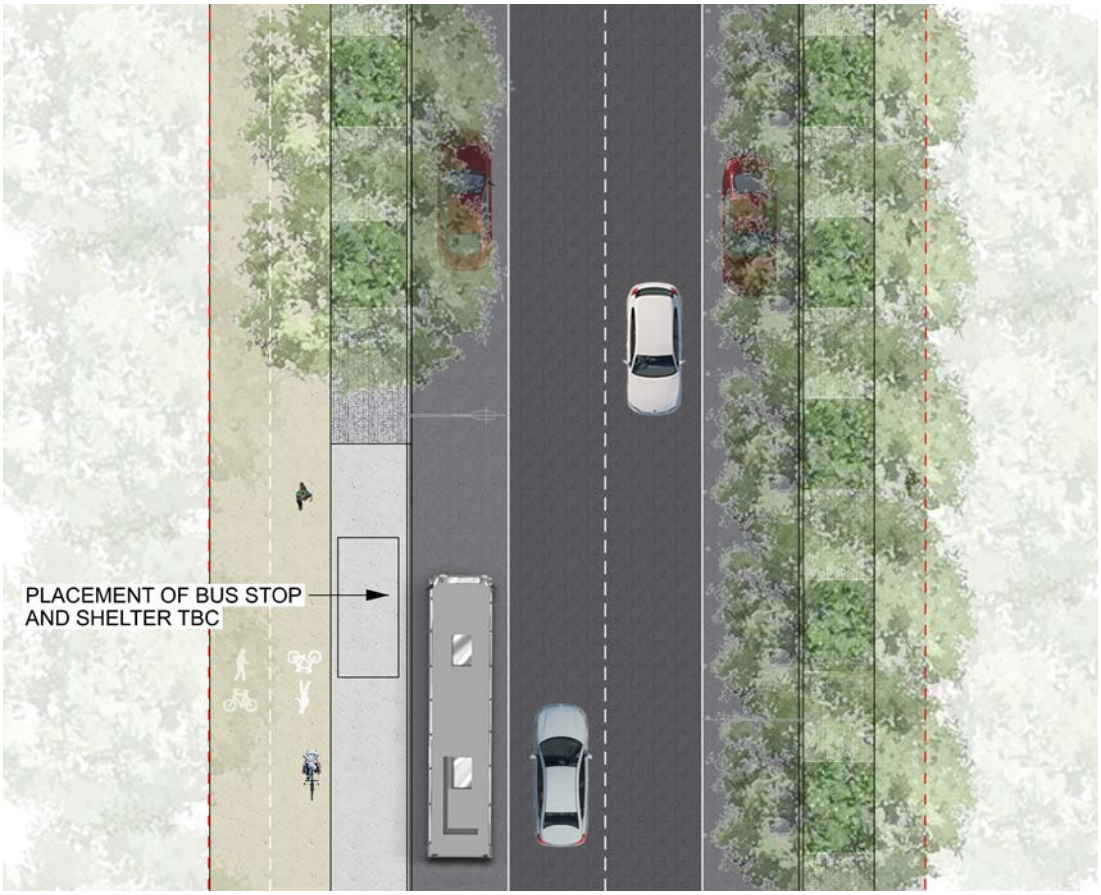


Figure 7. Street Type ST3, Indicative Plan & Section





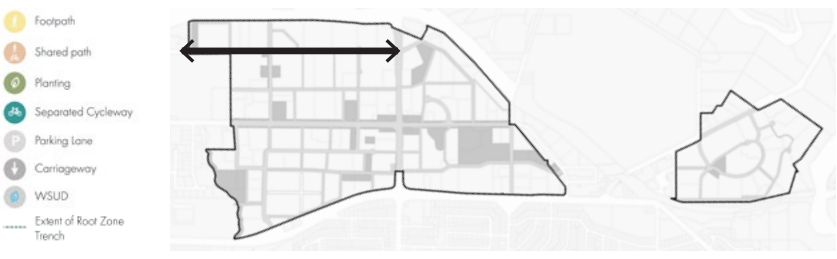
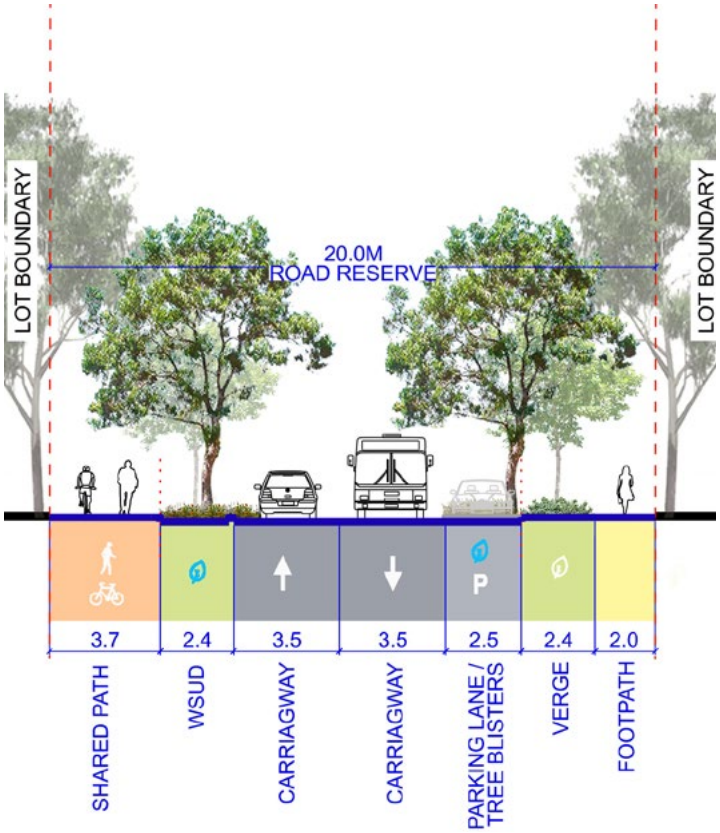


Figure 8. Street Type ST4, Indicative Plan & Section



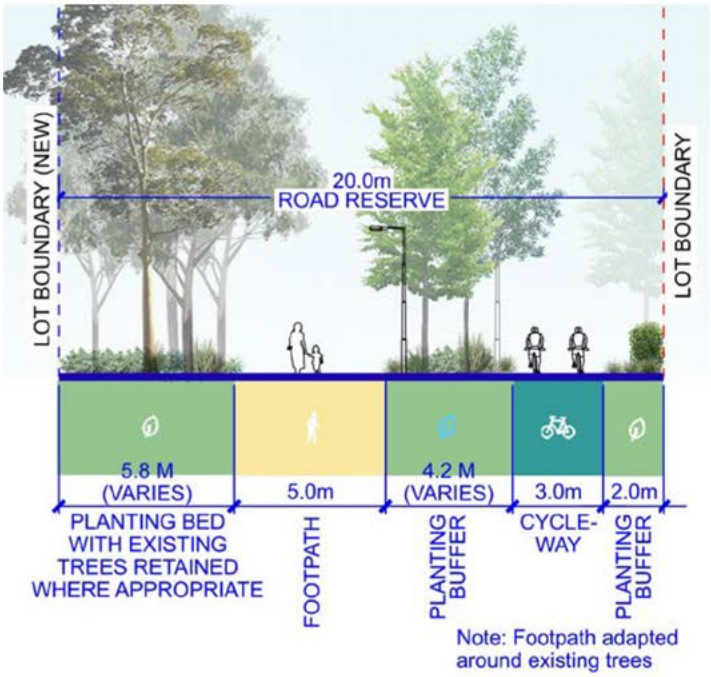
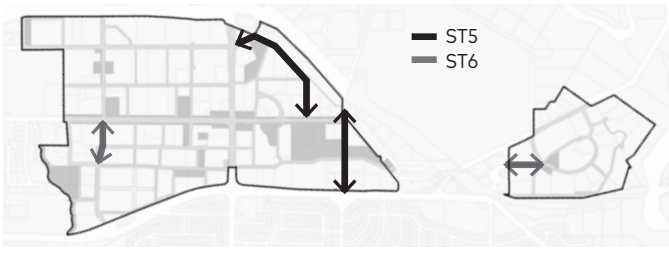
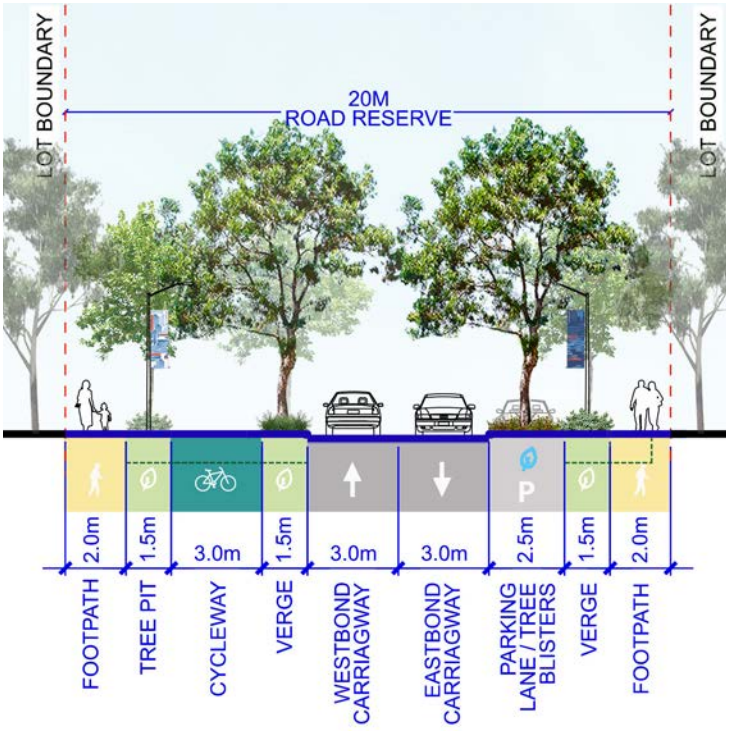


Figure 9. Street Type ST5, Indicative Plan & Section

Figure 10. Street Type ST6, Indicative Plan & Section





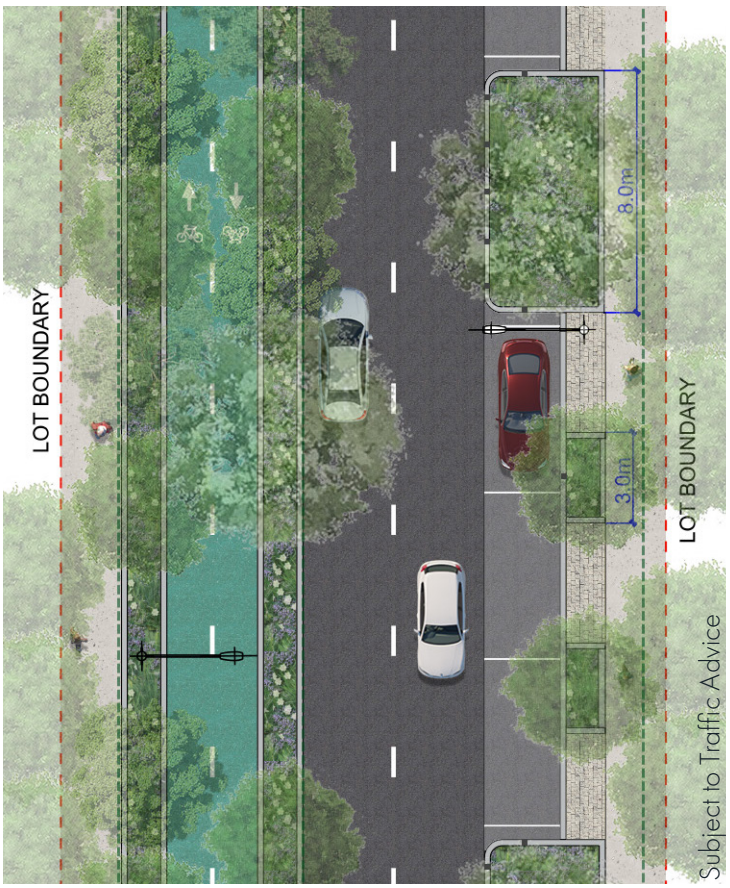
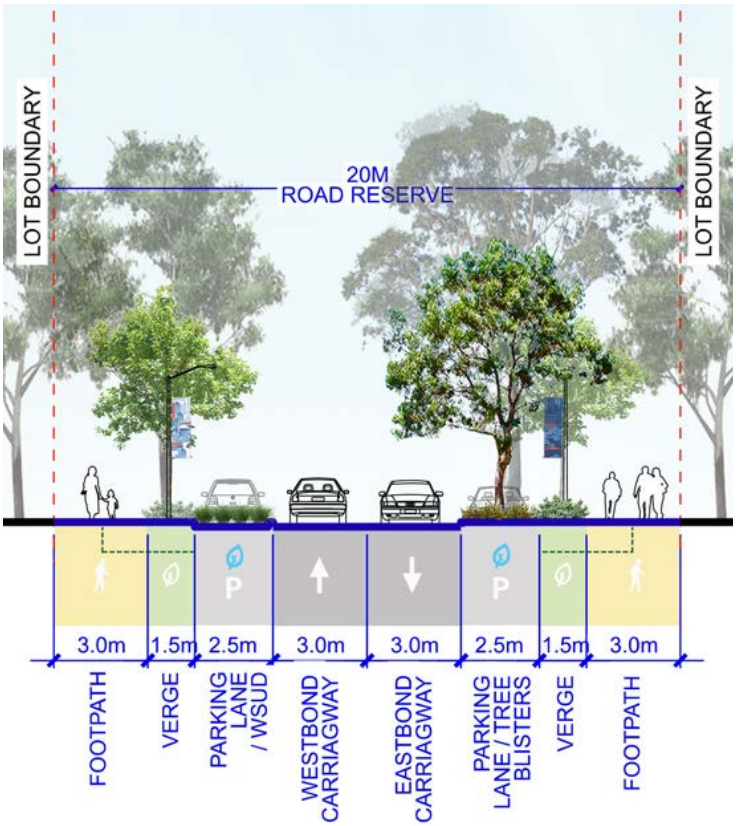


Figure 11. Street Type ST7, Indicative Plan & Section



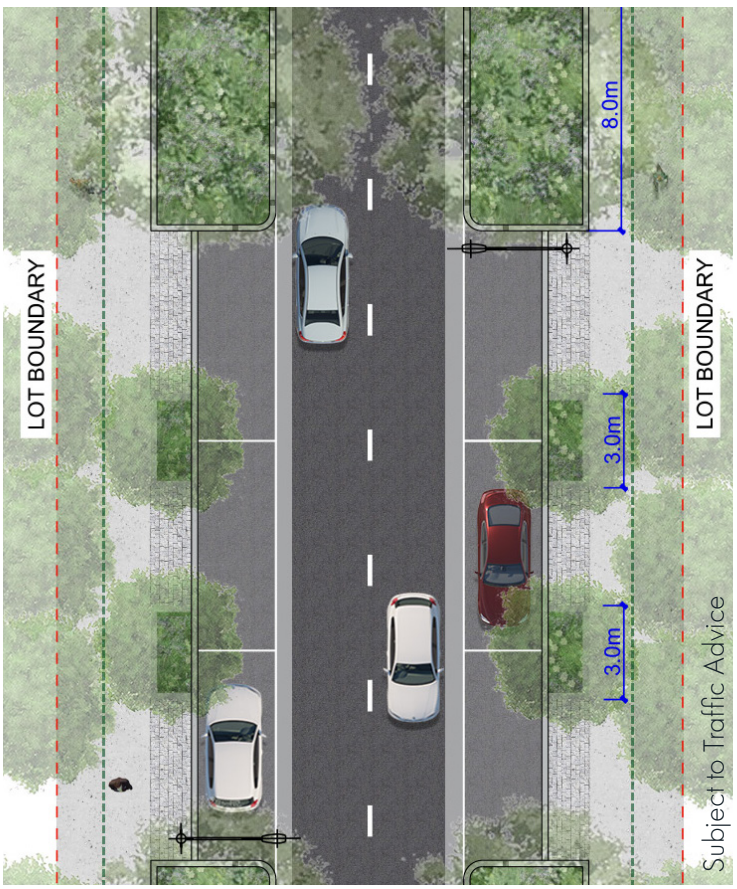


Figure 12. Street Type ST8, Indicative Plan & Section

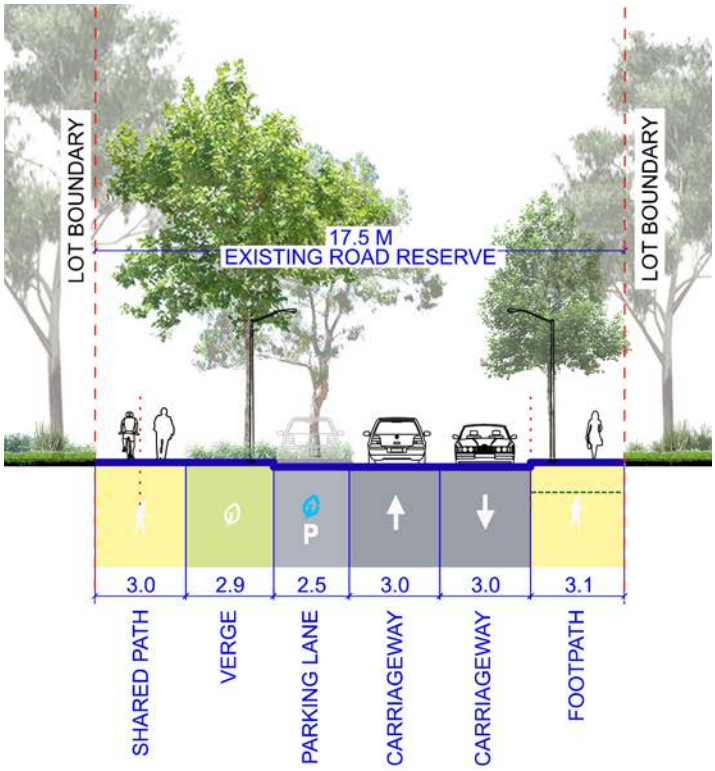
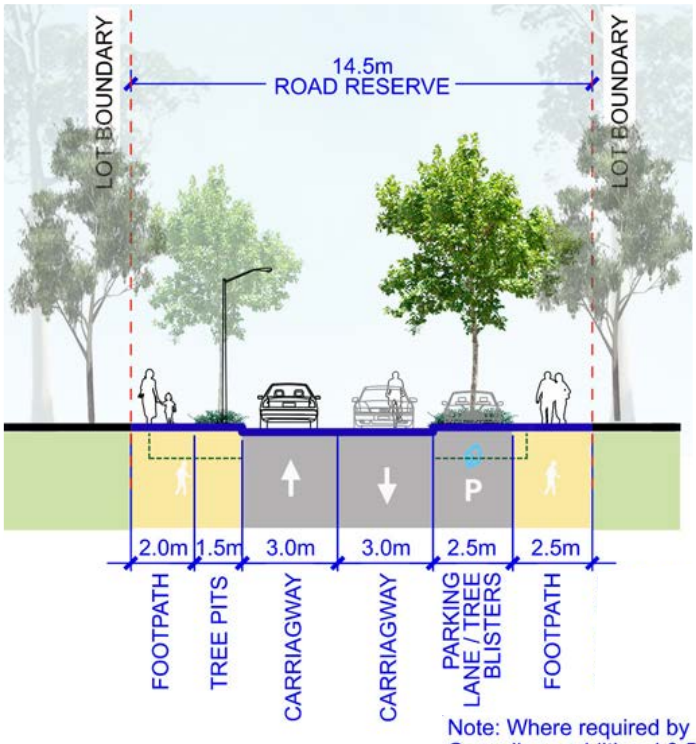


Figure 13. Street Type ST9, Indicative Plan & Section



Note: Where required by Council, an additional 0.5 metre footpath is to be provided to achieve a minimum 2.5-metre footpath.

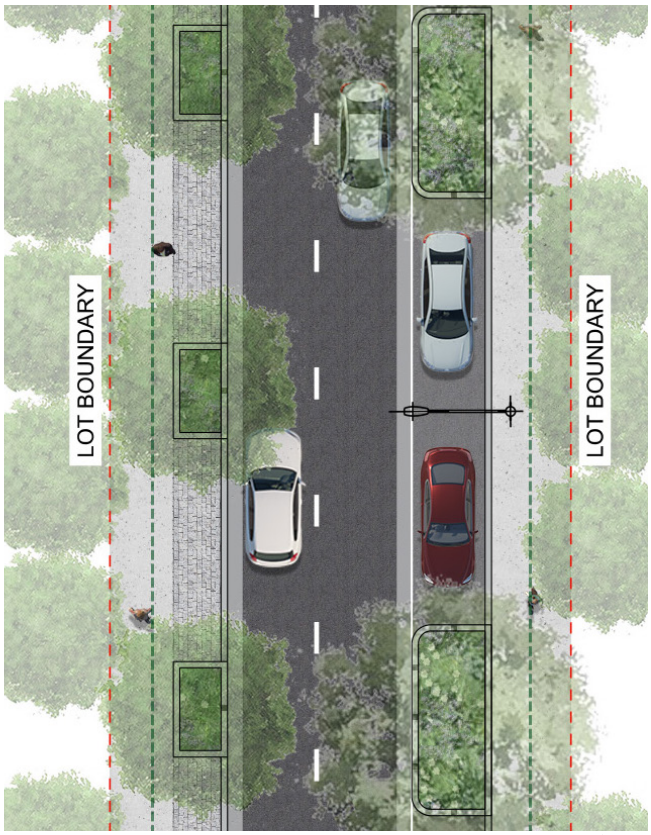
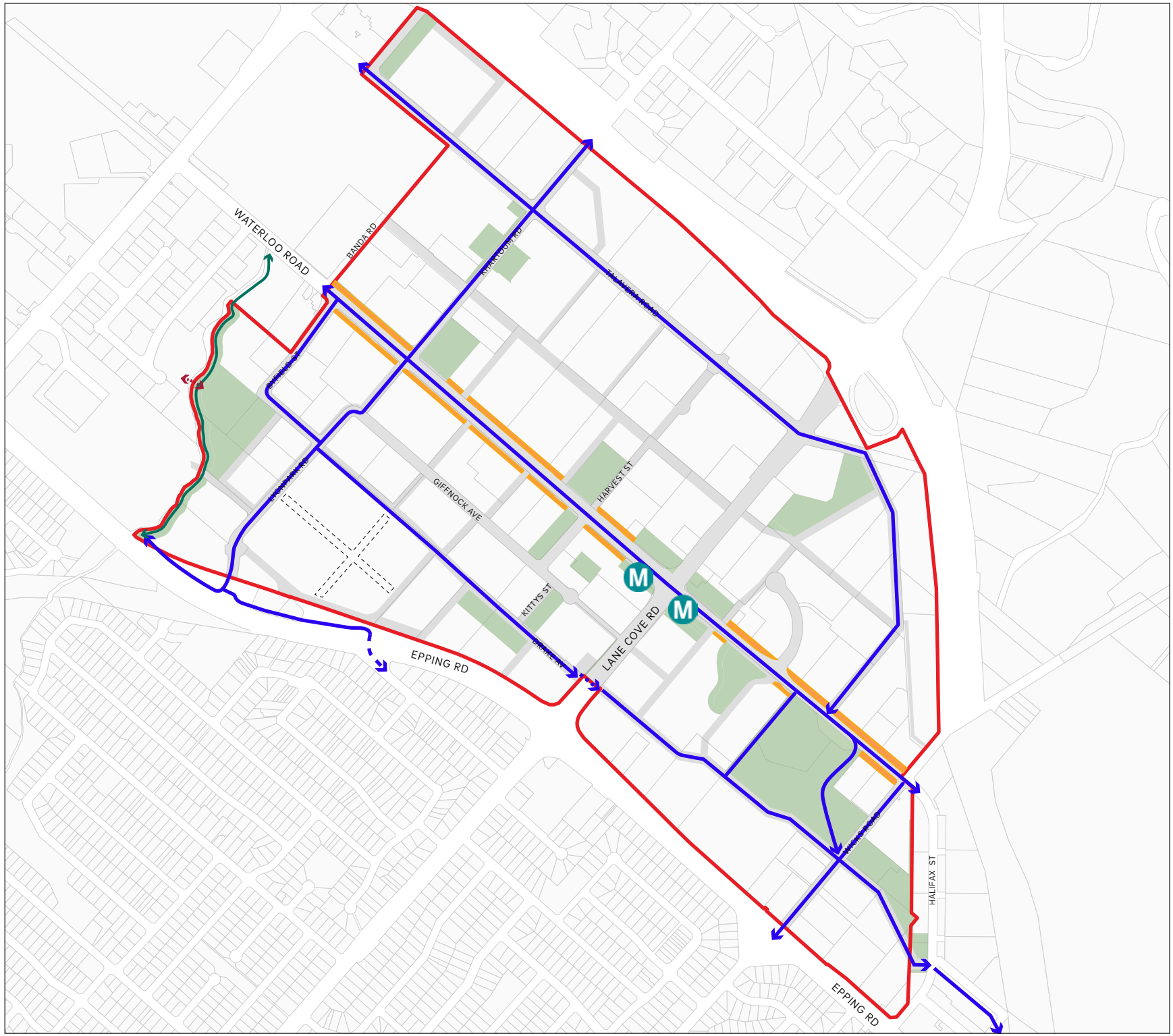


Figure 14. Street Type ST10, Indicative Plan & Section

Active Transport Map

KEY

- WATERLOO ROAD CORRIDOR
- BIKE LANES & SHARED PATHS
- CYCLIST & PEDESTRIAN BRIDGE
- WALKING TRAIL
- PEDESTRIAN BRIDGE
- METRO STATION
- OPEN SPACE
- STREETS
- SITE AREA



0 50 100 200 400m

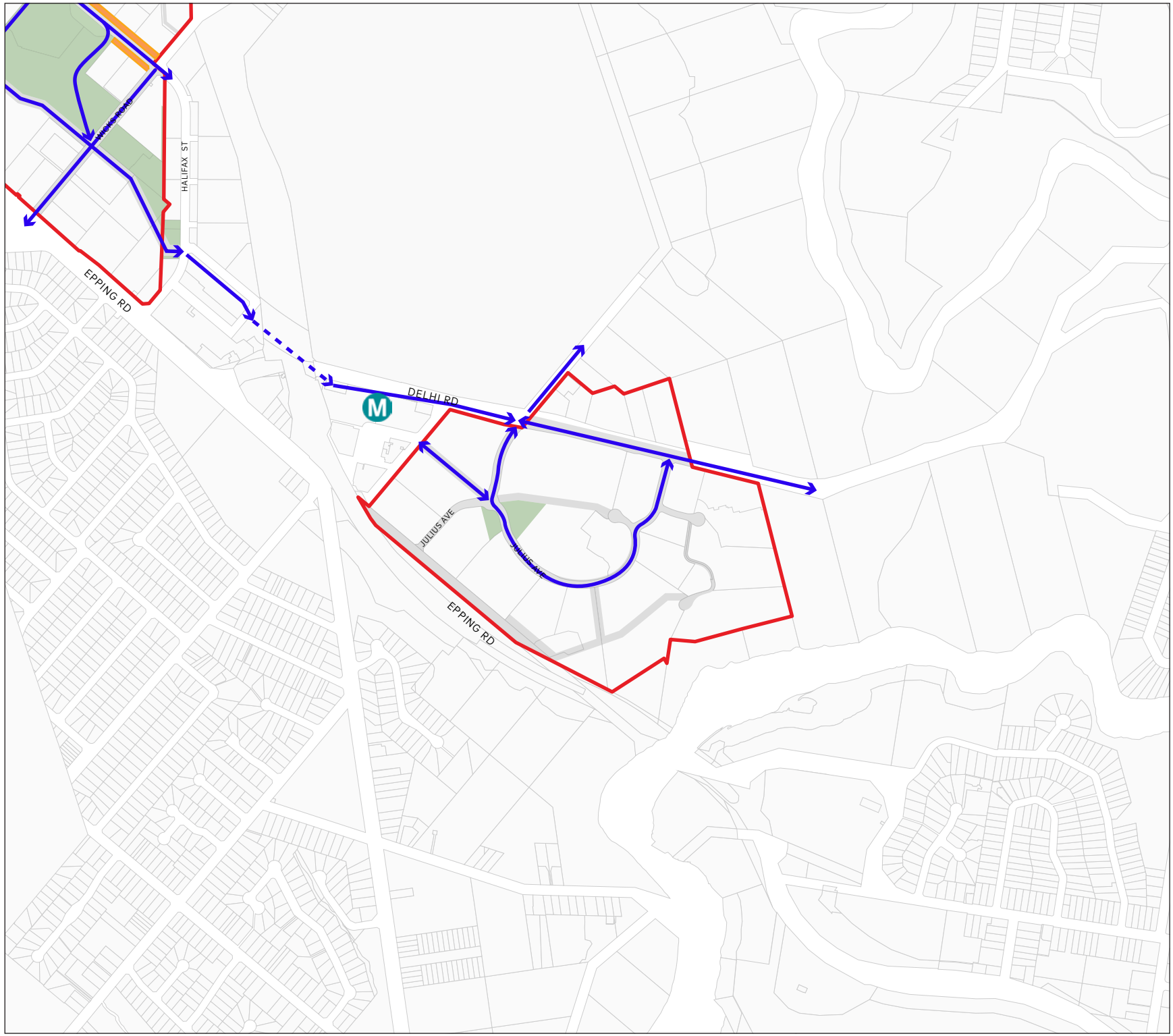
1:10,000 @ A4

Figure 15a. Active Transport Network Map (Page 1 of 2)

Active Transport Map

KEY

- WATERLOO ROAD CORRIDOR
- BIKE LANES & SHARED PATHS
- CYCLIST & PEDESTRIAN BRIDGE
- WALKING TRAIL
- PEDESTRIAN BRIDGE
- METRO STATION
- OPEN SPACE
- STREETS
- SITE AREA



0 50 100 200 400m

1:10,000 @ A4

Figure 15b. Active Transport Network Map
(Page 2 of 2)

4.2. Through-site Links

Objectives

a) To increase pedestrian permeability throughout the Precinct, including through private lots.

b) To facilitate large floor-plate commercial buildings without impacting pedestrian permeability throughout the Precinct.

c) To ensure through-site links are fully accessible, continuous, and safe at all times of day and night.

d) To encourage active uses adjoining through-site links, contributing to the vitality and 18-hour economy of the Precinct.

Provisions

1. Through-site links are to be provided in the approximate locations shown in **Figure 16. Through-Site Links Map**, sufficient to ensure that a city block that extends in any direction for more than 130m between public streets and/or public open spaces shall be provided with a public right of way across the site.
2. Where city blocks are composed of multiple properties, through-site link width requirements can be split across lots. The applicant must show how the dimensional requirements can be met without requiring demolition of any existing property, which may result in an unequal split between properties.
3. Where a development has the potential to complete a through-block connection by extending an existing or proposed connection on an adjoining site, the development should provide for the completion of that connection.
4. Within 400m of the Metro stations, additional pedestrian connections should be provided when requested by the consent authority to manage high pedestrian volumes.
5. Through-site links are to be provided with a continuous, 24/7 easement for public right of way.
6. Each through-site link is to be designed such that it is:
    a. Designed in accordance with **Figure 17. Through-Site Link Indicative Plan & Section**.
    b. A minimum of 12m wide for at least 75% of its total length;
    c. A minimum of 6m wide at any one point;
    d. A minimum 4m wide paved fully accessible continuous path of travel connecting from public street to public street, meeting relevant clauses of the Australian Standards – AS1428 suite as well as the Access provisions in the RDCP2014;
    e. Designed to minimise conflicts between pedestrians, cyclists and vehicles;

f. Well-lit, well-signposted and easily identified as publicly accessible by passersby;

g. Designed with attractive and high quality exterior grade materials, finishes and furniture consistent with the adjoining public streets and open spaces;

h. Provided with medium to large canopy trees (refer to **6.5 Canopy Coverage and Biodiversity** for tree size definitions) with average spacing of 6m along entire length;

i. Open to the sky.

7. Where a through-site link forms a component of a Woven Way, it shall be designed in accordance with **Part 3.2 Woven Ways**.

8. Despite **Provision 6.i.**, a through-site link may be overhung by built form if the through-site link:

   a. Maintains a minimum vertical clearance of 6m;

   b. Is overhung for a maximum continuous length of 12m at any one point; and

   c. Remains open to the sky for a minimum of 75% of its total length.

Through-Site Links Map

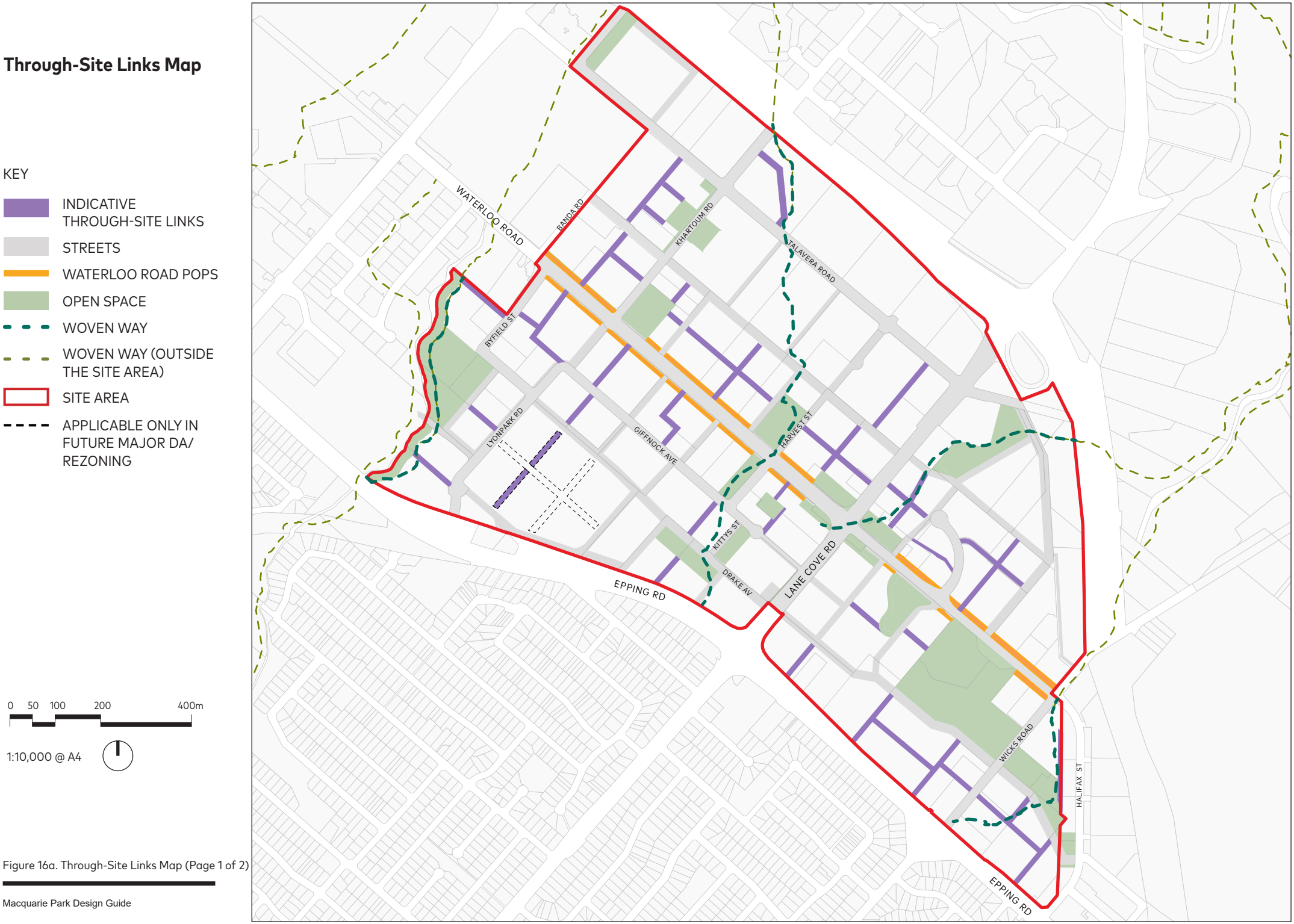
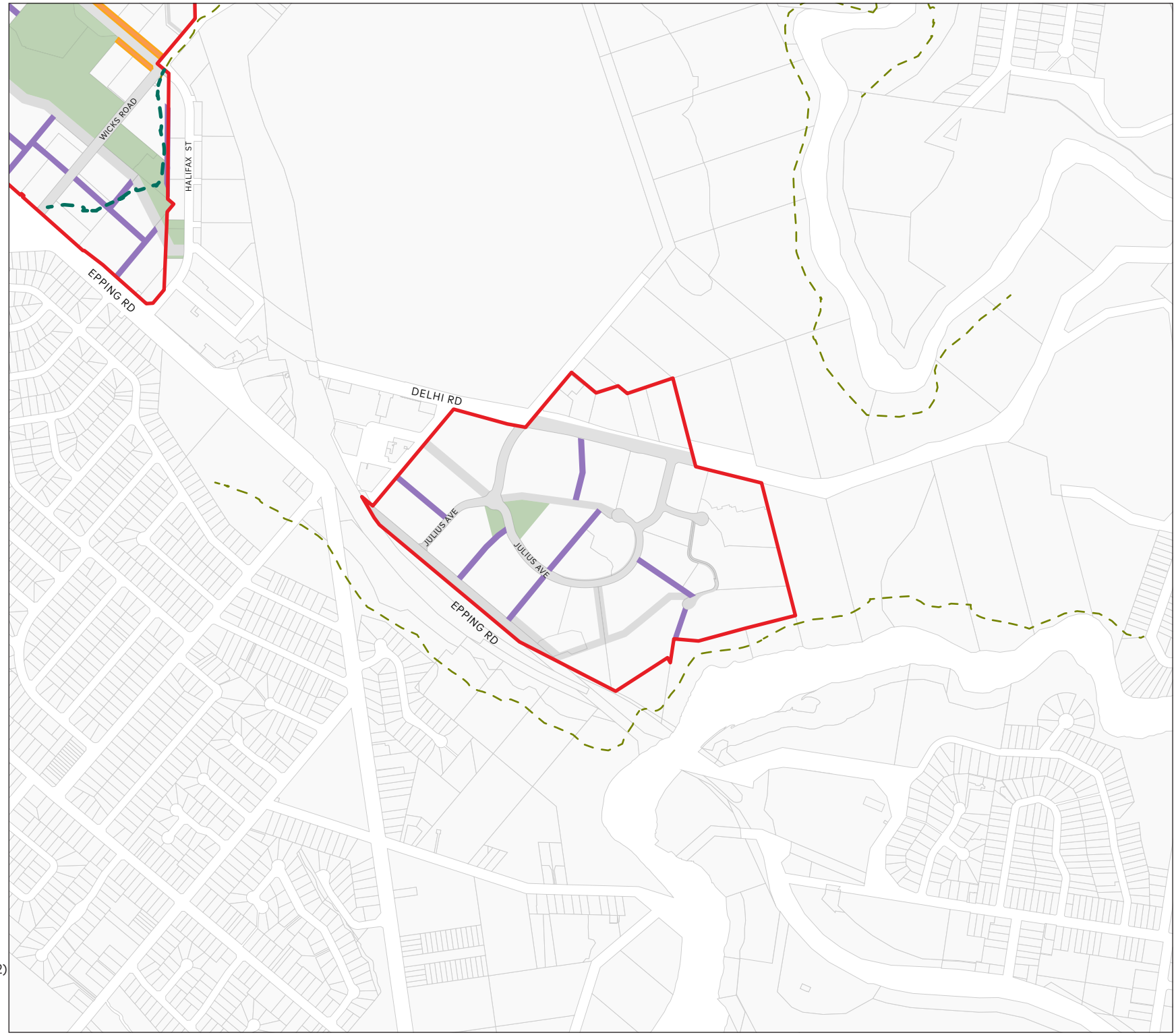


Figure 16a. Through-Site Links Map (Page 1 of 2)

Through-Site Links Map

KEY

- INDICATIVE THROUGH-SITE LINKS
- STREETS
- WATERLOO ROAD POPS
- OPEN SPACE
- WOVEN WAY
- WOVEN WAY (OUTSIDE THE SITE AREA)
- SITE AREA
- APPLICABLE ONLY IN FUTURE MAJOR DA/ REZONING



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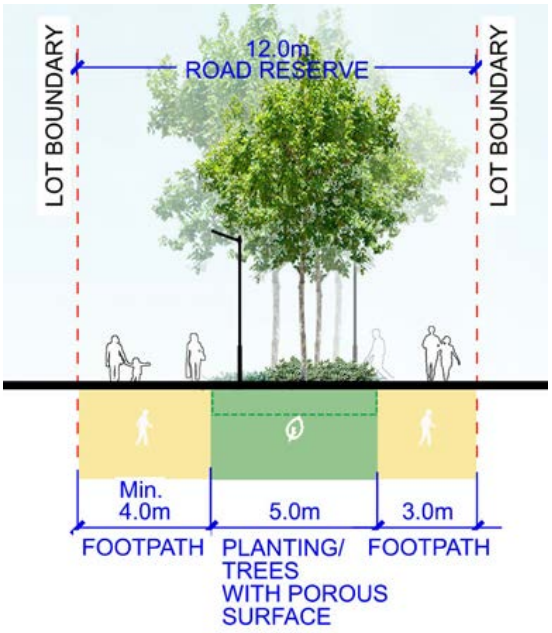
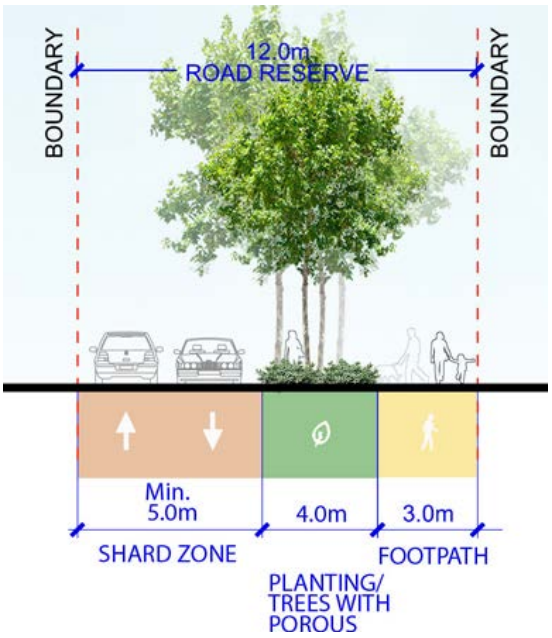
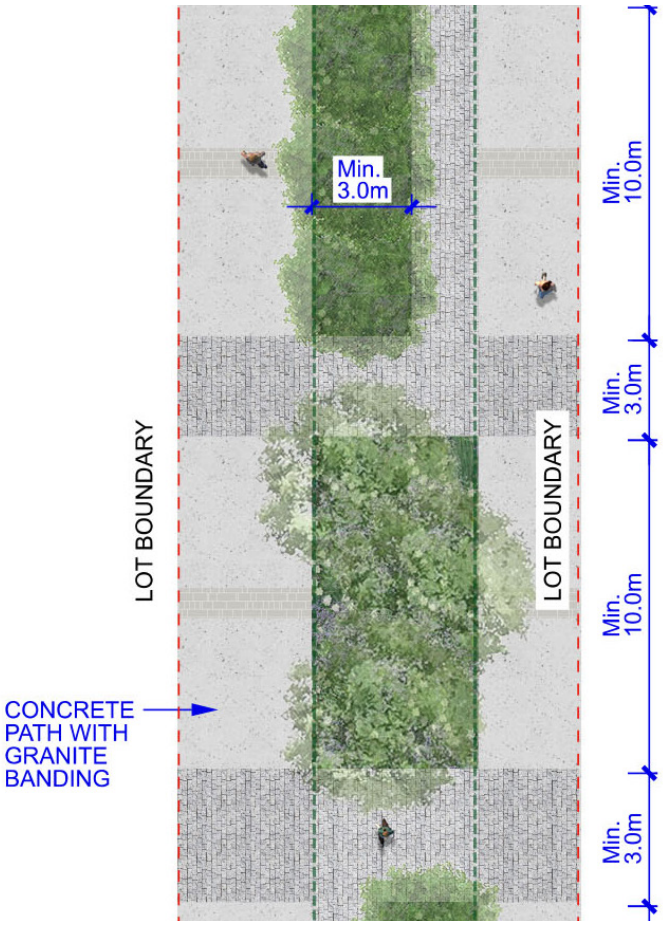
1:10,000 @ A4

Figure 16b. Through-Site Links Map (Page 2 of 2)







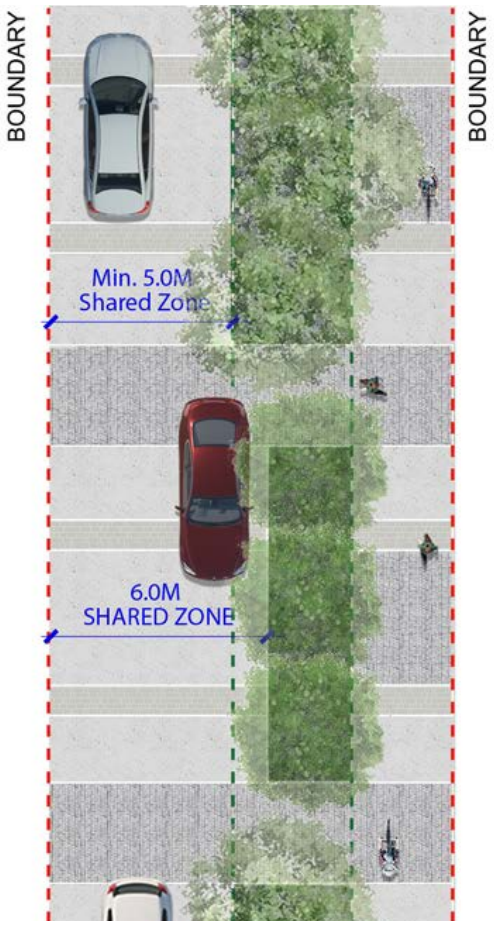


Figure 17. Through-Site Link Indicative Plan & Section

4.3. Open Space Network

Objectives

a) Implement a Country-centred approach to open spaces, introducing a network of open spaces that reference the Designing with Country objectives in this Design Guide including the Woven Ways, Meeting Places and Entry Statements.

b) Provide an appropriate quantum, character and variety of public open spaces to meet the active and passive recreation needs of residents, workers and visitors to Macquarie Park.

c) Improve the visual character of the Precinct, contributing to the extent and level of connection of canopy coverage and green coverage.

d) Provide points of interest that contribute to the Precinct's identity and ease of wayfinding.

e) Ensure open space is inviting, accessible, diverse and comfortable; fostering opportunities for active lifestyles and social connections.

f) Help define the varying character and hierarchy of the different activity hubs.

g) Contribute to the walking, cycling and active transport network.

h) Contribute to stormwater and ecological management.

Provisions

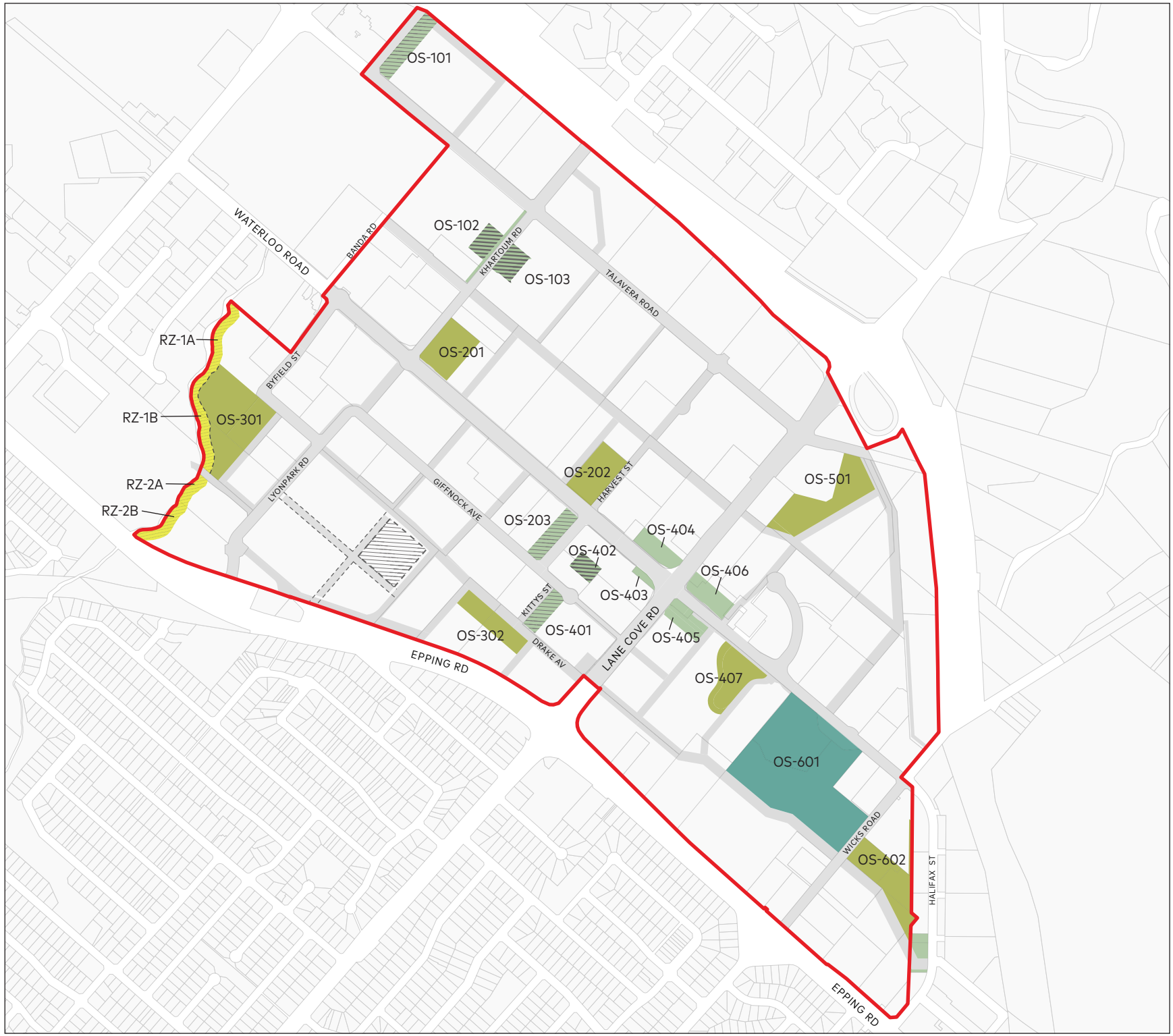
1. Open spaces are to be provided and designed in accordance with **Figure 18. Open Space Network Map** and **Table 4. Publicly Accessible Open Space Characteristics**.
2. Open spaces are to be dedicated to the Council in accordance with **Figure 20. Land Dedication Map**, unless by agreement with Council where they may be provided as privately-owned publicly accessible open space (POPS).
3. Water Sensitive Urban Design (WSUD) is to be incorporated into all new open space, with including where interfaces and aligns with existing creeks and historic lines (Woven Ways)
4. High-quality hardscape and furniture elements that reflect the character of the neighbourhood, referring to **Public Domain Character & Material Palettes** in **Figure 30**, **Figure 31**, **Figure 32**, **Figure 33**, **Figure 34**, **Figure 35** and **Figure 36**.
5. Ensure visual and physical connectivity between open spaces, woven ways and through-site access to link them to each other and to the wider area.
6. Ensure open space is open to the sky. Awnings, weather protections, outdoor dining areas, level transitions associated with building entrances should generally take place within the remaining developable area and shall not be counted to minimum recreation area requirements.

7. Ensure minimum solar amenity is provided to protect tree and vegetation growth in all publicly accessible open spaces and to support their use as dwell space.
8. Each nominated public open space will have the solar protections in accordance with **Figure 19. Solar Protections Map**, which specifies the percentage of land within each public open space that is to have sunlight access within a specific range of hours across the day.
9. Solar controls may not be able to be met where overshadowing is occurring due to an existing concept approval that predates this Design Guide, unless that application is being significantly modified in which case the Solar Protections listed in **Figure 19.** Solar Protections Map will apply.
10. Ensure design mitigates adverse wind effects and satisfies the RDCP2013 Acceptable Criteria for Environmental Wind Conditions for communal outdoor spaces. Wind comfort should be selected for sitting, standing and walking, as is appropriate considering the intended use of each space.
11. Existing trees are to be retained in the design of new and enhanced public open spaces wherever possible.
12. Development within Neighbourhood 7 should consider the use of landscape typologies that do not increase or exacerbate bush fire impacts.
13. Private and public domain should utilise fauna friendly lighting per the Best Practice Lighting Design detailed in the National Light Pollution Guidelines for Wildlife (Cth DCCEEW 2020) to reduce potential impacts associated with light spill into Lane Cove National Park.

Open Space Network Map

KEY

- SMALL PARK
- SMALL PARK (WOVEN WAY)
- LOCAL PARK
- POPS
- DISTRICT PARK
- RIPARIAN CORRIDOR
- STREETS
- SITE AREA
- FUTURE LOCAL PARK IN CASE OF MAJOR DA/ REZONING



0 50 100 200 400m

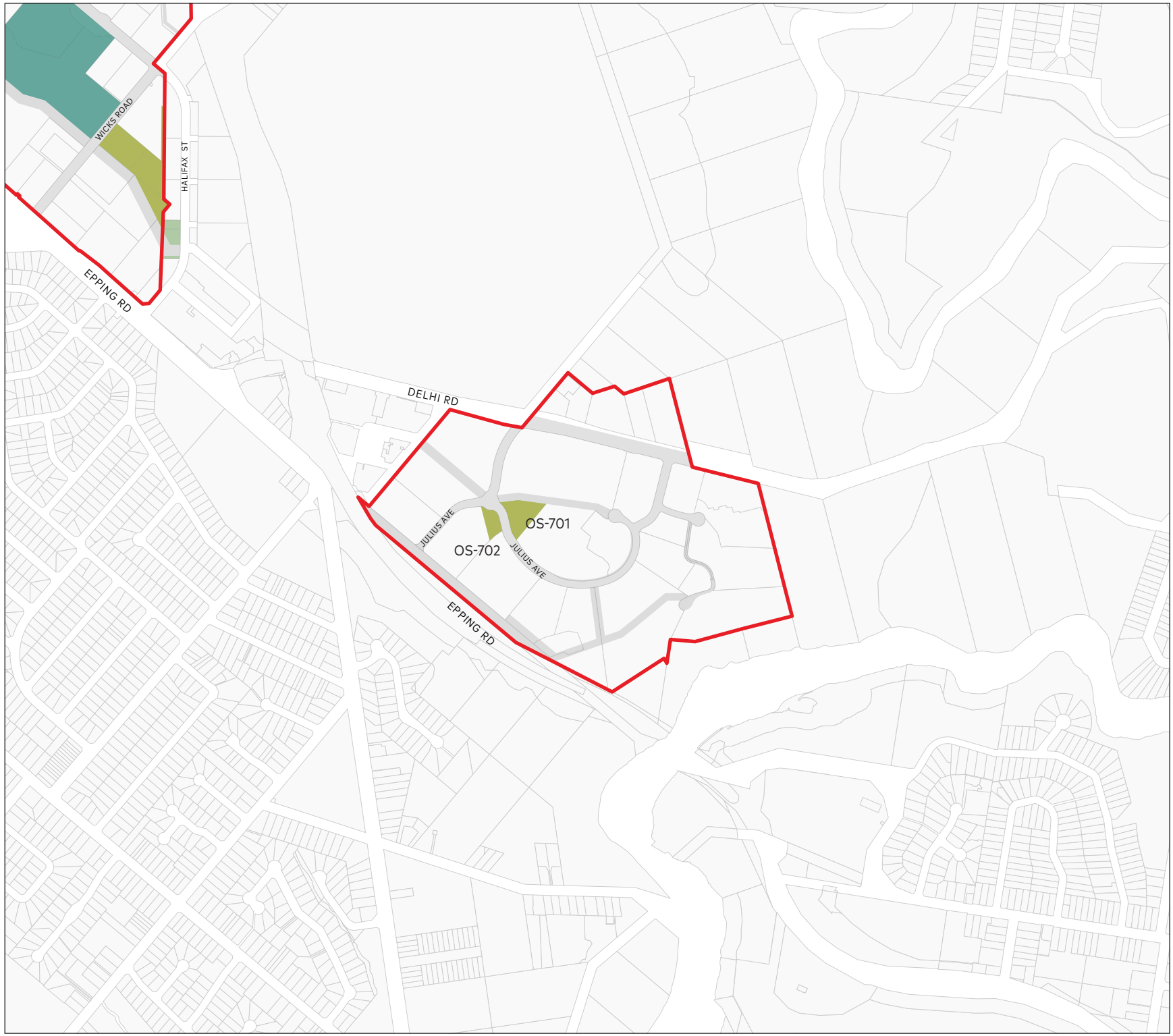
1:10,000 @ A4

Figure 18a. Open Space Network Map (Page 1 of 2)

Open Space Network Map

KEY

- SMALL PARK
- SMALL PARK (WOVEN WAY)
- LOCAL PARK
- POPS
- DISTRICT PARK
- RIPARIAN CORRIDOR
- STREETS
- SITE AREA
- FUTURE LOCAL PARK IN CASE OF MAJOR DA/ REZONING



0 50 100 200 400m

1:10,000 @ A4

Figure 18b. Open Space Network Map
(Page 2 of 2)

Solar Protection Map

KEY

- 50% 9AM- 3PM*
- 50% 10AM- 2PM*
- 50% 11AM- 1PM*
- NO SPECIFIC SOLAR PROTECTION
- SITE AREA
- APPLICABLE ONLY IN FUTURE MAJOR DA/ REZONING

* Percentage of land within each public open space that is to have sunlight access within the specified time period.

0 50 100 200 400m

1:10,000 @ A4

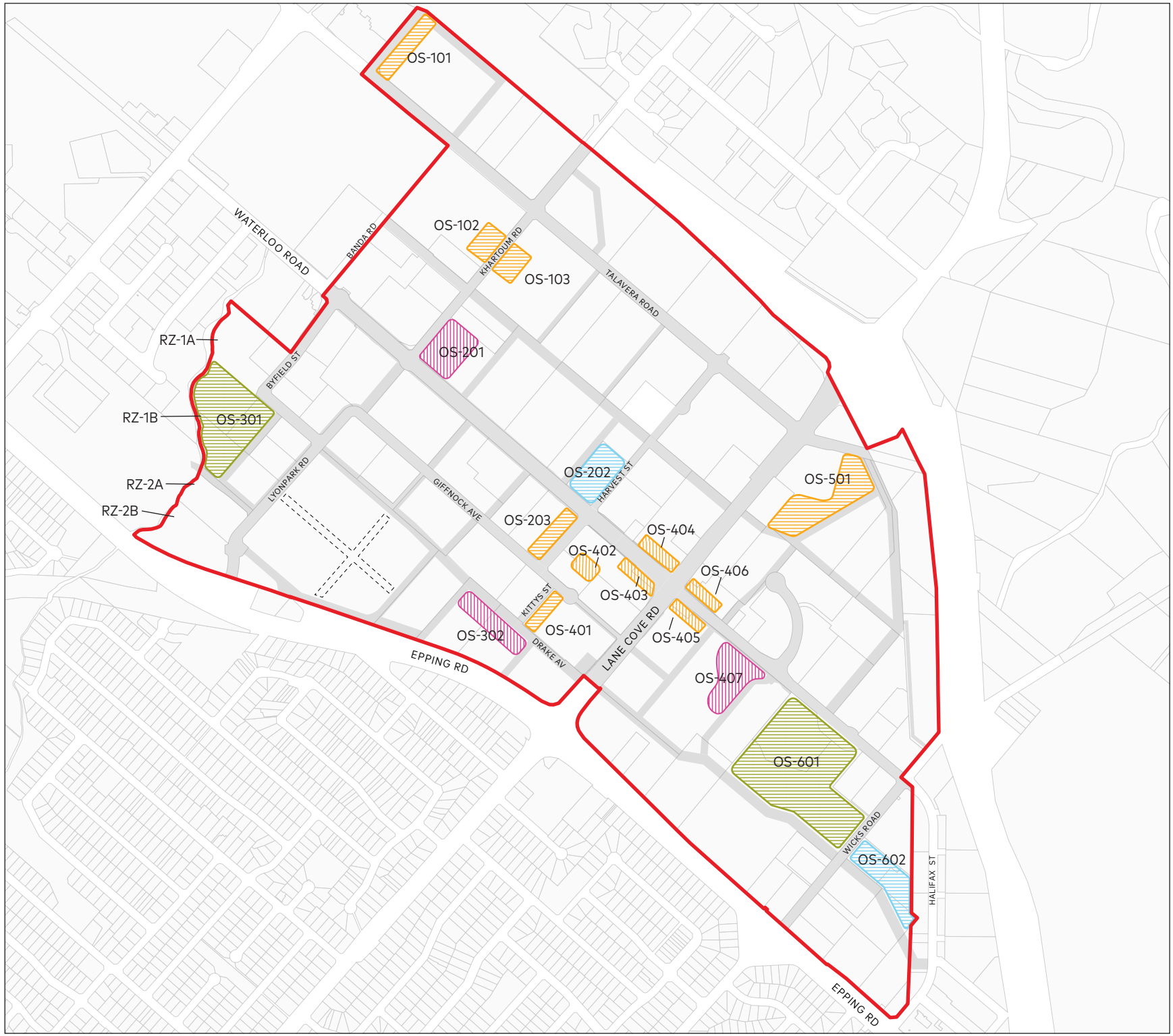


Figure 19a. Solar Protections Map (Page 1 of 2)

Solar Protection Map

KEY

- 50% 9AM- 3PM*
- 50% 10AM- 2PM*
- 50% 11AM- 1PM*
- NO SPECIFIC SOLAR PROTECTION
- SITE AREA
- APPLICABLE ONLY IN FUTURE MAJOR DA/ REZONING

* Percentage of land within each public open space that is to have sunlight access within the specified time period.

0 50 100 200 400m

1:10,000 @ A4

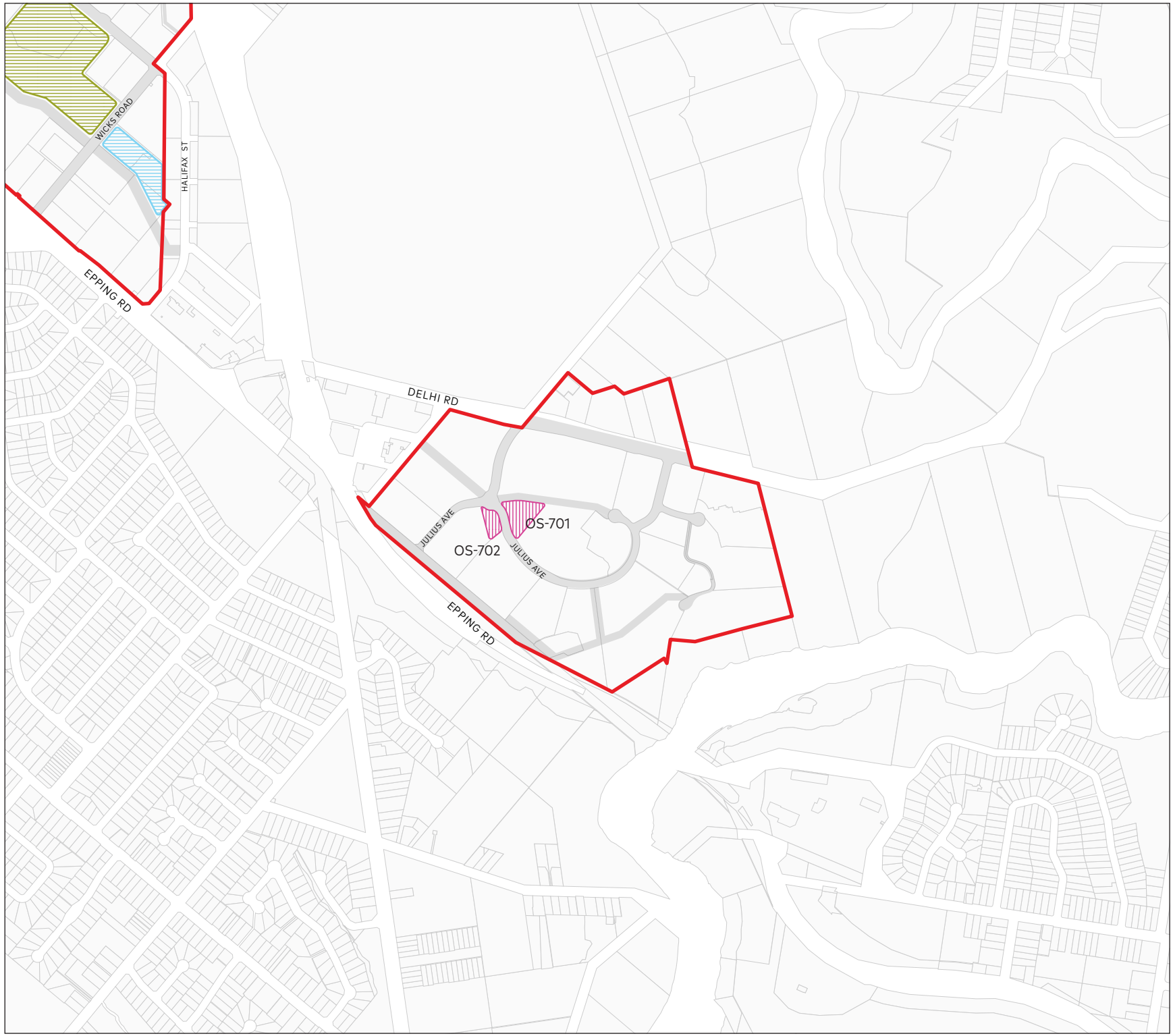
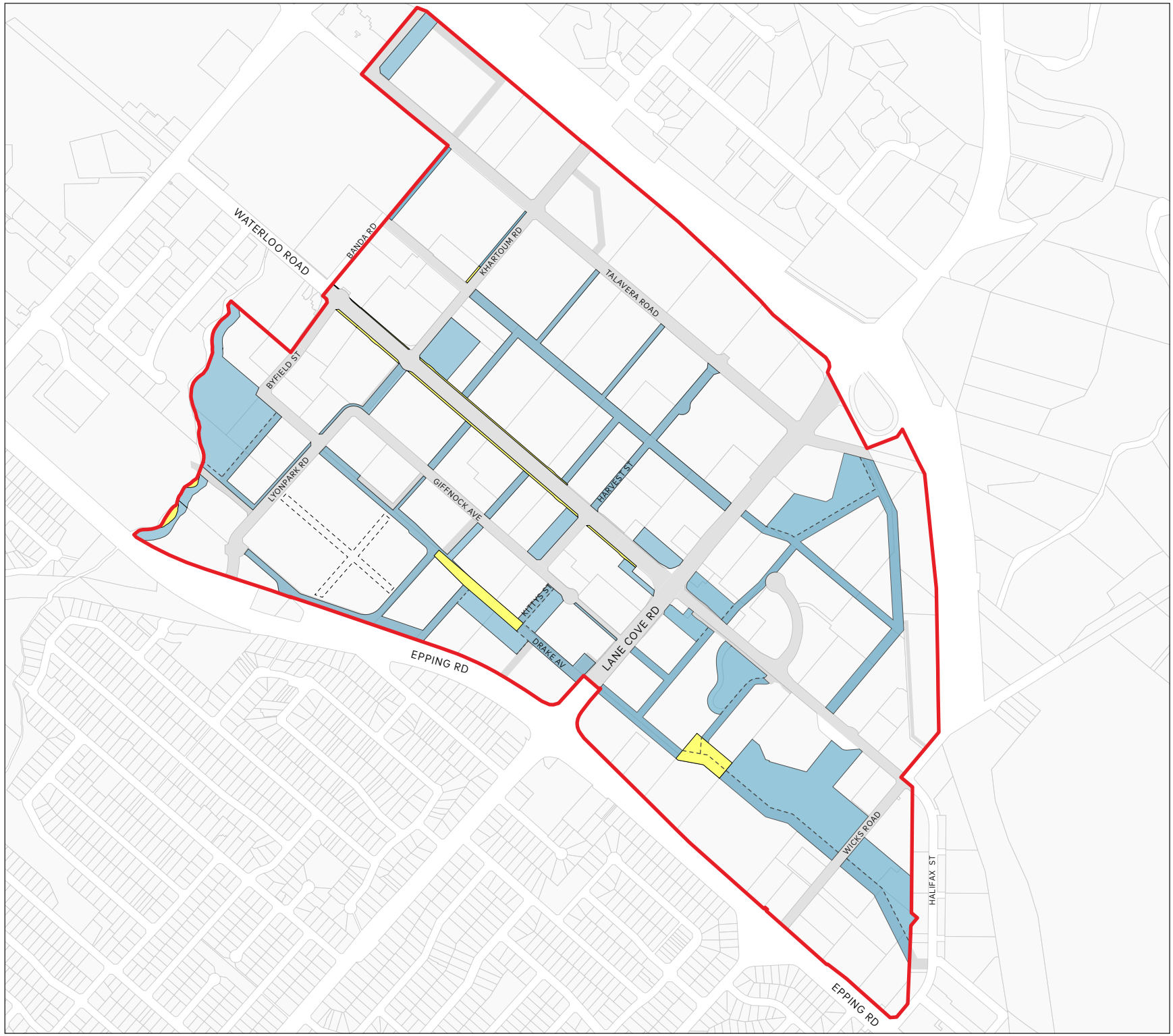


Figure 19b. Solar Protections Map (Page 2 of 2)

Land Dedication Map

KEY

- LAND DEDICATION
- LAND ACQUISITION
- SITE AREA



0 50 100 200 400m

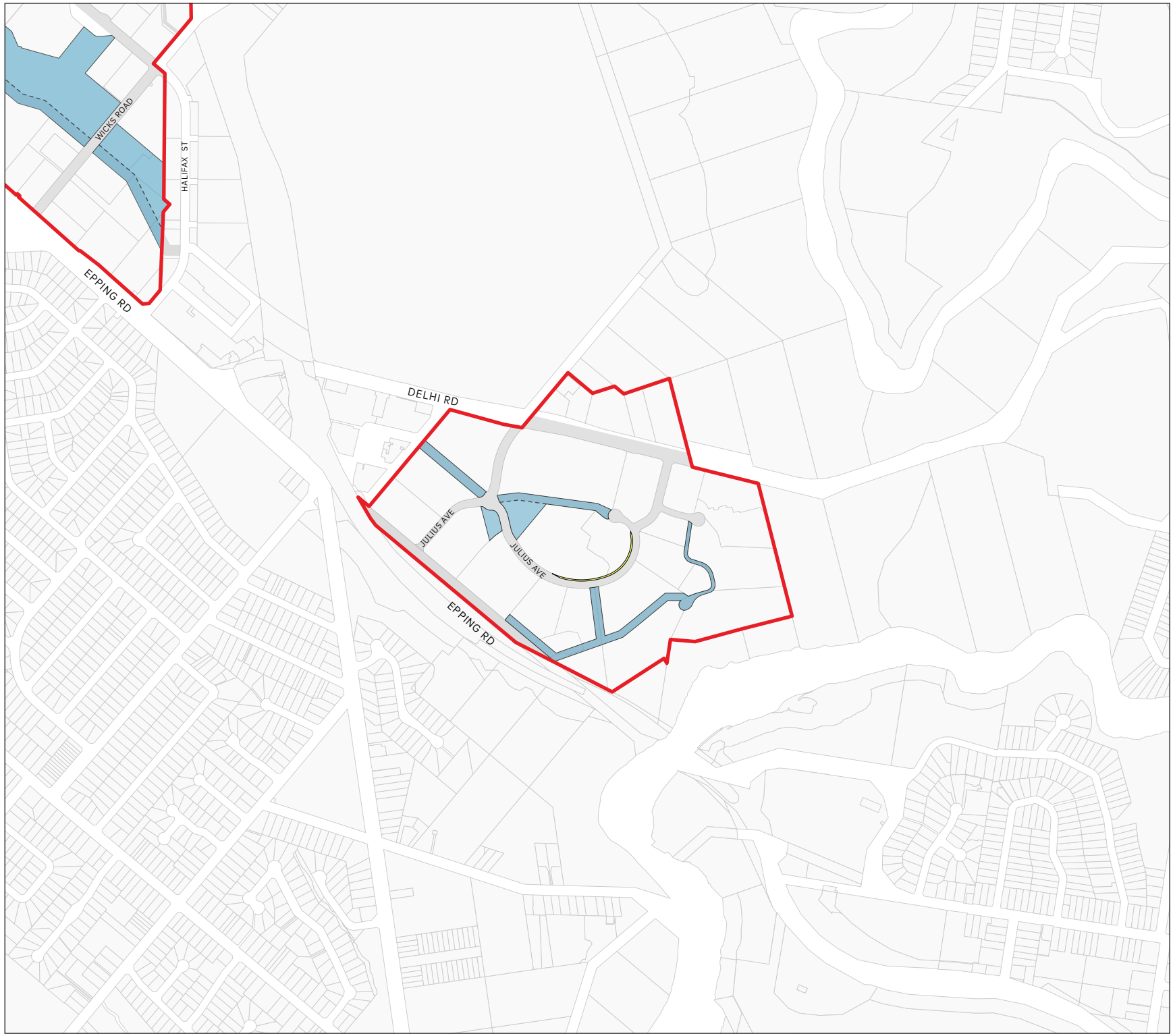
1:10,000 @ A4

Figure 20a. Land Dedication Map (Page 1 of 2)

Land Dedication Map

KEY

- LAND DEDICATION
- LAND ACQUISITION
- SITE AREA



0 50 100 200 400m

1:10,000 @ A4

Figure 20b. Land Dedication Map (Page 2 of 2)

Table 4. Publicly Accessible Open Space Characteristics

Open Space	Spatial Requirements	Design Guidelines
OS-101 Alma Park	Minimum area of 4,495m^2	• Refer to **Figure 21. Key Place Plan – OS-101** for indication of design intent. • Bounded by public streets for its entire extent on at least two sides. • Woven Way references to be integrated and emphasised in this park space, as outlined in as outlined in **Design Guide Section 3.2 Woven Ways**. • Provide landscape treatments that responds to existing trees and detention function (such as sunken terraced spaces). • Facilitate through site access, pedestrian and interface with cycle network along Talavera Road in accordance with **Figure 2. Structure Plan** and **Figure 15. Active Transport Network Map**. • Provide park benches, bicycle parking with associated self-maintenance hub, shade shelters and a kiosk facility. • Provide secondary seating terraces and seating walls throughout.
OS-102 Novartis POPS	Minimum area of 2,165m^2	• Provide public access to privately owned open space. • Provide park benches, bicycle parking with associated self-maintenance hub, and shade shelters. • Support adjoining workplace environments with outdoor meeting pods and access to WiFi.
OS-103 MPark POPS	Minimum area of 2,745m^2	• Provide public access to privately owned open space. • Provide park benches, bicycle parking with associated self-maintenance hub, and shade shelters. • Support adjoining workplace environments with outdoor meeting pods and access to WiFi.
OS-201 Waterloo Road Park	Minimum area of 7,310m^2	• Refer to **Figure 22. Key Place Plan – OS-201** for indication of design intent. • Be bounded by public streets for its entire extent on at least two sides. • Facilitate through site access and links to public transport hubs. • Interface with pedestrian access and public transport along Waterloo Road and Khartoum Road. • Provide outdoor eating facilities to satisfy a thriving and intensely activated space that can be adapted to suit varied volumes of users. • Provide park benches, bicycle parking with associated self-maintenance hub, shade shelters and a kiosk facility. • Provide secondary seating terraces and seating walls throughout.

Open Space	Spatial Requirements	Design Guidelines
OS-202 Catherine Hamlin Park	Minimum area of 6,905m^2	• Woven Way references to be integrated and emphasised in this park space, as outlined in as outlined in **Design Guide Section 3.2 Woven Ways**. • Provide outdoor exercise equipment, event space(s), public seating, BBQ area(s), public artwork, kick-about space(s) and public ablutions.
OS-203 Industrial Creek Woven Way North	Minimum area of 3,470m^2 Minimum linear dimension of 30m	• Refer to **Figure 23. Key Place Plan – OS-203** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Woven Way references to be integrated and emphasised in this park space, as outlined in as outlined in **Design Guide Section 3.2 Woven Ways**. • Provide landscape treatments that responds to existing trees and detention function (such as sunken terraced spaces). • All existing trees are to be retained. • Facilitate through site access, pedestrian and interface with cycle network in accordance with the Structure Plan. • Provide park benches and bicycle parking with associated self-maintenance. • Provide secondary seating terraces and seating walls throughout.
RZ-1A, RZ-1B, RZ-2A, RZ-2B Shrimptons Creek Riparian Zones	Minimum width of 20m, measured from edge of lot or from top of bank (whichever is greater).	• Refer to **Figure 24. Key Place Plan – OS-301** for indication of design intent. • Riparian zones are to be designed a way that references the Woven Way concept as outlined in **Design Guide Section 3.2 Woven Ways**. • Provide continuous accessible share path that connects to pathways in adjacent superlots. • Provide multiple informal gathering points with seating in outer 50% of Shrimptons Creek Core Riparian Zone (‘Meeting Places’).

Open Space	Spatial Requirements	Design Guidelines

OS-301 Shrimptons Parklands	Minimum area of 23,975m^2, including adjoining components of the Riparian Corridor (RZ-1A and RZ-1B)	• Refer to **Figure 24. Key Place Plan – OS-301** for indication of design intent.
		• Bound by public streets or waterways for its entire extent on at least three sides.
		• Work with Sydney Water to provide a water recycling facility.
		• Provide landscaping that responds to the natural topography of the park (such as terraced lawns/ seating).
		• Share path and at least 2 x informal gathering points with seating and shelter in association with outer 50% of Shrimptons Creek Core Riparian Zone RZ-1B, as well as cycle / pedestrian crossing points in association with improved connectivity via a bridge across Shrimptons Creek to the existing Wilga Park.
		• Facilitate through site access, pedestrian and cycle network in accordance with **Figure 2. Structure Plan**.
		• **Table 1. Precinct Design Principles** is to be reflected in design and materials.
		• Riparian zone to be designed a way that references the Woven Way concept outlined in as outlined in **Design Guide Section 3.2 Woven Ways**.
		• Provide the following:
		  ○ Multi sports space to accommodate minimum 2x courts with protective fencing where necessary and courtside seating, minimum 8 benches.
		  ○ Minimum 2x shaded play areas with combination of formal and informal equipment integrated with nature play.
		  ○ Minimum 10x park benches.
		  ○ Minimum 1x shaded fitness station (4 dynamic/ 4 static units).
		  ○ Minimum 2x BBQ sheltered terrace areas, 3x BBQ units associated with each area.
		  ○ Minimum 10x picnic tables (including 5 under shelter).
		  ○ Minimum 20 park benches.
		  ○ Parking for a minimum 20 bicycles.
		  ○ Secondary seating terraces and seating walls throughout.

Open Space	Spatial Requirements	Design Guidelines

OS-302 Drake Ave Park	Minimum area of 5,380m^2
	Minimum linear dimension of 30m
		• Refer to **Figure 25. Key Place Plan – OS-302** for indication of design intent.
		• Bound by public streets for its entire extent on at least two sides.
		• Park is to be designed as one cohesive space with an interface to Optus Drive extension streetscape.
		• Facilitate through site access, pedestrian and interface with cycle network in accordance MPIP PDMP Structure Plan.
		• All existing trees are to be retained.
		• Provide the following:
		  ○ Minimum 5x park benches,
		  ○ Outdoor eating facilities to support minimum 18 people.
		  ○ Bicycle parking with associated self-maintenance hub.
		  ○ Minimum 2x BBQ sheltered terrace areas, 2x BBQ units associated with each area.
		  ○ Secondary seating terraces and seating walls throughout.

OS-401 Industrial Creek Woven Way South	Minimum area of 3,025m^2 Minimum linear dimension of 30m	• Refer to **Figure 23. Key Place Plan – OS-203** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Woven Way references to be integrated and emphasised in this park space, as outlined in **Design Guide Section 3.2 Woven Ways**. • Provide landscape treatments that responds to existing trees and detention function (such as sunken terraced spaces). • All existing trees are to be retained. • Facilitate through site access, pedestrian and interface with cycle network in accordance MPIP Structure Plan. • Provide park benches and bicycle parking with associated self-maintenance hub. • Provide secondary seating terraces and seating walls throughout.
OS-402 Macquarie Exchange POPS	Minimum area of 2,225m^2	• Provide public access to privately owned open space. • Provide park benches, bicycle parking with associated self-maintenance hub, and shade shelters. • Support adjoining workplace environments with outdoor meeting pods and access to WiFi.

Open Space	Spatial Requirements	Design Guidelines
OS-403 Metro Plaza Southwest	Minimum area of 2,530m^2 (not including Metro lot)	• Refer to **Figure 26. Key Place Plan – OS-405 & OS406** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Facilitate through site access, pedestrian and interface with cycle network. • Provide park benches and sheltered bicycle parking with associated self-maintenance hub.
OS-404 Metro Plaza Northwest	Minimum area of 3,260m^2 Minimum linear dimension of 30m	• Refer to **Figure 26. Key Place Plan – OS-405 & OS406** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Facilitate through site access, pedestrian and interface with cycle network. • Provide park benches and sheltered bicycle parking with associated self-maintenance hub. • Minimum area includes Metro buildings.
OS-405 Metro Plaza Southeast	Minimum area of 1,175m^2 (not including Metro lot)	• Refer to **Figure 26. Key Place Plan – OS-405 & OS406** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Facilitate through site access, pedestrian and interface with cycle network. • Provide park benches and sheltered bicycle parking with associated self-maintenance hub.
OS-406 Metro Plaza Northeast	Minimum area of 3,690m^2	• Refer to **Figure 26. Key Place Plan – OS-405 & OS406** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Woven Way references to be integrated and emphasised in this plaza space, as outlined in as outlined in **Design Guide Section 3.2 Woven Ways**. • Facilitate through site access, pedestrian and interface with cycle network. • Provide park benches and sheltered bicycle parking with associated self-maintenance hub.
OS-407 Thomas Holt Drive Park	Minimum area of 7,635m^2	• Expand existing privately owned open space and dedicate to Council as public open space. • Provide park benches, bicycle parking with associated self-maintenance hub, and shade shelters. • Support adjacent and adjoining workplace environments with outdoor meeting pods and access to WiFi.

Open Space	Spatial Requirements	Design Guidelines
OS-501 Talavera Park	Minimum area of 12,825m^2	• Refer to **Figure 27. Key Place Plan – OS-501** for indication of design intent. • Woven Way references to be integrated and emphasised in this park space, as outlined in as outlined in **Design Guide Section 3.2 Woven Ways**. • Expand existing privately owned open space and dedicate to Council as public open space. • Provide share path connection between existing open space, new open space and surrounding network. • Utilise informal tree layouts, with groupings in a clustered arrangement throughout, integrated with retained mature trees. • Provide lawn space appropriate for formal and informal events. • Provide shade shelter and gathering space associated with the ephemeral Woven Way / Creek line. • Provide bicycle parking with associated self-maintenance hub at arrival nodes.

OS-601 Wicks Park	Minimum area of 43,680m^2	• Refer to **Figure 28. Key Place Plan – OS-601 & OS-602** for indication of design intent.
		• Bound by public streets or waterways for its entire extent on at least three sides.
		• Provide landscaping that responds to the natural topography of the park between the large flat site uses by using terraced lawns, seating and parking.
		• Integrate majority of required parking underneath fields to maximise active sports areas.
		• Facilitate through site access, pedestrian and interface with cycle network along Talavera Road in accordance with **Figure 2. Structure Plan** and **Figure 15. Active Transport Network Map**.
		• Retain existing trees to the maximum extent possible within an active recreation area.
		• Provide the following:
		  ○ Minimum 2x sports fields with spectator facilities.
		  ○ Multi sports space to accommodate minimum 5x courts with protective fencing where necessary and courtside seating, minimum 16 benches.
		  ○ Shaded play area(s) with combination of formal and informal equipment integrated with nature play.
		  ○ Provide park benches and sheltered bicycle parking with associated self-maintenance hub, at entry nodes and around each sports facility.
		  ○ Secondary seating terraces and seating walls throughout.

Open Space	Spatial Requirements	Design Guidelines
OS-602 Link Park	Minimum area of 9,700m^2	• Refer to **Figure 28. Key Place Plan – OS-601 & OS-602** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Woven Way references to be integrated and emphasised in this park space, as outlined in as outlined in **Design Guide Section 3.2 Woven Ways**. • Facilitate through site access, pedestrian and interface with cycle network along Talavera Road in accordance with **Figure 2. Structure Plan** and **Figure 15. Active Transport Network Map**. • Provide shaded play area(s) with combination of formal and informal equipment integrated with nature play. • Provide park benches, picnic shelters, BBQ sheltered terrace areas and sheltered bicycle parking with associated self-maintenance hub.
OS-701 Julius Park	Minimum area of 3,000m^2	• Refer to **Figure 29. Key Place Plan – OS-701 & OS-702** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Provide shaded play area with combination of formal and informal equipment integrated with nature play. • Provide hardscape and softscape spaces appropriate for formal and informal gathering events. • Provide park benches, picnic shelters, BBQ sheltered terrace areas and sheltered bicycle parking with associated self-maintenance hub.
OS-702 Rivett Park	Minimum area of 1,500m^2	• Refer to **Figure 29. Key Place Plan – OS-701 & OS-702** for indication of design intent. • Bound by public streets for its entire extent on at least two sides. • Provide park benches, picnic shelters, BBQ sheltered terrace areas and sheltered bicycle parking with associated self-maintenance hub.

Key Place OS-101
Alma Park

1. Informal gathering spots under trees.
2. Mix of planting, boulders and stone inserts.
3. Variety of seating options, formal and informal arrangements.
4. Primary overland flow detention areas
5. Hardscape spaces, focus on porous materials.
6. Park levels manipulated around existing trees
7. Informal decking crossing points
8. Woven way materials spill out onto streetscape
9. Existing Signalised Pedestrian Crossing

0 10 20 40m

1:1,000 @ A4

Figure 21. Key Place Plan — OS-101

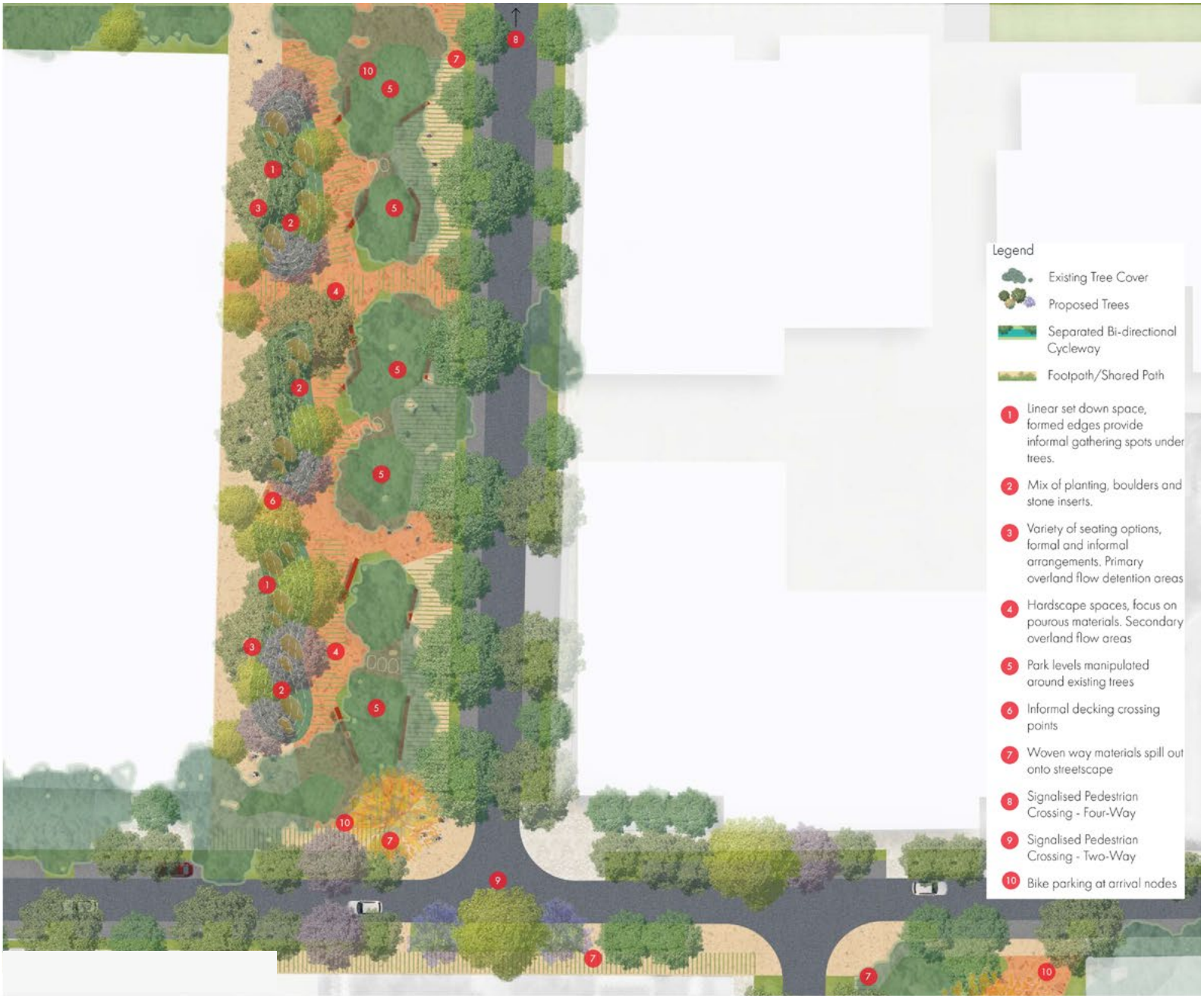
Key Place OS-201
Waterloo Road Park

0 4 8 16 32m

1:800 @ A4

Figure 22. Key Place Plan — OS-201

Key Place OS-203
Industrial Creek Woven Way North



0 4 8 16 32m

1:800 @ A4

Figure 23. Key Place Plan — OS-203

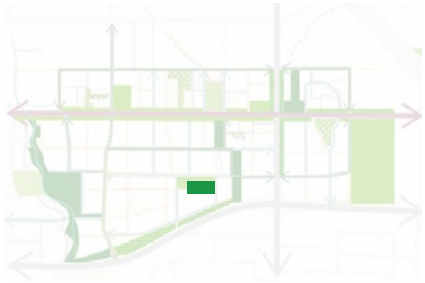
Key Place OS-301
Shrimptons Parklands

0 5 10 20 40m

1:1000 @ A4

Figure 24. Key Place Plan — OS-301

Key Place Plan OS-302
Drake Avenue Park



0 4 8 16 32m

1:800 @ A4

Figure 25. Key Place Plan — OS-302

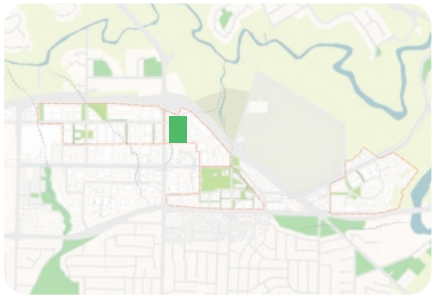
Key Place OS-405 & OS-406
Metro Plaza Southeast & Northeast

0 4 8 16 32m

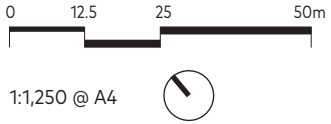
1:800 @ A4

Figure 26. Key Place Plan — OS-405 & OS-406

Key Place OS-501
Talavera Park



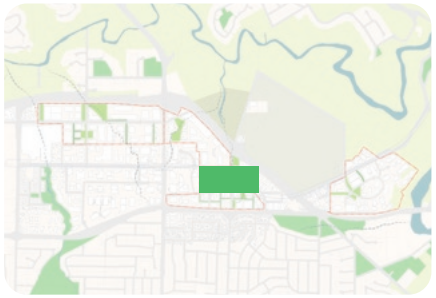
1. Sharepath connection, thought existing path
2. Woven way movement lines interpretation of creek throughout park
3. Opportunity to reflect woven way/ ephemeral creek edges
4. Gathering space/ play area
5. Indicative porous hard scape materials/ woven way materials reflected in park detailing and spill out onto streetscape
6. Woven Way gathering space/ feature shelter
7. Informal tree layout, groupings in a clustered arrangement throughout, integrated with existing mature trees retained
8. Park lawns - opportunity for ephemeral creek spill out
9. Bike parking at arrival nodes



1:1,250 @ A4

Figure 27. Key Place Plan — OS-501

Key Place OS-601 & OS-602
Wicks Park & Link Park



① Separated cycle path

② Share path

③ Woven Way movement lines interpretation of creek throughout park

④ Sports fields - car park roof terrace arrangements

⑤ Mulit sports/ tennis courts

⑥ Play area/ fitness clusters

⑦ Retention of existing mature trees

⑧ Bus drop off space

⑨ Terraced access/ gathering opportunities at streetscape interface

⑩ Shared laneway access

⑪ Indicative porous hard scape materials/ woven way materials reflected in park detailing and spill out onto streetscape

⑫ Woven Way gathering space/ feature shelter

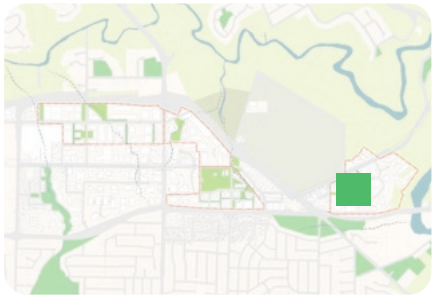
⑬ Ground Floor Active Frontage Coffee / Restaurant

0 25 50 100m

1:2,500 @ A4

Figure 28. Key Place Plan — OS-601 & OS-602

Key Place OS-701 & OS-702
Julius Park & Rivett Park



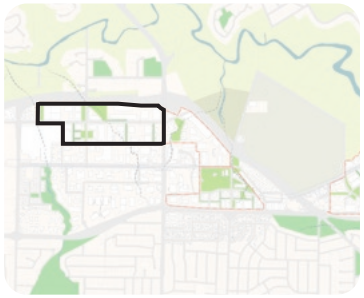
1. Share path
2. Central plaza gathering space
3. Local neighbourhood play area
4. Community BBQ picnic terrace
5. Community lawns
6. Linear park connection to Dehli Road
7. Pedestrian link to Metro
8. Signalised junction with pedestrian crossing points
9. Mix of planting, boulders and stone inserts.

0 8 16 32m

1:800@ A4

Figure 29. Key Place Plan — OS-701 & OS-702

Neighbourhood 1 - Ngalawala (Reciprocity)



Hard-scape, Street Furniture & Lighting

Nature of the public domain and open spaces are more civic and urban, being on perimeter of the central precinct neighbourhood spaces.

Diverse range of users, these civic spaces which support the activities generated by the corporate and commercial buildings around them.

Materiality will reflect this and will be of a civic pallet. Larger format paving, opportunity for patterning specific to the spaces, with location designed elements which are integrated into the fabric of the space. Distinct shelters and shade structures provide added visual focus for plaza spaces.

Pedestrian Hard Surfaces - General

Plazas/meeting points: large format surfacing

Pedestrian connections/through site links: medium format surfacing

Street Furniture and Lighting

Bench seating

Source: Tract

Bike hoops

Source: Australian Bollards

Bollards

Source: Tract

Bins

Source: City of Ryde
model dual rubbish bins with butt bin

Drinking fountain with dog bowl

Source: Street Furniture Australia

Multifunctional light pole

Pedestrian scale lights

Character Elements

Lush verges

Source: Sunshine Coast Council

Integrated seating

Source: Site Office

Interpretation elements at activity hubs

Source: Tract

Source: Tract

Source: Tract

Shelters/installations - opportunity for art integration

Source: Tract

Pedestrian bridge over bio-swale

Source: Tract

Stone/boulder elements reflecting creek and Woven Way character

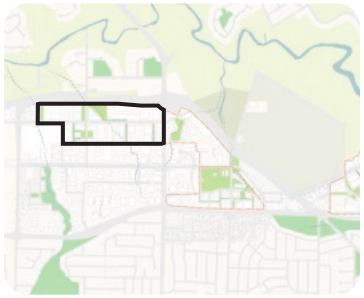
Source: OJB

Green walls at commercial building interfaces, screening elements, barriers and fence elements

Source: Tract

Figure 30a. Public Domain Character & Material Palette: Neighbourhood 1 (Page 1 of 2)

Neighbourhood 1 - Ngalawala (Reciprocity)



Street Trees & Planting

Trees, shrubs and ground cover final selections to be designed in collaboration with specialist Aboriginal planting designers. Plant community types represented in this neighbourhood are:

- Sydney Enriched Sandstone Moist Forest
- Sydney Turpentine Ironbark Forest

Profiled Tree Species selected as a highlight in this neighbourhood:

Profiled Species selected as a highlight in this neighbourhood:

- Turpentine
- Sydney Blue Gum
- Mountain Grey Gum
- Mock Olive
- Narrow-leaved Orangebark
- Parramatta Wattle
- She-oak

Species selected for Living Streets:

- Turpentine
- Sydney Blue Gum
- Sweet Pittosporum
- She-oak
- Narrow-leaved Stringybark
- Parramatta Wattle
- Ground covers and grasses

Typical Tree Dimensions in Urban Areas Code (m):
H - Height
C - Canopy

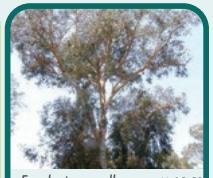
Street Trees - Primary

20-30m Green Boulevards

Large Native Trees

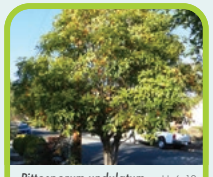
Syncarpia glomulifera Turpentine H: 25 C: 12

Eucalyptus saligna Sydney Blue Gum H: 30 C: 25

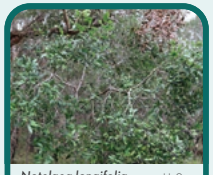


Eucalyptus cypellocarpa Mountain Grey Gum H: 15-50 C: 8-20

Medium-Small Trees



Pittosporum undulatum Sweet Pittosporum H: 6-12 C: 7



Notelaea longifolia Mock Olive H: 9 C: 1-4

Allocasuarina torulosa She-oak H: 8 C: 10

Elaeocarpus reticulatus Blueberry Ash H: 3-15 C: 3-5

Denhamia silvestris Narrow-leaved Orangebark H: 2-15 C: 0.3-1.5

Feature Trees

On street corners, entry thresholds, park entry & interface with streets

Acacia Parramattensis Parramatta Wattle H: 2-15 C: 2-3

Eucalyptus piperita Sydney Peppermint H: 20 C: 8-12

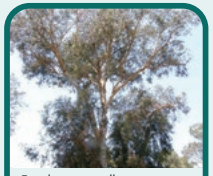
Angophora costata Smooth-barked Apple H: 20-22 C: 16-18

Street Trees - Secondary

20-25m Green Boulevard & Circulation Route, Local Streets

Large Native Trees

Eucalyptus saligna Sydney Blue Gum H: 30 C: 25

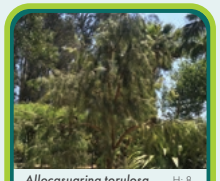


Eucalyptus cypellocarpa Mountain Grey Gum H: 15-50 C: 8-20

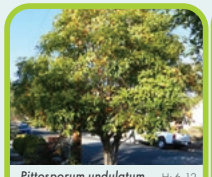
Syncarpia glomulifera Turpentine H: 25 C: 12

Medium-Small Trees

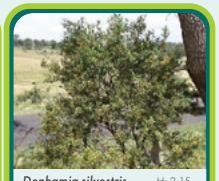
Local Streets & Through-site Links



Allocasuarina torulosa She-oak H: 8 C: 10



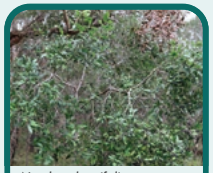
Pittosporum undulatum Sweet Pittosporum H: 6-12 C: 7



Denhamia silvestris Narrow-leaved Orangebark H: 2-15 C: 0.3-1.5

Elaeocarpus reticulatus Blueberry Ash H: 3-15 C: 3-5

Acacia Parramattensis Parramatta Wattle H: 2-15 C: 2-3



Notelaea longifolia Mock Olive H: 9 C: 1-4

Living Streets

Water/Woven Way/ WSUD

Native species

With a specific focus on site specific Aboriginal designed gardens which will feature endemic species and include plants of cultural significance which can be accessed to support cultural practices, such as weaving, along well as WSUD function where needed

Dianella caerulea Blue Flax Lily

Lomandra longifolia Spiny-headed Mat-rush

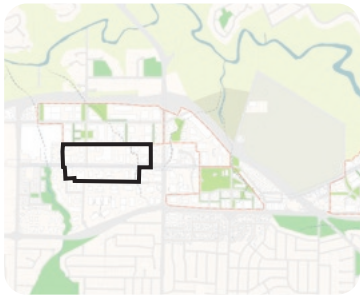
Microlaena stipoides var. Stipoides Weeping grass

Juncus usitatus Common Rush

Source: BioNet Plant Community Type data - NSW Environment and Heritage

Figure 30b. Public Domain Character & Material Palette: Neighbourhood 1 (Page 2 of 2)

Neighbourhood 2 - Butbut (Heart)



Hard-scape, Street Furniture & Lighting

Nature of the public domain and open spaces are civic and urban, these are active city spaces.

Diverse range of users, these civic spaces which support the activities generated by the corporate and commercial buildings around them.

Materiality will reflect this and will be of a civic pallet. Larger format paving, opportunity for patterning specific to the spaces, with location designed elements which are integrated into the fabric of the space. Distinct shelters and shade structures provide added visual focus for plaza spaces.

Pedestrian Hard Surfaces - General

Plazas/meeting points: large format surfacing

Pedestrian connections/through site links: medium format surfacing

Street Furniture and Lighting

Bench seating

Bike hoops

Source: Australian Bollards

Bollards

Source: Tract

Bins

Source: City of Ryde
model dual rubbish bins with butt bin

Drinking fountain with dog bowl

Multifunctional light pole

Pedestrian scale lights

Character Elements

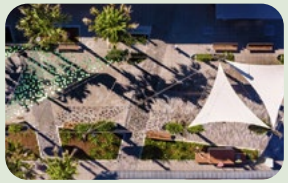
Signature median

Integrated seating

Interpretive paving at activity hubs

Permeable/signature paving at Woven Way linear park

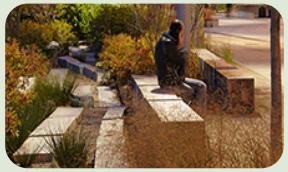
Shelters/installations - opportunity for art integration

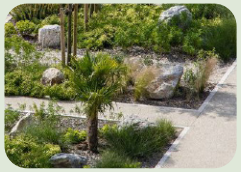


Pedestrian bridge over bio-swale

Source: Redman Road Plaza, Tract

Stone/boulder elements at Woven Way linear park





Green walls at commercial building interface, screening elements, barriers and fence element

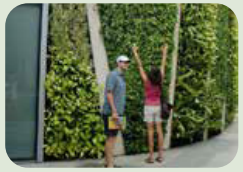
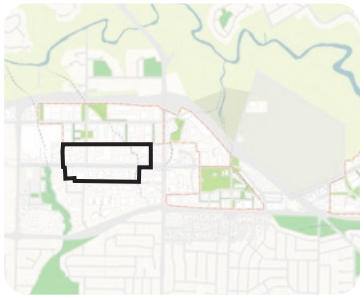


Figure 31a. Public Domain Character & Material Palette: Neighbourhood 2 (Page 1 of 2)

Neighbourhood 2 - Butbut (Heart)



Street Trees & Planting

Trees, shrubs and ground cover final selections to be designed in collaboration with specialist Aboriginal planting designers. Vegetation community types represented in this neighbourhood are:

- Sydney Coastal Sandstone Gully Forest;
- Sydney Coastal Enriched Sandstone Forest;
- Sydney Coastal Shale-Sandstone Forest and
- Sydney Turpentine Ironbark Forest.

Profiled Tree Species selected as a highlight in this neighbourhood:

- Sydney Red Gum
- Spotted Gum
- Forest Red Gum
- Rough-barked Apple
- Blackbutt
- Sydney Blue Gum
- Red Mahogany
- Turpentine
- Blueberry Ash
- Port Jackson Fig
- Chinese Elm
- Crow's Ash
- Grey Gum

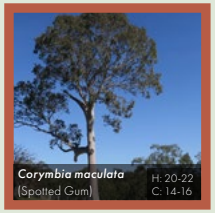
Species selected for Living Streets:

- Swamp Mahogany
- Blackbutt
- Sydney Peppermint
- Sydney Blue Gum
- Ground covers and grasses

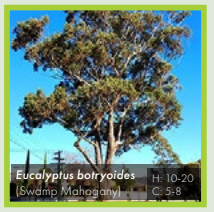
Street Trees - Primary

20-30m Green Boulevards

Large Smooth-barked Native Trees



Large-Medium Trees



Feature Broad Canopy Trees

On street corners, entry thresholds, park entry & interface with streets

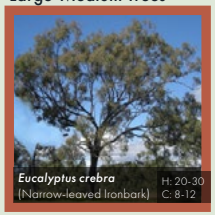
Source: City of Ryde Public Domain Manual and City of Ryde Street Tree Master Plan 16 April 2013

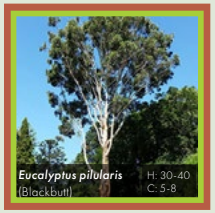
Street Trees - Secondary

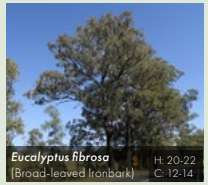
20-25m Green Boulevard & Circulation Route, Local Streets

Large Smooth-barked Native Trees

Large-Medium Trees

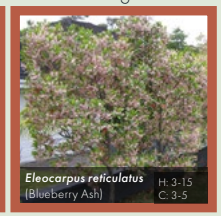






Small Trees

Local Streets & Through-site Links



Living Streets

Water/Woven Way/ WSUD

Native species

With a specific focus on site specific Aboriginal designed gardens which will feature endemic species and include plants of cultural significance which can be accessed to support cultural practices, such as weaving, along well as WSUD function where needed

Figure 31b. Public Domain Character & Material Palette: Neighbourhood 2 (Page 2 of 2)

Neighbourhood 3 - Waragal Birrung (Evening Star)

Hard scape, Street Furniture & Lighting

The presence of Shrimpton's Creek inspires a neighbourhood character which has a strong connection to nature to influence the materials pallet throughout.

Recognition of proximity to the creek creates opportunities for bridges and board walk details. Riparian creek parkland inspired vegetation, simple linear pathway surfacing with a rich Woven Way materiality overlay offer many opportunities to reflect natural settings.

Pedestrian Hard Surfaces - General

Pedestrian connections/through site links: medium format surfacing

Contrasting detail and spaces with cultural / central focus: small format surfacing

Transition/variation of size

Street Furniture and Lighting

Bench seating

Bike hoops

Bollards

Source: Tract

Bins

Source: City of Ryde model dual rubbish bins with butt bin

Drinking fountain with dog bowl

Seats and picnic tables

Street light pole

Pedestrian scale lights

Character Elements

Interpretation elements embedded into design

Creekside board walk

Bespoke shelters and shade structures

Gathering and event spaces

Figure 32a. Public Domain Character & Material Palette: Neighbourhood 3 (Page 1 of 2)

Neighbourhood 3 - Waragal Birrung (Evening Star)

Street Trees & Planting

Trees, shrubs and ground cover final selections to be designed in collaboration with specialist Aboriginal planting designers. Vegetation community types represented in this neighbourhood are::

- Sydney Coastal Sandstone Gully Forest;
- Sydney Coastal Enriched Sandstone Forest;
- Sydney Coastal Shale-Sandstone Forest and
- Sydney Turpentine Ironbark Forest.

Profiled Species selected as a highlight in this neighbourhood:

- Sydney Red Gum
- Spotted Gum
- Rough-barked Apple
- Blackbutt
- Sydney Blue Gum
- Sydney Peppermint
- Smooth Quandong
- Port Jackson Fig
- Grey Iron bark
- Tulipwood

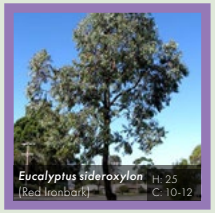
Species selected for Living Streets:

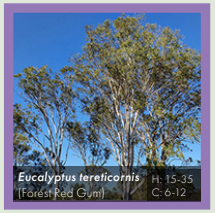
- Sydney Red Gum
- Blackbutt
- Sydney Peppermint
- Ground covers and grasses

Street Trees - Primary

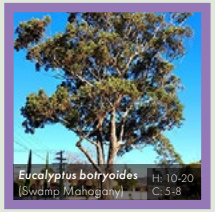
20-30m Green Boulevards

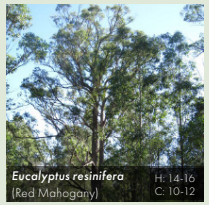
Large Smooth-barked Native Trees





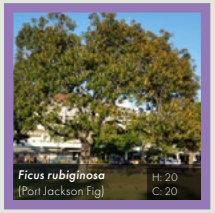
Large-Medium Trees

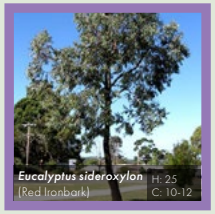




Feature Broad Canopy Trees

On street corners, entry thresholds, park entry & interface with streets

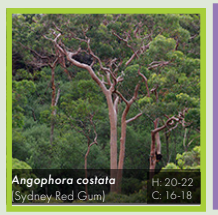


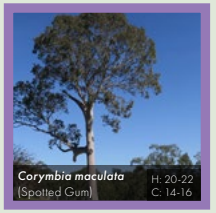


Street Trees - Secondary

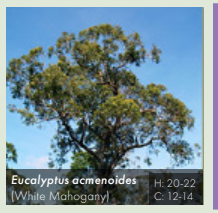
20-25m Green Boulevard & Circulation Route, Local Streets

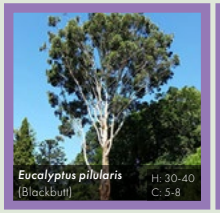
Large Smooth-barked Native Trees

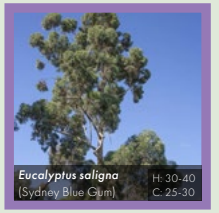




Large-Medium Trees

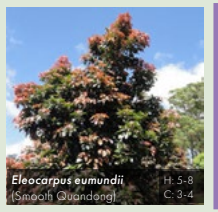


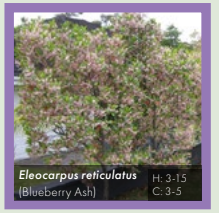


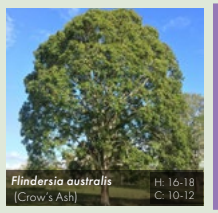


Small Trees

Local Streets & Through-site Links







Living Streets

Water/Woven Way/ WSUD

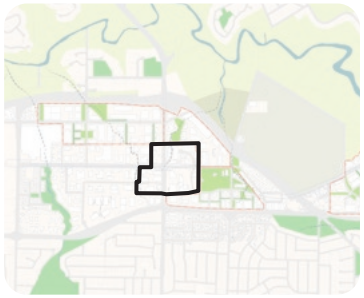
Native species

With a specific focus on site specific Aboriginal designed gardens which will feature endemic species and include plants of cultural significance which can be accessed to support cultural practices, such as weaving, along well as WSUD function where needed

Source: City of Ryde Public Domain Manual and City of Ryde Street Tree Master Plan 16 April 2013

Figure 32b. Public Domain Character & Material Palette: Neighbourhood 3 (Page 2 of 2)

Neighbourhood 4 - Gari Nawi (Saltwater Canoe)



Hard-scape, Street Furniture & Lighting

Public domain will be generally civic in nature, supporting this transport interchange precinct. Opportunity for bold larger scaled statements and vivid colours to reflect energy of this arrival place, and with a material relationship with the Waterloo Road palette linking the precincts.

Beyond this spaces materials will reflect the mix of urban and residential users, in the parks and streetscapes spaces.

Woven Way lines are gently knitted into the north east Metro Precinct open space. Richness of materiality is emphasised and indicates local presence of hidden Porters Creek. Use of hard and soft surfaces, colours, textures and vegetation will indicate and subtly reveal an ephemeral waterway.

Pedestrian Hard Surfaces - General

Plazas/meeting points: large format surfacing

Pedestrian connections/through site links: medium format surfacing

Street Furniture and Lighting

Bench seating

Bike hoops

Bollards

Source: Tract

Source: City of Ryde model dual rubbish bins with butt bin

Drinking fountain with dog bowl

Multifunctional light pole

Pedestrian scale lights

Character Elements

Interpretive paving at Metro station plaza/concourse

Stone seating and level change elements

Interpretive paving at open space

Sculpture/element to make Metro station plaza distinctive

Bespoke shelter

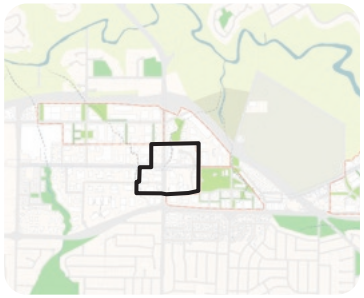
Source: 275 George Street, Brisbane, Tract

Water elements

Source: Taylor Square, NSW, Tract

Figure 33a. Public Domain Character & Material Palette: Neighbourhood 4 (Page 1 of 2)

Neighbourhood 4 - Gari Nawi (Saltwater Canoe)



Street Trees & Planting

Trees, shrubs and ground cover final selections to be designed in collaboration with specialist Aboriginal planting designers. Vegetation community types represented in this neighbourhood are:

- Sydney Coastal Sandstone Gully Forest;
- Sydney Coastal Enriched Sandstone Forest;
- Sydney Coastal Shale-Sandstone Forest and
- Sydney Turpentine Ironbark Forest.

Profiled Species selected as a highlight in this neighbourhood:

- Sydney Red Gum
- Spotted Gum
- Rough-barked Apple
- Blackbutt
- Sydney Blue Gum
- Sydney Peppermint
- Smooth Quandong
- Port Jackson Fig
- Grey Ironbark
- Tulipwood

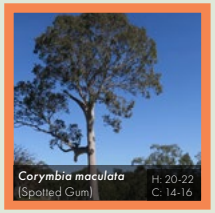
Species selected for Living Streets:

- Sydney Red Gum
- Blackbutt
- Sydney Peppermint
- Ground covers and grasses

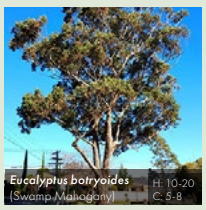
Street Trees - Primary

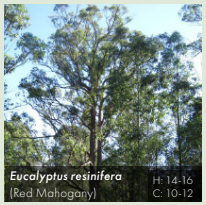
20-30m Green Boulevards

Large Smooth-barked Native Trees



Large-Medium Trees





Feature Broad Canopy Trees

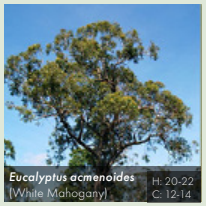
On street corners, entry thresholds, park entry & interface with streets

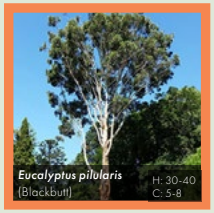
Street Trees - Secondary

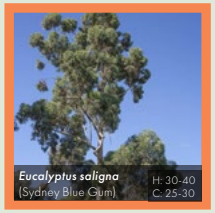
20-25m Green Boulevard & Circulation Route, Local Streets

Large Smooth-barked Native Trees

Large-Medium Trees

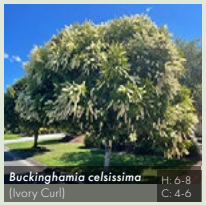


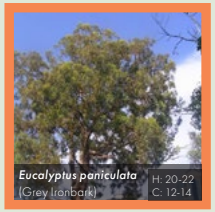


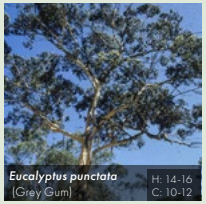


Small Trees

Local Streets & Through-Site Links







Source: City of Ryde Public Domain Manual and City of Ryde Street Tree Master Plan 16 April 2013

Living Streets

Water/Woven Way/ WSUD

Native species

With a specific focus on site specific Aboriginal designed gardens which will feature endemic species and include plants of cultural significance which can be accessed to support cultural practices, such as weaving, along well as WSUD function where needed

Figure 33b. Public Domain Character & Material Palette: Neighbourhood 4 (Page 2 of 2)

Neighbourhood 5 - Burbigal (Morning)

Hard scape, Street Furniture & Lighting

Public domain will represent this area while being civic in nature has a Woven Way focus.

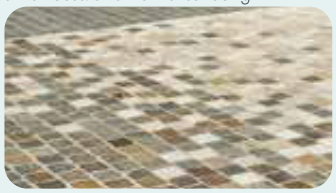
Materials will reflect this more commercial mix of users, in the parks and streetscapes spaces. Woven Way lines are gently knitted into the open spaces through hard and soft scape detailing.

Richness of materiality is emphasised and indicates local presence of hidden Porters Creek. Use of hard and soft surfaces, colours, textures and vegetation will indicate and subtly reveal an ephemeral waterway.

Pedestrian Hard Surfaces - General

Pedestrian connections/through site links: medium format surfacing

Contrasting detail and spaces with cultural / central focus: small format surfacing



Transition/variation of size

Street Furniture and Lighting

Bench seating

Source: Tract

Bike hoops

Source: Australian Bollards

Bollards

Source: Tract

Bins

Source: City of Ryde
model dual rubbish bins with butt bin

Drinking fountain with dog bowl

Source: Street Furniture Australia

Seats and picnic tables

Source: Tract

Street light pole

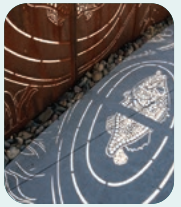
Pedestrian scale lights

Character Elements

Interpretation elements embedded into design

Source: Tract

Source: Tract



Source: Tract

Nature meets urban

Source: Tract

Source: Tract

Intimate scale

Source: Ian Barker

Source: Tract

Source: Tract

Woven Ways

Source: OJB

Figure 34a. Public Domain Character & Material Palette: Neighbourhood 5 (Page 1 of 2)

Neighbourhood 5 - Burbigal (Morning)

Street Trees & Planting

Trees, shrubs and ground cover final selections to be designed in collaboration with specialist Aboriginal planting designers. Vegetation community types represented in this neighbourhood are::

- Sydney Coastal Shale-Sandstone Forest
- Northern Sydney Scribbly Gum Woodland

Profiled Species selected as a highlight in this neighbourhood:

- Scribbly Gum
- White Stringybark
- Red Mahogany
- Dwarf Apple
- Fern-leaved Banksia

Species selected for Living Streets:

- Old Man Banskia
- Scribbly Gum
- Flaky-barked Tea-tree
- Broad-leaved Geebung
- Blackbutt
- Ground covers and grasses

Typical Tree Dimensions in Urban Areas Code (m):

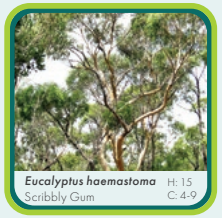
H - Height

C - Canopy

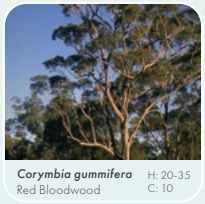
Street Trees - Primary

20-30m Green Boulevards

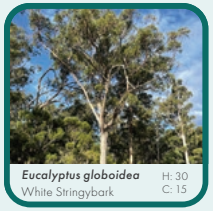
Large Native



Eucalyptus haemastoma Scribbly Gum H: 15 C: 4-9



Corymbia gummifera Red Bloodwood H: 20-35 C: 10



Eucalyptus globoidea White Stringybark H: 30 C: 15

Large-Medium Trees

Angophora costata Smooth-barked Apple H: 20-22 C: 16-18

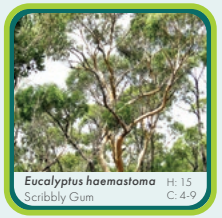
Banksia serrata Old Man Banksia H: 10-20 C: 10

Eucalyptus resinifera Red Mahogany H: 30-45 C: 20

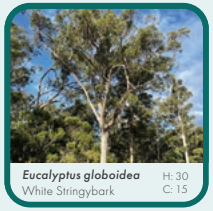
Eucalyptus pilularis Blackbutt H: 30-40 C: 5-8

Feature Trees

On street corners, entry thresholds, park entry & interface with streets



Eucalyptus haemastoma Scribbly Gum H: 15 C: 4-9



Eucalyptus globoidea White Stringybark H: 30 C: 15

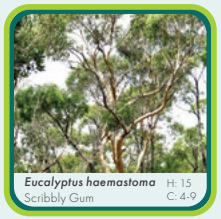
Banksia serrata Old Man Banksia H: 10-20 C: 10

Source: BioNet Plant Community Type data - NSW Environment and Heritage

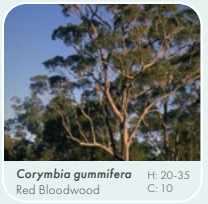
Street Trees - Secondary

20-25m Green Boulevard & Circulation Route, Local Streets

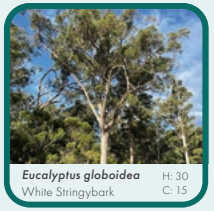
Large Native Trees



Eucalyptus haemastoma Scribbly Gum H: 15 C: 4-9



Corymbia gummifera Red Bloodwood H: 20-35 C: 10

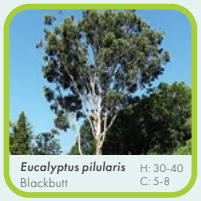


Eucalyptus globoidea White Stringybark H: 30 C: 15

Large-Medium Trees

Banksia serrata Old Man Banksia H: 10-20 C: 10

Eucalyptus resinifera Red Mahogany H: 30-45 C: 20



Eucalyptus pilularis Blackbutt H: 30-40 C: 5-8

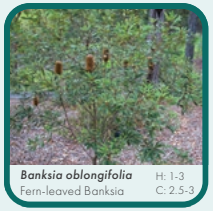
Small Trees

Local Streets & Through-site Links

Leptospermum trinervium Flaky-barked Tea-tree H: 6 C: 2

Persoonia levis Broad-leaved Geebung H: 5 C: 2

Angophora hispida Dwarf Apple H: 5-7 C: 5-7



Banksia oblongifolia Fern-leaved Banksia H: 1-3 C: 2.5-3

Living Streets

Water/Woven Way/ WSUD

Native species

With a specific focus on site specific Aboriginal designed gardens which will feature endemic species and include plants of cultural significance which can be accessed to support cultural practices, such as weaving, along well as WSUD function where needed

Dianella caerulea Blue Flax Lily

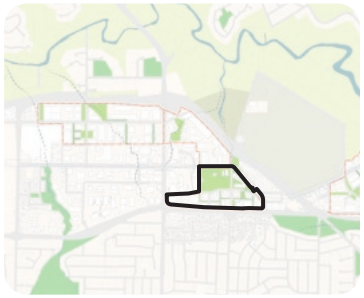
Lomandra longifolia Spiny-headed Mat-rush

Microlaena stipoides var. Stipoides Weeping grass

Juncus usitatus Common Rush

Figure 34b. Public Domain Character & Material Palette: Neighbourhood 5 (Page 2 of 2)

Neighbourhood 6 - Garungul (Unbreakable)



Hard-scape, Street Furniture & Lighting

Woven parklands character will influence this neighbourhood, while acknowledging the nature of more intense users and cater for specific sporting recreational needs.

Sports focus structures and materials will be used sympathetically with Woven Way materiality to ensure the character represents the unique setting.

Pedestrian Hard Surfaces - General

Plazas/meeting points: large format surfacing

Pedestrian connections/through site links: medium format surfacing

Street Furniture and Lighting

Bench seating

Source: Tract

Bike hoops

Source: Australian Bollards

Bollards

Source: Tract

Source: City of Ryde
model dual rubbish bins with butt bin

Drinking fountain with dog bowl

Source: Street Furniture Australia

Multifunctional light pole

Pedestrian scale lights

Character Elements

Interpretion elements

Source: Tract

Source: Tract

Source: Tract

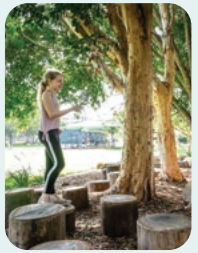
Recreation

Source: Tract

Source: Tract

Nature play

Source: Site Office



Source: Form LA + Brisbane City Council

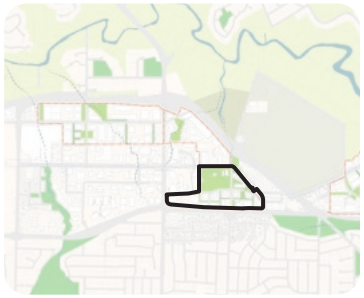
Woven Way connecting features

Source: OJB

Source: Greenedge Design

Figure 35a. Public Domain Character & Material Palette: Neighbourhood 6 (Page 1 of 2)

Neighbourhood 6 - Garungul (Unbreakable)



Street Trees & Planting

Trees, shrubs and ground cover final selections to be designed in collaboration with specialist Aboriginal planting designers. The vegetation community types represented in this neighbourhood is:

- Sydney Turpentine Ironbark Forest

Profiled Species selected as a highlight in this neighbourhood:

- Round-leaved Gum
- Turpentine
- Grey Ironbark
- Red Ironbark
- Grey Gum
- Narrow-leaved Ironbark
- White Dogwood

Species selected for Living Streets:

- Round-leaved Gum
- Grey Ironbark
- Sweet Pittosporum
- Mock Olive
- Turpentine
- Ground covers and grasses

Typical Tree Dimensions in Urban Areas Code (m):

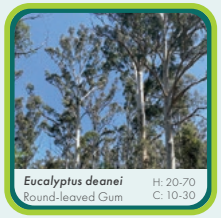
H - Height

C - Canopy

Street Trees - Primary

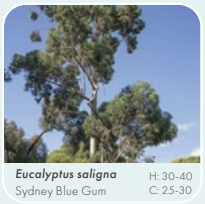
20-30m Green Boulevards

Large Native Trees



Eucalyptus deanei Round-leaved Gum H: 20-70 C: 10-30

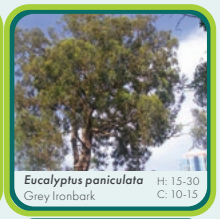
Eucalyptus cypellocarpa Mountain Grey Gum H: 15-50 C: 8-20



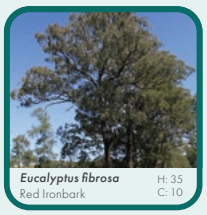
Eucalyptus saligna Sydney Blue Gum H: 30-40 C: 25-30

Large-Medium Trees

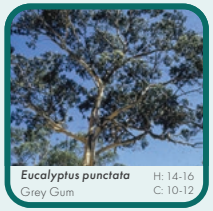
Syncarpia glomulifera Turpentine H: 25 C: 12



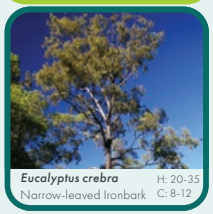
Eucalyptus paniculata Grey Ironbark H: 15-30 C: 10-15



Eucalyptus fibrosa Red Ironbark H: 35 C: 10



Eucalyptus punctata Grey Gum H: 14-16 C: 10-12

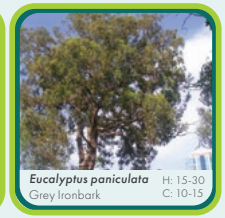


Eucalyptus crebra Narrow-leaved Ironbark H: 20-35 C: 8-12

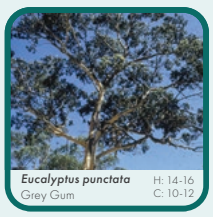
Feature Broad Canopy Trees

On street corners, entry thresholds, park entry & interface with streets

Eucalyptus deanei Round-leaved Gum H: 20-70 C: 10-30



Eucalyptus paniculata Grey Ironbark H: 15-30 C: 10-15



Eucalyptus punctata Grey Gum H: 14-16 C: 10-12

Source: BioNet Plant Community Type data - NSW Environment and Heritage

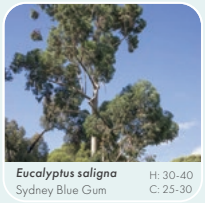
Street Trees - Secondary

20-25m Green Boulevard & Circulation Route, Local Streets

Large Native Trees

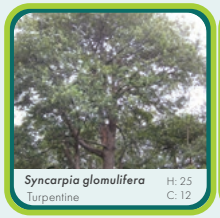
Eucalyptus deanei Round-leaved Gum H: 20-70 C: 10-30

Eucalyptus cypellocarpa Mountain Grey Gum H: 15-50 C: 8-20



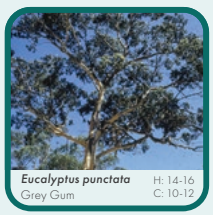
Eucalyptus saligna Sydney Blue Gum H: 30-40 C: 25-30

Large-Medium Trees



Syncarpia glomulifera Turpentine H: 25 C: 12

Eucalyptus paniculata Grey Ironbark H: 15-30 C: 10-15

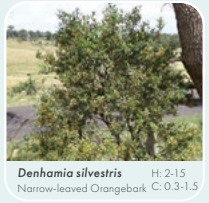


Eucalyptus punctata Grey Gum H: 14-16 C: 10-12

Small Trees

Local Streets & Through-Site Links

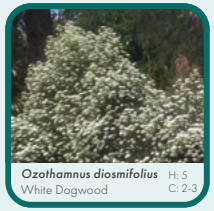
Acacia Parramattensis Parramatta Wattle H: 2-15 C: 2-3



Denhamia silvestris Narrow-leaved Orangebark H: 2-15 C: 0.3-1.5

Pittosporum undulatum Sweet Pittosporum H: 6-12 C: 7

Notelaea longifolia Mock Olive H: 9 C: 1-4



Ozothamnus diosmifolius White Dogwood H: 5 C: 2-3

Living Streets

Water/Woven Way/ WSUD

Native species

With a specific focus on site specific Aboriginal designed gardens which will feature endemic species and include plants of cultural significance which can be accessed to support cultural practices, such as weaving, along well as WSUD function where needed

Dianella caerulea Blue Flax Lily

Lomandra longifolia Spiny-headed Mat-rush

Microlaena stipoides var. Stipoides Weeping grass

Juncus usitatus Common Rush

Figure 35b. Public Domain Character & Material Palette: Neighbourhood 6 (Page 2 of 2)

Neighbourhood 7 - Narrami Badu-Gamada (Connecting Water Spirit)

Hard-scape, Street Furniture & Lighting

The scale of this neighbourhood and proximity to bushland inspires a neighbourhood character which has a strong connection to nature to influence the materials pallet throughout.

Recognition of proximity to the bushland creates opportunities for rich textural surfaces with a emphasis on natural representation in detailing and structures.

Bushland inspired vegetation, simple linear pathways, range of surfacing offer many opportunities to reflect a more natural setting.

Pedestrian Hard Surfaces - General

Plazas/meeting points: large format surfacing

Pedestrian connections/through site links: medium format surfacing

Street Furniture and Lighting

Bench seating

Source: Tract

Bike hoops

Source: Australian Bollards

Bollards

Source: Tract

Source: City of Ryde
model dual rubbish bins with butt bin

Drinking fountain with dog bowl

Source: Street Furniture Australia

Multifunctional light pole

Pedestrian scale lights

Character Elements

Interpretive paving

Source: Realmstudios

Source: Studio Vulkan

Stone elements and Woven Ways

Source: Tract

Source: OJB

Seating and art opportunities

Source: RIOS

Source: RIOS

Urban greenery

Source: Tract

Source: SWA Group

Figure 36a. Public Domain Character & Material Palette: Neighbourhood 7 (Page 1 of 2)

Neighbourhood 7 - Narrami Badu-Gamada (Connecting Water Spirit)

Street Trees & Planting

Trees, shrubs and ground cover final selections to be designed in collaboration with specialist Aboriginal planting designers. Vegetation community types represented in this neighbourhood are:

- Sydney Turpentine Ironbark Forest
- Sydney Enriched Sandstone Moist Forest
- Northern Sydney Scribbly Gum Woodland
- Sydney Coastal Sandstone Gully Forest
- Sydney Coastal Enriched Sandstone Forest
- Grey Mangrove-River Mangrove Forest

Profiled Species selected as a highlight in this neighbourhood:

- Smooth-barked Apple
- Sydney Peppermint
- Old Man Banksia
- Port Jackson Fig
- Heath Banksia
- Narrow-leaved Paperbark
- Sweet Pittosporum

Species selected for Living Streets:

- Old Man Banksia
- Port Jackson Fig
- Flaky-barked Tea-tree
- Narrow-leaved Paperbark
- Sweet Pittosporum
- Broad-leaved Geebung
- Ground covers and grasses

Street Trees - Primary

20-30m Green Boulevards

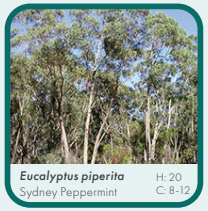
Large Native Trees

Angophora costata Smooth-barked Apple H: 20-22 C: 16-18

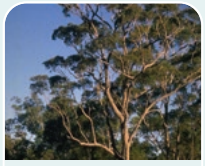
Eucalyptus saligna Sydney Blue Gum H: 30-40 C: 25-30

Syncarpia glomulifera Turpentine H: 25 C: 12

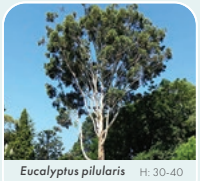
Large-Medium Trees



Eucalyptus piperita Sydney Peppermint H: 20 C: 8-12



Corymbia gummifera Red Bloodwood H: 20-35 C: 10



Eucalyptus pilularis Blackbutt H: 30-40 C: 5-8

Banksia serrata Old Man Banksia H: 10-20 C: 10

Feature Broad Canopy Trees

On street corners, entry thresholds, park entry & interface with streets

Ficus rubiginosa Port Jackson Fig H: 20 C: 20

Angophora costata Smooth-barked Apple H: 20-22 C: 16-18

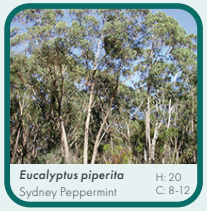
Eucalyptus saligna Sydney Blue Gum H: 30-40 C: 25-30

Source: BioNet Plant Community Type data - NSW Environment and Heritage

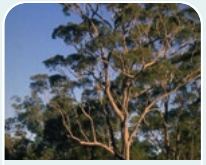
Street Trees - Secondary

20-25m Green Boulevard & Circulation Route, Local Streets

Large Smooth-barked Native Trees



Eucalyptus piperita Sydney Peppermint H: 20 C: 8-12



Corymbia gummifera Red Bloodwood H: 20-35 C: 10

Eucalyptus fibrosa Red Ironbark H: 35 C: 10

Large-Medium Trees

Banksia serrata Old Man Banksia H: 10-20 C: 10

Eucalyptus punctata Grey Gum H: 14-16 C: 10-12

Melaleuca linariifolia Narrow-leaved Paperbark H: 10-15 C: 3-5

Small Trees

Local Streets & Through-Site Links

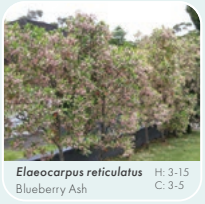
Allocasuarina torulosa She-oak H: 8 C: 10

Persoonia levis Broad-leaved Geebung H: 5 C: 2

Pittosporum undulatum Sweet Pittosporum H: 6-12 C: 7

Leptospermum trinervium Flaky-barked Tea-tree H: 6 C: 2

Banksia ericifolia Heath Banksia H: 5 C: 3



Elaeocarpus reticulatus Blueberry Ash H: 3-15 C: 3-5

Living Streets

Water/Woven Way/ WSUD

Native species

With a specific focus on site specific Aboriginal designed gardens which will feature endemic species and include plants of cultural significance which can be accessed to support cultural practices, such as weaving, along well as WSUD function where needed

Dianella caerulea Blue Flax Lily

Lomandra longifolia Spiny-headed Mat-rush

Microlaena stipoides var. Stipoides Weeping grass

Juncus usitatus Common Rush

Figure 36b. Public Domain Character & Material Palette: Neighbourhood 7 (Page 2 of 2)

5. Buildings

5.1. Site Planning

Objectives

a) Ensure that development occurs within the framework of streets and open spaces proposed for the Precinct.

b) Ensure development provides appropriate interfaces and mitigation of noise pollutants to ensure a high quality of life for future residents, workers and visitors.

c) Encourage a shift away from the car-oriented site planning associated with the Precinct's history as a drive-up business park typology, to the high-density, high-activity urban environment now defined for the Precinct.

d) Ensure buildings address existing and proposed streets.

e) Ensure building and service placement promotes pedestrian-friendly streetscapes and enhance the overall urban aesthetic.

Provisions

1. Sites planning is to either deliver or ensure the future provision of new streets, open spaces and through-site links in accordance with **Figure 4. Street Network Map**, **Figure 16. Through-Site Links Map**, and **Figure 18. Open Space Network Map**.
2. A Noise and Vibration Impact Assessment is to be prepared by a suitably qualified acoustic consultant when submitting a development application for a new building within 100m of the M2 corridor, Epping Road or Lane Cove Road.
3. A vegetation buffer is to be established between residential buildings and the M2, Epping Road or Lane Cove Road prior to occupation. The vegetation buffer is to be of sufficient width to assist in intercepting wind-blown dust by physical entrapment of airborne particles.
4. Development assessment shall include, but not be limited to, consideration of the following (or equivalent, where updated or superseded), as relevant to the proposed use:
    a. NSW State Environmental Planning Policy (Transport and Infrastructure) 2021;
    b. NSW Noise Policy for Industry 2017;
    c. Development Near Rail Corridors and Busy Roads – Interim Guideline 2008;
    d. NSW Assessing Vibration: A Technical Guideline 2006.
5. Development within Neighbourhood 7 is required to address the objectives and provisions of the current NSW RFS publication *Planning for Bush Fire Protection* (or equivalent).

6. Where inconsistencies exist between the current *Planning for Bush Fire Protection* and this Design Guide, the provisions of *Planning for Bush Fire Protection* shall prevail to the extent that the inconsistency is considered minor and does not substantially depart from the Design Guide.
7. Parking shall be exclusively accommodated within basement areas, ensuring optimal utilization of above-ground space and maintaining a visually unobtrusive environment, except where they are effectively screened through the integration of habitable uses, such as commercial spaces or apartments where permitted.
8. Where parking, loading, or storage areas are positioned at ground level or above, they shall be fully contained within the building footprint as well as effectively screened through the integration of habitable uses, such as commercial spaces or apartments where permitted.
9. All loading and storage shall be confined within the building footprint to enhance the overall functionality and appearance of the development while minimizing visual and noise disturbances associated with external loading and storage.
10. Off-street surface parking is prohibited, except where provided as accessible parking and designed in accordance with Australian Standard – AS/NZS 2890.6.
11. Within any off street surface parking, including existing, one medium tree should be planted in every fifth car parking space provided. The tree is to be in a planted zone of 13 m2 – the equivalent of a car parking bay area. Trees should be evenly distributed in a chequerboard fashion to increase shading.

5.2. Building Line Setbacks

Objectives

a) Enhance the character of existing streets and create new streets which contribute to the character and identity of the Precinct.

b) Retain and reinforce the existing character of green setbacks with mature planting.

c) Ensure views to the sky and views between buildings from the public realm, including between buildings on adjoining lots.

d) Ensure appropriate separation between buildings to protect residential amenity and privacy.

e) Ensure appropriate amenity for the public domain including wind conditions, solar access and protection from weather.

Provisions

1. Minimum setbacks and build-to lines are to be provided in accordance with **Figure 37. Building Setbacks Map** and summarised as follows:
    a. 3m setback to all existing and new open spaces unless otherwise specified;
    b. 6m setback to all existing and new streets unless otherwise specified;
    c. Minimum side and rear boundary setbacks of 9m;
    d. Landscaped setback to Waterloo Road of whichever is the lesser of 10m from the property boundary or 25m from the centre-line of Waterloo Road;
    e. 10m landscaped setback to Epping Road;
    f. 15m landscaped setback to Lane Cove Road.
2. Awnings, canopies, sun shading and screening elements may project into setback zones.
3. Where development lots 'abut' existing or new publicly accessible open space, both their setbacks and their building frontages will be designed to either directly interact or be distinctly 'separated' from the public realm (whichever is most appropriate to the ground floor use).
4. Basement car park structures should not encroach into the minimum required setbacks, unless the structure is designed to support mature trees and deep root planting and the overall development meets or exceeds the Tree Canopy Coverage requirements outlined in **Table 7. Tree Canopy, Deep Soil and Tree Planting Requirements**.

Building Setbacks Map

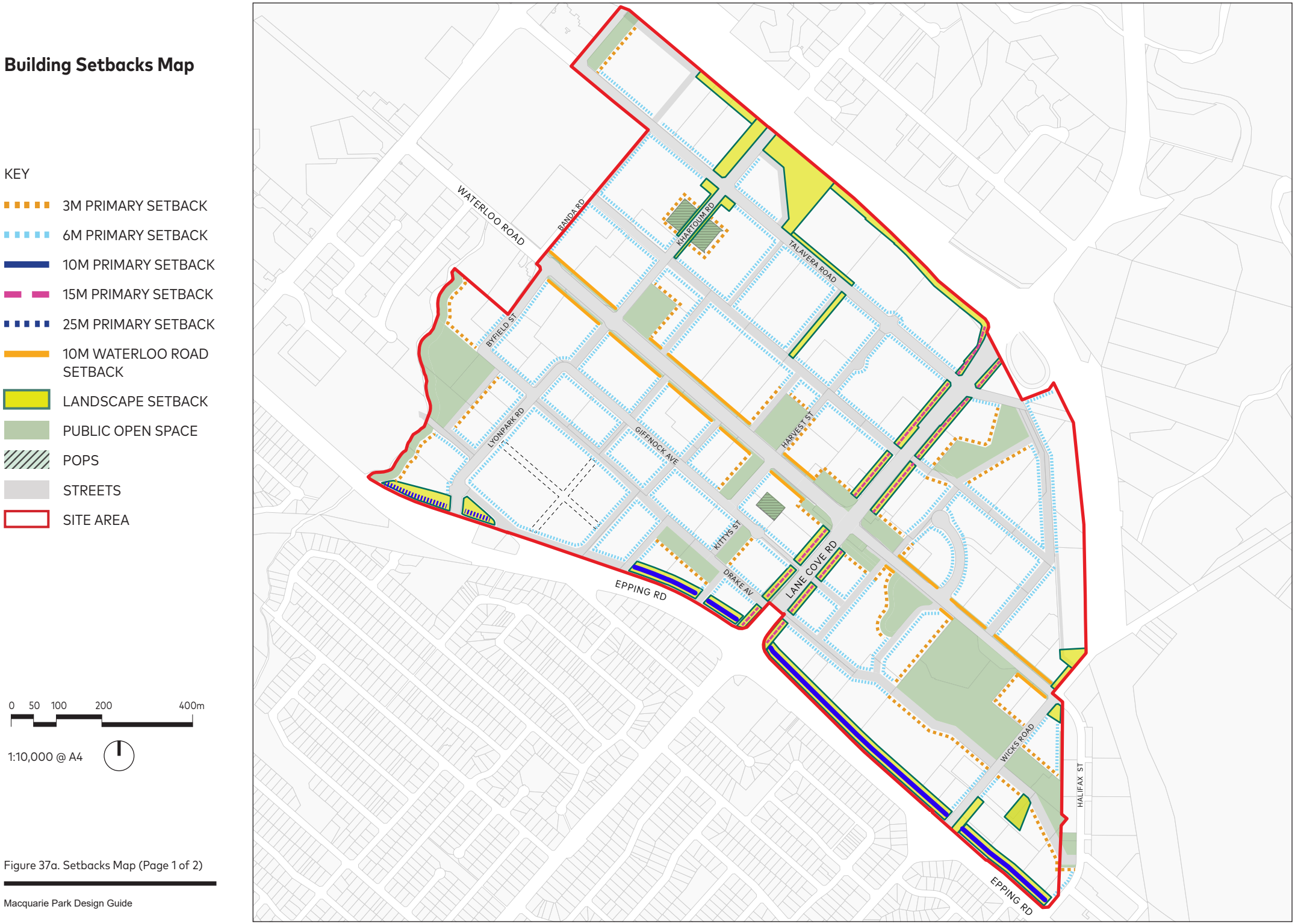


Figure 37a. Setbacks Map (Page 1 of 2)

Building Setbacks Map

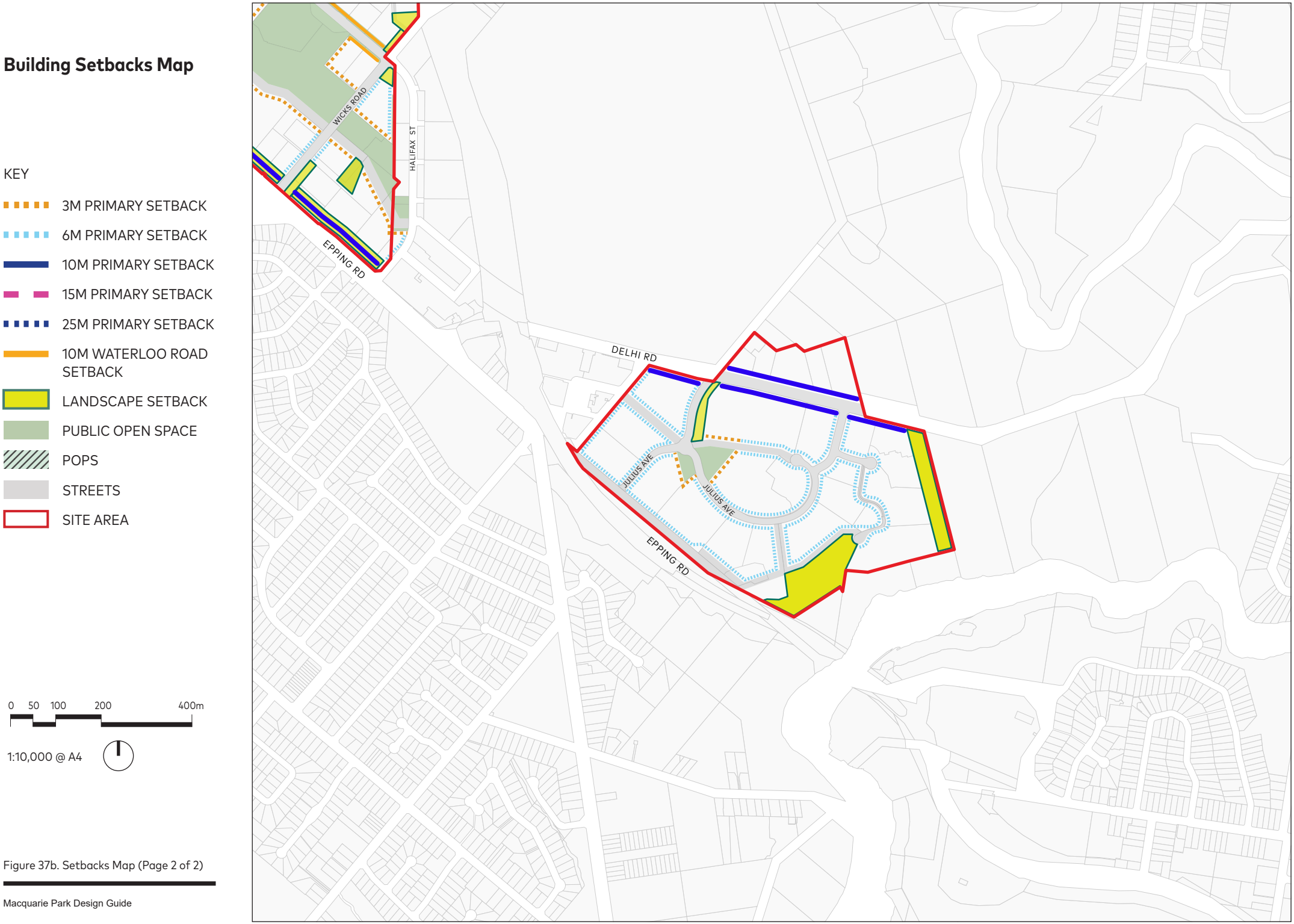


Figure 37b. Setbacks Map (Page 2 of 2)

5.3. Building Envelopes

Objectives

a) Promote architecture that puts people first, including how they experience a building at street level and how public areas and buildings interface. Encourage innovative, creative and high-quality building design that positively contributes to the public domain and defines streets and public spaces. Produce building frontages that create human scale and are busy and active, addressing open space, pathways and woven ways to bring activity and connections and provide passive surveillance.

b) Create a permeable and interesting skyline.

c) Reduce the apparent bulk and scale of large-plate commercial buildings and tall residential towers.

d) Maintain views to the sky.

e) Ensure adequate separation between buildings to provide air, space, light and views between buildings, maximising direct solar access to adjoining properties.

Provisions

1. Floor plates within mixed-use and residential buildings at heights above either 8-storeys or a height of building of 32-metres above natural ground level (whichever is lesser) are not to exceed 750m^2 GFA.
2. Where possible, avoid large footprint, single-site buildings and aim for series of buildings around courtyards that allow through-site links.
3. Floor plates within industrial and commercial buildings at heights above either 8-storeys or 32-metres above natural ground level (whichever is lesser) are not to exceed 2,000m^2 GFA, unless it can be demonstrated that slender building forms are achieved through courtyards, atria, articulation or architectural devices. Design building massing, setbacks and articulation zones to enable the achievement of appropriate wind conditions. Use appropriate design features to minimise the impact of wind on the public domain, and ensure design mitigates adverse wind effects and satisfies the relevant wind criteria for the intended uses of the public domain.
4. Use changes in scale and built form to create architectural interest and diversity and enhance relationship with the public domain.
5. Tower building forms are to provide a minimum 3m upper-level setback at or before the 8th storey, the top storey, or a height of building of 32-metres above natural ground level (whichever is lesser), to reduce the visual bulk of mid-rise buildings as well as create podium and tower forms in taller buildings.

6. Minimum separation distances between residential buildings and building forms shall be provided in accordance with **Figure 38. Residential Building Separation Diagram** and summarised below. Note that height in storeys is measured from the lowest ground floor, regardless of use.
    a. Provide minimum 6m between non-habitable uses, 9m between habitable and non-habitable uses, and/or 12m separation between habitable uses on the first 4-storeys.
    b. Provide minimum 9m between non-habitable uses, 13.5m between habitable and non-habitable uses, and/or 18m separation between habitable uses on the 5th to the 8th storeys.
    c. Provide minimum 12m between non-habitable uses, 18m between habitable and non-habitable uses and/or 24m separation between habitable uses on the 9th storey and above.
7. Minimum separation distance between non-residential buildings and building forms shall be in accordance with **Figure 39. Commercial Separation Diagram** as summarised below.
    a. Provide minimum 18 m separation between buildings parallel to each other within a site.
    b. Provide minimum 12 m separation between buildings perpendicular to each other within a site. This reduced building separation control only applies where the width of each length of facing facades does not exceed 32m.
8. Minimum separation distances between residential and non-residential buildings and buildings forms shall be provided in accordance with whichever has the largest dimensional requirement.
9. Where residential are adjacent to non-residential buildings and vice versa, they are to be designed with regard for the interface between the two. Functional planning shall respect views in both directions, with privacy screening provided to both land use types wherever conflicts may exist.
10. Buildings should be designed with a single upper-level setback to avoid numerous distinct tiers. This may result in greater-than-minimum setbacks being required on the levels below the setback.
11. Despite **Provision 10**, the uppermost level of any building can be provided with a further additional upper-level setback.
12. Any sites subject to the Prescribed Airspace for Sydney Airport Obstacle Limit Surface (OLS) are to obtain approval under the Airports (Protection of Airspace) Regulation including any construction equipment such as cranes.
13. Objects taller than 100m above ground must be referred to the Civil Aviation Safety Authority, per Regulation 7.1.5.1 of the CASA Manual of Standards Part 139.

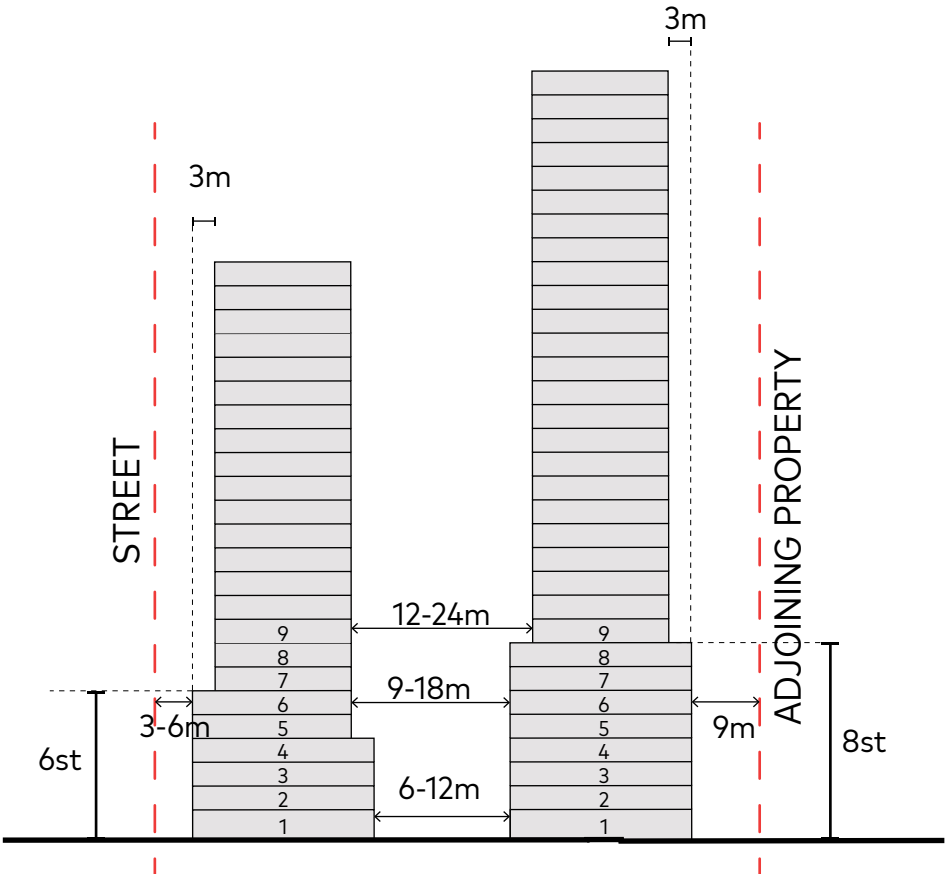


Figure 38. Residential Building Separation Diagram

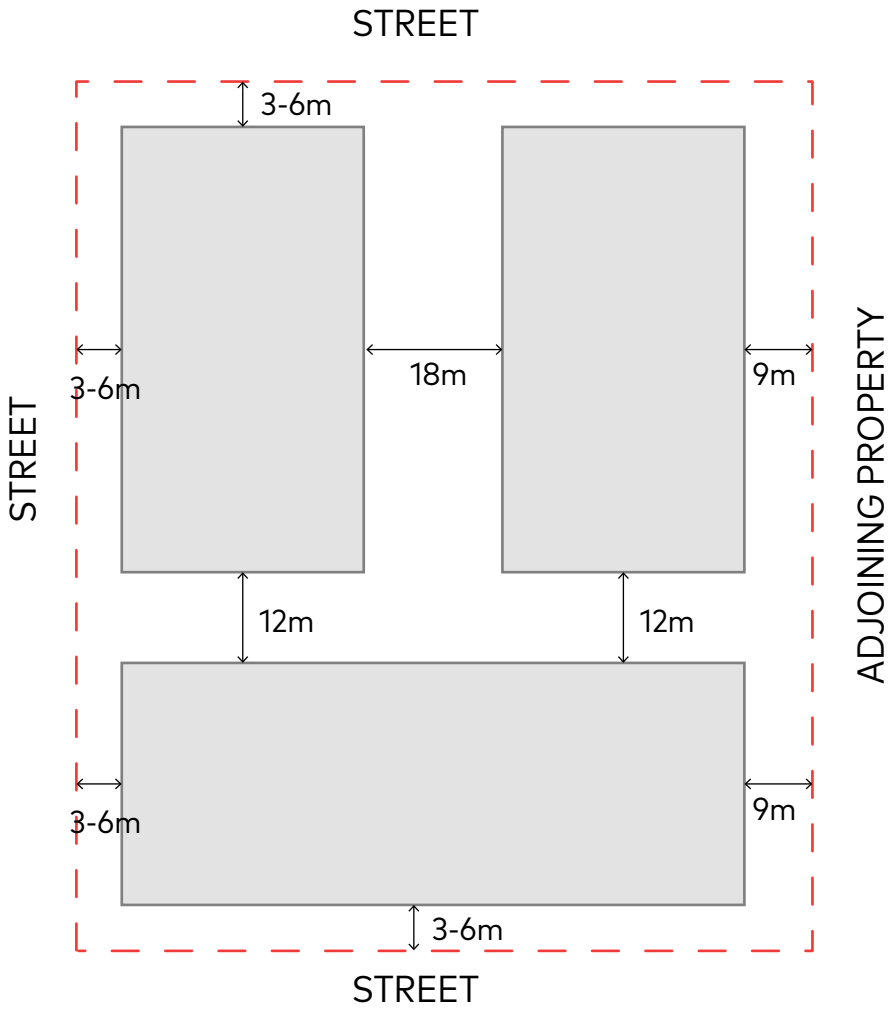


Figure 39. Commercial Separation Diagram

5.4. Building Frontages

Objectives

a) Maximise street level activation in the Precinct while acknowledging the limit of total retail capacity in an area containing a super-regional retail centre.

b) Contribute to pedestrian safety through passive surveillance of streets, through-site links and public open spaces.

c) Ensure all building facades contribute to the overall commercial character of the precinct.

d) Ensure relevant building facades minimise impacts on surrounding areas, particularly the Lane Cove National Park.

e) Contribute to a 'fine grain' street character through frequent building entries and the maximising of visual interest along all public streets.

Provisions

1. Contributory frontages are to be provided in the approximate locations shown in **Figure 40. Contributory Frontages Map**. The map identifies frontages on both existing and master planned streets, the precise locations of which may differ from those shown.
2. Contributory frontages in Macquarie Park may be a mix of office premises, business premises, retail premises and Small Office/Home Office (SOHO) frontages.
    a. Retail active frontages are to be provided on prominent corners and to provide amenity to public open spaces;
    b. Commercial active frontages are to provided along all frontages facing public streets and public open spaces, except where retail active frontages are provided;
    c. Residential dwellings are generally not permitted along ground floor frontages, except for the limited use of Small Office/Home Office (SOHO) frontages per Provision 5.4.5 below.
3. Areas for above-ground parking, loading, storage and services along active frontages are to be concealed behind one of the uses identified in Provision 5.4.2 above, except for the limited extent in which these areas are required to have direct access to/from the exterior of the building.

4. Retail active frontages are to:
    a. Provide a minimum internal depth from the street frontage of 10m measured from the glass line, except in the case of food and beverage tenancies;
    b. Provide accessible entries at the same level as the adjacent footpath. On sloping sites, the maximum level change between ground floor tenancies and the adjacent footpath is 600 mm;
    c. Provide majority clear glazing along the building frontage up to a height of 3m. The sill height for windows must be maximum 900mm above the footpath.
5. Small Office/Home Office (SOHO) typologies may be provided on the ground floor of residential / mixed-use developments provided:
    a. All ground level floor space and facilities associated with the SOHO are to be in addition to what is required for the dwelling unit above, with separate ablutions and kitchen (if provided);
    b. All spatial guidelines in the ADG (minimum apartment size, living room dimensions, balcony dimensions, storage requirements, solar access, etc.) should be met in the upper level(s), without being reliant on the ground floor SOHO space;
    c. Ground level SOHO frontages are to be designed consistent with the guidelines for active frontage listed above.
6. For buildings bordering Lane Cove National Park, window design considerations may include the following to reduce likelihood of bird collision risk:
    a. Utilise tilted glass, non-reflective glass or glass treated with film;
    b. Plant vegetation of suitable height to block windows, this may provide a visible barrier for avoidance; and/or
    c. Install internal window shading (i.e., blinds, curtains) to reduce potential bird attraction to light.

Contributory Frontages Map

KEY

- SITE AREA
- CONTRIBUTORY FRONTAGE
- OPEN SPACE

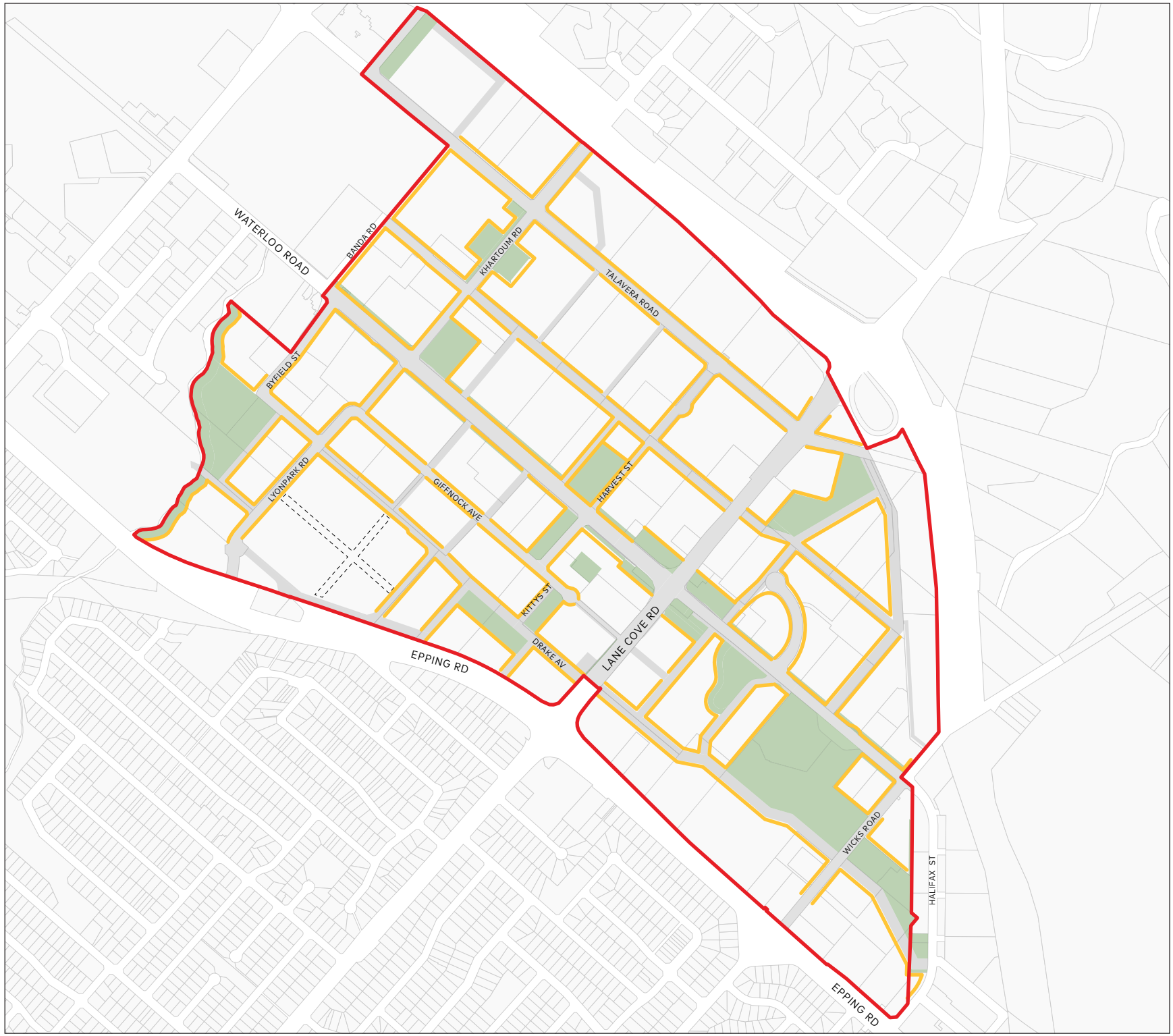


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Figure 40a. Contributory Frontages Map
(Page 1 of 2)

Contributory Frontages Map

KEY

- SITE AREA
- CONTRIBUTORY FRONTAGE
- OPEN SPACE

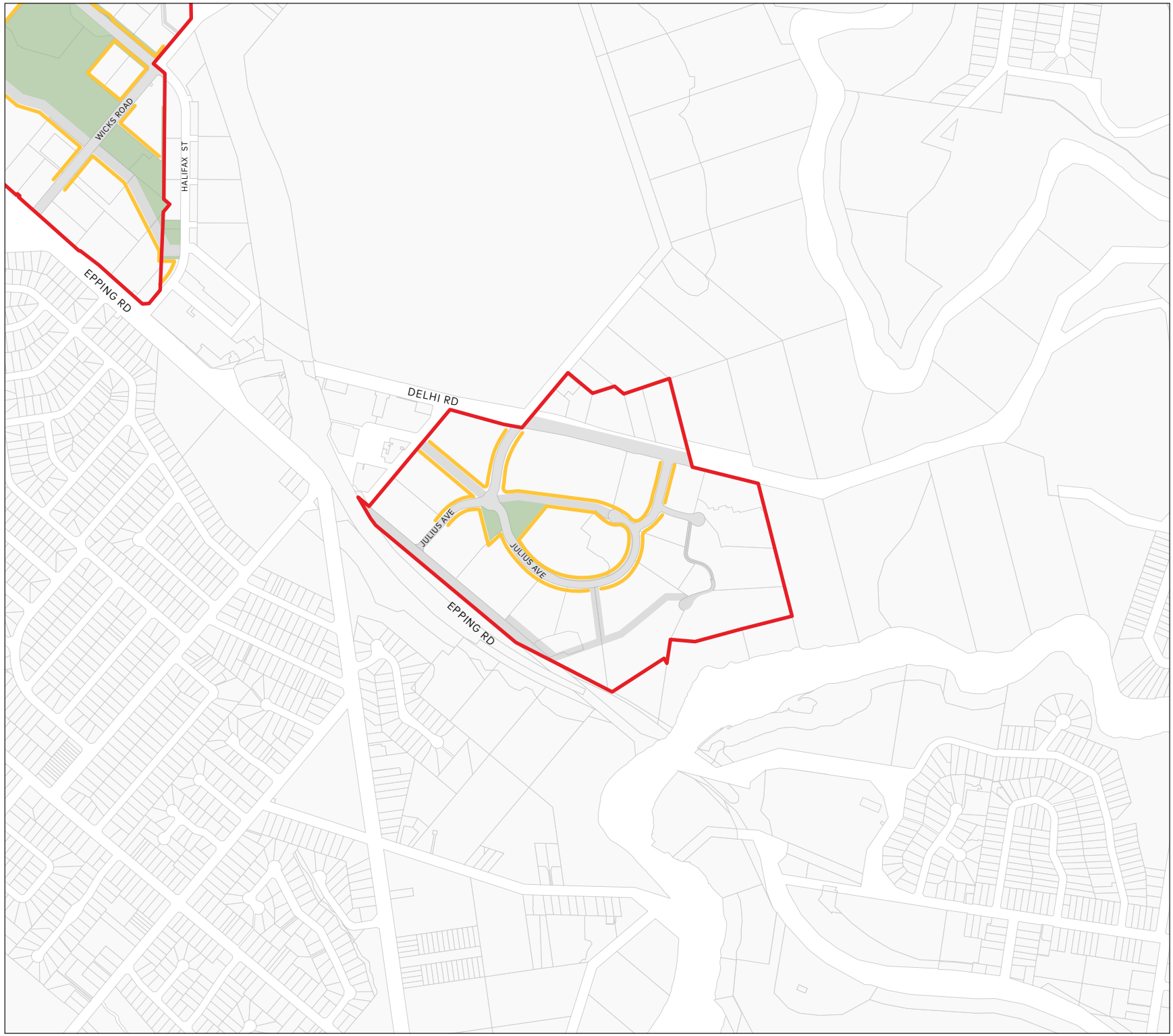

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Figure 40b. Contributory Frontages Map
(Page 2 of 2)

6. Environmental Management & Sustainability

6.1. Climate Risk and Resilience

Objectives

a) Embed design for a future climate in all design processes using Representative Concentration Pathway (RCP) 8.5 in 2090 climate scenarios.

b) Identify mechanisms to manage heat, bushfire, smoke, flood & storm impacts during extreme events.

c) Provide community facilities that support social resilience during major shock events.

d) Effectively mitigate climate risk in alignment with the Taskforce for Climate-related Financial Disclosures (TCFD).

e) Enable flexible, adaptive and regenerative systems with the capacity to be changed subject to uncertain future pressures.

f) Promote sustainable use of water across the precinct and encourage water conservation and reuse.

g) Ensure new development incorporates design approaches that minimise the Urban Heat Island effect.

Provisions

1. Development must deliver a climate positive precinct, including:
   a. All electric built environment;
   b. Zero fossil fuel use for regular building operations; and,
2. Design all residential buildings, including student accommodation, to achieve thermal safety outcomes aligned with Chartered Institution of Building Services Engineers (CIBSE) TM59 Design methodology for the assessment of overheating risk in homes (2017).
3. Development must manage overland flooding by requiring:
   a. All critical equipment and services to be located above Probable Maximum Flood (PMF) levels;
   b. All structures below PMF must be designed to survive flooding; Flood events are managed for peak flow to avoid damage to bio retention areas; and,
   c. Water sensitive urban design elements are included.
4. Where possible, provide space for centralised precinct thermal and power utilities.

5. Include space within buildings for future energy storage (electrical and/or thermal batteries).
6. Community facilities are to be designed to serve as gathering places during emergencies and interruptions in services.
7. The development must identify mechanism to manage natural hazards: including but not limited to storms, flooding, heat, bushfire, smoke, dust and reduced air quality events.
8. Balance evapotranspiration through planting for local passive cooling and drought-tolerant plant species.
9. Increase rainwater infiltration and allow improved cooling effects of evaporation by retaining and expanding design elements that retain water in landscapes, and by minimising impermeable surfaces.
10. Limit negative impacts of heat absorption of built elements by using green cover, cool materials and shade cover.
11. Placement of HVAC units is to consider the impact of heat rejection on habitable rooms and communal open spaces, including those of neighbouring properties.

6.2. Greenhouse Gas Emissions and Energy

Objectives

a) Deliver a Net-zero carbon precinct at time of delivery and throughout operational life.

b) Ensure that the precinct does not use fossil fuels in regular precinct operations but ensures a reliable energy supply that also ensures energy affordability and minimises energy use.

c) Deliver a precinct that is demand-responsive, and smart utility grid ready.

d) Provide an objective governance framework to ensure that sustainability objectives are delivered in development.

e) Provide an independent verification process to ensure that sustainability can be delivered and utilised by all.

f) Ensure that sustainability measures in development are reviewed by an independent third party to provide consent authorities confidence in delivering objective sustainability outcomes.

Provisions

1. All normally operating building and precinct systems must be electrified.
2. Buildings and public realm design must achieve high levels of energy efficiency through passive design and efficient services.
3. Development must demonstrate how it has reduced embodied carbon in all construction by 30% relative to 'Business as Usual' with a stretch target of 40% using Green Star LCA methodology.
4. Development must ensure that rooftops used are for energy generation (through Photovoltaic panels) where not otherwise used for resident or visitor amenity, or vegetation-based habitat. Where photovoltaic panels are located, development must also explore the opportunity for vegetation to sit beneath the panels.
5. Development applications are to consider and outline where future batteries could be suitable within future development design. This could include potential adaptive reuse of former basement / parking areas.
6. Development is to consider how energy, water, or other utilities are shared between buildings or across the Precinct.
7. Development is to achieve the Performance Standards provided in **Table 5. Sustainability Rating Targets**.

Table 5. Sustainability Rating Targets

Development Type	Rating Tool	Rating Type	Target Rating
Public domain	Green Star	Communities	6 Star
All New and Refurbished Commercial Buildings	Green Star	Buildings	6 Star
	NABERS	Energy Water Waste	6 Star 5 Star 5.5 Star
	WELLS	Core & Shell	Silver
Shopping Centres	Green Star	Buildings	5 Star
	NABERS	Energy	5 Star
Hotel	Green Star	Buildings	6 Star
	NABERS	Energy Water	4.5 Star 4 Star
Multi-Residential Buildings	Green Star	Buildings	5 Star

*Refurbishment means carrying out of works to an existing building where the works affect at least half the total volume of the building measured over its external roof and walls and where there is no increase in the gross floor area. In calculating the extent of the building's volume that is being changed, the proposed works and all other building work completed or authorised within the previous three years is to be included.

The office and shopping centre performance standards are for base building only. This means only the energy used in central services and common areas such as heating and cooling systems, lifts and lobby lighting is considered. For hotel and multi-unit residential development, the performance standards cover the entire building, which includes the base building, the individual hotel rooms and apartments, and other amenities like bars, cafes and pools.

6.3. Circular Economy, Materials and Waste Management

Objectives

a) Achieve circularity in the construction, operational, and end-of-life stages of all buildings and other constructions throughout the Precinct.

b) Minimise new resource and new product use.

c) Protect natural resources that would otherwise be damaged through resource extraction or deposition.

d) Protect from waste products littering the public realm and damaging the natural ecosystems.

e) Divert operational waste from landfill.

f) Eliminate single-use plastics from the upstream supply chain in both construction and operations.

g) Establish high levels of recyclability in the upstream supply chain in both construction and operations.

Provisions

1. Building forms must promote longevity by allowing easy adaptive reuse to accommodate alternative occupancies.
2. Provide spaces that facilitate sharing economy programs like car share services, bicycle share services, and community tool libraries.
3. Provide space in buildings and public realm to facilitate collection and storage of multiple waste streams.
4. Organic waste diversion or capture must be provided for all buildings and all use types.
5. Development applications are to be accompanied by a Construction Management Plan demonstrating how:
    a. recycled content is to be used in all construction in accordance with Green Star methodology or equivalent;
    b. the majority of construction waste will be diverted from landfill to beneficial re-use (provisionally 90%, in line with Green Star benchmarks or equivalent).
6. Development is to demonstrate how they can achieve a 60% quantity reduction (from business-as-usual) in operational waste to landfill, including thorough consideration of:
    a. establishment of a Centralised Waste Management Network for storage and collection;
    b. separation and recycling of recoverable waste by type.

6.4. Water Quality, Flooding and Stormwater

Objectives

a) To be water positive through water efficiency, preservation of non-renewable water resources and reduction in consumption of mains potable water.

b) To ensure evapotranspiration addresses water efficiency implications.

c) To assist in the management of stormwater to minimise flooding and impacts to surrounding upstream and downstream areas.

d) To reduce the effects of stormwater pollution on receiving waterways.

e) Integrate sustainable water management practices promoting efficient water use, stormwater management and ecological resilience by integrating water sensitive urban design (WSUD) principles in all design decisions.

Provisions

1. Development shall provide for secure, recycled water supply for use in irrigating trees and vegetation. All new development is to provide an Integrated Water Management Strategy that illustrates how buildings will be designed to maximise water efficiency and meet the requirements of this section. The strategy is to:
    a. include provision of dual plumbed water systems to enable utilisation of the recycled water network for permitted non-potable uses which may include flushing, irrigation, firefighting and certain industrial purposes;
    b. identify how rainwater and / or stormwater will be harvested and reused on site to maximise sustainable water reuse;
    c. consider how the development will be designed to enable future connection to the proposed recycled water scheme network; and,
    d. identify opportunities for water sensitive urban design including green walls and roofs.
2. As part of the Integrated Water Management Strategy required by Provision 6.4.1, a Local Drainage Management Plan shall be prepared by a suitably qualified engineer that addresses:
    a. the hydrology of the locality and its relationship to the drainage system;
    b. the distribution of soil types and the scope for on-site infiltration;
    c. any expected rise in ground water level due to development;
    d. the role of the principal landscape components on the site for water conservation and on-site detention;
    e. the scope for on-site stormwater detention and retention, including collection of water for re-use

f. how any detrimental impacts on the existing hydrology and water quality are proposed to be minimised;

g. how pedestrian safety is to be ensured;

h. the integration of drainage management responses and open space areas; and,

i. how flood risk will be managed and mitigated.

3. Include Water Sensitive Urban Design (WSUD) measures to slow stormwater runoff and improve stormwater quality flowing into waterways, prioritising a landscape-led approach that preferences natural solutions such as swales, reed beds, naturalised streams and rain gardens. WSUD measures should include:

   a. gross pollutant traps;

   b. passive irrigation;

   c. bio-retention areas; and,

   d. rainwater harvesting.

4. Treatment of Total Petroleum Hydrocarbons and free oils is to occur through a combination of the following devices:

   a. Impermeable baffle located within an OSD system or diversion pit to cater for major storm event flows.

   b. Bioretention and biofiltration systems including planted buffer zones and constructed wetlands.

   c. Gross Pollutant Trap (GPT) pit inserts with oil / hydrocarbon absorbent material or approved equivalent.

5. Development is to achieve the Performance Standards provided in Table 5. Sustainability Rating Targets.

Table 6. Gross Pollutant Targets

Pollutant Type	Target Rating
Gross Pollutants (GP)	95% reduction (minimum) in mean annual loads.
Total Suspended Solids (TSS)	90% reduction (minimum) in mean annual loads.
Total Phosphorus (TP)	70% reduction (minimum) in mean annual loads.
Total Nitrogen (TN)	60% reduction (minimum) in mean annual loads.
Total Petroleum Hydrocarbons (TPH)	90% reduction (minimum) in mean annual loads.
Free Oils	98% reduction (minimum) in mean annual loads.

6.5. Canopy Coverage and Biodiversity

Objectives

a) Recreate environmental values across the precinct consistent with Country, including native vegetation, water ways, water bodies and wetlands.

b) Provide opportunities to increase biodiversity resilience to climate change and natural hazards.

c) Maximise the future mature tree canopy and vegetation coverage across the Precinct, providing a green and healthy environment that supports active lifestyles.

d) Ensure no net loss of tree canopy coverage within development lots.

e) Deliver a renewal precinct that transforms the existing poor urban conditions on site to an ecologically diverse, sustainable, and dense planted urban canopy that connects learning environments and provides a level of habitat connectivity that is currently absent.

f) Enable greater consultation in the future to align traditional knowledge and cultural views of biodiversity with those responsible for developing the future ecological opportunities for enhancement.

g) Provide habitat connectivity for mobile species between key local and regional green and blue spaces.

h) Establish a biophilic environment that provides a material connection to natural systems.

i) Achieve a Net Positive Impact on biodiversity in every development.

Provisions

1. Avoid negative biodiversity impacts, particularly to native vegetation and habitat trees containing hollows, when introducing new streets and other infrastructure.
2. Contribute to habitat enhancement in new buildings and infrastructure, such as through the inclusion of green roofs, green walls and artificial hollows.
3. Design of private and public domain must ensure that 100% surface water runoff is filtered through landscape treatment before discharging to waterways.
4. Development should retain and regenerate established vegetation and ensure new and existing vegetation is connected as families of trees and plants. Protect existing and create new urban habitat native species at multiple scales, including ecological pockets.
5. Provide opportunities to share knowledge of Country and reflect communities that may have existed prior to clearing.
6. Use majority native species in landscaping, including communities that may have existed prior to clearing.
7. Where appropriate, development is to enable augmented fauna habitats.

8. Development applications are to undertake analysis of the habitats within their site and surrounding sites, including a determination of whether there are any Threatened Ecological Communities.
9. Canopy coverage is to meet or exceed the targets listed in **Table 7. Tree Canopy, Deep Soil and Tree Planting Requirements** below.
10. Where sites already exceed **Table 7. Tree Canopy, Deep Soil and Tree Planting Requirements**, the total canopy cover percentage must not be reduced.
11. Deep Soil is to meet or exceed the listed in **Table 7. Tree Canopy, Deep Soil and Tree Planting Requirements** below.
12. Deep soil areas are to be:
    a. A minimum 3m by 3m in dimension;
    b. Consolidated and co-located with adjoining deep soil areas in streets and neighbouring properties.
13. The Tree Planting Rate is to meet or exceed the listed in **Table 7. Tree Canopy, Deep Soil and Tree Planting Requirements** below. The tree-planting rate refers to the number of trees that need to be planted to achieve the canopy target listed.
14. Tree size categories are:
    a. Small tree – minimum 6 m mature canopy diameter
    b. Medium tree – minimum 8 m mature canopy diameter
    c. Large tree – minimum 12 m mature canopy diameter

Table 7. Tree Canopy, Deep Soil and Tree Planting Requirements

Property Type	Lot Size	Tree Canopy Target (min. % of site area)	Deep Soil Target (min. % of site area)	Tree Planting Rate
Streets and Open Spaces	Canopy for streets and open spaces is to be delivered in accordance with provisions under sections 4.1 Street Network and 4.3 Open Space Network.			
Apartments	All Lots	15%	7%	-
	<650m2	15%	7%	For every 350 m^2 of site area, or part thereof, plant at least 1 small tree in the deep soil area.
	650m2-1500m2	15%	10%	For every 350 m^2 of site area, or part thereof, plant at least 1 medium tree in the deep soil area.
	>1500m2	20%	15%	For every 575 m^2 of site area, or part thereof, plant at least 2 medium trees or 1 large tree in the deep soil area.
All Other Land Uses	All Lots	25%	20%	For every 300 m^2 of site area or part thereof, plant at least 2 medium trees or 1 large tree in the deep soil area.

6.6. Smart Places

Objectives

a) Support the Precinct as a connected innovation hub for business, research, education, individuals and communities in line with the NSW Smart Places Strategy.

b) Embrace innovative development by installing new and emerging technologies and utility provision.

c) Support a resilient and sustainable region that uses technology to manage natural resources efficiently and is focused on environmental, air and water quality.

d) Recognise that innovation opportunities available in the future have not yet been identified and to enable future development to take advantage of them.

Provisions

15. Implement multi-function poles (Smart Poles) where street poles are required that accommodate multiple functions.
    a. Potential services which could be incorporated into multifunction poles include:
        (1) Traffic signals and signage;
        (2) Street lighting;
        (3) Telecommunications (such as mobile cellular network providers);
        (4) Council digital infrastructure requirements (e.g. CCTV, signage, lighting);
        (5) Relevant sensing networks, with flexibility to enhance these in the future.
    b. Meet the following design requirements:
        (1) Placement is a minimum of 600mm from the face of kerb;
        (2) Placement avoids impacts on existing and future mature street tree canopies;
        (3) Co-locate with other street furniture; and
        (4) Pit and pipe to each light pole is provided to enable the future upgrading to 'intelligent' lights and the installation of 'smart meters' to Council specification at each new lot.
16. Pit and pipe infrastructure are to support future requirements to service smart city infrastructure.

17. Buildings utilise smart technologies to promote performance, sustainability, resilience, and resource management throughout their operational lives.
    a. Where new connections to the water and recycled network are proposed, include smart water meters and fittings to minimise water consumption.
    b. Use smart technologies to monitor and self-regulate building environment and operations (e.g. lighting, heat, ventilation, and air conditioning).
    c. Install smart energy solutions to increase self-sustainability and reduce reliance on the main energy grid.
    d. Demonstrate alignment to relevant NSW policy, including but not limited to the NSW Internet of Things (IoT) policy, NSW Cyber Security Policy and NSW Smart Infrastructure Policy.
18. Embed smart technologies in the public domain to enhance experiences and create liveable public open spaces.
    a. Install smart monitoring equipment, including for water quality, ambient temperature, tree canopy cover and soil moisture content, cycle, and car movements. Specific monitoring requirements for each development are provided by the consent authority.
    b. The following smart solutions are to be installed in key locations such as open space and public domain areas:
        (1) Dedicated internet/fibre connection points;
        (2) Public Wi-Fi network that provides sufficient coverage to the whole public space;
        (3) Smart lighting where key locations may be used at night-time for active uses, ensuring lighting is adequate for active and passive uses;
        (4) Security cameras at key locations to ensure coverage within the public space;
        (5) 'Smart bins' with capacity rubbish bin sensors;
        (6) 'Smart park furniture' with USB-charging capacity and potentially Wi-Fi connectivity;
        (7) Improve access to, and user experience of, social infrastructure (e.g. on-line booking systems; real-time usage data; etc).
        (8) Wireless connectivity (e.g. Bluetooth) with free access, particularly within the community's parks, in proximity to social infrastructure and public recreation facilities.

7. Public Art and Culture

Public art and culture in Macquarie Park shall reflect its Country and the creativity and innovation of its communities. This will strengthen enterprise, activate public places and foster distinctive neighbourhoods for its residents, workers, students, and visitors.

Macquarie Park Public Arts and Cultural Vision Statement

Objectives

a) Use site-specific public art and cultural activation to build a strong community and place identity that is specific to Macquarie Park.

b) Contribute to the identity and differentiation of the sub-neighbourhoods established for the Precinct.

c) Promote the visibility of First Nations stories and cultures through in public art in areas of high visibility.

d) Leverage heritage, community, arts and cultural activation to create more interesting and vibrant places.

e) Provide people with public art and cultural experiences that are imaginative, challenging, delightful and beautiful.

f) Contribute positively to the cultural character of the city.

Provisions

1. New developments are to allocate a fixed percentage towards public art in alignment with Ryde Council's Public Art Strategy.
2. Development Applications are to include a public art and cultural statement that details how the proposal addresses:
    a. The design principles outlined in **Table 8. Precinct Public Art & Culture Principles**;
    b. Public art opportunities in **Figure 41. Major Public Art Opportunities Map;**
    c. Designing with Country concepts in **Section 3.1 Designing with Country;**
    d. The NSW Government's Creative Communities Policy;
    e. The City of Ryde's Creativity Strategy 2019-2024.

3. New developments occurring on sites identified in **Figure 41. Major Public Art Opportunities Map** as 'Lots to Respond to Public Art Opportunities' are to include provision for major public artworks that are site-specific and of high calibre. These sites include:
    a. Artworks in and around public open spaces within Activity Hubs, which should seek to differentiate the activity hub. Refer to **Figure 2. Structure Plan** for the distinction of each activity hub as having a residential, mixed-use or commercial character.
    b. Precinct Entry Points, which should help establish visitors' perception of entering (or passing through) the Precinct. Precinct Entry Points are nominated in the **Figure 41. Major Public Art Opportunities Map.**
4. On all sites, contribute to the differentiation of Place Strategy Neighbourhoods through the inclusion of distinct public art installations that reflect on the individual character of each neighbourhood and activity hub as they progressively develop.
5. Where possible, consider the delivery of versatile and flexible spaces within developments that can be utilised for art and cultural activities as well as innovation uses.
6. Public spaces as well as POPS should:
    a. Be designed to accommodate a range of experiences and activities including space for performances, events and temporary art installations.
    b. Include design elements, furniture and fixtures to facilitate temporary events, both small and large in scale.

Table 8. Precinct Public Art & Culture Principles

Principle	Description
Open	Cultural infrastructure and public art programs in Macquarie Park are visible and accessible, both day and night.
Inventive	Creativity fuels the knowledge capital of Macquarie Park. Innovation is on display and adds to the cultural and public life of the place.
Distinctive	Public art and culture enhance the distinct identity of each Macquarie Park neighbourhood with reference to their physical character, community use and stories/memories.

Major Public Art Opportunities Map

KEY

- LOTS TO RESPOND TO PUBLIC ART OPPORTUNITIES
- ACTIVITY HUB
- PRECINCT ENTRY POINTS
- OPEN SPACE
- STREETS
- SITE AREA

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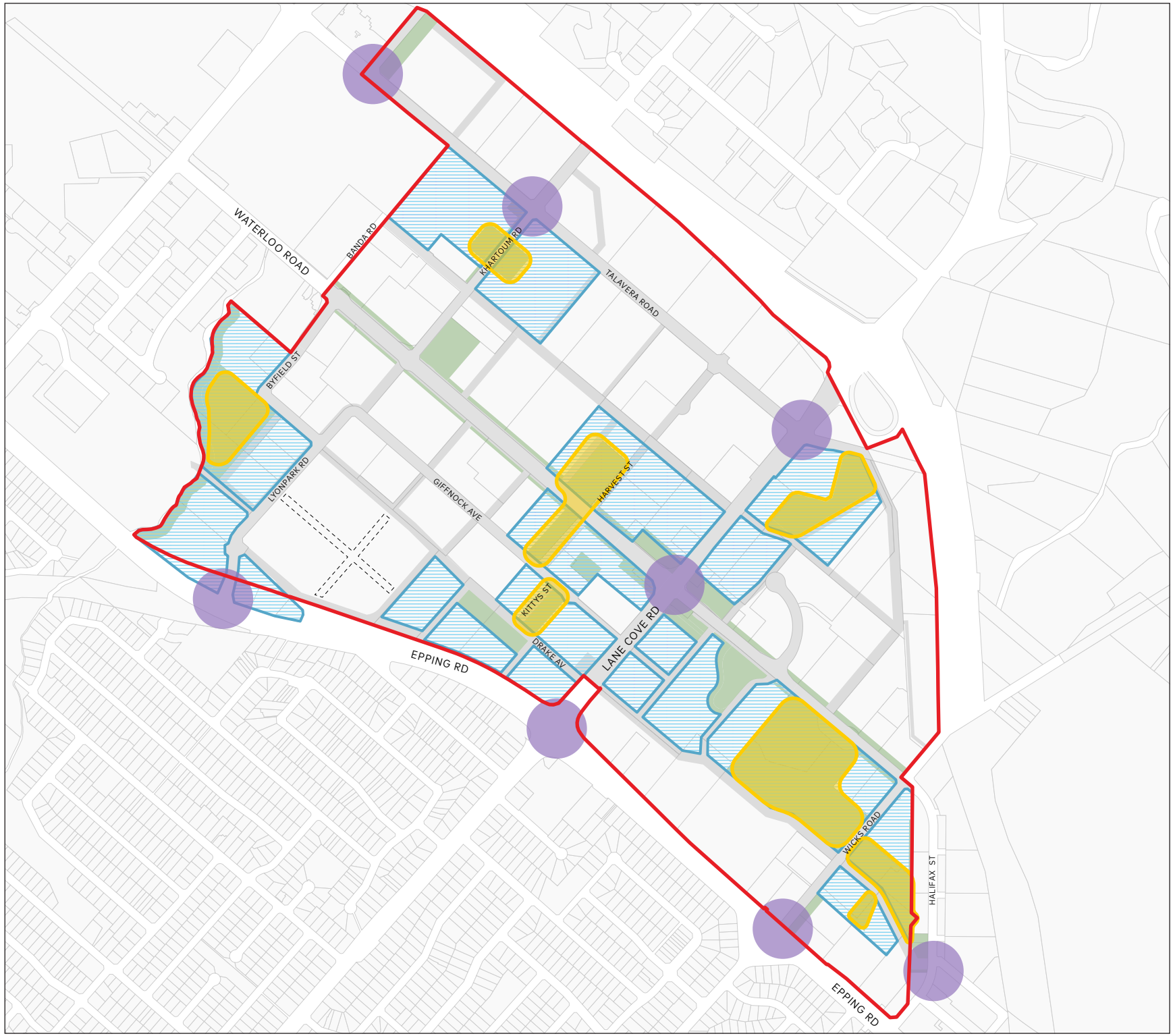

Figure 41a. Major Public Art Opportunities Map (Page 1 of 2)

Major Public Art Opportunities Map

KEY

- LOTS TO RESPOND TO PUBLIC ART OPPORTUNITIES
- ACTIVITY HUB
- PRECINCT ENTRY POINTS
- OPEN SPACE
- STREETS
- SITE AREA

0 50 100 200 400m

1:10,000 @ A4

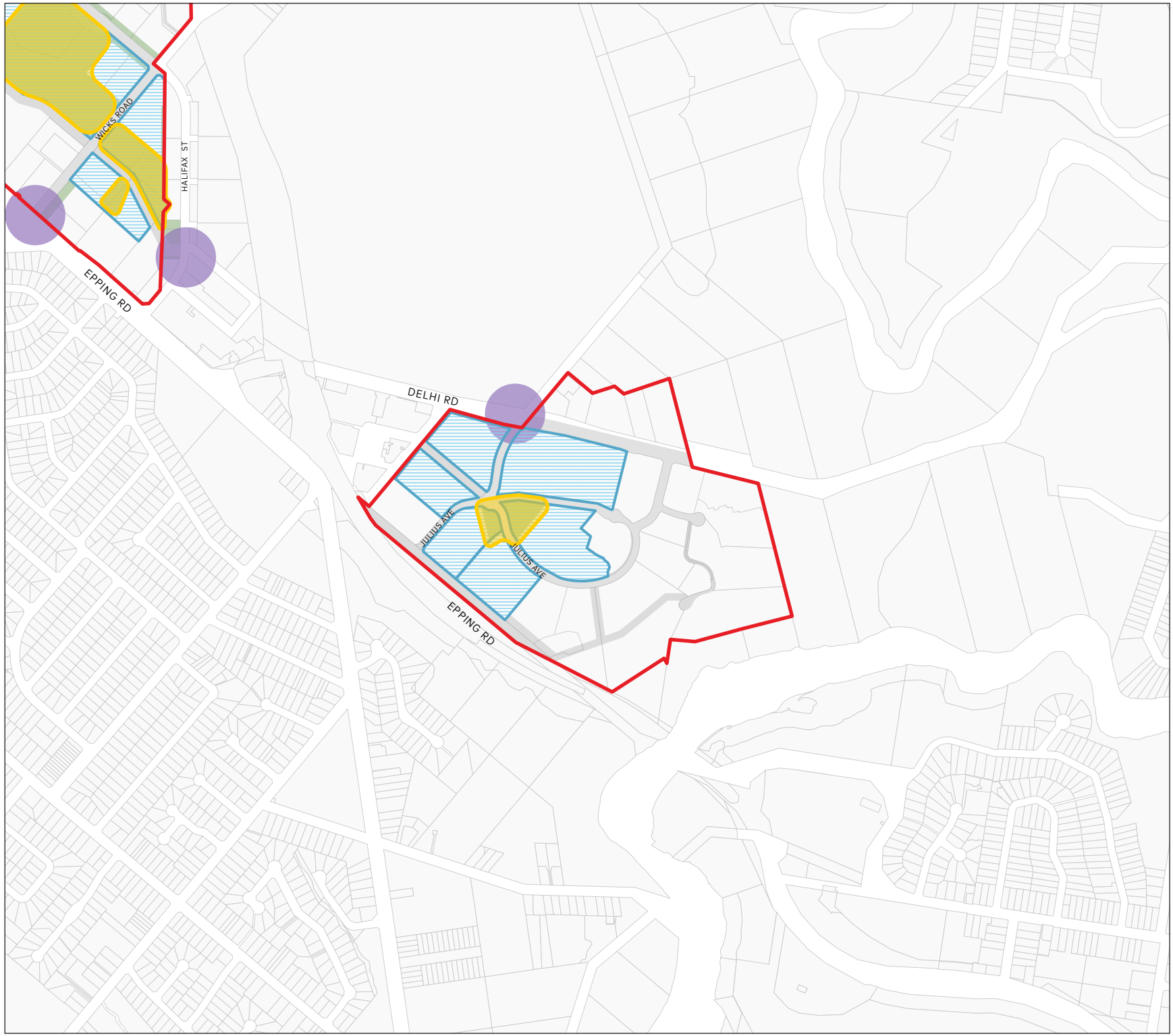

Figure 41b. Major Public Art Opportunities Map (Page 2 of 2)