IPG BADGERYS CREEK ROAD DRAFT MASTER PLAN

URBAN DESIGN REPORT

Prepared For

INGHAM PROPERTY GROUP

23 September 2024

URBIS

Acknowledgment Of Country

We acknowledge Country and the Cultural Landscape that we are working upon. This Master Plan site is located on Dharug Country. We acknowledge the Dharug people as the Transitional Custodians of the land and pay our respects to the transitional custodianship of its people and the privilege and responsibility to Connect with Country.

We acknowledge the Dharug, Dharawal and Gandangara people and their ongoing connection to culture, lands and waters and their valuable contribution to the community. We recognise and acknowledge the surrounding clans to the North, South, East and West whilst honouring and celebrating their Elders past, present and emerging..

URBIS STAFF RESPONSIBLE FOR THIS REPORT:

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Reference:	01_RPT_IPG_Urban Design Report
Report Status:	Final
Date:	23 September 2024

Contents

EXECUTIVE SUMMARY

The Ingham Property Group (IPG) site is located at 475 Badgerys Creek Road, Bradfield, and has an approximate site area of 184 ha (the site). The site forms part of the Aerotropolis Core Precinct within the Western Sydney Aerotropolis and is predominately zoned for ENT Enterprise use under the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (WPC SEPP).

IPG has engaged Urbis to prepare a Draft Master Plan for the subject site through a co-design process, and provide an Urban Design Report to summarise the Draft Master Plan outcomes. The Draft Master Plan demonstrates the development potential of the site based on its key environmental opportunities and constraints.

The site has been identified for future employment since the release of the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (WPC SEPP), under which the Western Sydney Aerotropolis was rezoned. The rezoning confirms the WPC SEPP as the primary environmental planning instrument (EPI) governing land use and development on the site.

The Western Sydney Aerotropolis Precinct Plan (Precinct Plan) was released in March 2022 and includes the finalised Precinct Plan, following the draft Precinct Plans released in November 2020. The Precinct Plan has been prepared in accordance with the provisions of the WPC SEPP, Chapter 4 Western Sydney Aerotropolis.

The proposed Draft Master Plan for the site supports the development of the Western Sydney region, by providing employment opportunities and enterprise uses identified in the Greater Sydney Commission's A Metropolis of Three Cities: Greater Sydney Region Plan, Western City District Plan, and Western Sydney Aerotropolis Plan.

This Urban Design Report has been prepared to provide a summary of the Draft Master Plan outcomes for the site. It sets out the site specific vision and objectives of the Draft Master Plan consistent with the Aerotropolis planning framework. The proposed design outcome is a response to the existing and future context, the strategic planning context, technical studies, and input from related stakeholders. It includes a brief description of the site, its context and key features of the proposed development. It also provides an overview of the relevant planning framework and the key environmental assessment issues that will need to be addressed in detail during the preparation of the Draft Master Plan.

Legend for Draft Master Plan (Refer to page 3)

- Site Boundary
- Indicative Amenity Nodes: Restaurants/Cafés
- 400m Radius
- Roundabout
- Planned Signalised Intersection
- Left in-Left out Intersection
- Active Transport Network - Shared Path (Off Road)
- Active Transport Network - Foot Path (Off Road)
- Future ERR Underpass
- Active Transport Network - Shared Path (On Road)
- Active Transport Network - Foot Path (On Road)
- Active Transport Network - Cycleway (On Road)
- Rapid Public Transport Corridor
- Indicative Local Bus Network
- Enterprise and Light Industry
- Local Centre
- Zone Substation
- Open Space
- Local Park
- Riparian Corridors
- Retained HBV Vegetation within Development Lot
- Integrated Stormwater Basins
- Proposed Intersection to be Investigated

Figure 1 Draft Master Plan (Refer to legend on page 2)

VISION

"We envisage the site as an integrated precinct that harmoniously responds to Country, its three creeks, riparian corridors, and unique landscape features. This design will embrace both employment uses and placemaking opportunities for visitors and the working population. The plan offers a flexible urban structure capable of evolving from industrial uses to more intensive employment uses, such as commercial and business park typologies . From the outset, the site will be recognised by its landscape-focused design, aimed at attracting leading businesses and fostering a vibrant and sustainable employment precinct in the Western Parkland City".

KEY DIRECTIONS

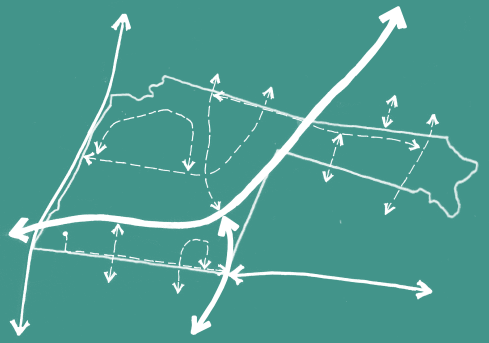
CONNECTING WITH COUNTRY

A precinct that responds to the environmental and social well-being of the site.

Understand the First Nation's stories and create safe and welcoming places that allow people to be amongst and connect with nature.

CONNECTIVITY

A connected precinct to unlock the 30-minute city.



Deliver a legible and highly accessible precinct, well connected to its surrounding context through various modes of transport.

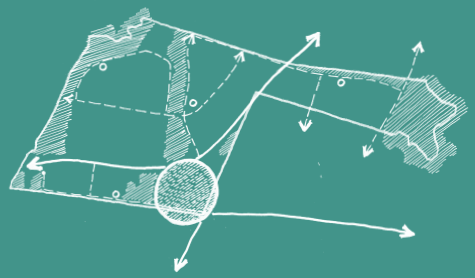
PRODUCTIVITY

A precinct to enhance the employment offer.

Provide a mix of land uses to promote a stronger and more productive economy.

LIVEABILITY

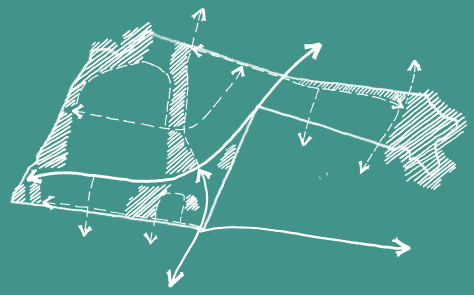
A catalyst precinct for early activation to support the Aerotropolis.



Deliver great places along riparian open spaces and an activated core adjoining public transport nodes to enrich local character and vibrancy and bring people together.

SUSTAINABILITY

A green precinct.



Promote a precinct that is responsive to the existing environmental features and future climate conditions.

01 INTRODUCTION

1.1 Background

The IPG site is located at located at 475 Badgerys Creek Road, Bradfield, and has an approximate site area of 184 ha. The site forms part of the Aerotropolis Core Precinct within the Western Sydney Aerotropolis and is predominately zoned for ENT Enterprise use under the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (WPC SEPP).

The site comprises a total area of 184 hectares along Badgerys Creek Road, strategically located within the heart of the Western Parkland City. The site is largely defined by grass land and is largely clear of vegetation as it is currently used for agricultural purposes. There is also an internal road network within the site which had previously connected the now demolished sheds and ancillary structures dispersed across the site. The site is suitable for development and free of contamination which has been confirmed by environmental testing and site investigations.

The site is situated within the Western Sydney Aerotropolis, with a direct interface with the Western Sydney International Airport (WSI). The site is bound by two significant riparian corridors which define Western Sydney, with Wianamatta-South Creek to the east and Badgerys Creek to the north-west. The immediate surroundings of the site are characterised by large rural landholdings used predominately for agricultural and light manufacturing purposes, all of which will be redeveloped in accordance with the Aerotropolis Precinct Plan vision.

IPG is currently undertaking the Master Plan pathway with the Technical Assurance Panel (TAP), which is an optional design process established under the WPC SEPP to amend the Aerotropolis Precinct Plan as it applies to the site. IPG has prepared a Draft Master Plan, as part of a co-design process with the TAP, for the site which will be formally lodged to the Department of Planning, Housing and Infrastructure (DPHI) in accordance with the Western Sydney Aerotropolis Master Plan Guidelines.

The IPG Draft Master Plan was informed by a detailed assessment of the site-specific considerations through preliminary site investigations and technical studies. It has been collaboratively prepared, responding to agencies and council through the Technical Assurance Panel process, which occurred in 2022-2024. The Draft Master Plan breaks down the general application of the Enterprise zone across the site and provides a more granular approach to land use planning with considerations made to the opportunities and constraints of the site.

1.2 Purpose of this Report

This report has been prepared to provide a summary of the technical analysis and the Draft Master Plan outcomes for the site. It sets out the site specific vision and objectives of the Draft Master Plan under the Aerotropolis planning framework.

The proposed design outcome is a response to the existing and future context, the strategic planning context, technical studies, and input from related stakeholders.

This report is provided in response to the Master Plan Requirements issued by the Department of Planning, Housing and Infrastructure (DPHI).

1.3 Background Studies

This Draft Master Plan has been collaboratively prepared, responding to agencies and council through the Technical Assurance Panel process, which occurred in 2022-2024

Technical investigations and studies undertaken as part of this process to inform this urban design report, include the following:

- Recognise Country Strategy - Yerrabingin
- Ecological and Riparian Assessment - Eco logical Australia (ELA)
- Traffic & Transport - Ason
- Flooding and Water Cycle Management - IDC
- Bushfire Assessment - Blackash
- Indigenous and European heritage - ELA
- Infrastructure & Servicing - IDC
- Contamination Assessment - Senversa
- Air Quality Assessment - SLR
- Aeronautical Impact Assessment - Landrum & Brown
- Geotechnical Site Investigation - Cardno
- Economics Assessment - Urbis
- Landscape Architecture Report - Site Image
- Architectural Design Statement - SBA
- Civil Infrastructure and Staging Strategy - AT&L
- Social infrastructure - Urbis
- Public Art Strategy - Site Image
- Design Quality Strategy - Urbis
- Height Strategy - Urbis
- ERR Corridor Justification Report - AT&L

1.4 Report Structure

For ease of understanding, the report is divided into 5 Key sections:

Section 1: Introduction

Provides an overview of the site, its location and its detailed characteristics.

Section 2: Recognise Country

Provides an overview of the community engagement process and the resulting principles.

Section 3: Planning Context

Provides an overview of the strategic planning and planning controls applied to the site.

Section 4: Place Analysis

Collates the key findings from the technical studies into a series of site opportunities and constraints' maps.

Section 5: Vision and Key Principles

Provides an overview of the vision and guiding principles that inform the Draft Master Plan.

Section 6: Draft Master Plan

Provides an overview of the key outcomes of the Draft Master Plan as a series of layered design strategies.

Section 7: Height Strategy Justification for High-Bay Warehouse

Provides an overview of the justification on the proposed height controls and for key departures from the Precinct Plan controls.

1.5 Site Location

The site is located at 475 Badgerys Creek Road, Bradfield, within the LGA of Liverpool City Council.

The site is approximately 27km southwest of Parramatta CBD, and 43km southwest of Sydney CBD, and 17km west of Liverpool, an emerging Metropolitan Centre.

The site immediately adjoins the new Western Sydney International Airport (WSI) within the Western Sydney Aerotropolis and is situated between the Badgerys Creek and Wianamatta-South Creek Catchment. It is located within the Aerotropolis Core Precinct, approximately 3km to the future Airport Terminal Metro Station to the north and 1.5km to the Aerotropolis Metro Station to the south.

The future M12 (currently under construction) provides additional opportunities for the site to connect to arterial roads to the north, east and west, including M7 to the east and The Northern Road to the west through Badgerys Creek Road, ERR (longer term) and Elizabeth Drive.

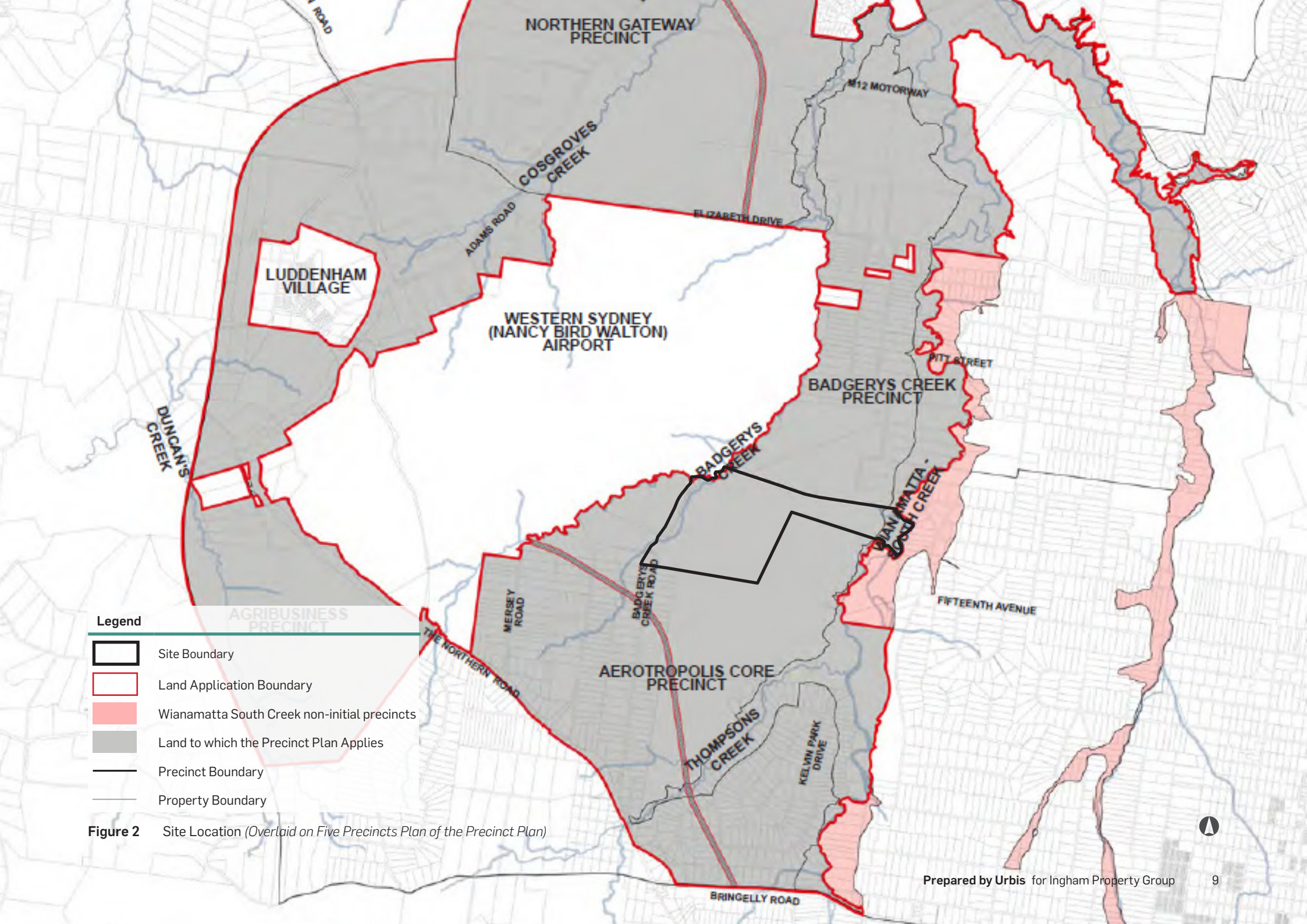


Figure 2 Site Location *(Overlaid on Five Precincts Plan of the Precinct Plan)*

1.6 Site Description

The Badgerys Creek site occupies 184ha and is located centrally within the Western Sydney Aerotropolis. It shares a common boundary with the new Western Sydney International Airport (WSI).

The site comprises two lots which are described as Lots 99 and 100 in DP1287207. Lot 99 is the electrical zone substation site and Lot 100 is the remainder of the site. Lot 99 is owned by Epsilon Distribution Ministerial Holding Corporation (EDMHC) and Lot 100 is owned by Ingham Property Group. EDMHC has given landowners consent to be included in the Master Plan application process. The zone substation will be operated by Endeavour Energy. Approval has been given for a zone substation and a rezoning of the site to SP2 Infrastructure is being sought through the Master Planning Process.

The site is bounded by:

- Enterprise land owned by CSR at the north;
- Badgerys Creek Rd to the west;
- Wianamatta-South Creek to the east; and
- Enterprise land owned by Greenfields Development at the south and east.

The site comprises the scale of a large rural lot with a dogleg shape. The site dimensions are 1,300m x 1,180m for the main part of the site and 1,200 x 320m for the north-east dogleg corner.

Immediate Context

The site is located in a predominantly Enterprise zoned area. The site has approximately 1.2km of frontage to existing Badgerys Creek Road.

Current Use

At present the site is used as farmland, which was previously a poultry breeding operation owned and operated by Inghams.

Land Form Characteristics

The site is relatively flat and located between two creeks; Badgerys Creek and Wianamatta-South Creek. Land slopes down towards the creeks at the north western and north eastern boundary edge. The site contains three high points located at the south western boundary, within the centre of the site and along the eastern boundary line of the main section of the site.

Zoning

The site is zoned as an Enterprise zone and Environment and Recreation zone.

The land to the east of South Creek is currently zoned as RU4 - Primary Production and Small Lots. To the southeast of the site, the land is zoned as MU - Mixed Use.

Figure 3: Badgerys Creek Site Description

1.7 Site Photos

The site photos show existing conditions of the site including access, land features, interfaces with the neighbouring sites and the creeks, and views to the new WSI site and the Blue Mountains.

1 Badgerys Creek Road

2 Southern main access road within the site

3 Existing cleared and eroded tributary of Badgerys Creek

4 Existing vegetation and mature tree

5 Existing vegetation and coastal valleys Swamp Oak Riparian Forest cluster at the southern site boundary

6 View to the central cleared and eroded creek corridor within the site

9 Northern edge interface with CSR site

7 Scattered tree

8 Eucalypt forest along Wianamatta-South Creek

10 View to the new WSI and Blue Mountains in distance

02

RECOGNISE COUNTRY

A Designing with Country Framework was prepared by Yerrabingin that summarises the Connecting with Country process undertaken for the site.

As part of the process, preliminary cultural mapping was completed with community members as part of the Western Sydney Aerotropolis planning process. The high-level cultural values that were shared by the community are as follows:

- Being on Country: It is important to be on Country to talk about and see archaeological sites and landscapes. Feelings are an important aspect of the site.
- Conservation of modified trees: Carved or scarred.
- Wildlife corridors: Retention of Cumberland Plain Woodland, River flat Eucalypt forest and remnant vegetation.
- Conservation of significant objects and places: Such as grinding grooves, ridgelines and sandstone areas.
- Intergenerational equity: Accumulative impact.
- Connecting waterways; connecting Dharug, Dharawal and Gandagara people, and the wider community to Wianamatta Creek.

Source: Yerrabingin

2.1 Community Engagement

Yerrabingin has undertaken a community engagement process to deliver an authentic and meaningful design approach.

Local RAPs (Registered Aboriginal Parties), Traditional Custodians and other community members were engaged. First Nations peoples were the active co-designers of the project.

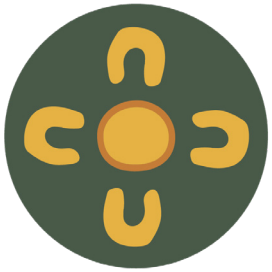
The engagement process included the following steps:

- Wanggani Dhayar - Listen to Country Process
- Walk on Country
- Design Jam
- Outline the Design Jam outcomes
- Derive Community Driven Principles

Three overarching Connecting with Country principles have been developed based on the community discussions. These principles incorporate all of the community's input and combining them into a set of larger principles that are more applicable to the site.

Source: Yerrabingin

2.2 Community Driven Principles



THE CONVERGENCE OF 3 CLANS

This project sits in a significant spot as it is close to the convergence of 3 different clan groups. Connecting to the broader context by acknowledging and representing the 3 clan groups; Dharug, Dharawal and Gandangara. This is a unique opportunity and further consultation with these 3 community groups could lead to key narratives and stories which could be interpreted on the site.

WATER LANDSCAPE

The site is part of an incredibly unique and diverse landscape that has existed in harmony with Dharug people for generations. Helping sustain Indigenous life and culture whilst the people cared for it, creating a long lasting reciprocal relationship. This rich landscape still exists today, and should be acknowledged and celebrated.

COMMUNITY DRIVEN

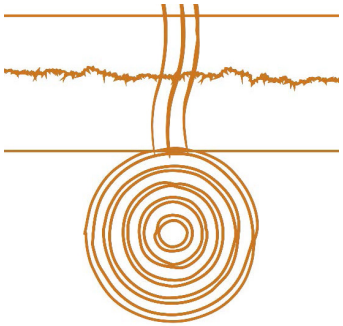
Community sits at the heart of every project. This theme looks at the idea of creating a space that people feel welcome and comfortable to come to. A project that encourages people to work with the land and each other for mutual benefit. A place with a communal feel, in which people are able to come together for a connected experience of Country.

2.3 Elements of Country

A Recognise Country Strategy has been developed for the Draft Master Plan. The Strategy states that a way to think about and learn about Country is to consider Country as made up of a series of interconnected elements including, Deep Country, Water Country, Move with Country, Wind Country, Non-Human Kin Country and Sky Country.

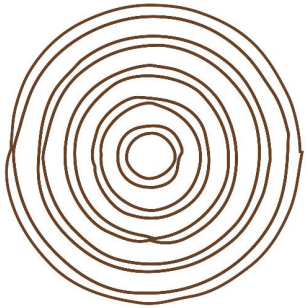
Section 06 of the report outlines how each component of the Draft Master Plan responds to the Elements of Country.

DEEP COUNTRY



Deep Country is the most Ancient of connections and one that we honour for the many gifts it shares, such as the greenstone axe and the ochres that we paint with. When we dance we are celebrating and honouring the spiritual beings below our feet and their kin in Sky Country, representing the extent and connection of Country.

MOVE WITH COUNTRY



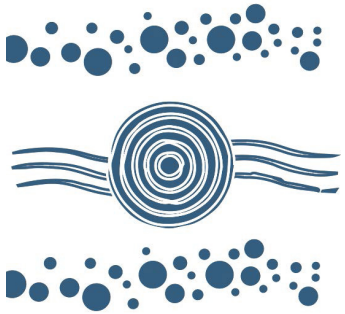
Move with Country. At the heart of Country is people and community, where our spirituality is embedded in environmental consciousness. To Move with Country is to be a Custodian of Country it is where we record and share our knowledge through story, song, dance and art.

NON HUMAN KIN COUNTRY

Non-Human Kin Country fills the senses with colour, smells and sounds, on Country we are surrounded by our kin the animals and plants. This is where we learn about the connection of all living things and our responsibilities and roles within this web of connections.

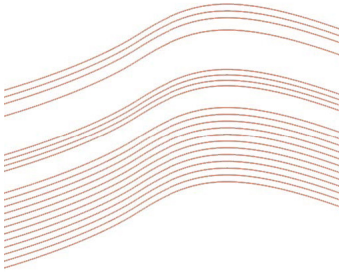
Source: Yerrabingin

WATER COUNTRY



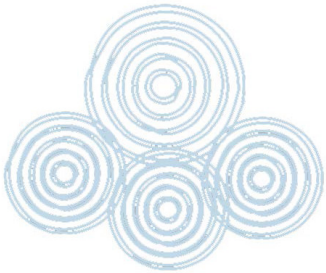
Water Country is the connective tissue, the circulatory system, the confluences and paths within and between Country. The meeting of salt and fresh water, where one drop forms setting a path through Country, connecting with story and landscape.

WIND COUNTRY



Wind Country carries the messages of seasonal change, the songs and words of our ancestors across Country. Where the landscape and light vibrates to a rhythm, be it the trees and the grass, or the clouds racing across the sky.

SKY COUNTRY



Sky Country is a place of spirits and the ancestors and includes knowledge about navigation, the seasons, time and Songlines. It is also an important component of ceremony as it allows engagement with our ancestors and spiritual beings.

Source: Yerrabingin

03

PLANNING CONTEXT

Planning in NSW is underpinned by a series of cascading strategic planning documents which align land use, transport and infrastructure between three tiers of government and across State agencies for the first time in a generation.

Together these documents set out the existing and future context along with development and design considerations to inform future development outcomes on a site.

This section of the report provides a summary of the key planning directions for (the site) as set out in the relevant planning documents.

3.1 Strategic Planning Context

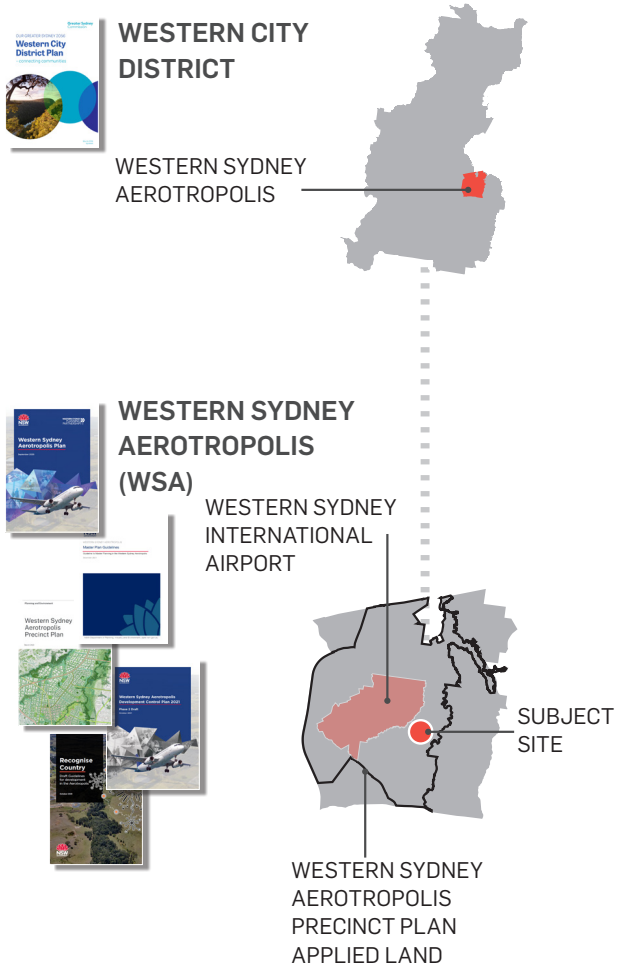
Aerotropolis Planning Framework

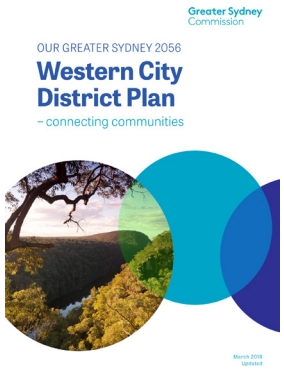
A review of strategic planning requirements for the site identified the following plans, strategies and requirements are relevant to the site:

- Western City District Plan
- Western Sydney Aerotropolis Plan 2020
- Western Parkland City SEPP
- Western Sydney Aerotropolis Precinct Plan 2022
- Western Sydney Aerotropolis Development Control Plan 2021-Phase 2 Draft

Other Guidelines

- Western Sydney Aerotropolis Master Plan Guidelines
- Recognise Country - Guidelines for Development in the Aerotropolis 2022
- Aviation Safeguarding Guidelines- Western Sydney Aerotropolis and Surrounding Areas



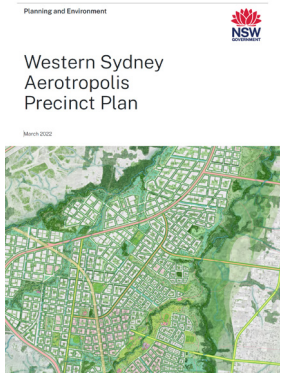


Western City District Plan

Western City District Plan is a 20-year strategic planning document published by the Greater Sydney Commission. It unlocked the planning priorities and actions to achieve connectivity, liveability, productivity, and sustainability. Western Sydney International Airport-Badgerys Creek Aerotropolis has been identified as one of the metropolitan clusters in the district plan and an economic catalyst for Western Parkland City. It will enable to support the well-connected city - a 30-minute city initiative.

Western Sydney Aerotropolis Plan 2020

The Western Sydney Aerotropolis Plan was published in 2020 by the Western Sydney Planning Partnership. It sets the planning framework for the Western Sydney Aerotropolis with the vision, 11 objectives, and 50 principles for the Aerotropolis.



Western Sydney Aerotropolis Precinct Plan 2022

Western Sydney Aerotropolis Precinct Plan (the Precinct Plan) has been endorsed by DPIE in March 2022. The Precinct Plan is applied to five precincts within the Aerotropolis, providing place-based visions, objectives, and setting out the finer grain detail to support the Aerotropolis SEPP.

Western Sydney Aerotropolis Development Control Plan 2021-Phase 2 Draft

As a supplementary document to the Aerotropolis planning framework, the DCP Phase 2 draft aims to provide detail guidelines to master plans and DAs in the Aerotropolis area with the objectives, performance outcomes and benchmark solutions.

3.2 Western Sydney Aerotropolis Precinct Plan (2022)

The subject site is located within the Aerotropolis Core Precinct, one of the five precincts focused in the Western Sydney Aerotropolis Precinct Plan.

Western Sydney Aerotropolis Precinct Plan (The Precinct Plan) 2022 is a mandatory plan that provides the detail guidelines and criteria for the overall vision for five precincts of the Aerotropolis including Aerotropolis Core, Badgerys Creek, Wianamatta-South Creek, Northern Gateway and Agribusiness.

AEROTROPOLIS CORE

The Aerotropolis Core is a dense urban precinct planned around the Aerotropolis Metro Station at the south-eastern corner of the Aerotropolis. It will offer attractive places for workers, residents and visitors with the estimated 50,000 to 60,000 job growth.

Land use of the Aerotropolis core will focus on employment and economic development accommodating advanced manufacturing, research and development, professional services, creative industries, and STEM focused educational facilities, and emerging aerospace and defence industries, business incubator hubs, and shared office workspaces.

The site is located at the northern edge of the Aerotropolis Core. As part of first priority areas, land uses proposed for the site comprise enterprise and light industry, business and enterprise, local/ neighbourhood centre, education, open space/stormwater land, environment and recreation, primary arterial road, and rapid bus corridor.

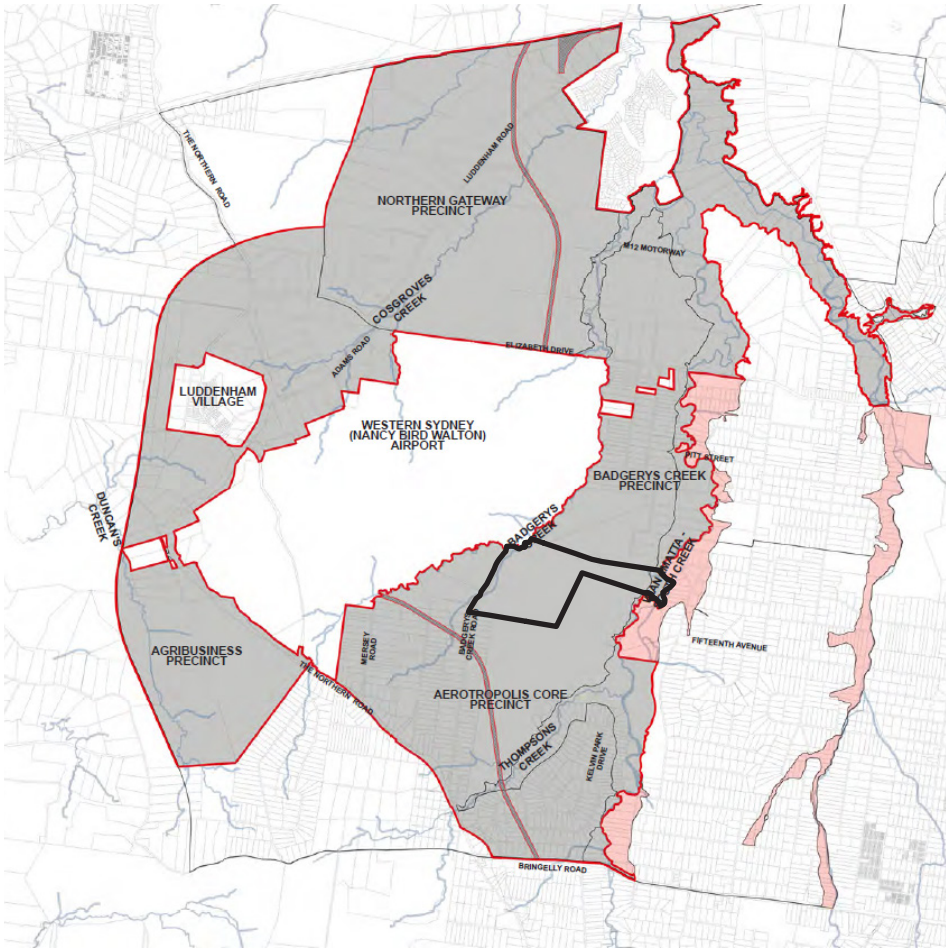


Figure 4 Five Precincts within Aerotropolis which the Precinct Plan Applies

Additional Precinct Objectives - Aerotropolis Core Precinct

01	Develop a metropolitan centre, around the Aerotropolis Core Metro station that will be a focus for business, tourism and social experiences.
02	Be the location of choice for advanced manufacturing and high technology industries in Australia with accessible infrastructure, public transport and high design quality with fit-for-purpose buildings and green spaces.
03	Facilitate the establishment of an aerospace and defence industries sub-precinct through the provision of appropriate infrastructure, a variety of lot configurations and sizes and by enabling 24/7 operations of the Western Sydney International Airport.
04	Facilitate the development of educational uses accessible by public transport and active transport.
05	Prioritise pedestrian and active transport within the Aerotropolis Core through infrastructure and amenity in the street network and the blue-green grid.
06	Enable residential development as part of a diverse mixed use sub-precinct in areas that are not impacted by airport noise and that benefit from proximity to Wianamatta-South Creek and Thompsons Creek.

Key Insights

- Development in the Aerotropolis Precinct will support the vision of business and economic development.
- Major land uses proposed in the site are Enterprise, Industry and Business, as well as minor areas including Open Space and Stormwater Land, Neighbourhood Centre and Education.

Legend

- Site Boundary
- Commercial Centre - Mixed Use
- Local / Neighbourhood Centre
- Business and Enterprise
- Mixed Use Residential
- Enterprise and Light Industry
- Education
- Special Infrastructure
- Open Space / Stormwater Land
- Environment and Recreation
- Primary Arterial Road
- Primary Arterial Road (Rapid Bus)
- Sub-arterial Road
- Indicative Metro Line
- M Metro Station

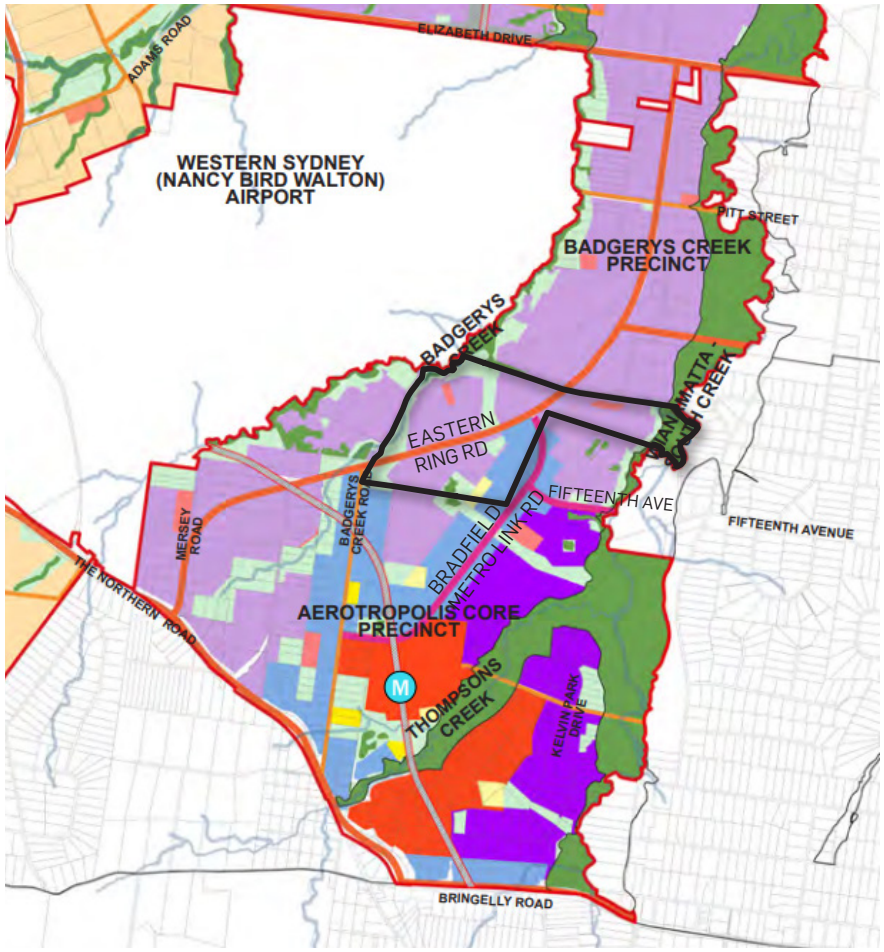


Figure 5 Land Use and Structure Plan

TRANSPORT NETWORK

The Precinct Plan proposes the Eastern Ring Road(ERR), Bradfield Metro Link Road (BMLR) and Fifteenth Avenue as three arterial road corridors in the area.

Eastern Ring Road (ERR)[1]: ERR is intended to service the Western Sydney Aerotropolis precincts as a north-south freight, heavy vehicle and construction movement route as well as a ring road for Western Sydney International Airport.

Fifteenth Avenue[1]: Fifteenth Avenue is intended to service the Western Sydney Aerotropolis precincts as an east-west transit between Liverpool, Bradfield City, Western Sydney International Airport and Metro Stations.

Bradfield Metro Link Road(BMLR)[1]: BMLR is intended to service the Western Sydney Aerotropolis precincts as a key link to access Bradfield City Centre and Metro Station from ERR and Fifteenths Avenue.

Proposed collector road network integrated with local bus route traverses the site, connecting the neighbouring sites.

1: Source: Western City Road Transport Network Development Program. Initial Assumption Book V 20.

Key Insights

- Opportunity to investigate and refine the alignment of the three arterial road corridors based on the site specific conditions and future subdivisions.
- Opportunity for a rapid bus corridor to support a new Local Centre.

Legend

- Site Boundary
- Primary Arterial Road
- Primary Arterial Road -Arterial Bus
- Sub-arterial Road
- Rapid Bus Corridor
- Indicative Local Bus Network
- Key Signalised Intersection
- 800m Walking Catchment of Metro Station

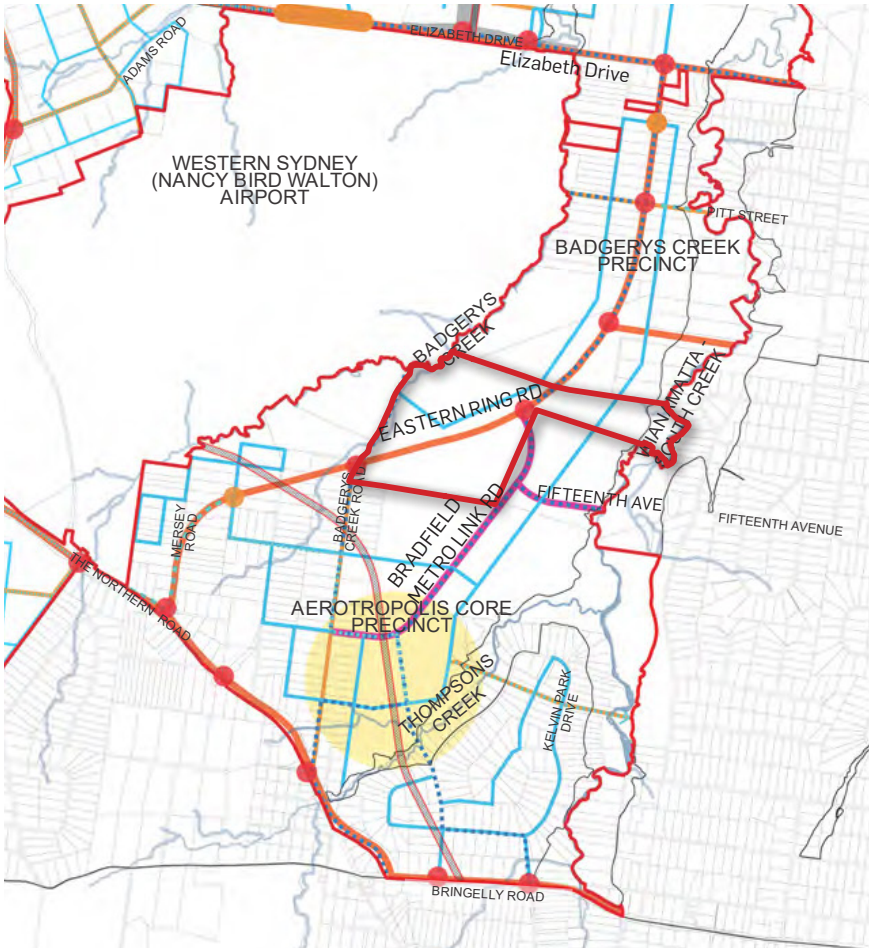


Figure 6 Transport Network

ACTIVE TRANSPORT NETWORK

The proposed active transport network includes principal regional cycle paths along ERR, BMLR, and Fifteenth Ave and also along the Badgerys Creek and Wianamatta-South Creek; cycle paths on the collector roads; and cycle paths through open space.

Key Insights

- Active transport networks will be integrated within the open space and public domain plans in the Draft Master Plan.

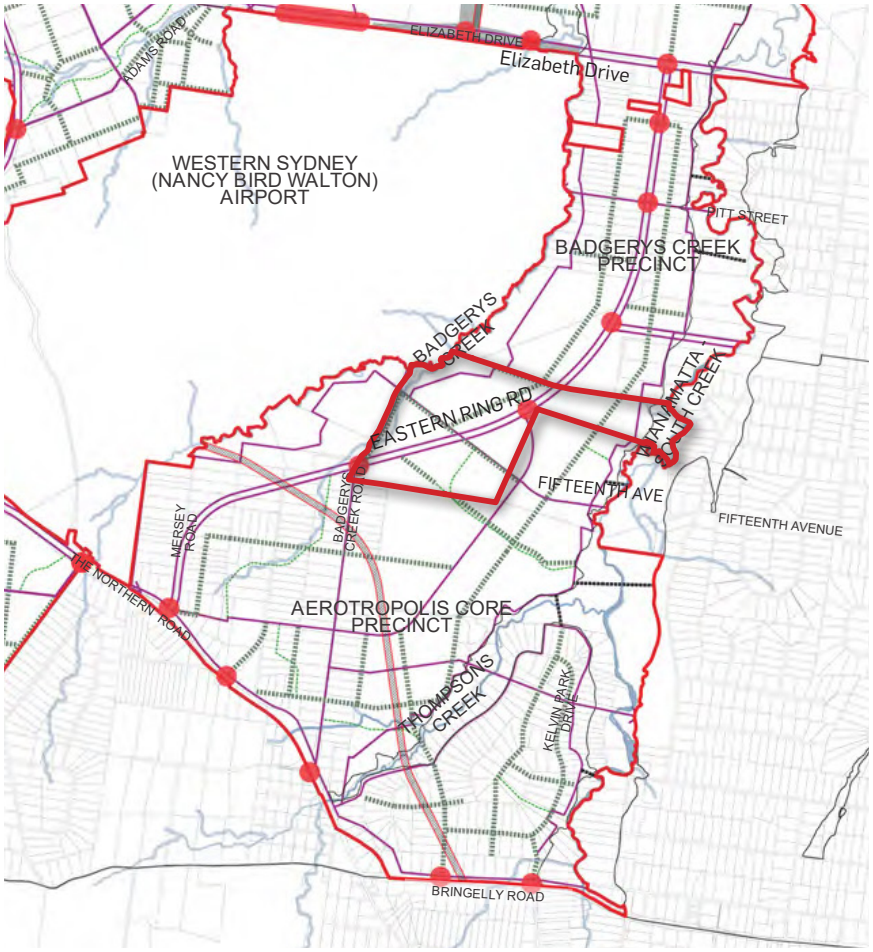


Figure 7 Active Transport Network

GREEN & BLUE INFRASTRUCTURE

The Precinct Plan proposes stormwater infrastructure which are to be located within riparian corridors, integrated with open space. A riparian street is proposed extending off Wianamatta-South Creek along the northern boundary.

The Precinct Plan identified the High Biodiversity Value (HBV) areas within the site which requires protection of the defined existing native vegetation, watercourses and riparian zones.

Key Insights

- Opportunity to reinforce the central riparian corridor as an integrated open space element in the centre of the site.
- Opportunity to incorporate the proposed Riparian Street into the design solution for the site.

Legend

- Site Boundary

Open Space Network

- Local Open Space and Drainage
- Regional Park
- Active Open Space (Sports field)
- Indicative Open Space

Biodiversity

- High Biodiversity Value (HBV) Area (Existing Native Vegetation)

Water Cycle Management

- Stormwater Infrastructure
- Watercourses
- Riparian Street

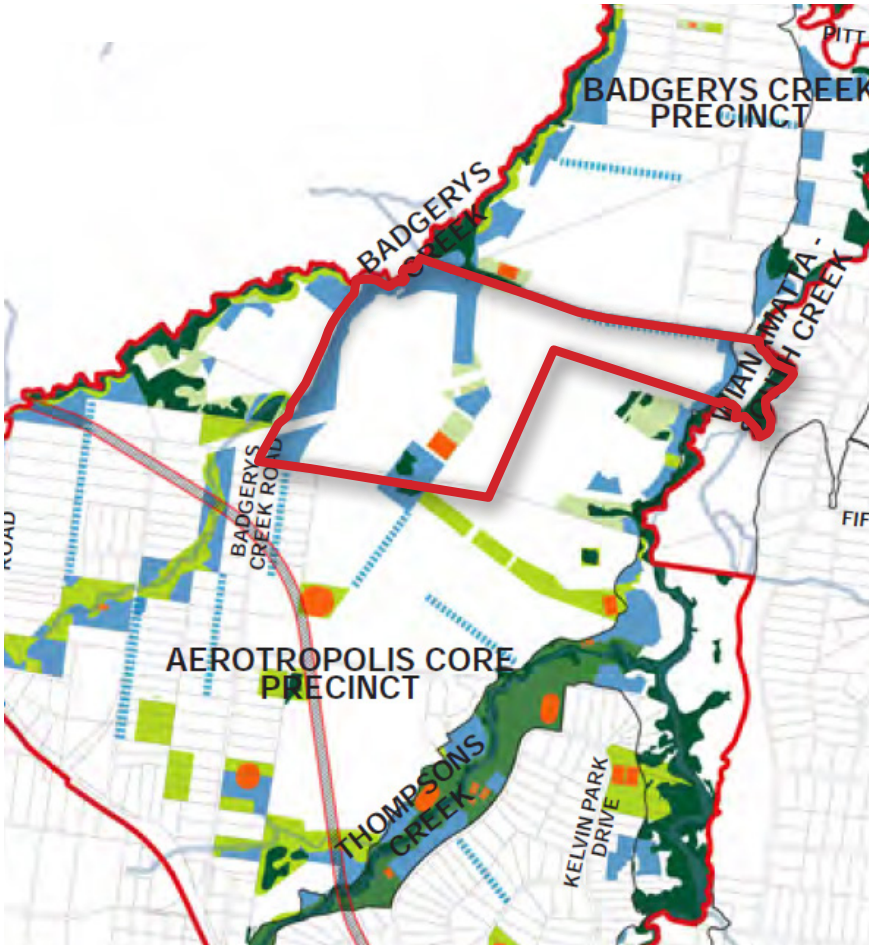


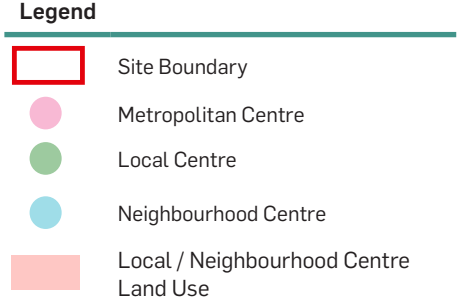
Figure 8 Blue-Green Infrastructure Framework

CENTRES HIERARCHY

A neighbourhood centre is proposed at the north edge of the site. An additional proposed neighbourhood centre adjoins Badgerys Creek at the north-western corner.

Key Insights

- Opportunity to consolidate the two neighbourhood centres and create a new compact and activated centre that caters to the needs for the future working population and is serviced by the future rapid public transport.



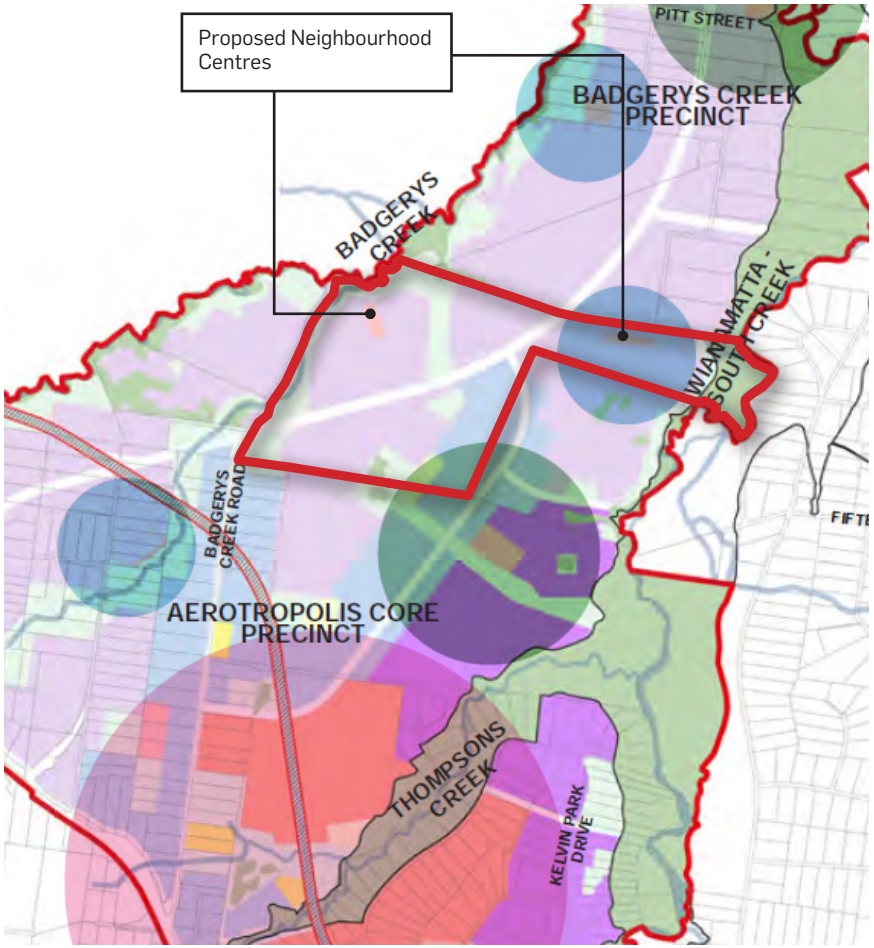


Figure 9 Centres Hierarchy

HERITAGE

There are no heritage items within the site, however, there are some minor moderately Sensitive Aboriginal Cultural sites located at the eastern end, north western corner and southern edge of the site.

Majority of the site has undergone moderate to high disturbances with discreet areas of potential for intact soils and sensitive landforms remaining.

Key Insights

- Culture value of moderate and high Aboriginal Cultural Sensitivity area has been investigated and considered with the open space and landscape strategy at the Draft Master Plan stage.
- Aboriginal Cultural Heritage Assessment(ACHA) has been provided by ELA Consultants to inform the master planning Process.
- (ACHA) to inform the master planning stage

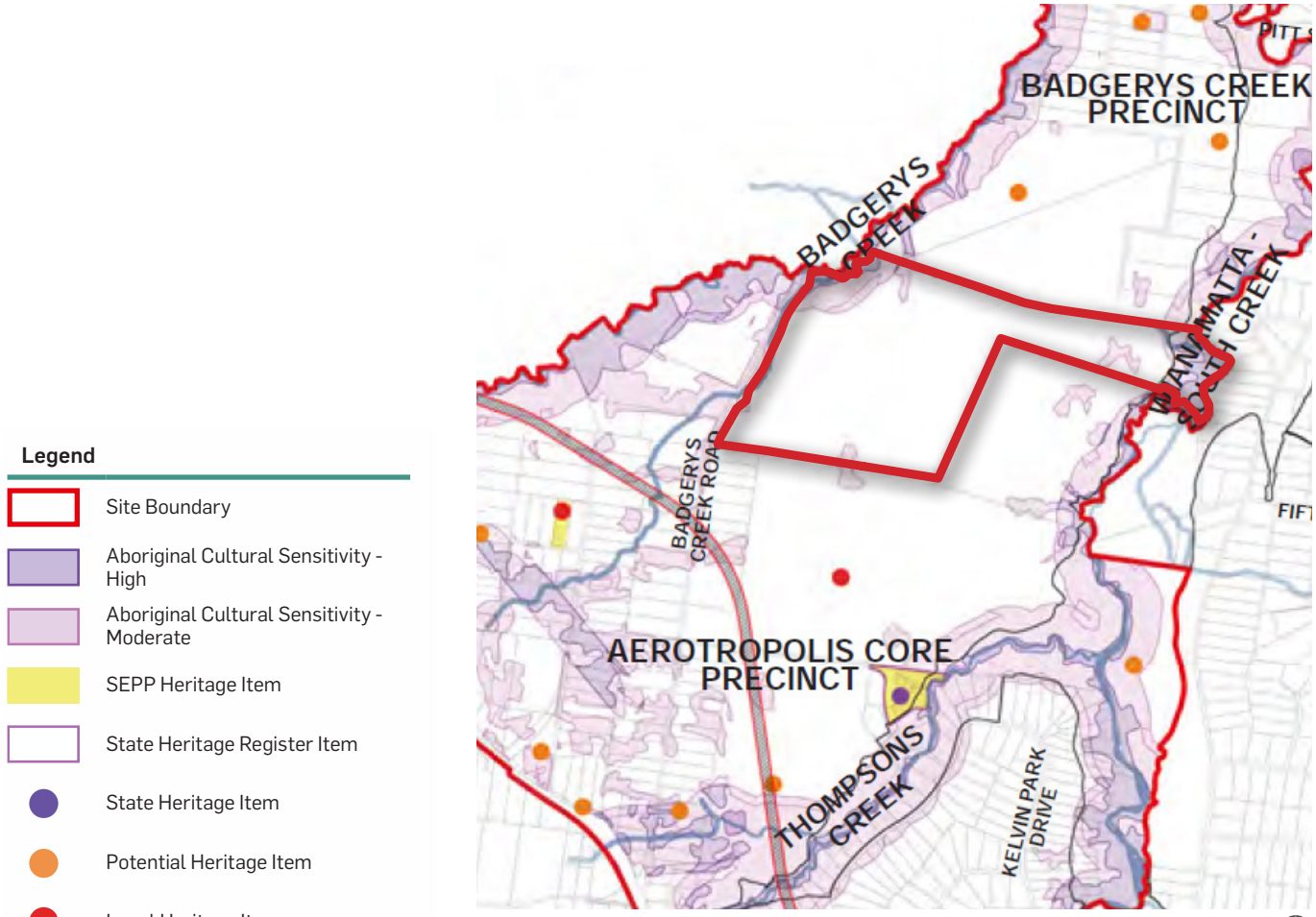


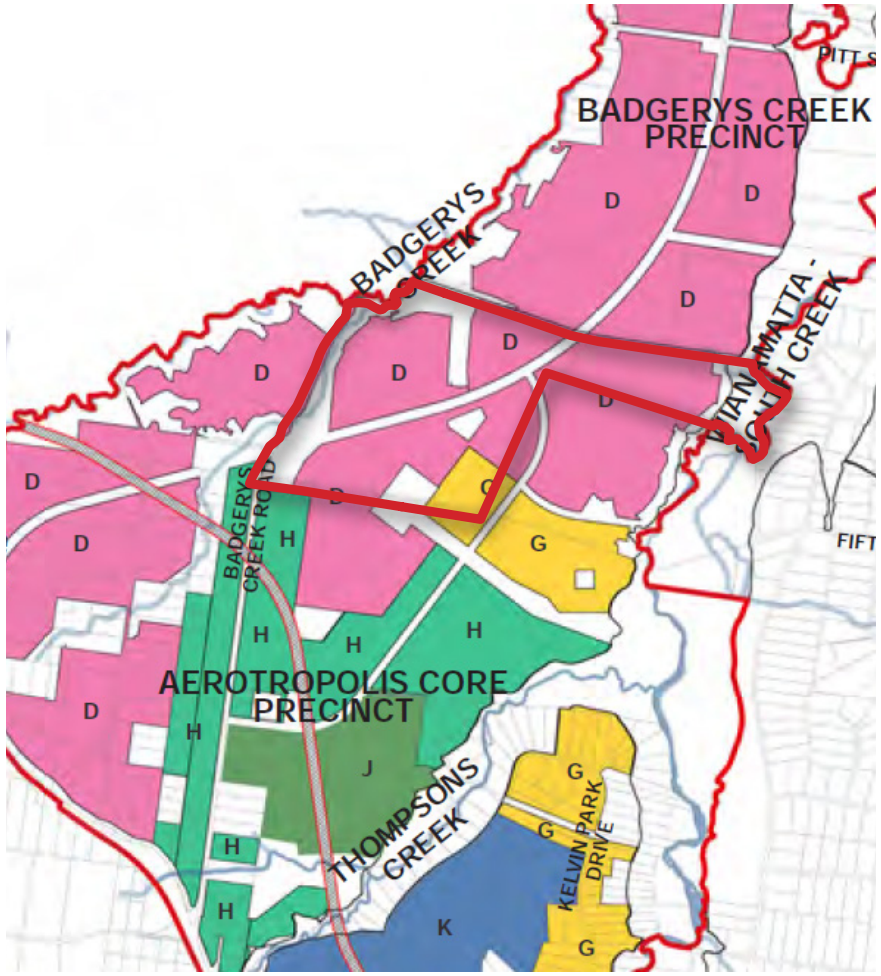
Figure 10 Heritage

MAXIMUM BUILDING HEIGHT

The maximum building height within the site is up to 24m which is predominantly Enterprise and Light Industry Zone. The exception is the Business and Enterprise Zone adjacent to the south eastern boundary which is up to 52.5m.

Key Insights

- There is an opportunity to reconsider the building height in appropriate areas within the site to introduce new building typology (i.e. High Bay Warehousing).



Legend

	Site Boundary
D	24m
G	52.5m
H	56m
J	62m
K	70m
	Watercourses

Figure 11 Maximum Building Height

04 PLACE ANALYSIS

This chapter of the report has been prepared in alignment with the Draft Master Plan Requirements to assist in understanding the place characteristics of the locality and investigating site constraints and opportunities at two key scales being:

- **Urban Context Analysis; and**
- **Site Analysis**

4.1 Overview

The urban context analysis will investigate the broader area surrounding the site, including the following:

- Land Ownership
- Road and Transport Network
- Future Surrounding Uses
- Biodiversity and Riparian Corridor
- Social Infrastructure

Meanwhile, the site analysis will focus on the site and its immediate context's existing and future desired character. It will include the following:

- Access and Movement
- Topography and Views
- Riparian Corridor and Blue Infrastructure
- Biodiversity and Ecology
- Solar Access and Wind
- Flooding and Stormwater
- Bushfire
- Indigenous Cultural Heritage and Values
- Historical Heritage
- Infrastructure and Services
- Contamination Assessment
- Air Quality and Odour
- Building Wind Shear and Turbulence
- Noise and Vibration
- Aviation Restrictions
- Geotechnical and Acid Sulphate Soil Impacts

At the end of this section, consolidated constraints and opportunities mapping / table will be developed to conclude the analysis.

4.2 Land Ownership

The subject site known as 475 Badgerys Creek Road, Bradfield is owned by Ingham Rural Property Group Pty Limited (IPG).

Major land ownerships surrounding the site include CSR to the north, Greenfields Development to the south and east, and Western Sydney International Airport owned by the government to the west.

Key Insights

- Staging of subdivision and future development is easier to manage for large landholdings.

Legend

- Site Boundary
- Proposed Metro Station
- Proposed Metro Railway Line (Sydney Metro - Western Sydney International Airport)
- Outer Sydney Orbital Road
- Western Sydney International Airport
- Government Owned Land / Bradfield City Centre
- University of Sydney (UoS)
- Private Developers
- Endeavour Energy Substation Site
- Aerotropolis Core

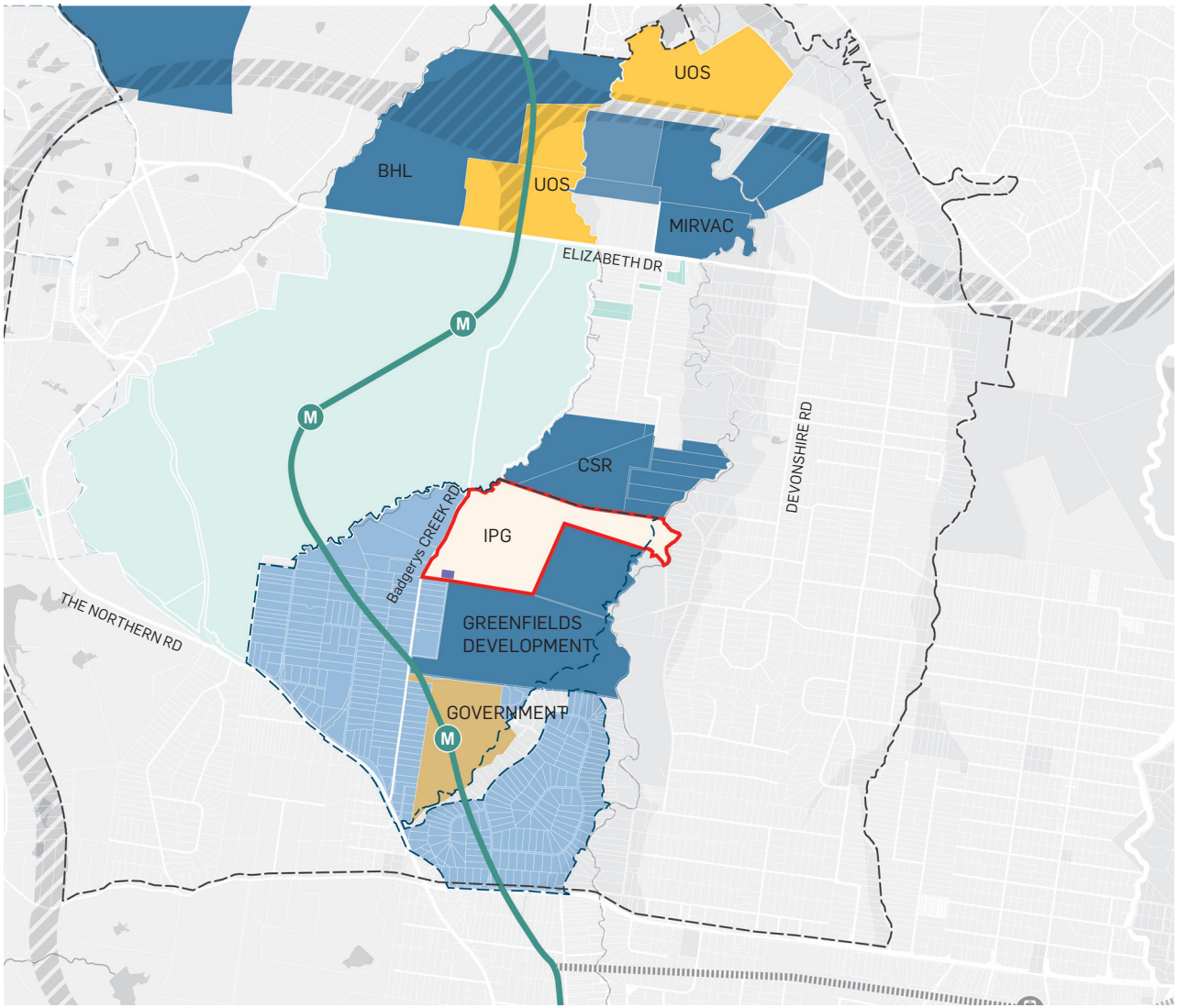


Figure 12 Land Ownership Plan

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4.3 Road and Transport Network

The subject site and its immediate surrounding context are transforming significantly due to the construction of the new roads and transport network.

New construction and upgrade of road and transport infrastructure is widely occurring in the Aerotropolis along with the airport's construction. A new alignment of the Northern Road has been completed as a major transport corridor connecting Penrith to the north and Campbelltown to the south.

The northern end of Badgerys Creek Road has been upgraded, connecting the site to Elizabeth Drive before constructing the airport's second runway.

The proposed ERR, Fifteenth Avenue, and BMLR within the Precinct Plan will traverse the site providing enhanced connectivity.

- ERR provides north-south connections from The Northern Road to Elizabeth Drive.
- Fifteenth Avenue enhances the east-west connection from Liverpool to Aerotropolis. It also supports public transport.
- BMLR provides connection from ERR to Bradfield Centre.
- Badgerys Creek Road will play the role of the interim eastern orbital until such time the ERR is constructed.

A new realignment of the ERR and BMLR has been proposed which results in a more efficient lot configuration and road network geometry.

All proposed major roads have been planned to accommodate cycle paths.

As part of the Precinct Plan, public transport services are planned within and surrounding the site (this is illustrated in Section 03 of this report). There is an opportunity to encourage and provide active and public transport in this area.

Note: Shared pedestrian and cycle paths are proposed on local roads 1, 6, 7 and 8. Separated pedestrian and cycle paths are proposed on the ERR and BMLR.

Key Insights

- The transport network transformation occurring within the site and its immediate surrounding context enhances the site's connectivity to its surrounds including major centres and job hubs.
- The major arterial road traversing or adjacent to the subject site significantly improves site's accessibility and its future development.

Figure 13 Road and Transport Network Plan

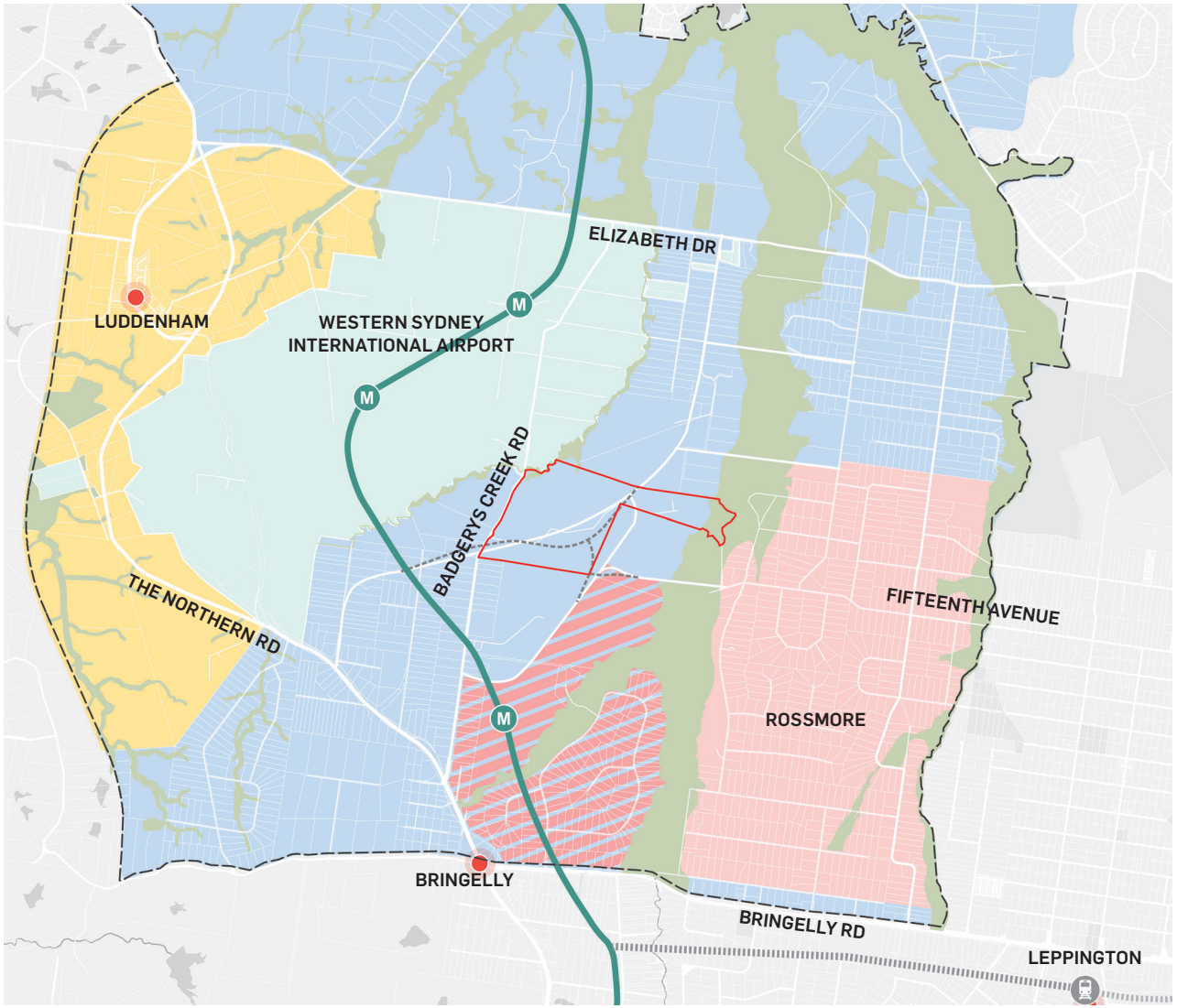
4.4 Future Surrounding Uses

The site is located in a predominantly employment zone area to the east of the new Western Sydney International Airport.

The site is currently surrounded by existing farmland and a few industrial areas, such as the former brickworks within the CSR site to the north and quarry site bordered to the west, which will be transformed into Enterprise, Business and Industry zone to align with the Aerotropolis Plan's vision. Mixed use with higher density will be concentrated around the new metro station in the Aerotropolis Core Precinct to form a new local centre with retail and commercial provisions.

Key Insights

- Demands in Western Sydney is mainly for warehousing and logistic uses which are permitted under Enterprise and Business Zone.
- There is a limited capacity for commercial uses in our site which should be located at the end of Fifteenth Avenue close to public transport and amenity of the riparian corridor.



Legend

- Site Boundary
- Western Sydney Aerotropolis Boundary
- Centre
- Metro Line
- Train line (Leppington Station) and South West Rail Line Extension Corridor
- Proposed Road Re-alignments
- Agribusiness
- Western Sydney International Airport
- Employment (Enterprise/Business/Industry)
- WSA Proposed Biodiversity Links
- Urban Land
- Mixed Use (within Aerotropolis Core)

Figure 14 Future Surrounding Uses Plan

1:80,000 @ A4

4.5 Biodiversity and Riparian Corridor

There are two major riparian corridors within the site's immediate surrounding context, including Badgerys Creek Riparian Corridor along the eastern-southern edge of the WSI, and Wianamatta-South Creek Riparian Corridor as a environmental buffer between the Badgerys Creek Precinct, Aerotropolis Core and Rossmore.

Existing sensitive vegetation and open spaces are integrated with the riparian corridors.

Key Insights

- Enhance the site connectivity to the surrounding natural features through open spaces and active transport corridors.
- Preserve the existing environmental features and integrate them with its primary development structure.
- Reinforce the natural character of the site by integrating the existing watercourses into its future landscape character.

Legend

- Site Boundary
- Western Sydney Aerotropolis Boundary
- WSA Proposed Biodiversity Links
- Water body
- Open Spaces
- Creek
- Riparian Lands - Watercourses
- Terrestrial Biodiversity

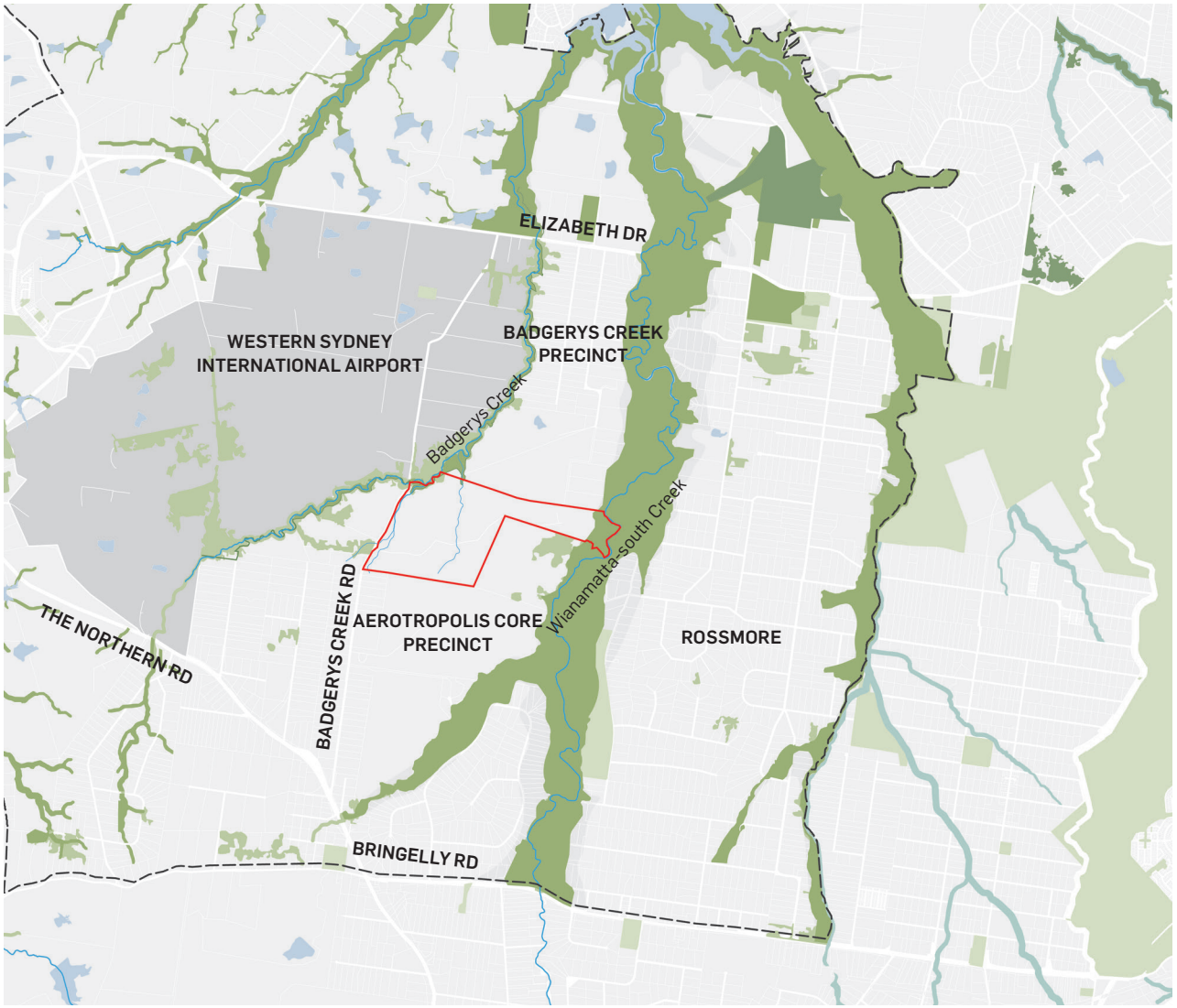


Figure 15 Biodiversity and Riparian Corridor Plan

1:80,000 @ A4

4.6 Social Infrastructure

There are few existing social infrastructure facilities around the site. Existing social infrastructure identified, are located around local centres in Luddenham, Bringelly and the broader residential area to the east of the Wianamatta-South Creek Corridor.

In addition to the existing social infrastructure, the Precinct Plan has new infrastructure in key centres which can support the future development of the site.

Key Insights

- There is an opportunity to develop social infrastructure within the site to support the surrounding context.
- Potential social infrastructure within the site will complement the precinct plan recommendations.

Figure 16 Social Infrastructure Plan

1:80,000 @ A4

4.7 Access and Movement

The subject site is supported by a range of existing and potential future arterial and local roads.

The site is currently served by Badgerys Creek Road which runs along the western boundary of the site, currently connecting Elizabeth Drive and The Northern Road. The ERR and BMLR will serve the site and provide future connectivity to the broader Western Sydney Aerotropolis and the Bradfield City Centre. Fifteenth Avenue is proposed to connect into the BMLR on the eastern boundary of the site. BMLR and Fifteenth Avenue will have rapid bus corridor connect to the future Aerotropolis Core Metro Station and the broad area to the east.

Key Insights

- Investigate alternative alignments as part of the Draft Master Plan to further benefit land uses from public transport services.

Legend

- Site Boundary
- Badgerys Creek Rd
- Proposed ERR
- Proposed Fifteenth Avenue, BMLR
- Principal Regional Cycle Network
- Proposed Signalised Intersections
- Existing Vehicle Access

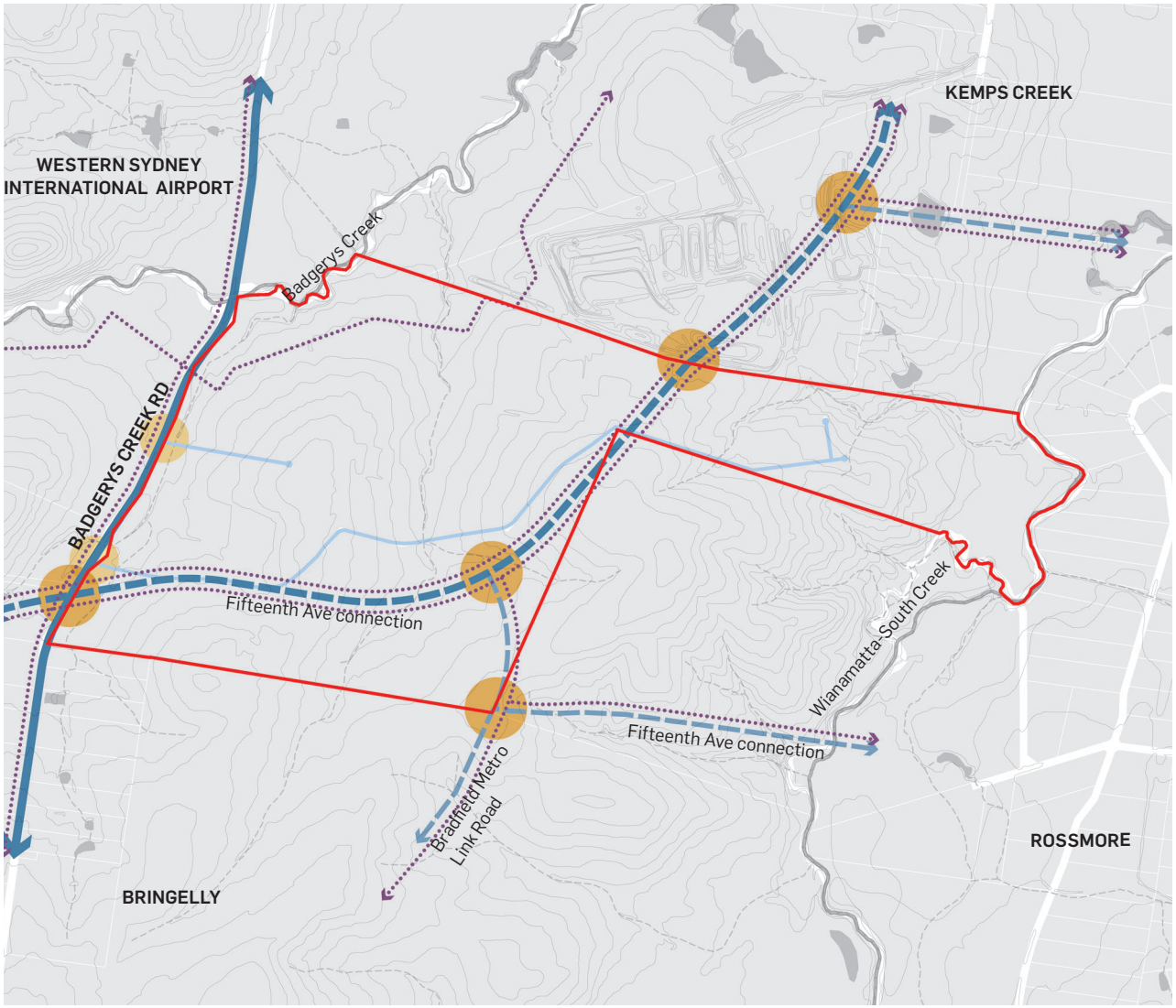


Figure 17 Access and Movement Plan

4.8 Topography and Views

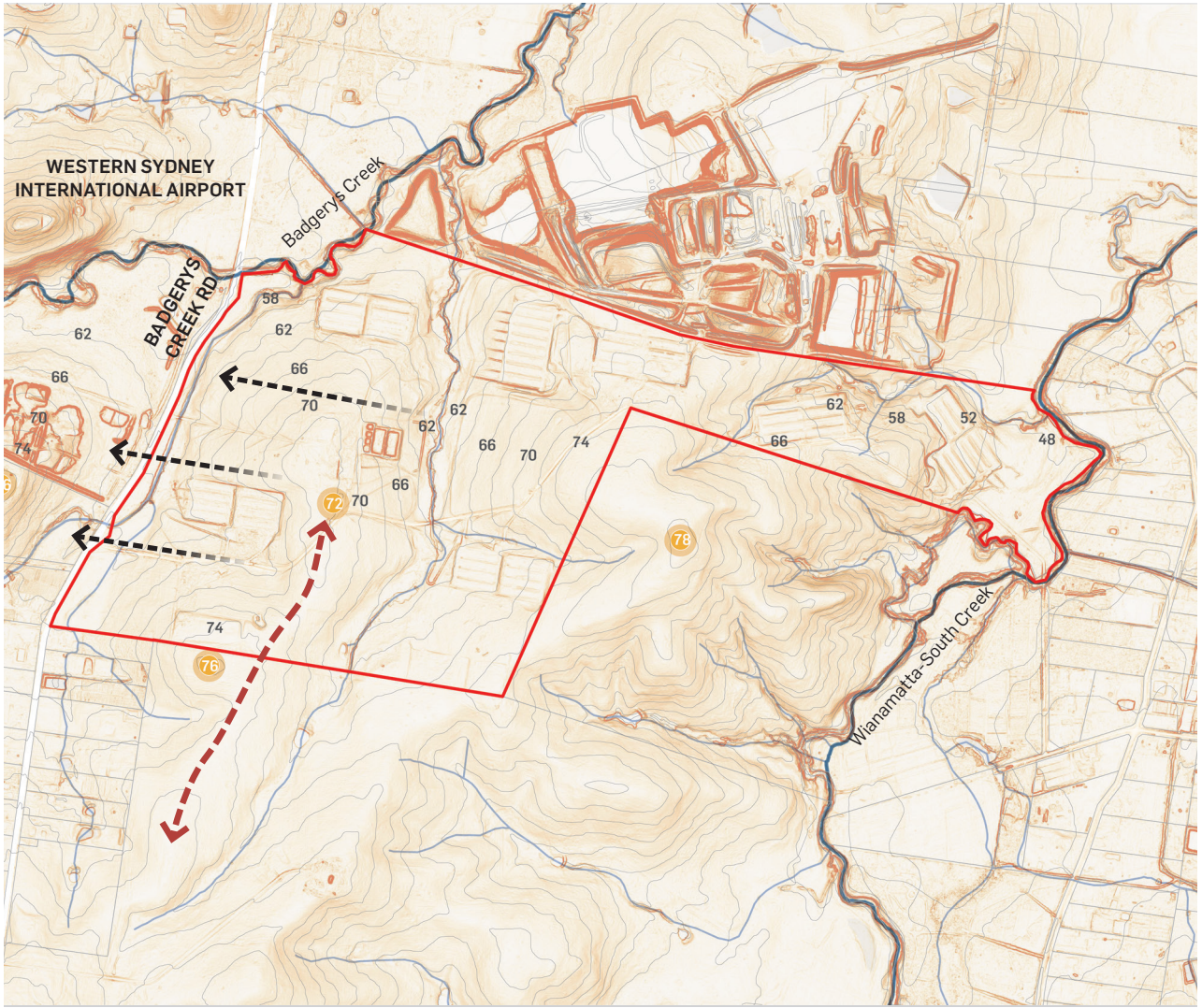
The site is relatively flat with slops falling from the south towards north west to the Badgerys Creek and north east to the Wianamatta-South Creek.

The site is characterised by three high-points including at the centre of the site, at the southeast boundary and at the eastern boundary. The topography within the site varies by 26m from the lowest point at the east (48m) and the highest point at the southeast and southwest (74m).

High points present extended views to the surrounding context. Also there are view corridors from the site to the Blue Mountains.

Key Insights

- Enhance the existing view corridors from the site to the Blue Mountains in the west.



Legend

- Site Boundary
- Contours
- Ridgeline
- High Points
- Long Distance View Corridor to Blue Mountains
- Creek
- Creek Lines
- Slope greater than 15%

Figure 18 Topography and Views Plan

4.9 Riparian Corridor and Blue Infrastructure

Within the site and its immediate surrounding context, there are two major corridors including Badgerys Creek and Wianamatta-South Creek. There are also a number of associated riparian corridors which connect from the major creeks.

The existing riparian corridors have been identified with various stream orders, which require certain landscape buffers to protect the corridor.

Eco Logical Australia (ELA) has undertaken the investigation and assessment for the riparian corridors. According to ELA's findings, several 1st and 2nd order streams did not meet the definition of a 'river' under the WM Act. The justifications of creeks and stream orders have been investigated and assessed. The conclusions conducted by the ELA comprises:

- Riparian Corridor #1 and #2 meet the intent of DPHI Riparian Guidelines, DPI Fisheries Policy and Guidelines and the Precinct Plan. Encroachments into the outer 50% VRZ are permitted under the guidelines and have been offset. Road crossings (culverts and bridges) are required, and will be designed in accordance with DPI Fisheries Policy and Guidelines for Fish Friendly Waterway Crossings.
- There is an opportunity to enhance connectivity, pervious area and larger open space including along Riparian Corridor #2 compared to the Precinct Plan. This corridor will be re-vegetated under a VMP.
- Realignment of a portion of Riparian Corridor #3 for the purpose of a Riparian Street is consistent the DCP and Precinct Plan, but is inconsistent with the DPHI Riparian Corridor Guidelines. Key Fish Habitat (KFH) would not be affected, despite the realignment of a 3rd order stream, because fish movement is not facilitated until closer to South Creek.

According to the analysis provided by ELA, the following landscape buffers are required :

- Wianamatta-South Creek: 40m buffer zone each side, to the eastern of the site.
- Tributary of Wianamatta-South Creek: 30m buffer zone each side, to the northern eastern corner of pan-handle area of the site.
- Badgerys Creek: 40m buffer zone each side, at northern western corner of the site.
- Western tributary of Badgerys Creek: 30m and 20m buffer zone each side at the west of the site.
- Central tributary of Badgerys Creek: 20m buffer zone each side of the northern part and 10m buffer zone each side of the southern part.

Detailed investigation has been provided in the Riparian Assessment Report.

Key Insights

- Maintain the required landscape buffer along the riparian corridor whilst providing continuous accessible open spaces.
- Incorporate stormwater management facilities within the outer 50% of riparian corridors to improve environmental sustainability.

NOTE:

- **Riparian Corridor #1** – describes the western edge of the subject land, along Badgerys Creek
- **Riparian Corridor #2** – the central watercourse
- **Riparian Corridor #3** – South Creek and associated tributaries.

Legend

- Site Boundary
- Contours
- 1st Stream Order - 10m VRZ in each side
- 2nd Stream Order - 20m VRZ in each side
- 3rd Stream Order - 30m VRZ in each side
- 4th Stream Order - 40m VRZ in each side
- 6th Stream Order - 40m VRZ in each side
- Riparian Corridors
- Central Line of riparian corridors to define the inner and outer 50% of riparian corridors

*VRZ: Vegetated Riparian Zone

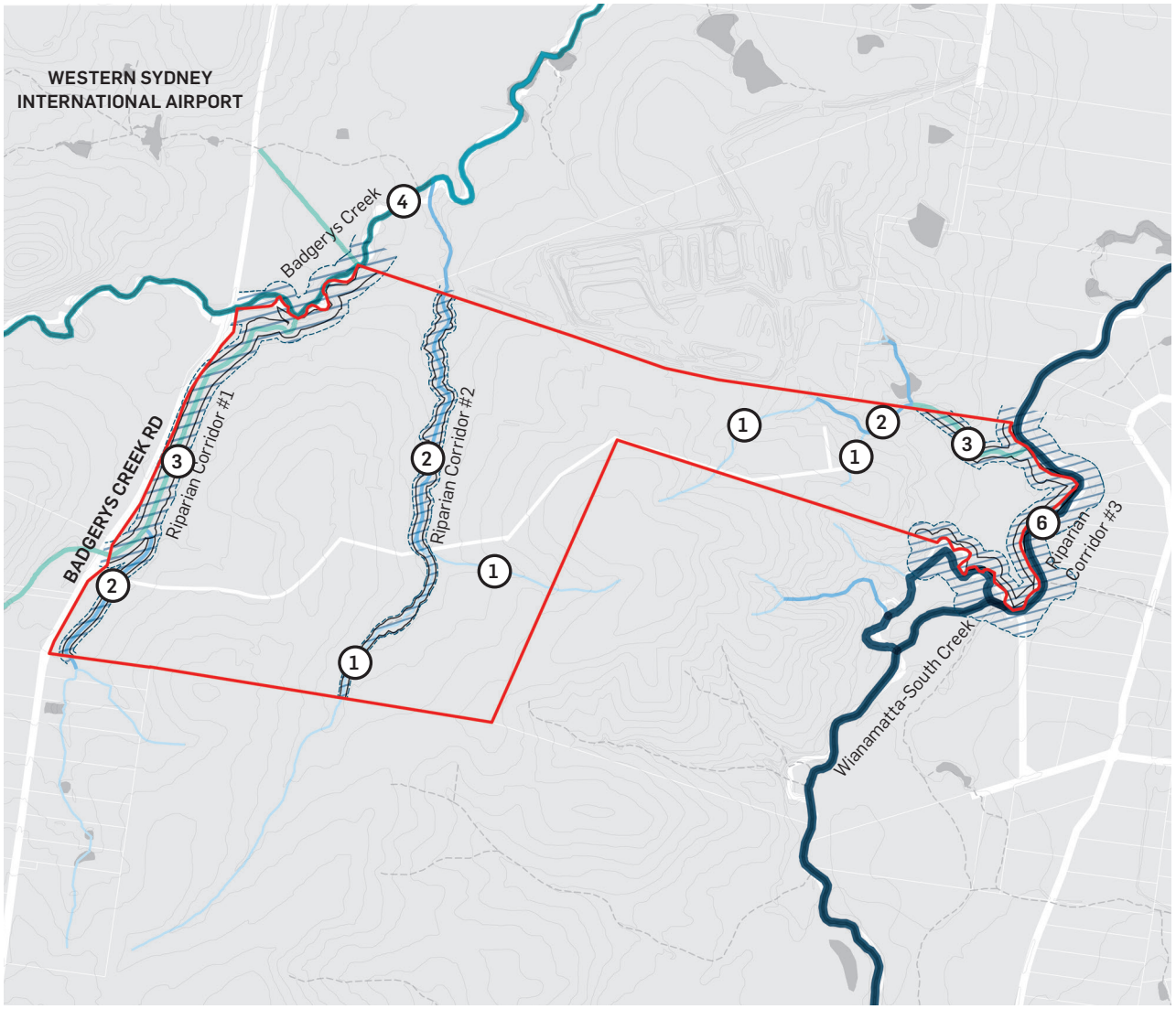


Figure 19 Riparian Corridor and Blue Infrastructure Plan

4.10 Biodiversity and Ecology

ELA has prepared Biodiversity Assessment Report for the site, which describes the biodiversity values of the impacted land, describes such impacts, and confirms the biodiversity certification across the majority of the site.

Three Plant Community Types (PCT) were identified across the subject land within the subject land:

- PCT 4023 Coastal Valleys Swamp Oak Riparian Forest (Moderate Condition) – Endangered under the BC Act
- PCT 4025 Cumberland Red Gum Riverflat Forest (Low to Moderate Condition) – Endangered under the BC Act
- PCT 3320 Cumberland Shale Plains Woodland (Low Condition) – Critically Endangered under the BC Act

The removal of HBV is not permitted in accordance with Section 4.25A (2) of the SEPP:

(2) Development consent must not be granted to development on the land unless the consent authority is satisfied that the development will not result in clearing of native vegetation.

As the encroachment of the development within the mapped HBV area will not result in the direct removal of native vegetation, the Draft Master Plan is considered to be in accordance with the SEPP.

The development proposal of the site provides open space throughout the central riparian corridor and protects higher quality native vegetation in the Badgerys Creek and South Creek/Wianamatta riparian corridors.

Detailed investigation has been provided in the Biodiversity Assessment Report by ELA.

Key Insights

- Provide quality open spaces that build upon the unique landscape experience offered by the riparian corridor.
- Concentrate additional open spaces along the riparian corridor to reinforce the green character of the site and compensate for impacted vegetation.
- Consider mitigation measures to address residual impacts to native vegetation and native fauna (including threatened species) that have the potential to occur within the subject land before, during and after construction.

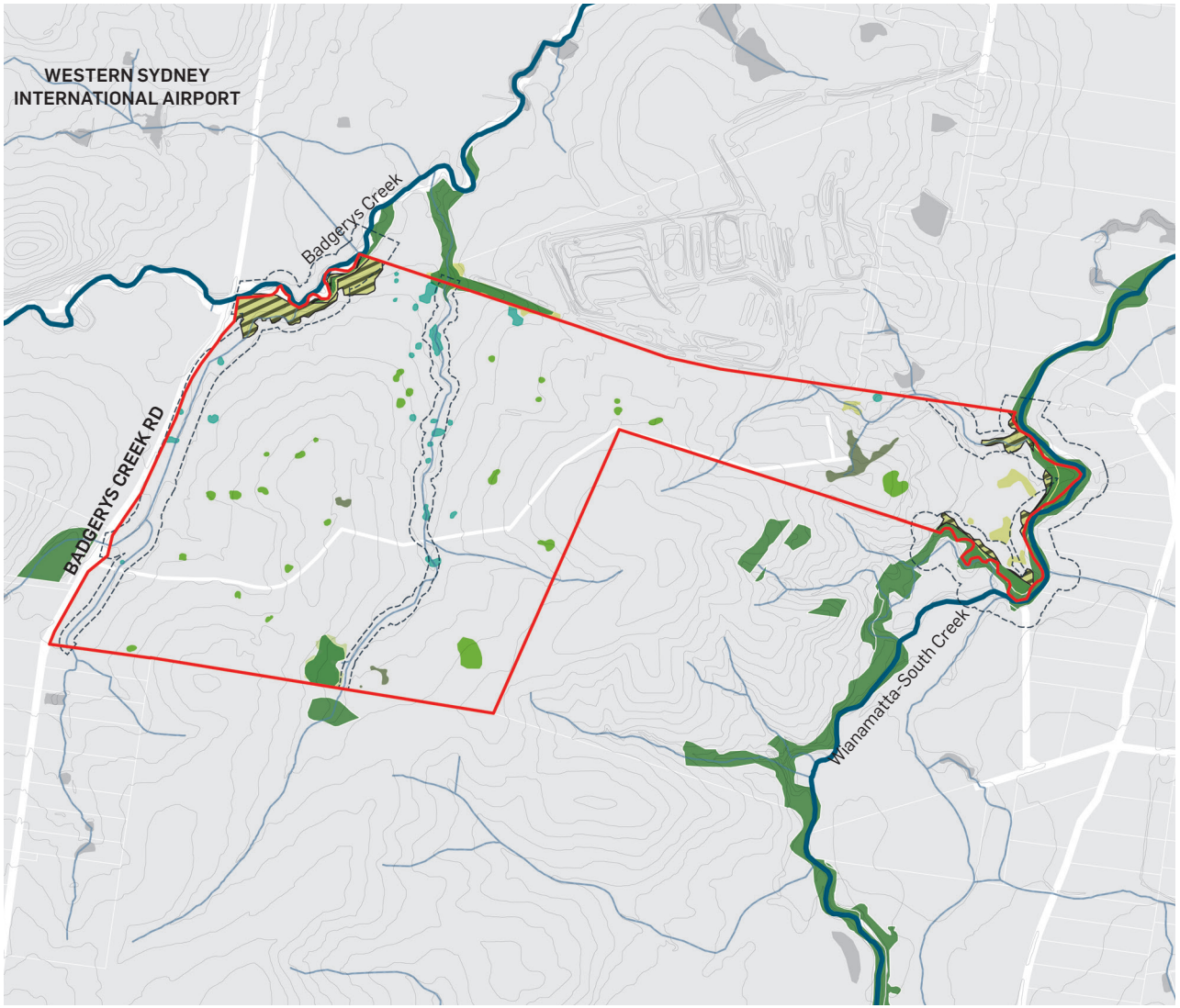


Figure 20 Biodiversity and Ecology Plan

4.11 Solar Access and Wind

There are no existing high buildings on the site or adjacent land to impact the potential solar access to the site.

The predominant annual wind direction at Badgerys Creek is from the south-west with moderate strength. The prevailing winter, spring and autumn wind directions are from south-west, similar with the annual prevailing wind direction. However the prevailing summer wind direction is from east.

Key Insights

- Wind safety and pedestrian wind comfort assessment will be considered and incorporated in the Draft Master Plan design.
- Building orientation and height of the future new development will be designed to optimise the solar amenity and minimise the shadow impact on open spaces.

Legend

- Site Boundary
- Solar Access
- Prevailing Wind Directions (Annual, Spring, Autumn and Winter)
- Prevailing Wind Directions (Summer)

**Source: The wind directions refer to Annual and Seasonal Wind Roses diagrams in the Air Quality Assessment provided by SLR.*

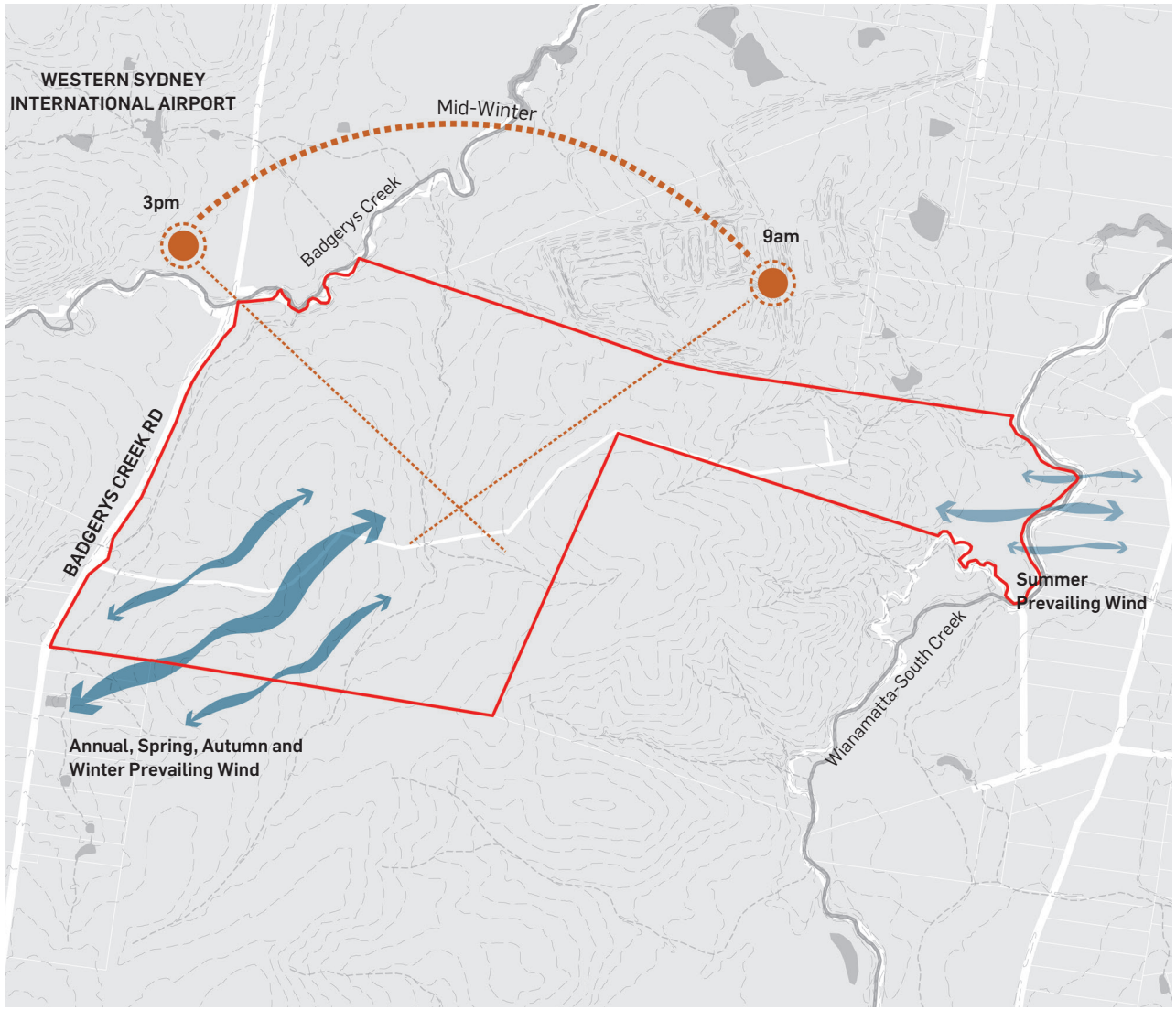


Figure 21 Indicative Solar Access and Annual Prevailing Wind Directions Plan

4.12 Flooding and Stormwater

Establishing the existing flood conditions allows an understanding of the availability of developable land and identification of regional stormwater constraints associated with the development of the site.

The site is situated between two major catchment areas which include Badgerys Creek to the north-west and South Creek to the east.

The PMF follows the route of existing extent of the riparian corridor into the site.

There are only two locations of Badgerys Creek Road which are impacts by the indicative 1% AEP area, as shown in Figure 22.

Key Insights

- Utilise the presence of the riparian corridor to mange the existing flow path and provide stormwater management facilities that integrate well with the natural environment.

Legend

- Site Boundary
- Contours
- Indicative 1% AEP Extent
- Indicative Probable Maximum Flood (PMF)
- Creekline
- Hydroline
- Riparian Corridor

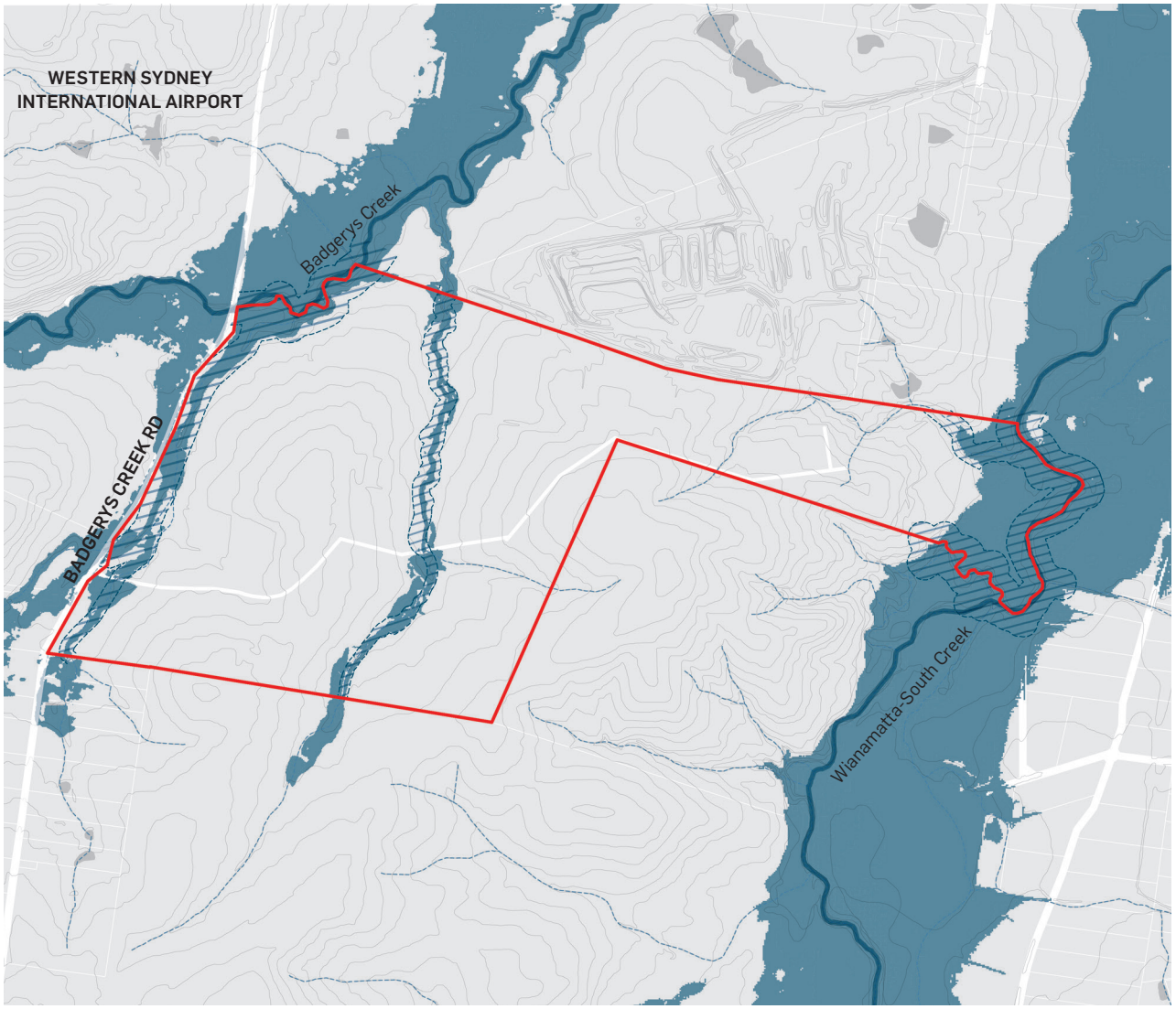


Figure 22 Flooding Plan

4.13 Bushfire

Blackash Bushfire Consulting has been engaged by IPG to provide a Bushfire Assessment Report (BAR) to support the Draft Master Plan for the subject site.

Areas of the site affected by bushfire, are mostly situated along the outer periphery of the site and associated with the Badgerys Creek and Wianamatta-South Creek corridors. The higher risk bushfire areas encroach the site however only at minimal scale with the majority of the affected areas categorised as buffer zones. The bushfire prone land largely reflects the green corridors within the site where there are opportunities for an integrated response in the treatment of these corridors.

Adequate bushfire protection measures are provided to reduce the residual risk to an appropriate level.

Key Insights

- Respond to the required (Asset Protection Zone) APZ in developing various land uses (built form requirements) on subject site.
- APZ will be contained within road reserves, riparian corridors, setback areas and/or easements within the lots.

Legend

- Site Boundary
- Asset Protection Zone (APZ) - 6M
- Asset Protection Zone (APZ) - 10M
- Asset Protection Zone (APZ) - 12M
- Asset Protection Zone (APZ) - 16M

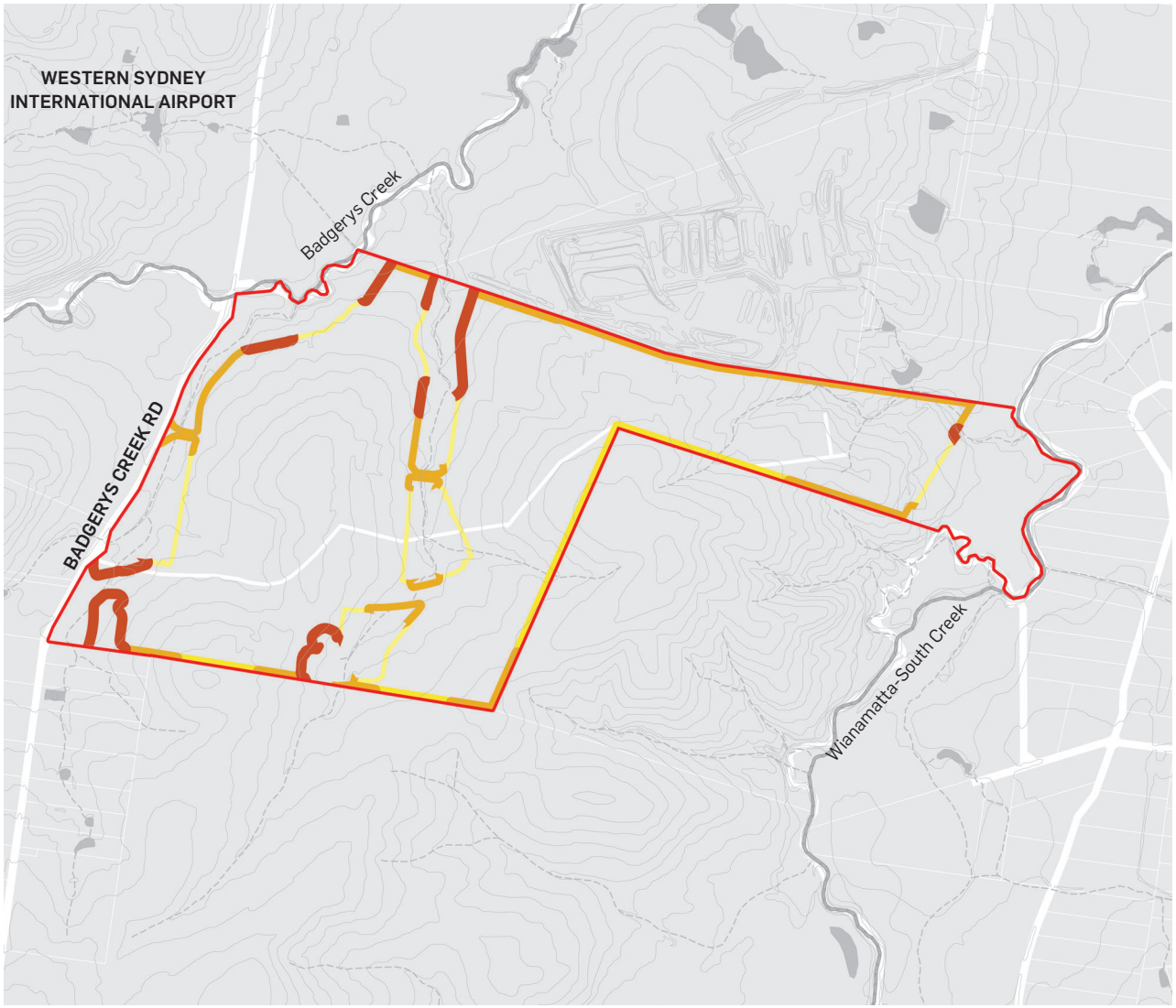


Figure 23 Bushfire Plan

4.14 Indigenous Cultural Heritage and Values

The Aboriginal Cultural Heritage Assessment (ACHA) summarises that:

- Aerotropolis Precinct is to be the focus of Aboriginal Cultural Values for the Sydney region, which needs to be designed around Connection to Country.
- 12 Aboriginal sites have been identified within the study area. The majority of sites are isolated or low density Aboriginal objects located in disturbed erosional contexts with low scientific value but high cultural value.
- The creeklines and major drainage lines have been identified as being of high significance to the Aboriginal community.

Key Insights

- Consider the value of Connecting with Country during the design process.
- Opportunity to incorporate landscape features with high contributions to aboriginal community in the precinct primary structure.

Legend

- Site Boundary
- Artefact
- Modified Tree (Carved or Scarred)
- Potential Archaeological Deposit (PAD)
- PADs
- Cultural Object
- Significant View lines
- Creek
- Cultural Sensitivity Zone

NOTE: Majority of the site has undergone moderate to high disturbances with discreet areas of potential for intact soils and sensitive landforms remaining.

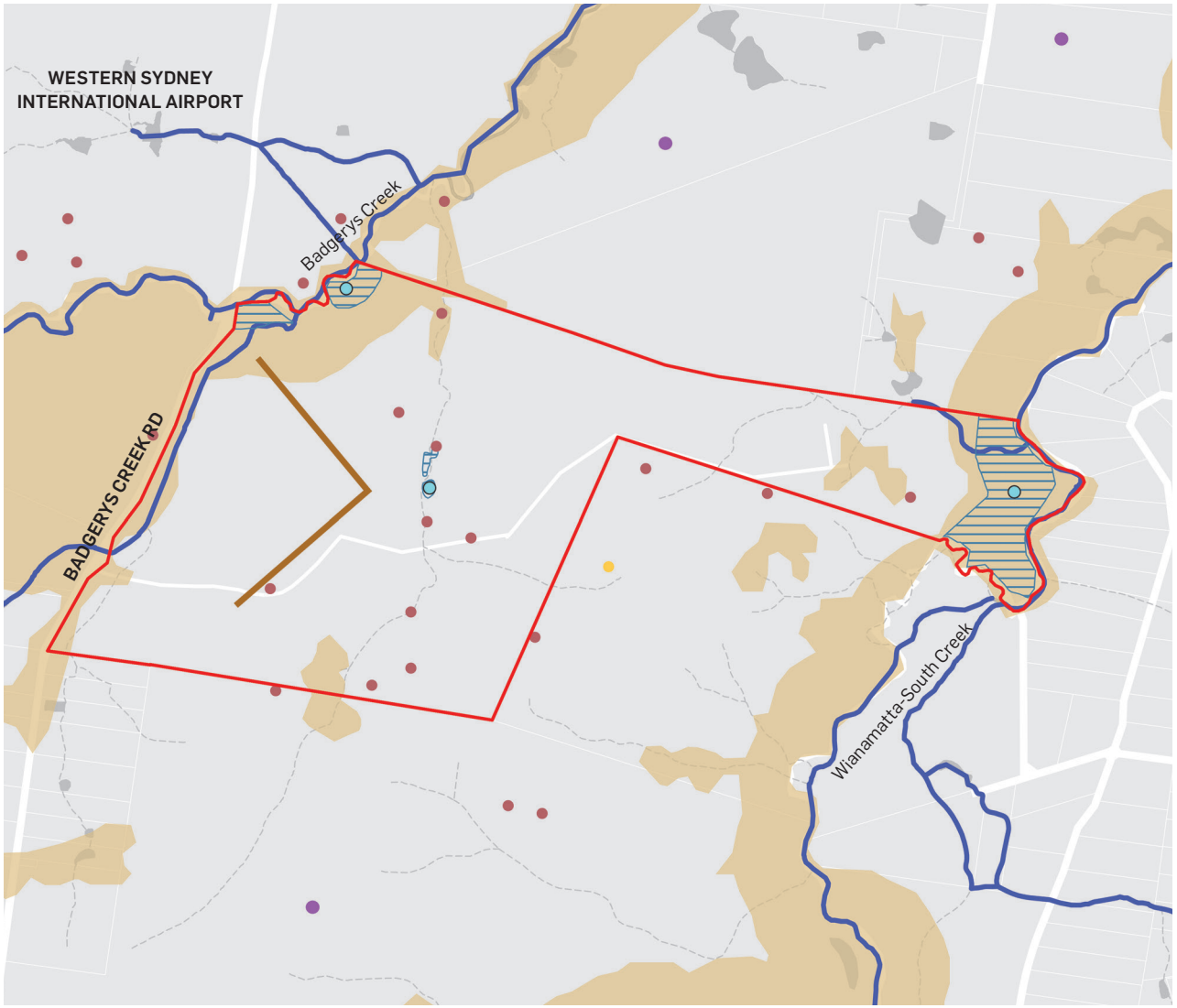


Figure 24 Indigenous Cultural Heritage and Values Plan

Source: Historical Heritage Assessment(HHA), ELA and Yerrabingin

4.15 Historical Heritage

ELA has been commissioned to prepare a Historical Heritage Assessment(HHA) to support the Draft Master Plan on the site.

The assessment summarises that the subject site property is not listed as a heritage item listed under Schedule 5 of the Liverpool Local Environmental Plan 2008 or Schedule 2 of the State Environmental Planning Policy (Western Sydney Aerotropolis) 2020, nor is it located within a Conservation Area. There are two heritage items located within 1 kilometre of the study area.

Due to the considerable distance of these heritage items, it is unlikely that development within the study area would result in a direct (physical) or indirect (visual) impact to their significant heritage values.

Key Insights

- The future potential development of the site does not result in any adverse impacts on the existing heritage characters of the surrounding context.

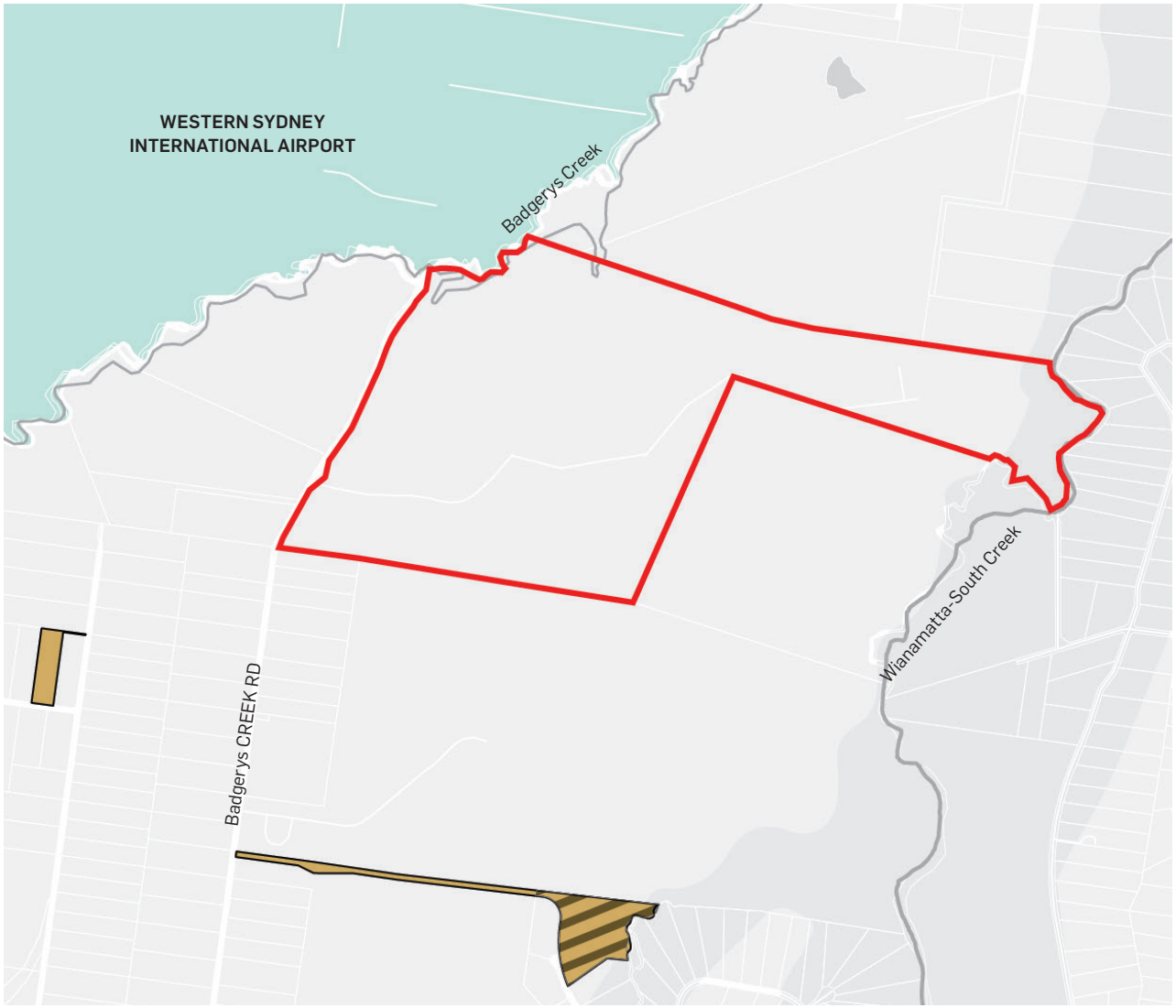


Figure 25 Heritage Plan

Source: Historical Heritage Assessment(HHA), ELA

4.16 Infrastructure and Services

AT&L have been engaged to prepare a Civil Infrastructure Report to support the Draft Master Plan on the site.

The study summarised that the following local utility services are located in the vicinity of the site, including:

- Potable Water (Sydney Water Corporation)
- Electrical (Endeavour Energy)
- Telecommunications (Telstra)
- Gas

Key Insights

- The existing utility services are mainly located along Badgerys Creek Road, except a high pressure main gas service traversing the northern part of the site, which will be relocated in accordance with the requirement of Jemena.
- The future development can accommodate all the required infrastructure and services.

Legend

- Site Boundary
- 150mm Main Potable Water Services
- 110mm Main Gas Services
- 200mm High Pressure Main Gas Services
- Telecommunication Services
- Electrical Services

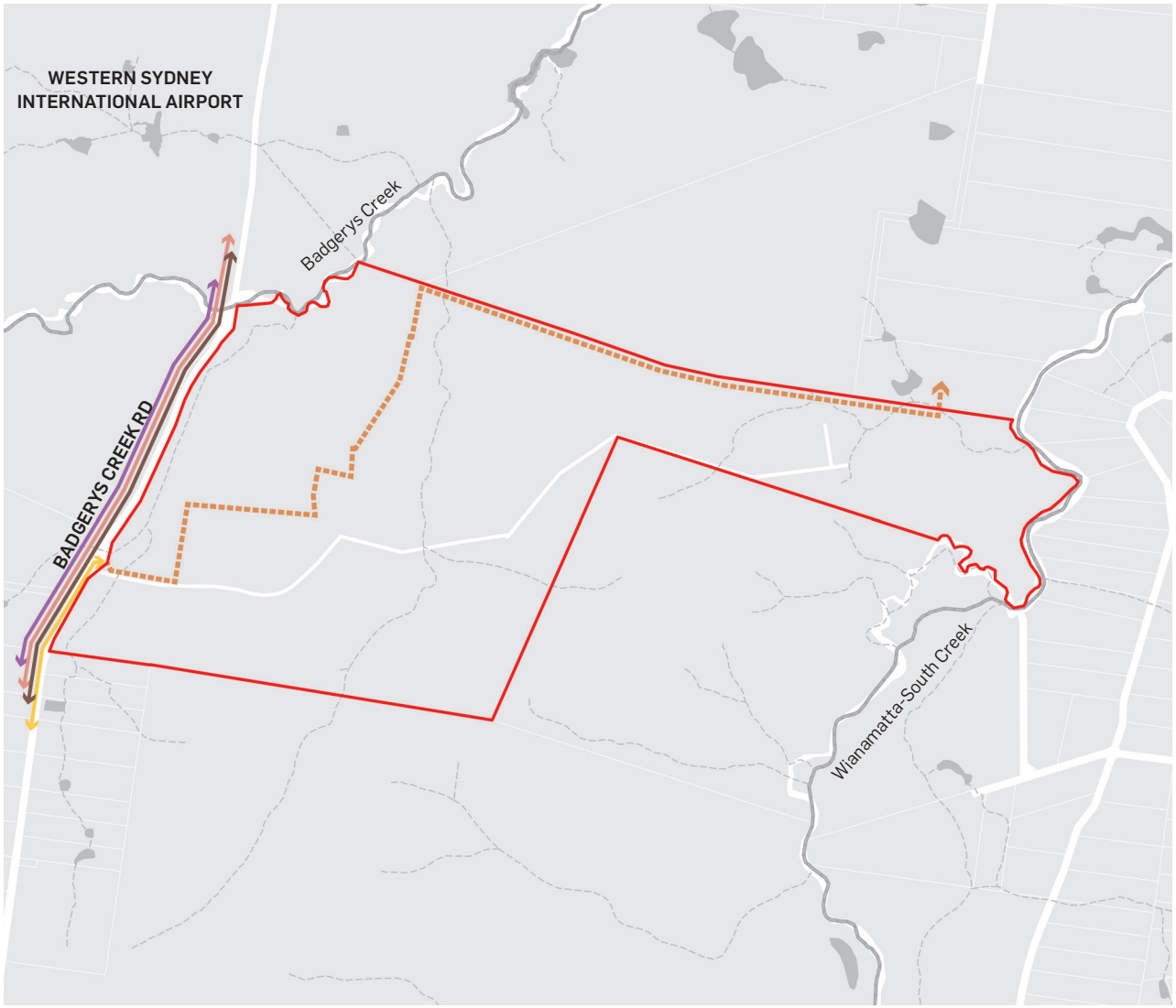


Figure 26 Infrastructure and Services Plan

Source: Civil Infrastructure Report, at&l

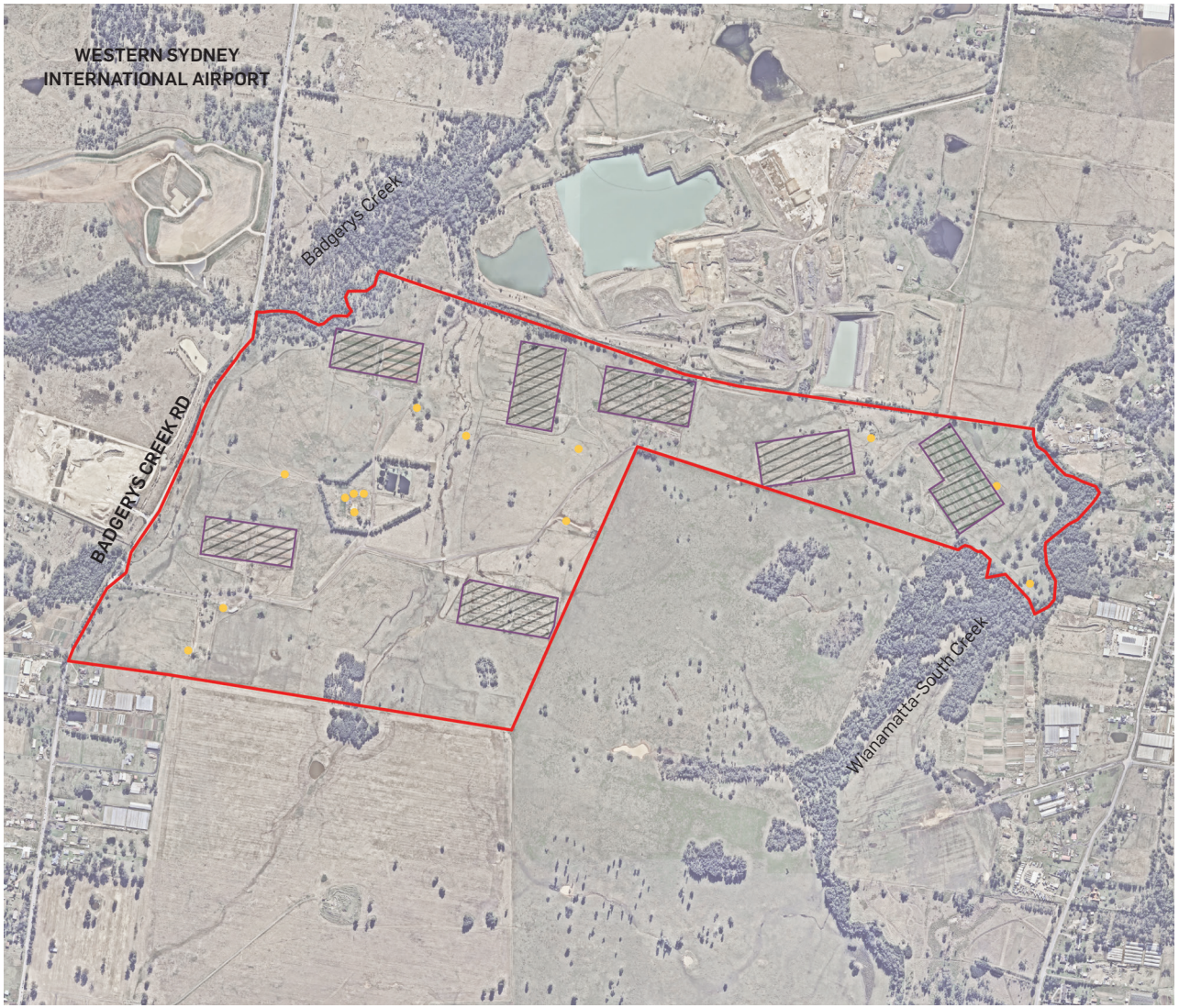
4.17 Contamination Assessment

Senversa Pty Ltd (Senversa) was engaged to prepare an environmental report for the subject site. The overall objective for the investigation and remediation work was to assess the site for the presence of soil and/or groundwater contamination, remediate where necessary, and validate the site as suitable for the proposed use.

Based on site assessment, Senversa concludes that the site is suitable for the proposed commercial/industrial use. An unexpected finds protocol (UFP) and Asbestos Management Plan have been prepared.

Key Insights

- No contamination issues identified at the Master Plan scale.



Legend

- Site Boundary
- Approximate Farm Extent with Targeted Surface Assessment Location
- Targeted Surface Assessment Location outside of Farm Extent

Figure 27 Contamination Plan

4.18 Air Quality and Odour

SLR Consulting Australia Pty Ltd (SLR) has been commissioned to prepare Air Quality Assessment (AQA) in support of the Draft Master Plan application for the subject site.

Based on the types of existing and proposed sources of air pollutants identified within this assessment, the future air pollutants of interest are likely to be:

- Odour emissions from poultry farms, mushroom farm, and the landfill facility
- Products of fuel combustion from local road and air traffic

Key Insights

- Based on the results from the field odour surveys and the assessment based on the separation distances, it is concluded that the potential impact significance for the site is of minor significance.
- An Air Quality Impact Assessment (AQIA) be carried out prior to the construction and operation of any industrial units within the site.

Legend

- Site Boundary
- Greenhill Mushrooms
- SUEZ Recycling & Recovery
- Poultry Farm
- Elford Group
- CSR Site

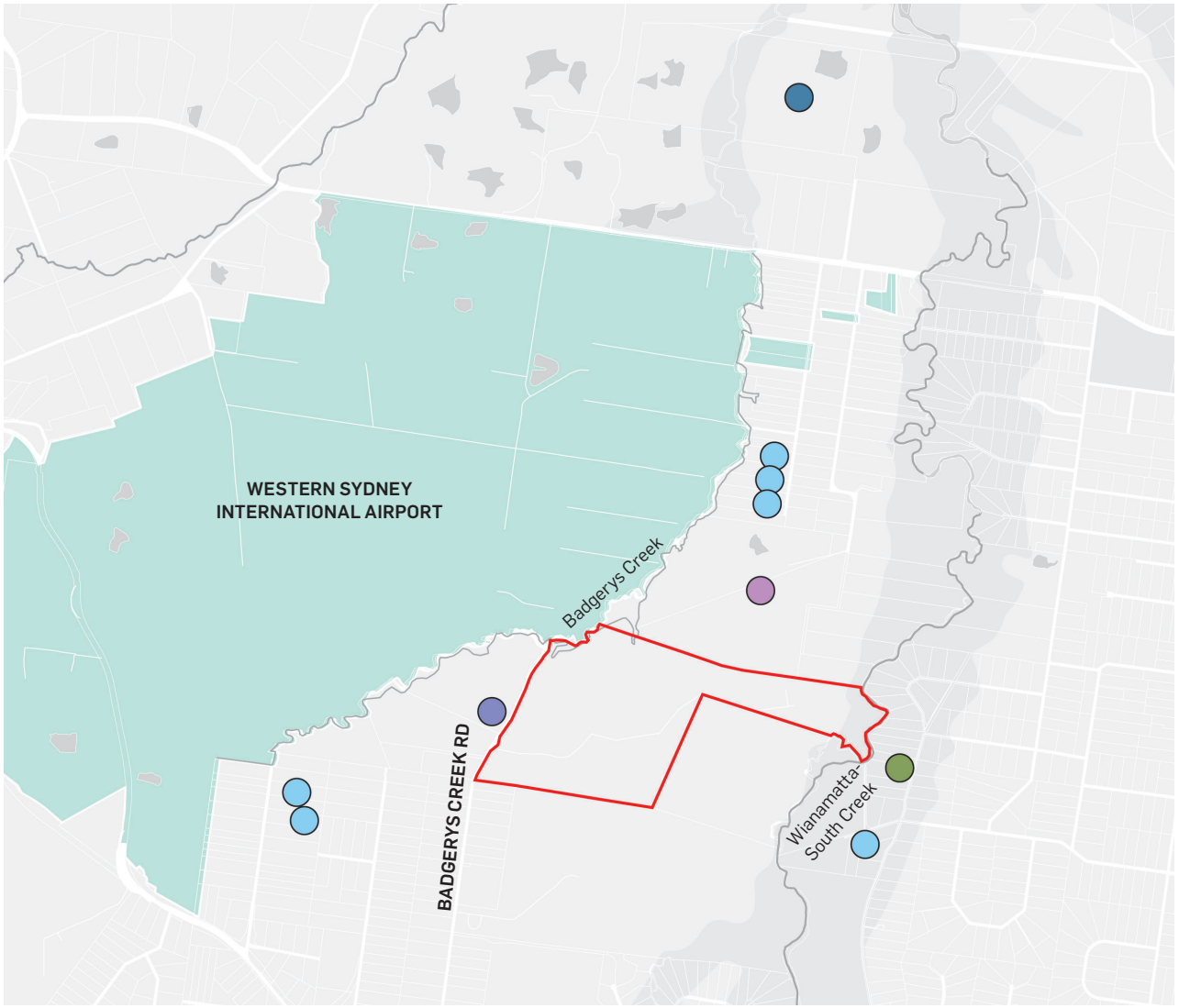


Figure 28 Existing Neighbouring Emission Sources Plan
Source: Air Quality Assessment (AQA), SLR Consulting Australia Pty Ltd (SLR)

4.19 Building Wind Shear and Turbulence

The SEPP (Precincts - Western Parkland City) requires specific threshold to protect Airport operations from wind shear and turbulence generated by buildings. SEPP Cl 4.18, applies to development on the land shown within the Wind shear Assessment Trigger Area that penetrates the 1:35 surface.

For the purposes of this section, development penetrates the 1:35 surface if the distance from the runway centreline to the closest point of the building is less than or equal to 35 times the height above runway level of the building (SEPP Cl 4.18 (3)).

The proposal ensures that the proposed building height does not penetrates the 1:35 surface.

Key Insights

- Arrange the proposed height of the buildings with reference to the 1:35 surface compliant with the SEPP requirements.

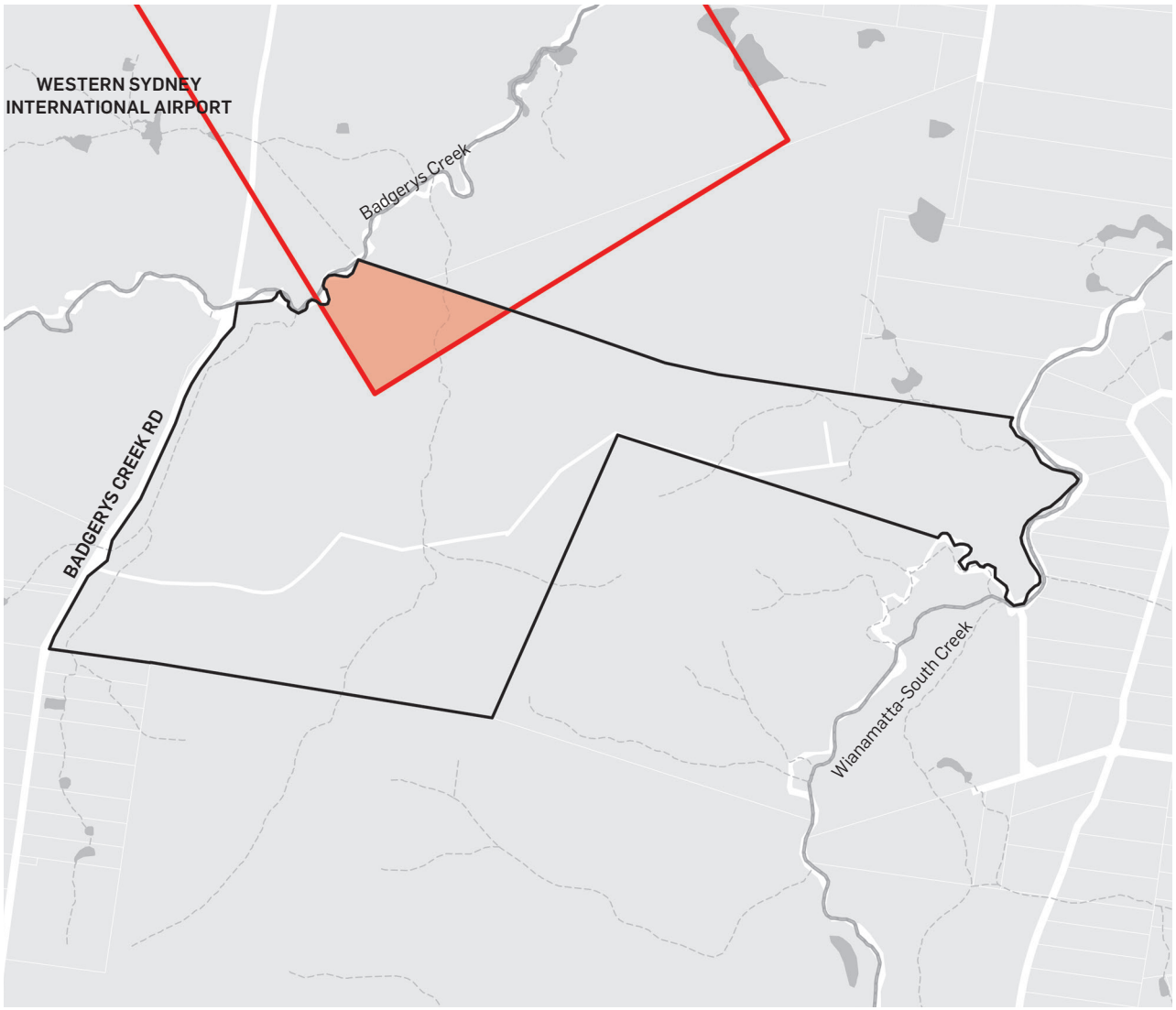


Figure 29 Wind Shear Restrictions Plan

Legend

- Site Boundary
- Wind shear Assessment Trigger Area (only when proposal penetrates the 1:35 surface)
- Wind shear Assessment Trigger Area within the site

Source: State Environmental Planning Policy (Precincts-Western Parkland City) 2021 Lighting Intensity and Wind Shear Map

4.20 Noise and Vibration

The site's proximity to the Western Sydney International Airport (WSI) presents issues in relation to noise.

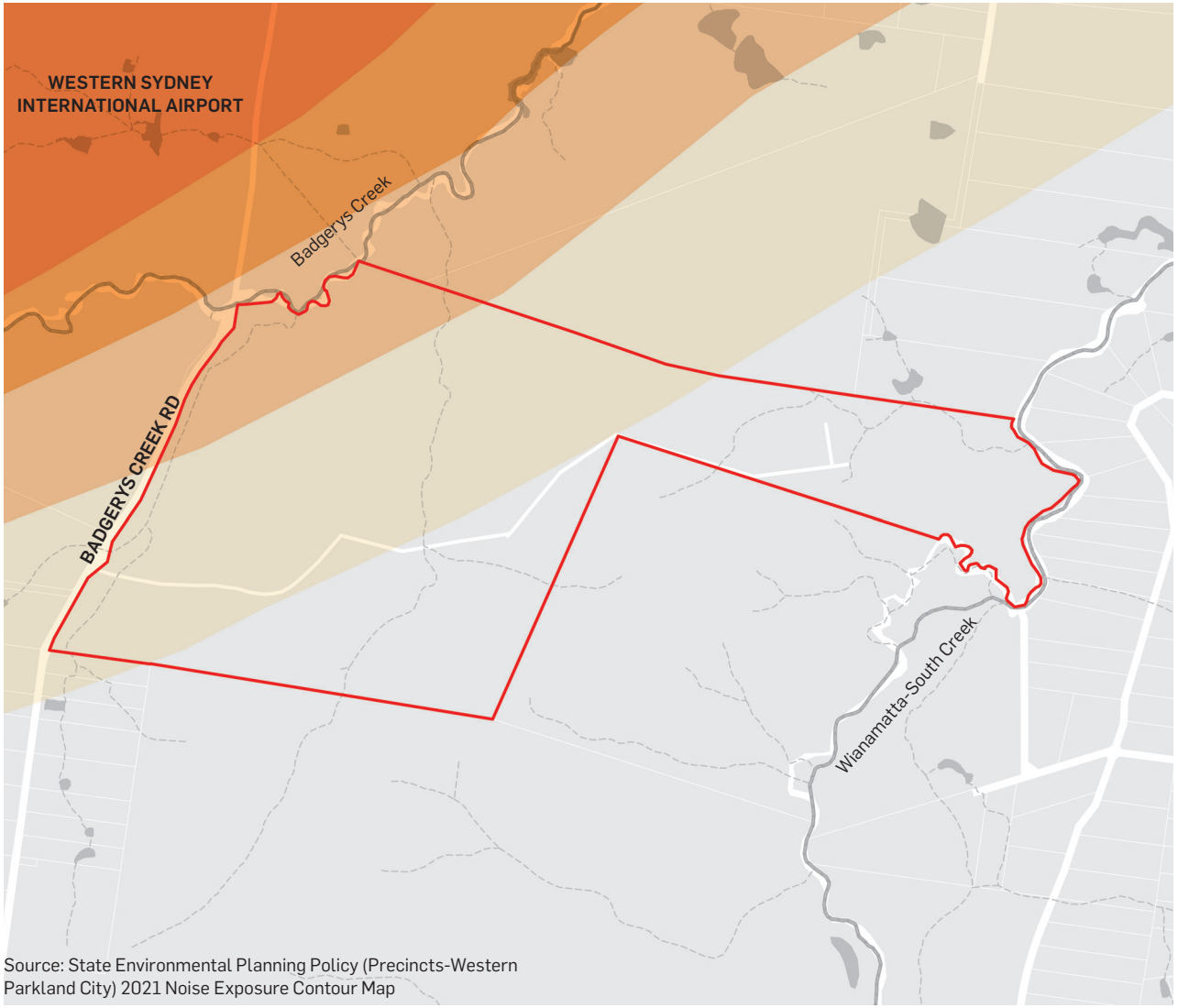
The SEPP (Precincts - Western Parkland City) identifies portions of the site being affected by the ANEC 20-25 and also ANEC 25-30 buffers. The areas subject to these ANEC controls have restrictions on residential development and require permissible development, which include employment uses, to adopt appropriate design and construction standards in order to mitigate the impacts of aircraft noise. The remainder of the site to the east is not affected by aircraft noise and do not have restrictions to development. This allows for mixed-use development within these locations, under the ANEC controls.

Key Insights

- Areas outside noise restriction area provide opportunities for local employment centre and mixed commercial uses, including potential child care centres and/or schools.
- Appropriate noise mitigation measurements are to be considered at construction stage to minimise the noise impacts of the future transport corridors on future users.
- Future developments should consider and minimise the noise impacts to the surrounding residential land.

Legend

- Site Boundary
- ANEC between 20 and 25
- ANEC between 25 and 30
- ANEC between 30 and 35
- ANEC exceeding 35



Source: State Environmental Planning Policy (Precincts-Western Parkland City) 2021 Noise Exposure Contour Map

Figure 30 Indicative Noise Contour Plan

4.21 Aviation Restrictions

Landrum and Brown have been engaged to prepare an Aeronautical Impact Assessment (AIA) to assess the aviation considerations related to the WSI and explore maximum permissible height for buildings at different locations within the site.

The Precinct Plan highlights a key height consideration – *notwithstanding maximum building height controls, all buildings and structures, including equipment used during construction (such as cranes) are required to be contained within Obstacle Limitation Surface (OLS) limits established under the WPC SEPP*, which the IPG Draft Master Plan complies with.

The AIA provides an assessment of the IPG Draft Master Plan in accordance with the National Airports Safeguarding Framework (NASF) which aims to enhance the current and future safety, viability and growth of aviation operations. The key assessment principle under the NASF of concern for building height is the Wind shear and Turbulence, defined by the wind shear assessment trigger area.

The AIA provides a detailed review of the Draft Master Plan and identifies all future development across the entire site is considered permissible from an aviation perspective to a height of around 125.5m Australian Height Datum (AHD). Future development above 96m AHD on the development site and in the wind shear assessment trigger area is permissible, however would need to be subject to more considered evaluation, i.e. CFD modelling, prior to any specific planning decision or approval.

4.22 Geotechnical and Acid Sulphate Soil Impacts

Cardno has been commissioned to undertake a geotechnical Investigation report to determine the in-site ground conditions of existing agricultural lands to support the Draft Master Plan on the site.

The assessment report summarises that:

- Geotechnical investigatory works were undertaken at strategic locations within the proposed development footprint area.
- The subsurface conditions encountered across the site were relatively uniform and are consistent with regional geology expected in accordance with published geological maps.
- No groundwater was encountered within the investigatory boreholes
- Typical concept footings such as both shallow and deep footings systems may be adopted for various structures, across the subject site.
- The site does not contain Acid Sulphates Soils.

Key Insights

- Earthworks should be carried out in compliance with AS3798 –2007 " *Guidelines on earthworks for commercial and residential developments".*
- The footings shall be designed by a geotechnical designer and structural engineer once loadings and geometry details are available.
- Adequate drainage of all working areas shall be maintained throughout the period of construction to ensure run-off of water without ponding except where ponding forms part of a planned erosion and sedimentation control system.

4.23 Key Constraints

The key constraints of the site are in the following areas:

ORIGINAL ROAD NETWORK ALIGNMENT UNDER THE PRECINCT PLAN

- Whilst the proposed road corridors provide strategic connection to and from the site, the existing road configuration under the Precinct Plan limits development efficiency within the site.
- The BMLR alignment also sterilises part of the site and results in a poor subdivision outcome of a section of our land.

THE PROPOSED ROAD ALIGNMENT

Due to the width of ERR, it performs as a barrier for pedestrian and cycling movement to maintain the connectivity within the site.

BIODIVERSITY AND RIPARIAN CORRIDOR

- Riparian corridors - The site contains three riparian corridors, two of which are of regional significance in Wianamatta-South Creek and Badgerys Creek. These riparian corridors restrict development and require interface considerations from adjacent development.
- Environmental conservation - The eastern end of the site, along the Wianamatta-South Creek Corridor is zoned Environmental and Recreation under the WPC SEPP which is to be preserved.
- Existing High Biodiversity Value (HBV) vegetation within the site requires protection.
- Stream order required buffer zone - buffer zones ranging from 10m to 40m on each side of the watercourses are required.
- Inner 50% of riparian corridors requirement - DCP requires vegetated zone for the inner 50% of riparian zones, avoiding streets, passive open spaces and pedestrian and cycle paths encroaching the areas.
- The existing flood paths on the eastern and western boundaries of the site - which require appropriate level of mitigation measures.
- APZ requirement along the riparian corridor - which should be incorporated into the development options of the site.

BUILT FORM

- Building height - Aviation restriction especially the wind shear trigger area applies to the certain area of the site which limits the building height of the future development.

Note: As part of this Master Plan process, detailed analysis and recommendations have been provided in the 'Civil Infrastructure Report' with regards to the water servicing issues and opportunities for the site.

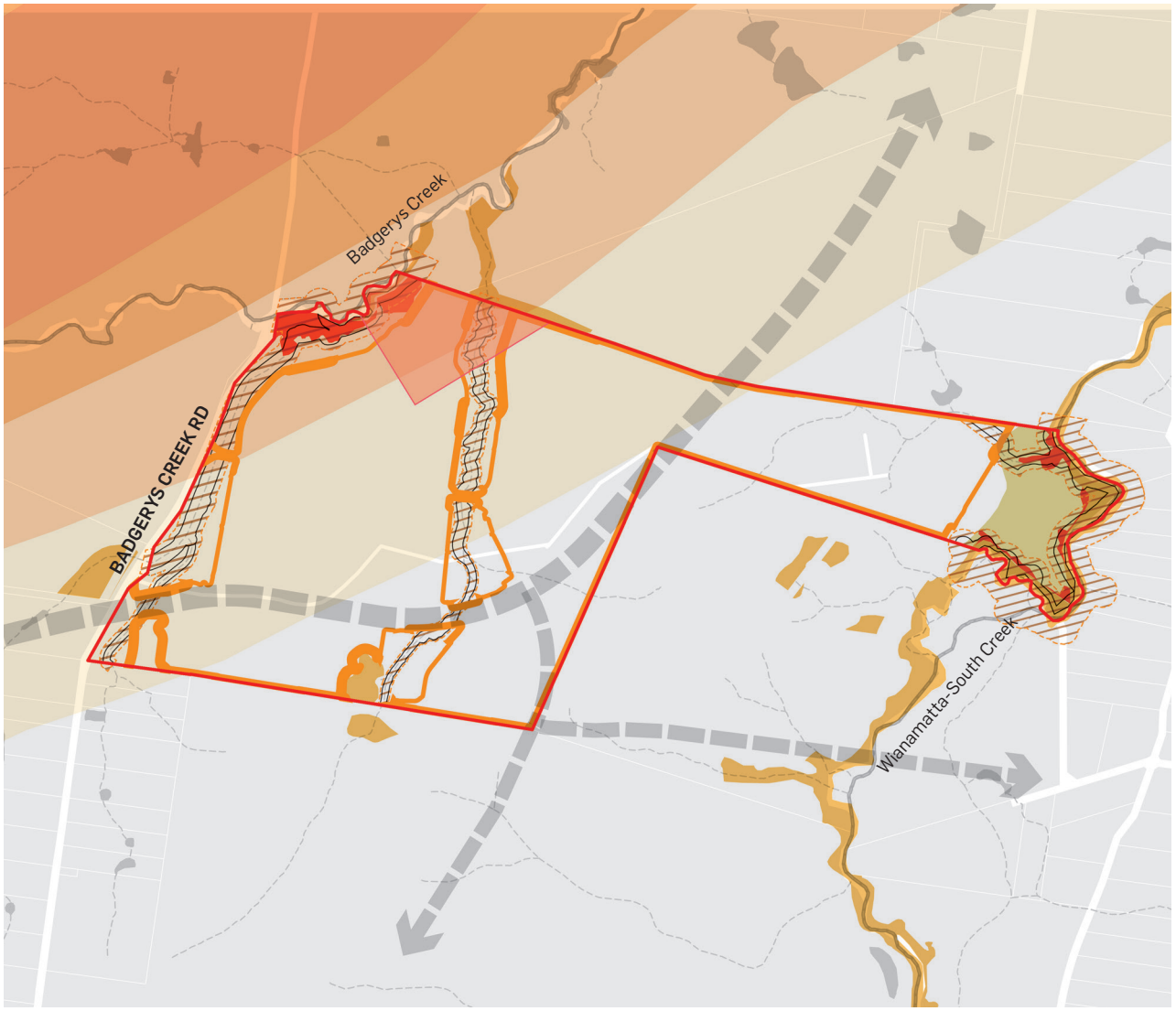


Figure 31 Indicative Site Consolidated Constraints Plan

4.24 Key Opportunities

STRATEGIC LOCATION

Strategic location along city-shaping transport corridors

- The site is connected to the broader Aerotropolis via the ERR and BMLR which run through the site.
- The site is situated to the north of the proposed Aerotropolis Core Metro Station which will provide the site greater connectivity along Sydney Metro Western Sydney International Airport line.

Proximity to WSI and Bradfield City Centre

- The site has a direct interface with both the WSI and future Bradfield City Centre which makes it an attractive location for future employment uses.
- The site will benefit from its strategic location adjacent to future CBD of the Western Parkland City and the international gateway that is the WSI.

LAND USES

Opportunity to deliver prime enterprise uses within the Aerotropolis Core

- The site presents a major opportunity to align with the land use vision and support the evolution of the Aerotropolis Core Precinct.
- The site provides strong connectivity for future employment uses.

Opportunity to provide a consolidated Local Centre

- The site provides an opportunity to consolidate the two local/neighbourhood centres proposed in the Precinct Plan and locate a new Local Centre adjoining the public transport services to enhance its accessibility.

ROAD NETWORK

The proposed road realignment to create more efficient development options

- The realignment of the proposed arterial roads provides significant opportunities for the continuation of the riparian and open space corridor. It also facilitates more efficient development parcels for the type of employment users envisioned on the site.

BIODIVERSITY AND RIPARIAN CORRIDOR

Opportunity to integrate and improve the Riparian Corridors

- The site has interfaces with two major riparian corridors along Wianamatta-South Creek and Badgerys Creek. It provides an opportunity to:
  - Upgrade the central, eastern and western riparian corridors by enhancing their environmental characteristics.
  - Maintain and enhance the green and blue character through a network of interconnected open spaces and active transport corridors.
- The riparian corridors and sensitive open spaces will be incorporated into the landscape character of the site.

BUILT FORM

A sensitive built form in response to the site characteristics

- Opportunity to create sensitive built form that maximises the amenity to the public domain.
- Concentrate appropriate built form height in response to the noise and aviation requirements.
- Provide sensitive interfaces with the natural environment.

05 VISION AND KEY DIRECTIONS

5.1 Vision

CONNECTING WITH COUNTRY

A PRECINCT THAT RESPONDS TO THE ENVIRONMENTAL AND SOCIAL WELL-BEING OF THE SITE.

The site provides an opportunity to recognise and connect with Dharug, Dharawal and Gandangara communities and have a positive impact for Country and people; to design a place of the future, where the environment and people are able to exist for the benefit of one another.

The design will increase biodiversity and habitats for threatened species, improve the health of Country, soil and the waterways It will also increase access to Country for both Indigenous and non-indigenous people. This will allow people to develop a further understanding and appreciation for Country, and assist in creating long-term solutions to care for Country.

CONNECTIVITY

A CONNECTED PRECINCT TO UNLOCKS THE 30-MINUTE CITY.

The success of the Aerotropolis Core Precinct will be underpinned by good connections to existing and future centres and residential areas.

The site will connect to major roads including The Northern Road (A9) and Westlink (M7) through Elizabeth Drive which will facilitate access to the key strategic centres within Greater Sydney.

The site will be located at the intersection of Fifteenth Avenue, BMLR and ERR. They will be major public transport routes and will reinforce a north – south transport corridor linking Elizabeth Drive to the Northern Road. It will also connect the site to major centres and job hubs including Bradfield City Centre and the future Aerotropolis Core Metro Station.

The proposed road and public transport network within and surrounding the site will significantly enhance the site connectivity to unlock The 30-Minute City Vision.

PRODUCTIVITY

A PRECINCT TO ENHANCE THE EMPLOYMENT OFFER.

The site will support the provision of employment uses, mainly in the form of warehouse and logistic facilities that are in high demand in Western Sydney.

Commercial uses will be concentrated around a new Local Centre with access to public transport, amenity and the exposure to ERR and BMLR.

We will support Smart Cities technology from the commencement of the project to ensure that we attract leading-edge businesses.

LIVEABILITY

A CATALYST PRECINCT FOR EARLY ACTIVATION TO SUPPORT THE AEROTROPOLIS.

As landowners of a large consolidated site, IPG is uniquely positioned to collaborate with adjoining landowners and key government partners to deliver early activation of the Bradfield Precinct.

This includes protecting key transport corridors and ensuring quality urban design outcomes for employment and residential areas are delivered over time.

The site also facilitates a Local Centre with opportunities for a range of mixed uses. The centre is envisaged to be a community-focused hub offering the convenience of public and commercial services with an energising sense of civic and public connectivity. The built form is characterised by a friendly, welcoming environment for workers and visitors.

SUSTAINABILITY

A GREEN PRECINCT.

The site will cater for open spaces in the form of parks, recreation areas and riparian corridors.

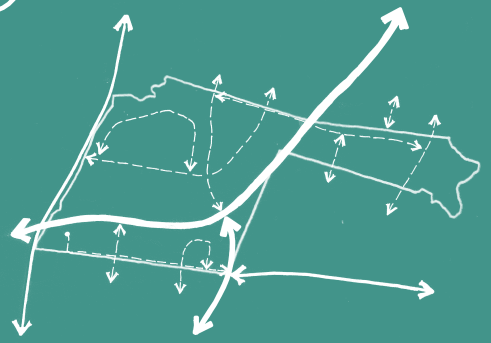
It maintains and enhances the role of the existing riparian corridor within the future development to ensure improving the environmental character of the site.

Section 06 of the report outlines how each component of the Draft Master Plan responds to the Vision.

5.2 Key Directions

CONNECTING WITH COUNTRY

CONNECTIVITY

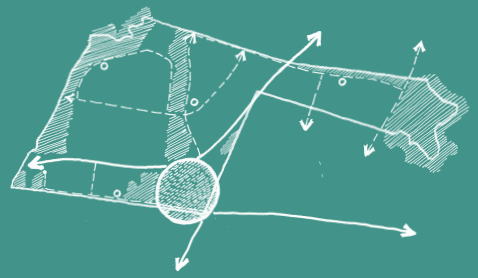


- **The convergence of three clans** - Engage with Dharug, Dharawal and Gandangara communities to understand the stories and creating safe and welcoming places/elements that reflect local narratives and stories for the Aboriginal community.
- **Water landscape** - Create a site that works with the natural landscape, and spaces that allow people to be amongst and connect with nature, encouraging them to develop a better understanding of Country.
- Utilise riparian corridors/natural waterways for the purpose of flood control measures/solutions as a natural and non-intrusive design.
- **Community driven** - Create community driven spaces with obvious connection to Country through story interpretation, ecotonal colour palettes, consideration of the natural environment and non human kin.
- **Deliver a well-connected and highly accessible precinct** with proximity to the Airport, Aerotropolis, Kemps Creek, Rossmore and Liverpool CBD - playing a critical role to the broader network of logistics, industry and employment for Western Sydney and beyond. Leverage ERR as a major freight carrying and through traffic corridor.
- **Create a precinct that balances the role and function of major movement corridors** with local place outcomes, and roads and streets integrated into the system of public spaces and places.
- **Support all modes of transport** to give people choice, including safe and enjoyable active transport links feeding into broader regional networks and integrated with the frequent and reliable public transport system.
- **Adopt a legible and efficient urban structure** underpinned by a simple grid.

PRODUCTIVITY

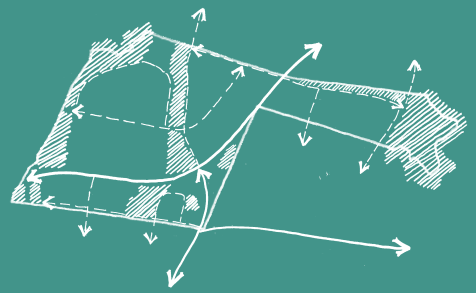
- **Intensify land uses** to promote a stronger and more productive economy that maximises infrastructure investment.
- **Provide a flexible and future proofed urban grain** that allows for an evolution of uses, densities and staging over time to cater for different tenants and building needs.
- **Foster a strong and collaborative relationship** between landowners, investors and all levels of government to deliver the vision for IPG.
- **Adopt a super lot strategy** that responds to market needs and allows for future transitions in land uses and densities.

LIVEABILITY



- **Deliver great places** within an activated core adjoining public transport nodes to enrich local character, vibrancy and bring people together.
- **Create an open space network** that promotes health and well-being through a connection with nature and a sense of community.
- **Deliver a connected network of active transport** routes integrated with the natural character of the site to enhance the quality of life.
- **Create activated nodes** to be a community-focused hub offering the convenience of public and commercial services with an energising sense of civic and public connectivity.

SUSTAINABILITY



- **Promote tree canopy** to reduce the urban heat island effect, support ecological diversity and contribute to the future character and identity of the Parkland City.
- **Restore and revitalise riparian corridors** through the west and centre of the site, that cool the environment, enable water detention and retention, and connect to the history of the site.
- **Adopt Water Sensitive Urban Design (WSUD) strategies** that positively contribute to the water quality, functionality and health of the Wianamatta-South Creek catchment.

Section 06 of the report outlines how each component of the Draft Master Plan responds to the Key Directions.

06 DRAFT MASTER PLAN

This chapter of the report illustrates Draft Master Plan options, the Draft Master Plan and various levels of development strategies for the subject site.

The Draft Master Plan is informed by the detailed assessment of the key conditions of the site and it captures the key development outcome for the site.

6.1 Overview

This chapter provides an overview of the proposed Draft Master Plan for the site and development strategies, including:

- Land Use
- Road Network
- Public and Active Transport Network
- Ecology and Green/Blue Infrastructure Stormwater and Water Cycle Management
- Open Space and Public Domain Master Plan
- Open Space Delivery Plan and Schedule
- Social Infrastructure Needs/ Delivery
- Built form Strategy including Height, GFA, Setbacks, Building Typology and Street Frontage
- Local Centre Master Plan
- Public Art Strategy
- Infrastructure and Utilities
- Development Staging

6.2 Master Plan Options

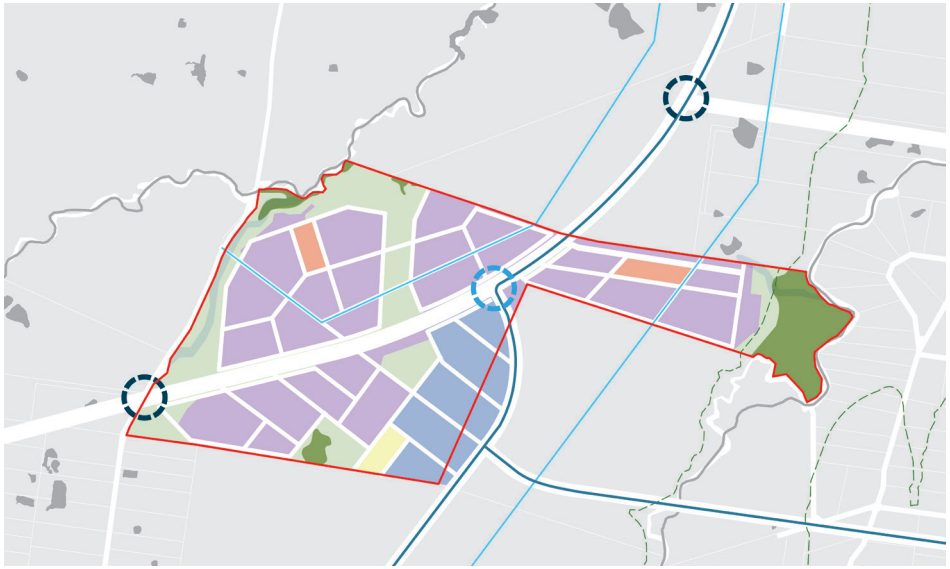
Two Draft Master Plan options (demonstrated in the following page) have been investigated in detail.

With regards to the education land use included in Option 1, Option 2 also provide the opportunity for this land use (if required and confirmed by the Department of Education) within the new Local Centre.

Legend (Refer to maps on page 61)

- Site Boundary
- Local / Neighbourhood Centre
- New Local Centre
- Business and Enterprise
- Enterprise and Light Industry
- Education
- Infrastructure and Utilities
- Open Space / Stormwater Land
- Proposed Local Park
- Environment and Recreation
- Watercourse
- Rapid Bus
- Local Bus Network
- Planned Signalised Intersection
- Left-in Left-out Intersection

Option 1 - Interpretation of the Precinct Plan



OPTION 1	DESIGN OUTCOMES
Major road corridors	• Adopted the Precinct Plan's alignments of ERR, BMLR and Fifteenth Avenue which limit the future development and subdivision.
Local road network and lot size	• Fine grid network and small lot sizes are not suitable for industrial and warehouse uses and potential traffic flows.
Local/neighbourhood centres	• Located at the edge of the site lacking exposure and accessibility of public transport.
Riparian corridor	• Riparian corridor along the creek in the middle of the site is not continuously connecting to the south.
Education	• Require land amalgamation to deliver the education use at the southern boundary. • The location of the education use is not adjacent to the public transport service or residential areas.

Option 2 - Proposed Structure Plan (Proposed road realignments & Adjusted Land Use Layout)

OPTION 2	DESIGN OUTCOMES
Major road corridors	• Adapt the new proposed alignments for ERR, BMLR and Fifteenth Avenue.
Local road network and key Intersections	• Modify the local road network to support and improve traffic movement along ERR and BMLR in accordance with the TfNSW requirements. The new road network supports the future enterprise, industrial, warehouse uses and Local Centre.
Riparian corridor	• Realign a portion of Riparian Corridor 3's tributary along the northern boundary for the purpose of a Riparian Street to be consistent with the DCP and Precinct Plan.
Education	• Integrate the potential education use with the new Local Centre.

6.3 Draft Master Plan

Legend (Refer to plan on page 63)

Site Boundary

The site has a total area of 184Ha.

Enterprise and Light Industry

The majority of the site consists of the Enterprise and Light Industry use which will support the economic hub of the Aerotropolis Core as well as provide opportunities for higher-order jobs.

Local Centre

A new Local Centre supported by the future rapid transport services, will provide an activated core with a mix of retail and commercial uses complementary to the Bradfield City Centre.

Indicative Amenity Nodes: Restaurants/ Cafés

Amenity nodes are located within the industrial lots to serve the local working communities.

400m Radius

This illustrates the 5 minute walking catchment from amenity nodes.

Roundabout

Two roundabouts are proposed within the site along the Road 3.

Active Transport Network - Shared Path (OnRoad)

Active Transport Network - Shared Path (Off Road)

Active Transport Network - Foot Path (On Road)

Active Transport Network - Foot Path (Off Road)

Future ERR Underpass

Active Transport Network - Cycleway (On Road)

Planned Signalised Intersection

The intersections of arterial roads will be controlled by traffic lights. Three planned signalised intersections are proposed along ERR and additional one at the intersection of BMLR and Fifteenth Avenue.

Left in-Left out Intersection

The intersections between the local streets and arterial roads will be left in-left out to minimise the impact to the main traffic flow and improve the vehicular movement.

Primary Arterial Road - ERR

Indicative Local Bus Network

Zone Substation

Endeavour Energy's Bradfield North Zone Substation to be designated SP2.

Open Space

This open space corridor is integrated with the riparian corridor and provides recreational amenity for the community. It also provides opportunities to accommodate active open spaces and playgrounds.

Local Park

A new local park is located at the heart of the new Local Centre with the retention of the existing vegetation.

Riparian Corridors

The Riparian Corridors include various stream order which requires landscape buffer zone between 10-40m from the top of bank on each side.

Retained HBV Vegetation within Development Lot

HBV area at the southern boundary to be retained within the developable land in consistent with the Precinct Plan.

Integrated Stormwater Basins

A series of drainage basins have been proposed to appropriately manage water flows, which are predominantly integrated with the riparian corridors.

Proposed Intersection to be Investigated

DRAFT MASTER PLAN

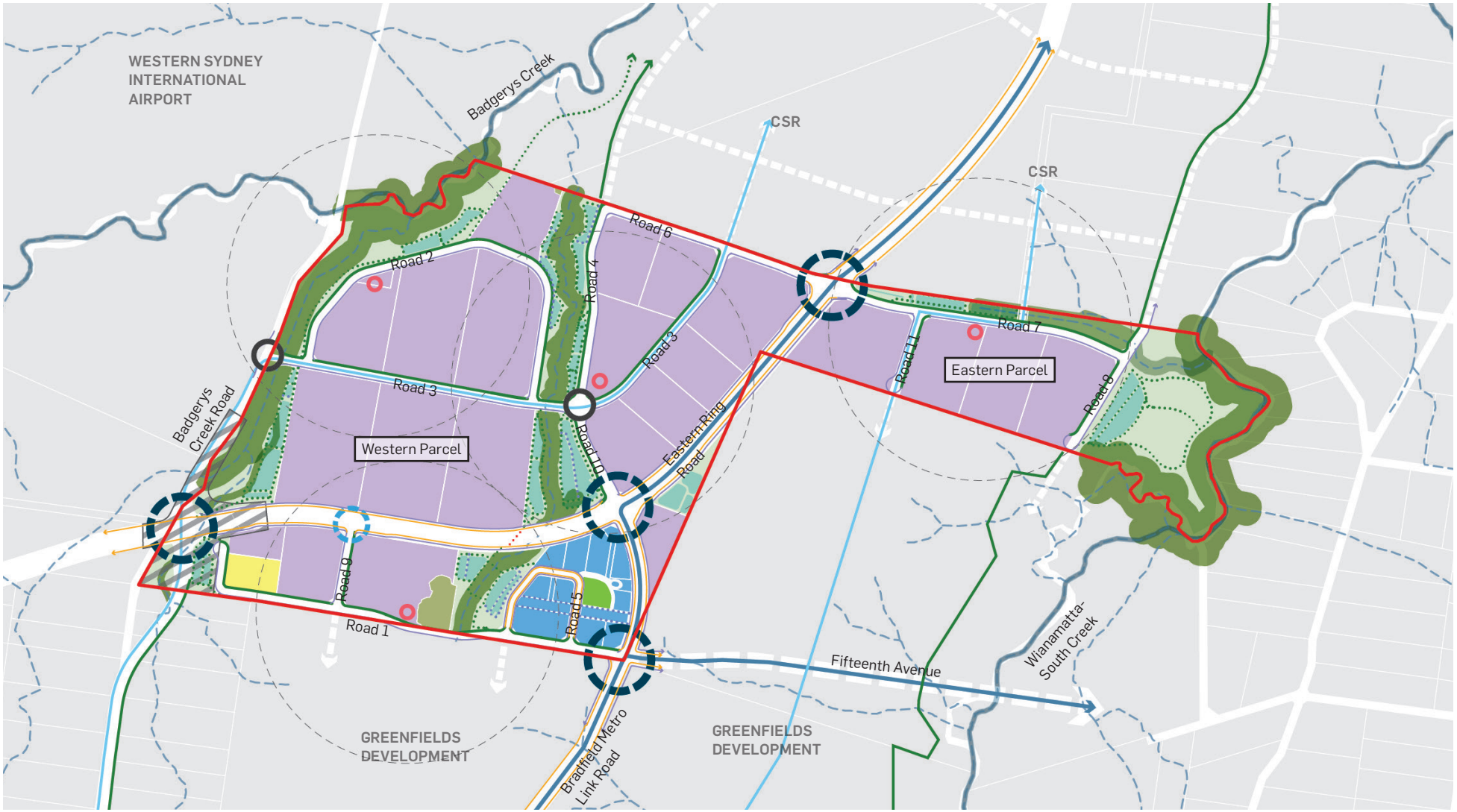


Figure 32 Draft Master Plan

Figure 33 Proposed Light Industrial Render
Source: SBA Architects

6.4 Key Insights

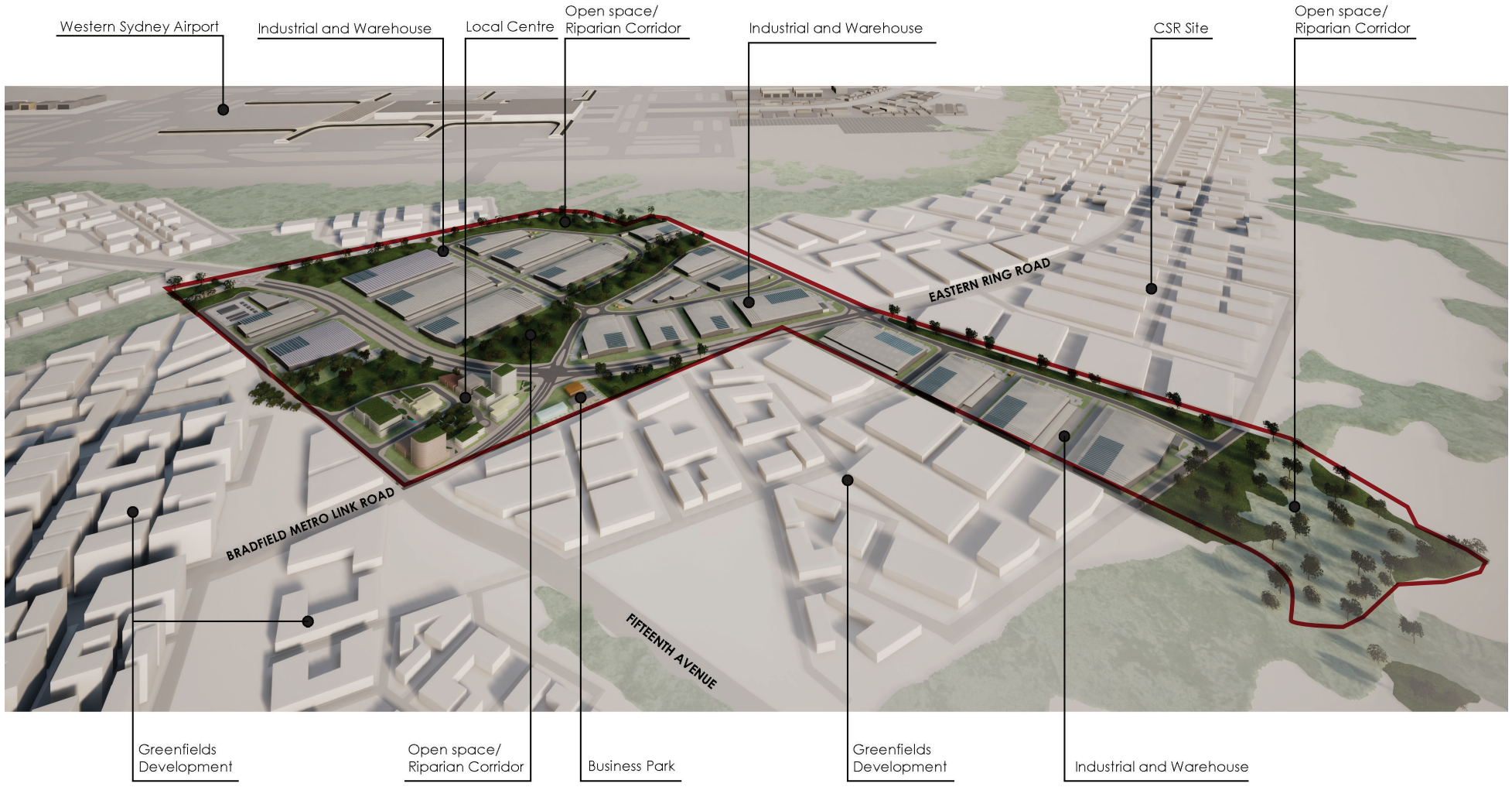
Through a co-design process with the Technical Assurance Panel (TAP) which was undertaken in accordance with the Master Plan Guidelines, the Draft Master Plan proposes a series of strategic directions and variations to the Precinct Plan.

The key strategic directions proposed within the IPG Draft Master Plan include:

- **Creek Continuity:** The proposed Draft Master Plan layout provides better connectivity through the central riparian corridor.
- **Re-alignment of the Eastern Ring Road (ERR) and Bradfield Metro Link Road (BMLR):**
  - The ERR and BMLR are realigned to create more feasible lots to accommodate the type of employment uses viable on the site.
  - The proposed realignments do not impact on the road hierarchy of both roads, or any road connecting into these roads, and will serve the same purposes identified in the Precinct Plan.
- **A Local Centre of the Aerotropolis within the site:** The re-alignment of the two major arterial roads creates an important major focal point which is a logical location for a Local Centre to provide retail and services for the future working population. The Local Centre will be consolidated and situated adjacent to the Eastern Ring Road and Bradfield Metro Link Road intersection.
- **Increase in building height controls to accommodate high-bay warehousing:**
  - There are two parcels of land within the IPG Draft Master Plan identified as being suitable for high-bay warehousing, referred to as the 'western parcel' and the 'eastern parcel'. Refer Height Strategy prepared by Urbis.
  - The Draft Master Plan proposes a maximum building height for potential high-bay warehousing of 52.5m.

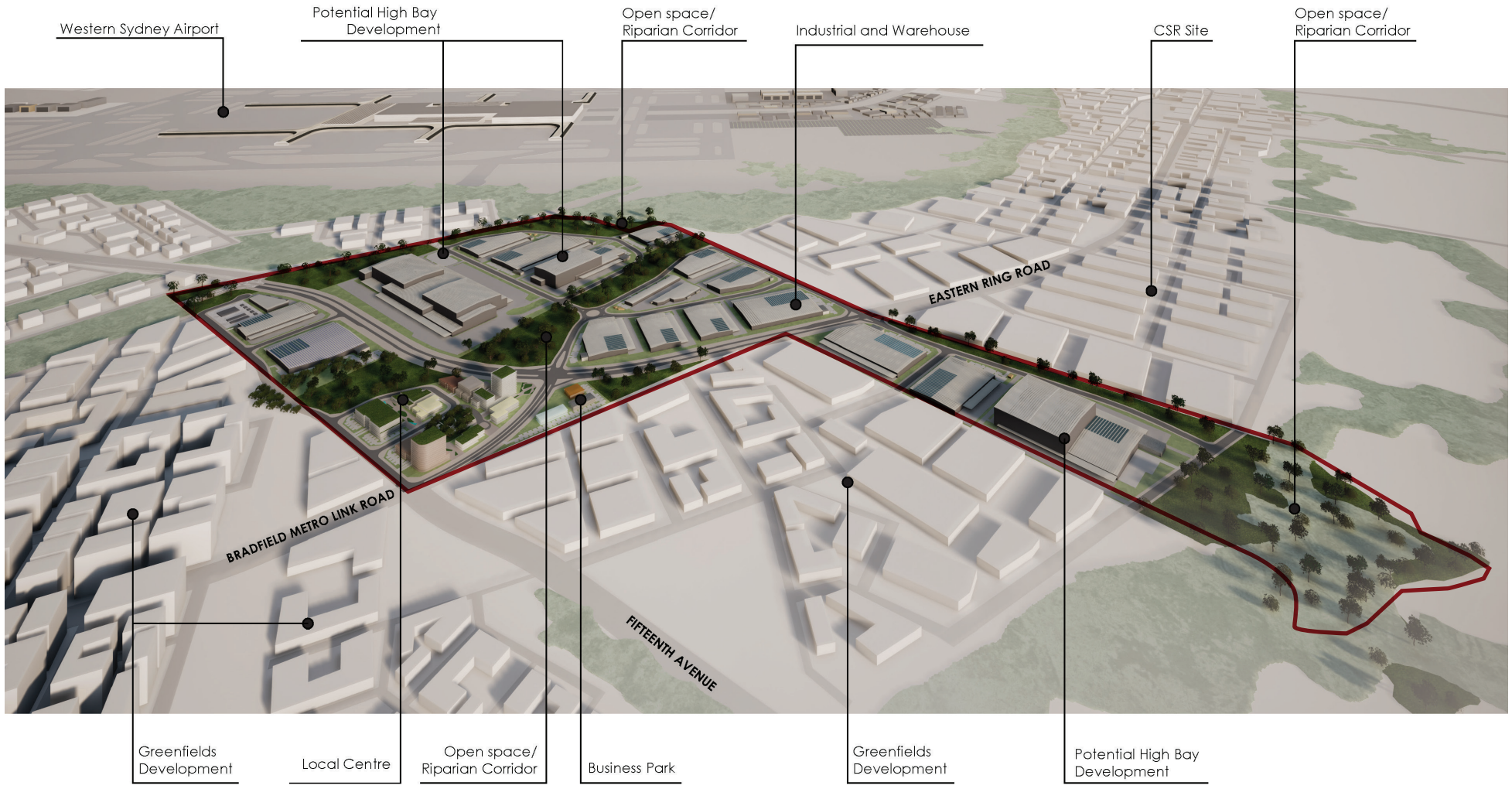
The following chapters of the report provides a summary of the proposed Draft Master Plan for the site considering the above mentioned variations to the Precinct Plan.

6.5 3D View (Draft Master Plan)



Source: SBA Architects

6.6 3D View (Draft Master Plan with High-bays)



6.7 LAND USE

6.7.1 Response to Vision/ Key Directions

PRODUCTIVITY

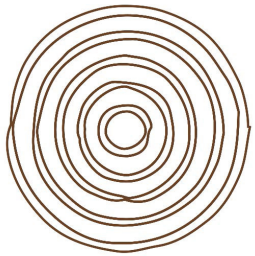
- Land uses are proposed to be intensified to promote a stronger and more productive economy that maximises infrastructure investment.
- Super lot strategy has been proposed that responds to market needs and allows for future transitions in land uses.
- The Draft Master Plan promotes investment in the NSW economy by having a block structure that allows the location of warehouse, logistics and/or advance manufacturing facilities that are in urgent need in Western Sydney.
- Commercial uses are proposed in a local centre that leverages from the proximity of open space and access to public transport to create place.

SUSTAINABILITY

- Revitalisation and restoration of riparian corridors that cools the environment, enable water detention and retention, and connect to the history of the site.
- Water Sensitive Urban Design (WSUD) strategies that positively contribute to the water quality, functionality and health of the Wianamatta-South Creek catchment.

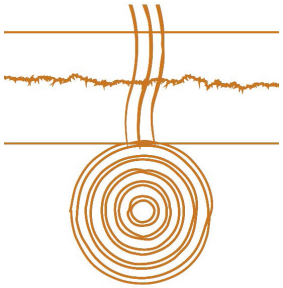
6.7.2 Response to Elements of Country

Move with Country



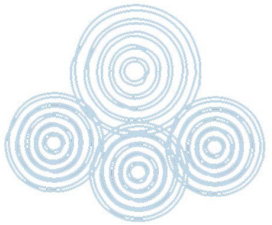
- The Draft Master Plan has been informed by numerous discussions and workshops with the local First Nations community throughout the process.
- The Local Centre can cater for cultural facilities, shops, commercial enterprises and economic and educational opportunities for the Aboriginal community.

Deep Country



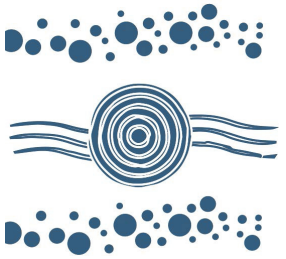
- The natural landform forms the basis for the distribution of land uses.

Sky Country



- The proposed interspersed open spaces will create opportunities where people can physically connect to the sky.

Water Country



- All riparian corridors have been retained and enhanced as a way of celebrating the waterways.

Source: Yerrabingin

6.7.3 Land Use

The key objectives for the land uses of the Draft Master Plan are:

- To consolidate and reclassify the centre linked to public transport and major public open space. The proposed Local Centre provides an opportunity for a range of mixed uses including potential educational uses to support the development of the area, subject to the collaboration with the Department of Education.
- To ensure the new Local Centre does not undermine the commercial viability of other planned centres. To encourage a mix of uses in the business and enterprise land and Local Centre to deliver employment diversity.
- To distribute local amenity nodes with retail, amenity, and services across the site for the local working community. Figures 35 & 36 show how the amenity nodes support surrounding uses within 400m walking catchment.

The findings of the Economic Assessment Report states that:

- The proposed centre is expected to have a minimal impact on the turnover of its competitors largely due to being the result of consolidating two planned neighbourhood centres into a combined centre, rather than bringing additional retail (beyond what is planned) into the area. As such, the proposed centre is unlikely to undermine the commercial viability of other planned centres.
- There is still an adequate amount of demand available to support additional commercial floorspace in other zoned employment land outside of the Subject Site and Bradfield City Centre. Therefore, this commercial office floorspace is mostly complimentary space to other employment generating uses.

Table 1 Development Summary Table

Land Uses		Area (ha)	%
	Developable Land	**102.3**	**55.6**
	Enterprise and Light Industry Predominantly accommodating warehouse and logistic uses with offices, parking and amenity. Including the retained HBV vegetation area	95.6	52.0
	Local Centre Leveraged by the public transport services and open spaces, the Local Centre provides commercial, office with ground level retail to support the site and the surrounding context. The proposed uses maintains the amenity of the riparian corridor. Including new local park	6.7	3.6
	Non-developable Land	**81.4**	**44.2**
	Open Space / Major Riparian Corridors/ Indicative Integrated Stormwater Basins	48.4	26.3
	Zone Substation	1.2	0.7
	Roads	31.7	17.2
	Indicative Amenity Nodes	-	-
	Total Site Area (ha)	**184.0**	**100**

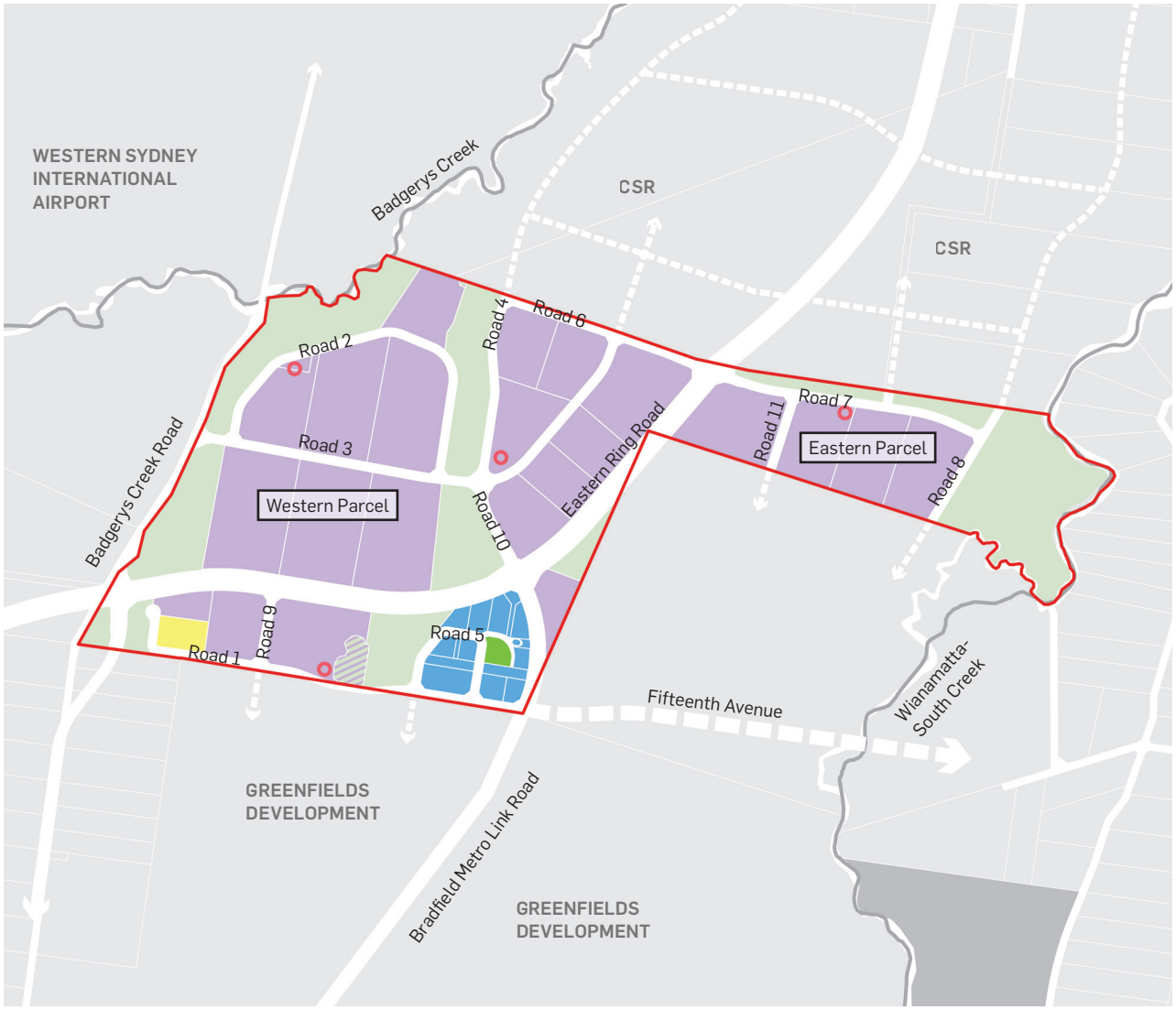


Figure 34 Land Use Composition Plan

6.7.4 Walking Catchment of Amenity Nodes

96% of the lots will have access to an amenity node.

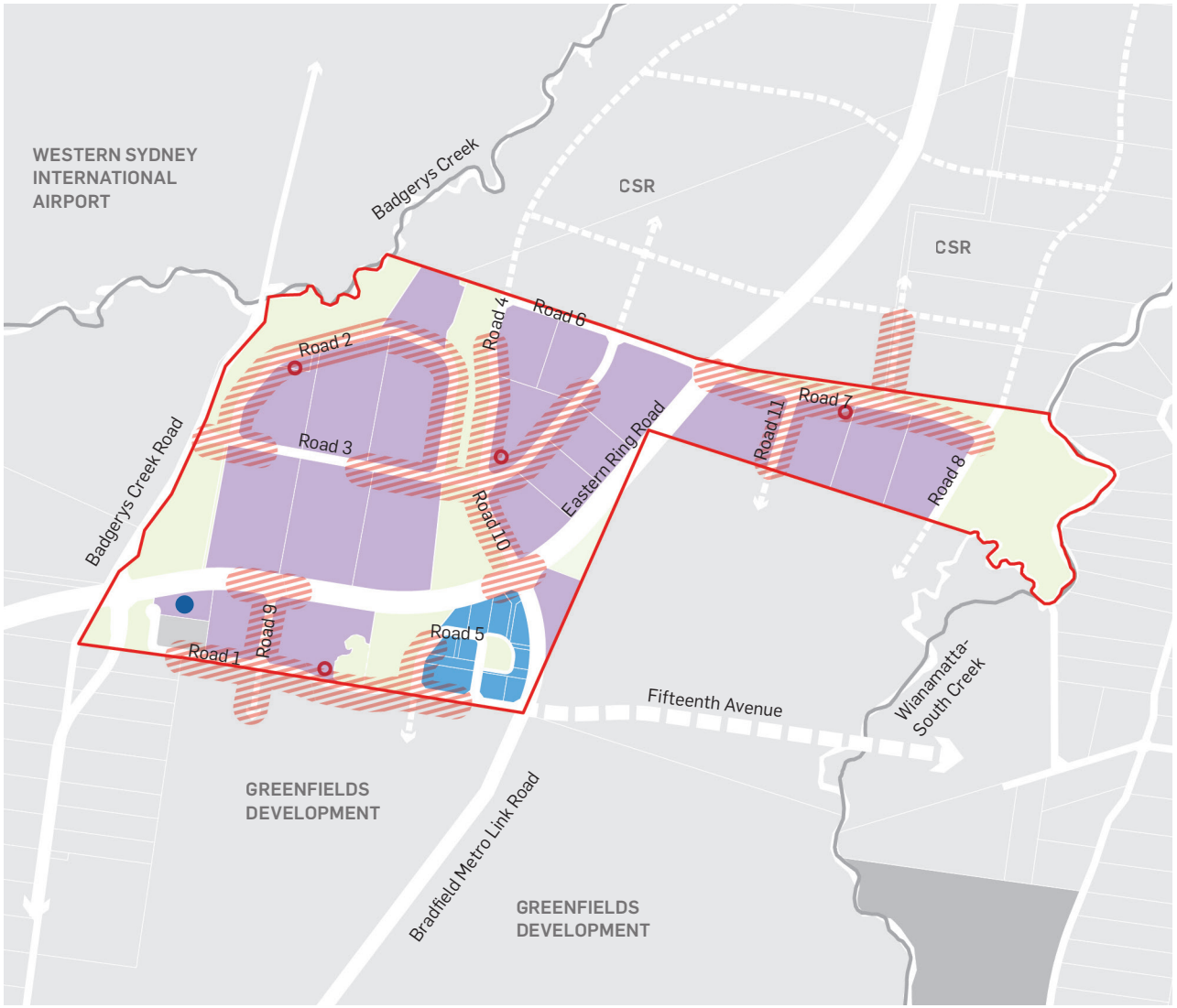


Figure 35 Indicative 400m Walking Catchment of Amenity Nodes Plan

6.7.5 Walking Catchment of the Local Centre

72% of the lots are within 800m walking distance from the Local Centre.

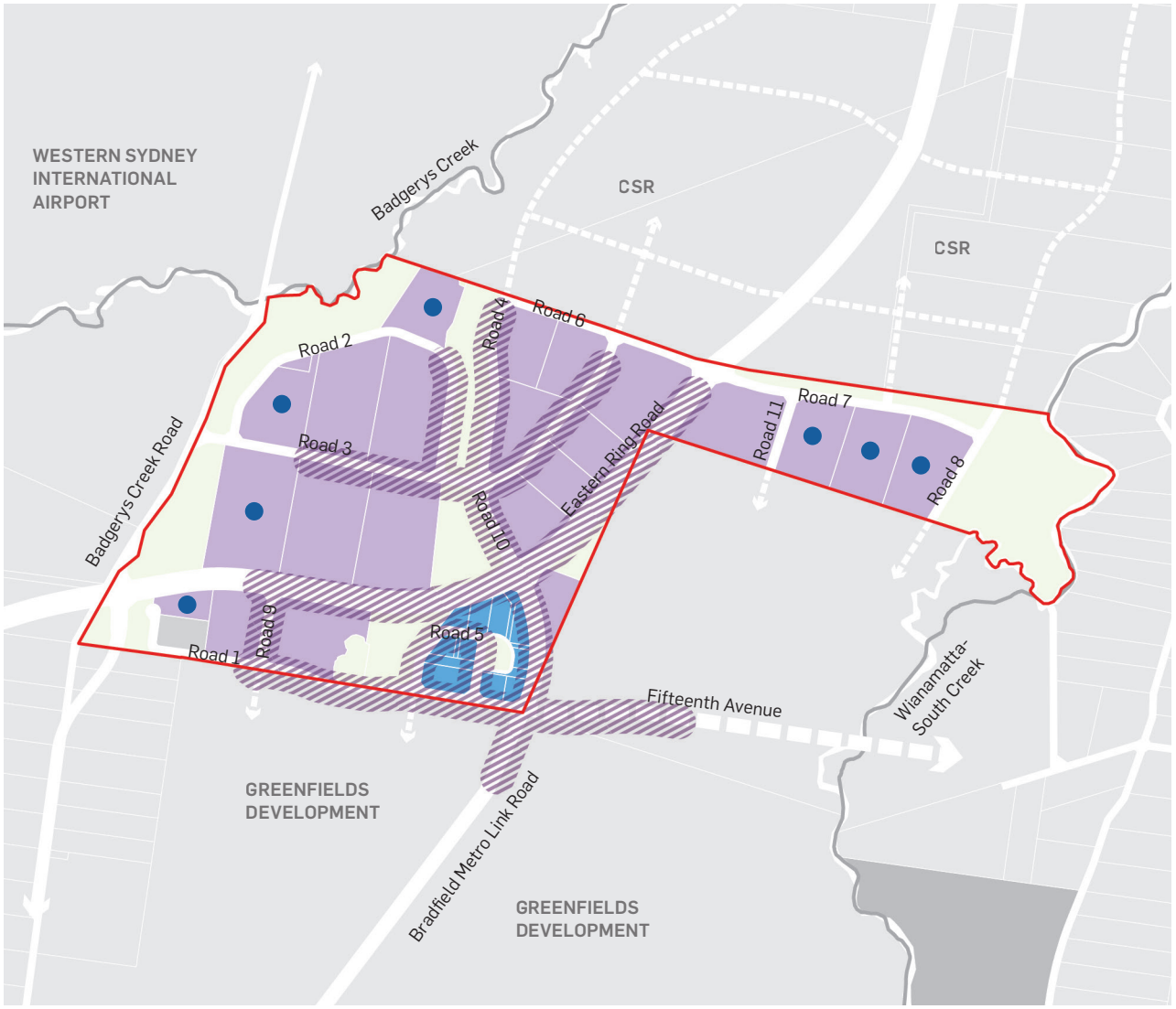


Figure 36 Indicative 800m Walking Catchment of Local Centre Plan

6.8 ACCESS AND MOVEMENT

6.8.1 Response to Vision/ Key Directions

CONNECTIVITY

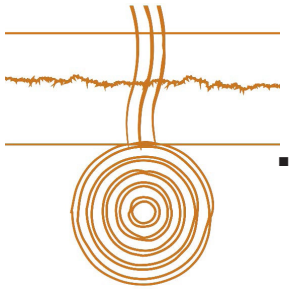
- A well-connected and highly accessible precinct which will play a critical role to the broader network of logistics, industry and employment for Western Sydney and beyond. The ERR will be used as a major freight carrying and through traffic corridor.
- The proposed road network will balance the role and function of major movement corridors.
- The Draft Master Plan will support all modes of transport to give people choice, including safe and enjoyable active transport links and reliable public transport system.
- A legible and efficient urban structure has been adopted for the proposed road network.

LIVEABILITY

- A well connected active transport network has been proposed that integrates the site to the surrounding areas through Riparian and major transport corridors.

6.8.2 Response to Elements of Country

Deep Country



- The Draft Master Plan is centred around three riparian corridors which provide north-south connectivity through the site and into the broader Aerotropolis.
- The proposed road layout reinforces east-west sight lines and open views, where possible, towards the Blue Mountains to celebrate the significant connection that First Nations people had to the mountains.

Non-Human Kin Country

- The Draft Master Plan supports the regeneration of the creek lines and therefore restores habitats for endemic insects, amphibians, invertebrates, and small birds.

Source: Yerrabingin

6.8.3 Road Network

The proposed road network maximises the connectivity of the site internally and to its surrounding context.

The road network presents the following main categories:

Legend

- Site Boundary
- Primary Arterial Road - ERR
  - ERR is a primary arterial road with rapid bus services and a road width of 60m.
- Primary Arterial Road - BMLR and Fifteenth Avenue
  - BMLR will provide connections from the site to the south including the Bradfield Centre with rapid bus services.
  - Fifteenth Avenue will provide connections from the site to Liverpool in the east. The western part will be a strategic transit corridor and will not be available for the general traffic.
- Sub-arterial Road
  - Badgerys Creek Road connects the site to the Western Sydney International Airport (WSI).
- Collector Road
  - Collector roads facilitate connections from the site to the arterial road, catering the local bus services.
- Riparian Collector Road
  - Riparian Collector road connects the eastern portion of the site to ERR along the riparian corridor
- Local Centre Road
  - Local Road with a width of 25m within Local Centre
- Industrial Road
  - Industrial Road with a width of 24m within the site for all movements.
- Planned Signalised Intersection
- Left in-Left out Intersection (closed to ERR in the long-term)
- Roundabout
- Pedestrian Access
- Open Space / Riparian Corridor / Basins

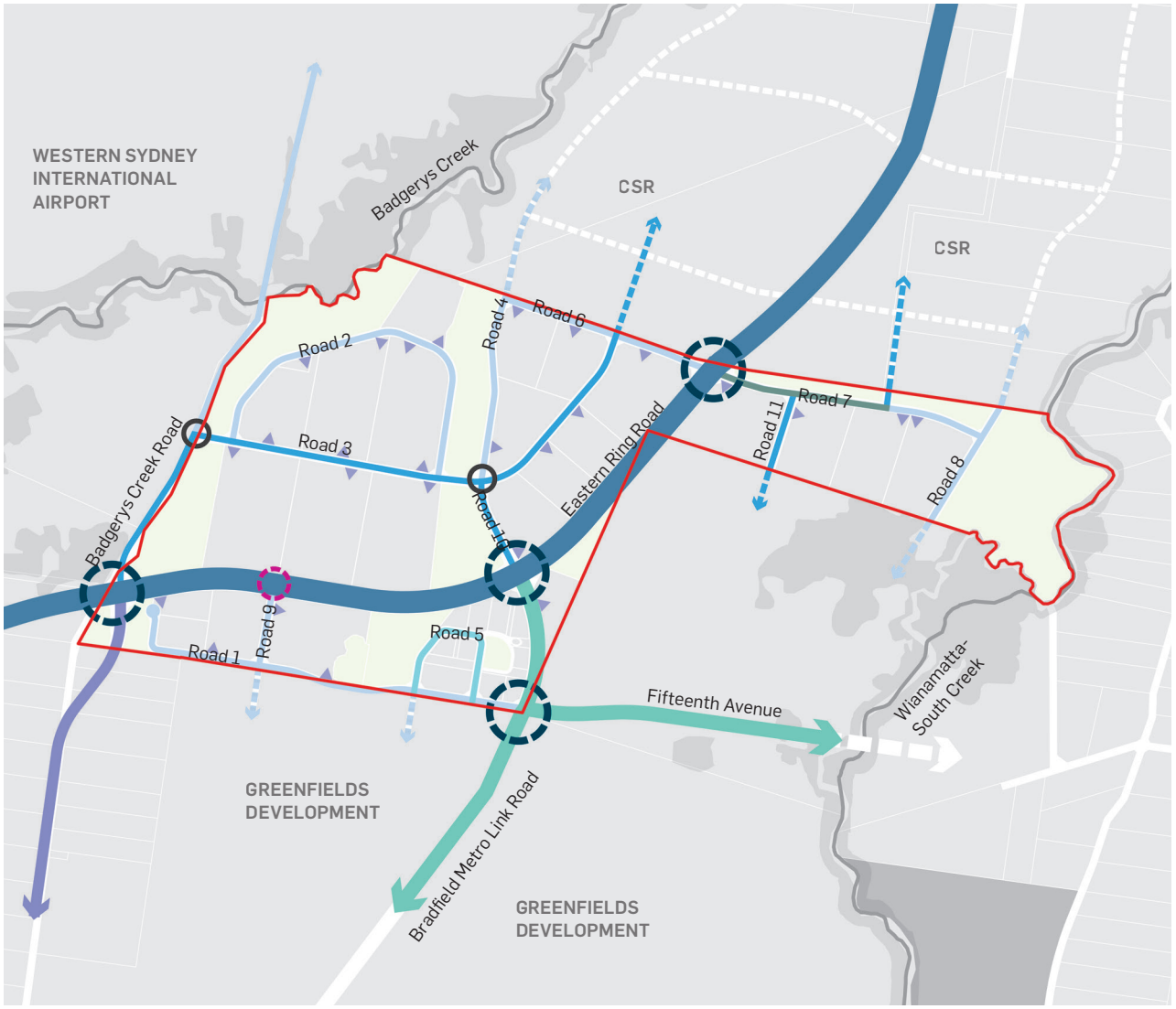


Figure 37 Street Hierarchy Plan

6.8.4 Public Transport Network

The proposed public transport network along the ERR, Fifteenth Avenue and BMLR enhances the site connectivity to its surroundings. It enhances the pedestrian accessibility to within 400-800m walking catchment throughout the site.

The location and layout of bus stops at the intersection of Bradfield Metro Link Road and Fifteenth Avenue will be subject of further investigation by TfNSW to ensure passenger interchange is facilitated between multiple bus routes.

Bus stop locations are indicative and can be amended pending consultation with TfNSW and Council.

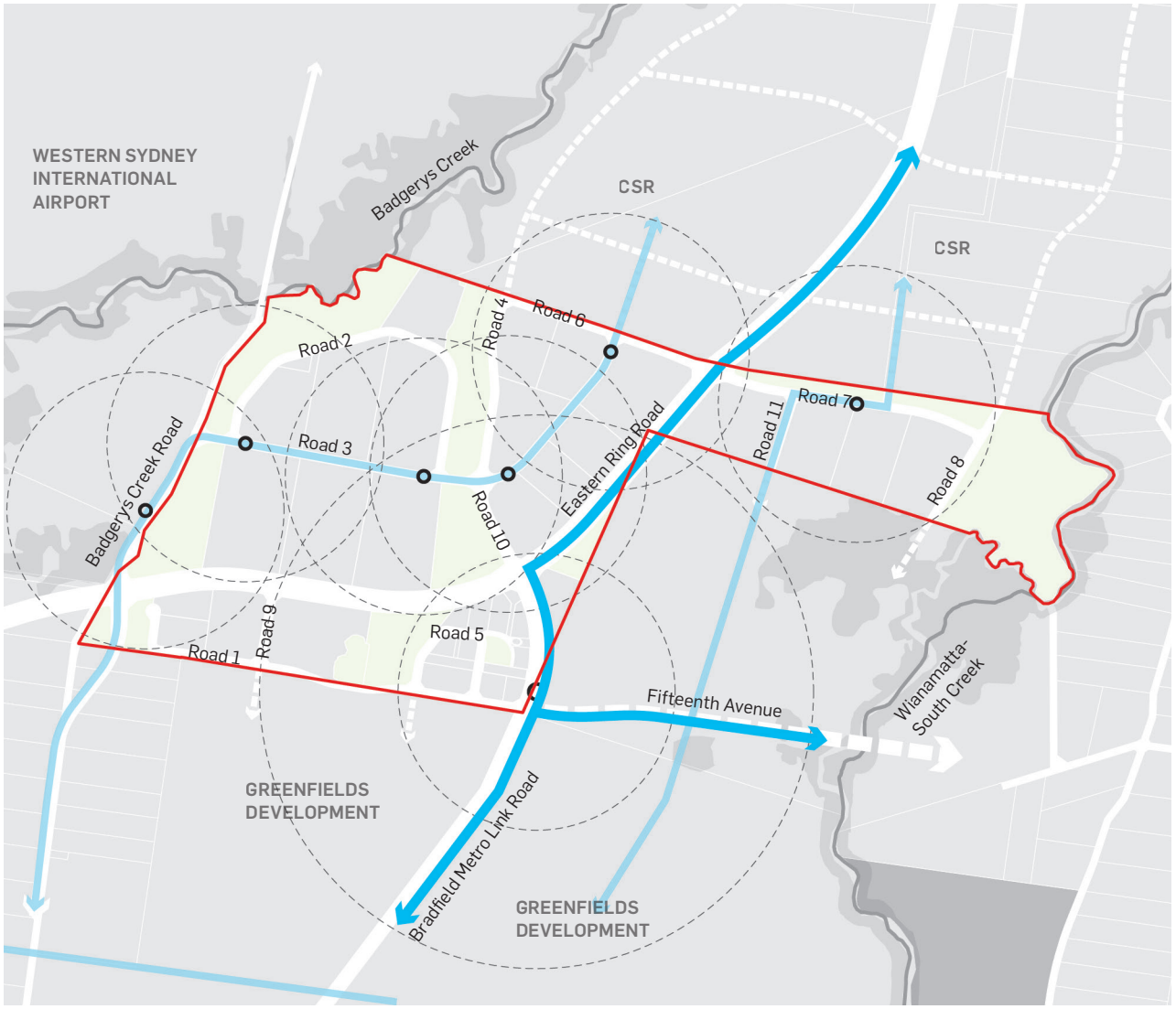


Figure 38 Public Transport Plan

6.8.5 Active Transport Network

The proposed Active Transport Strategy provides an inter-connected pedestrian oriented network to maximise the site accessibility in addition to the road network and the Local Centre.

The proposed network along the riparian corridors and open spaces connects the site to its natural feature whilst preserving the environmental character of the riparian corridors. The current layout does not allow road permeability within the blocks for safety reasons. However, in the future there could be opportunities to create mid-block road connections if there is a demand for commercial buildings instead of warehouses. These mid-block connections will allow additional permeability through the site. Refer to indicative future legacy road connections within the Active Transport Map in Figure 39. The provision for mid-block connections must not impact warehouse operations and access arrangements within the site.

Legend

- Site Boundary
- Active Transport Network - Shared Path (On Road)
- Active Transport Network - Shared Path (Off Road)
- Active Transport Network - Foot Path (On Road)
- Active Transport Network - Foot Path (Off Road)
- Active Transport Network - Cycleway (On Road)
- ERR Bridge
- Future ERR Underpass
- Planned Signalised Intersection
- Potential Opportunities for Future Connections(Indicative Only)
- Open Space / Riparian Corridor / Basins

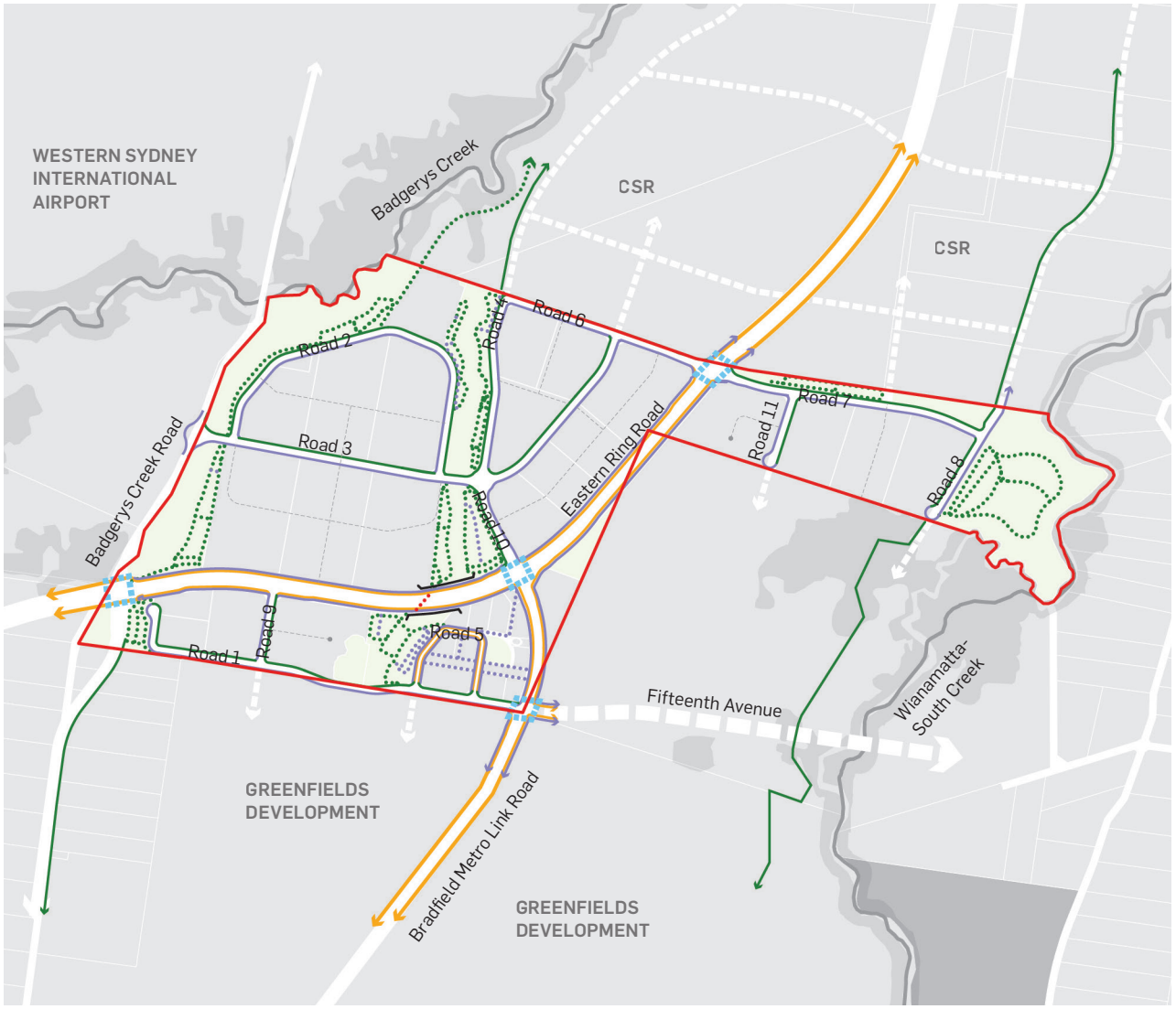


Figure 39 Active Transport Plan

6.8.6 Street Sections

Figure 40 Key Map

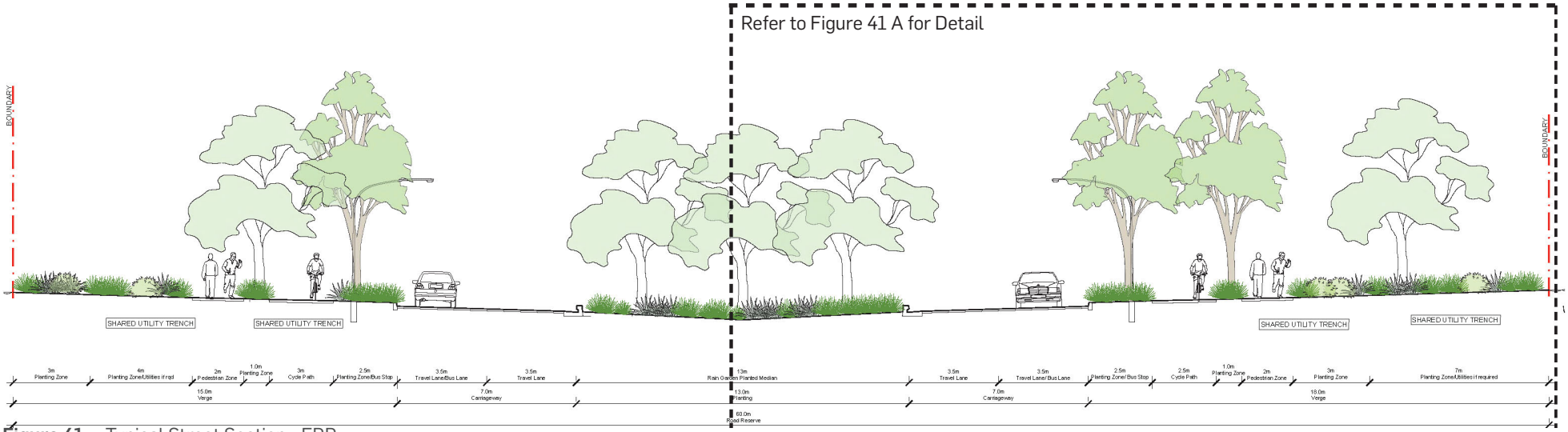


Figure 41 Typical Street Section - ERR

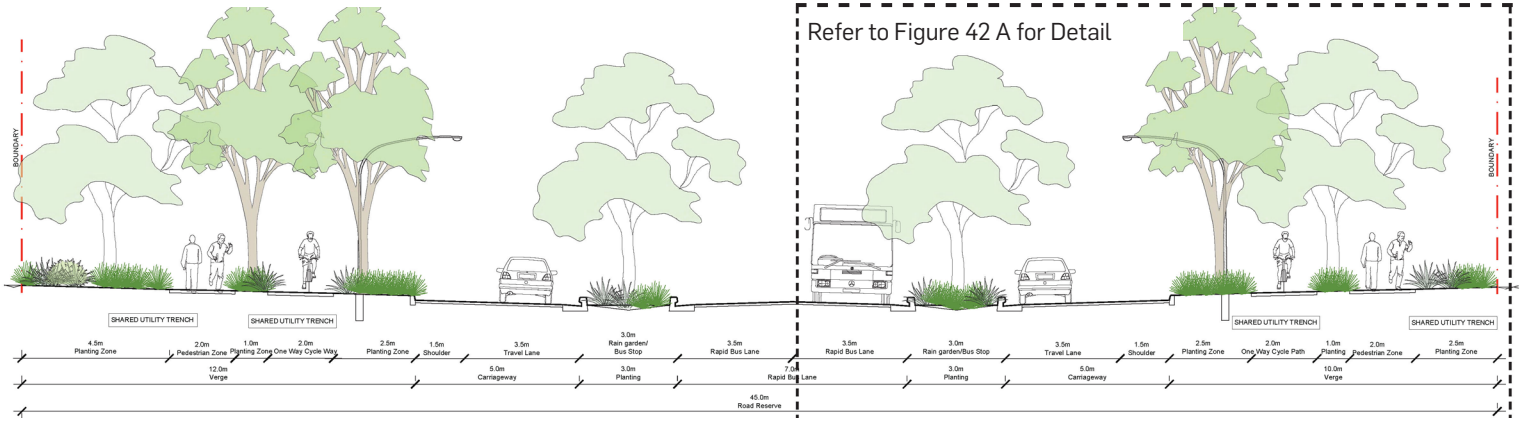


Figure 42 Typical Street Section - BMLR

Source: Site Image

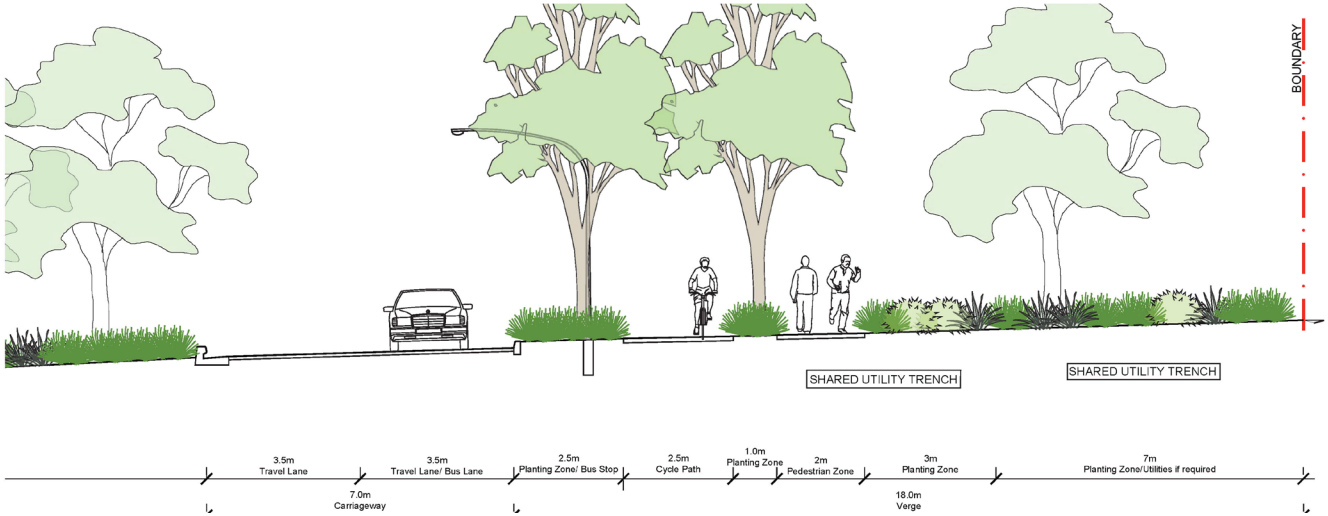


Figure 41 A Typical Street Section (Detail) - ERR

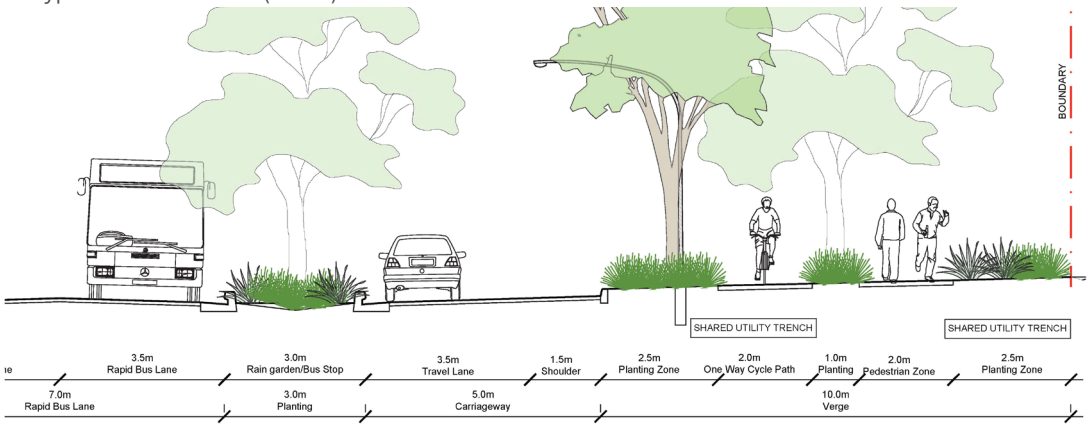


Figure 42 A Typical Street Section (Detail) - BMLR

Source: Site Image

Figure 45 Key Map

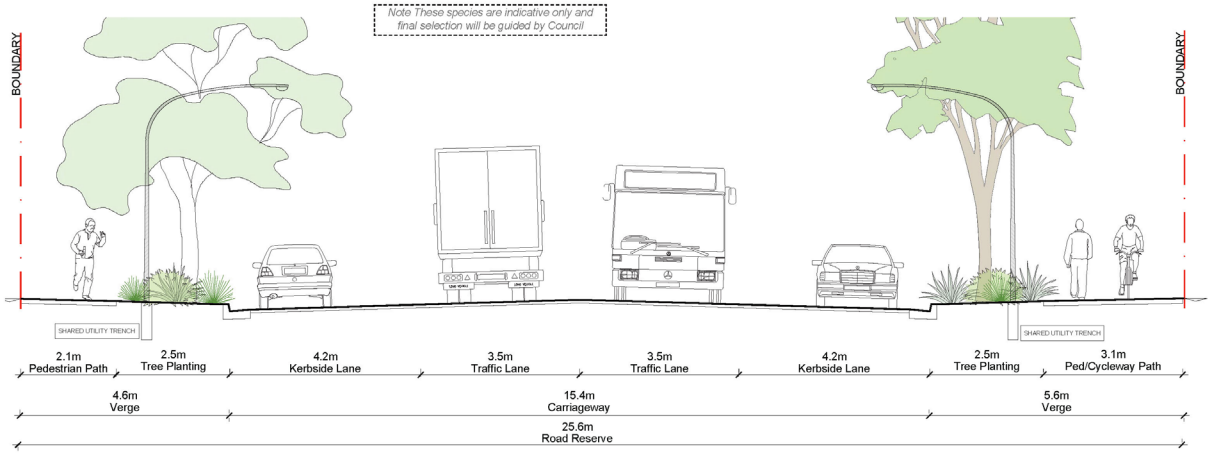


Figure 43 Typical Street Section - Collector Road

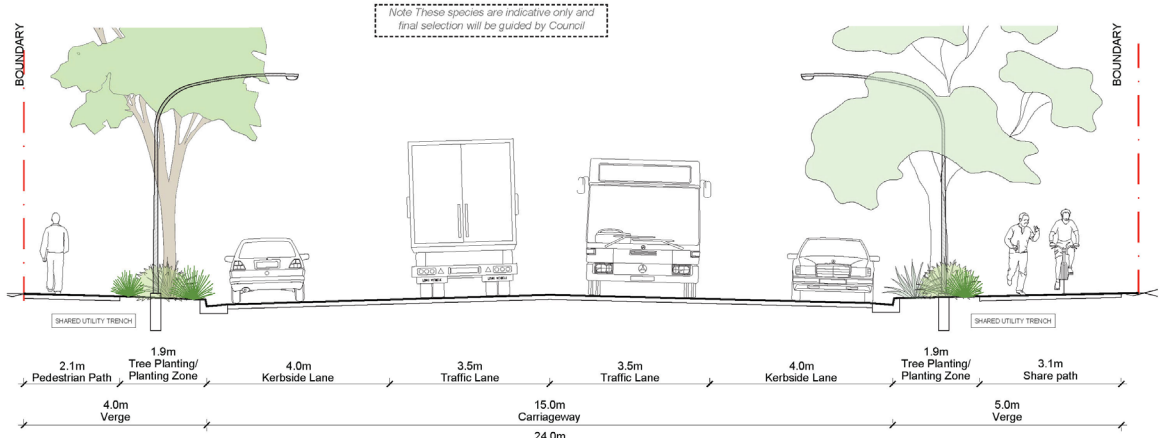


Figure 44 Typical Street Section - Local Industrial Road

Source: Site Image

Figure 48 Key Map

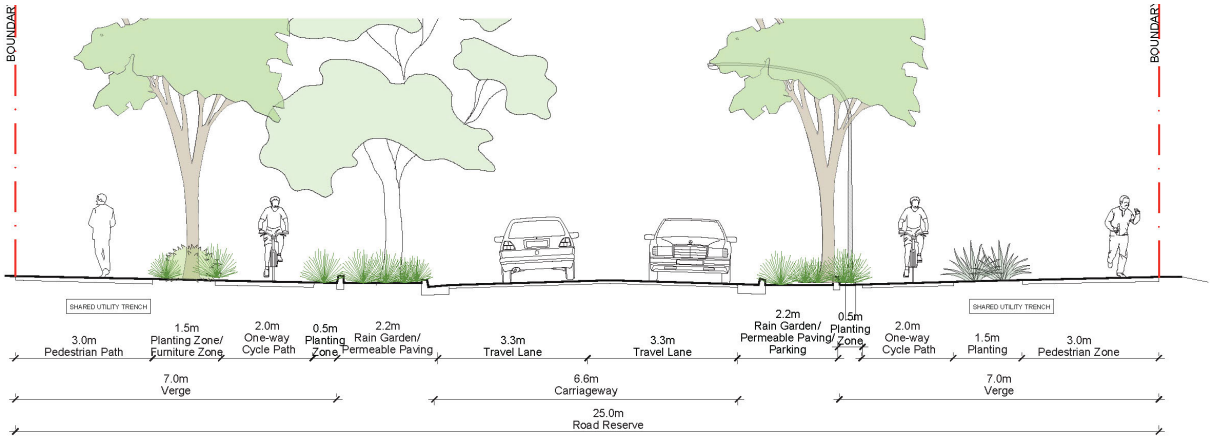


Figure 46 Typical Street Section - Local Centre Road

Figure 47 Typical Street Section - Riparian Collector Street

Source: Site Image

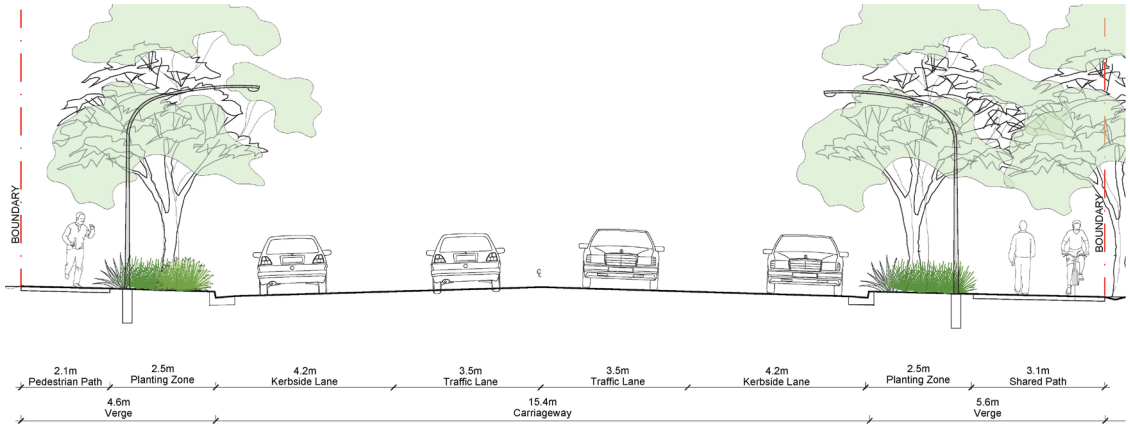


Figure 47 A Typical Street Section (Detail) - BMLR

Source: Site Image

Figure 49 Artist Impression of Intersection of Road 2 and 3

Source: SBA

6.9 SOCIAL INFRA-STRUCTURE AND OPEN SPACE

6.9.1 Response to Vision/ Key Directions

PRODUCTIVITY

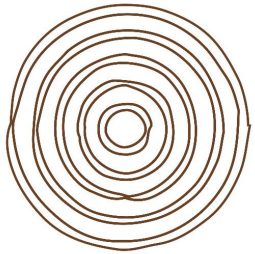
- The Draft Master Plan will foster a strong and collaborative relationship between landowners, investors and the government agencies.
- The proposed land uses are intensified to promote a stronger and more productive economy that maximises infrastructure investment.

LIVEABILITY

- The Draft Master Plan proposes activated nodes that will become a community focused hub. It will also envoke a sense of civic and public connectivity.

6.9.2 Response to Elements of Country

Move with Country



- The proposed Local Centre will become the focal point of the site centred around a civic spine.
- The Local Centre will also cater for cultural facilities, commercial enterprises, economic and educational opportunities for the Aboriginal community.
- Integrated spaces have been proposed throughout the site to facilitate community events and human interaction.

6.9.3 Infrastructure Needs/ Delivery

The WSA Social Infrastructure Needs Assessment together with quantitative benchmarks and outcomes from consultation have resulted in the following social infrastructure and open space needs for the site:

- Multi-purpose Community Centre within the Local Centre
- Education/ Industry training spaces catering to a skill within the multi-purpose community centre
- 1 long day care place per 75 workers
- Private medical centre in the Local Centre
- Outdoor multi-purpose sports courts in an activated location/ near the Local Centre
- Local Parks

The Draft Master Plan has been designed to accommodate the above recommendations through an integrated design approach.

Legend

- Site Boundary
- Education/ Industry Training Spaces
- Multi-purpose Community Centre
- Long Day Care
- Private Medical Centre
- Local Park
- Outdoor Multi-purpose Sports Courts

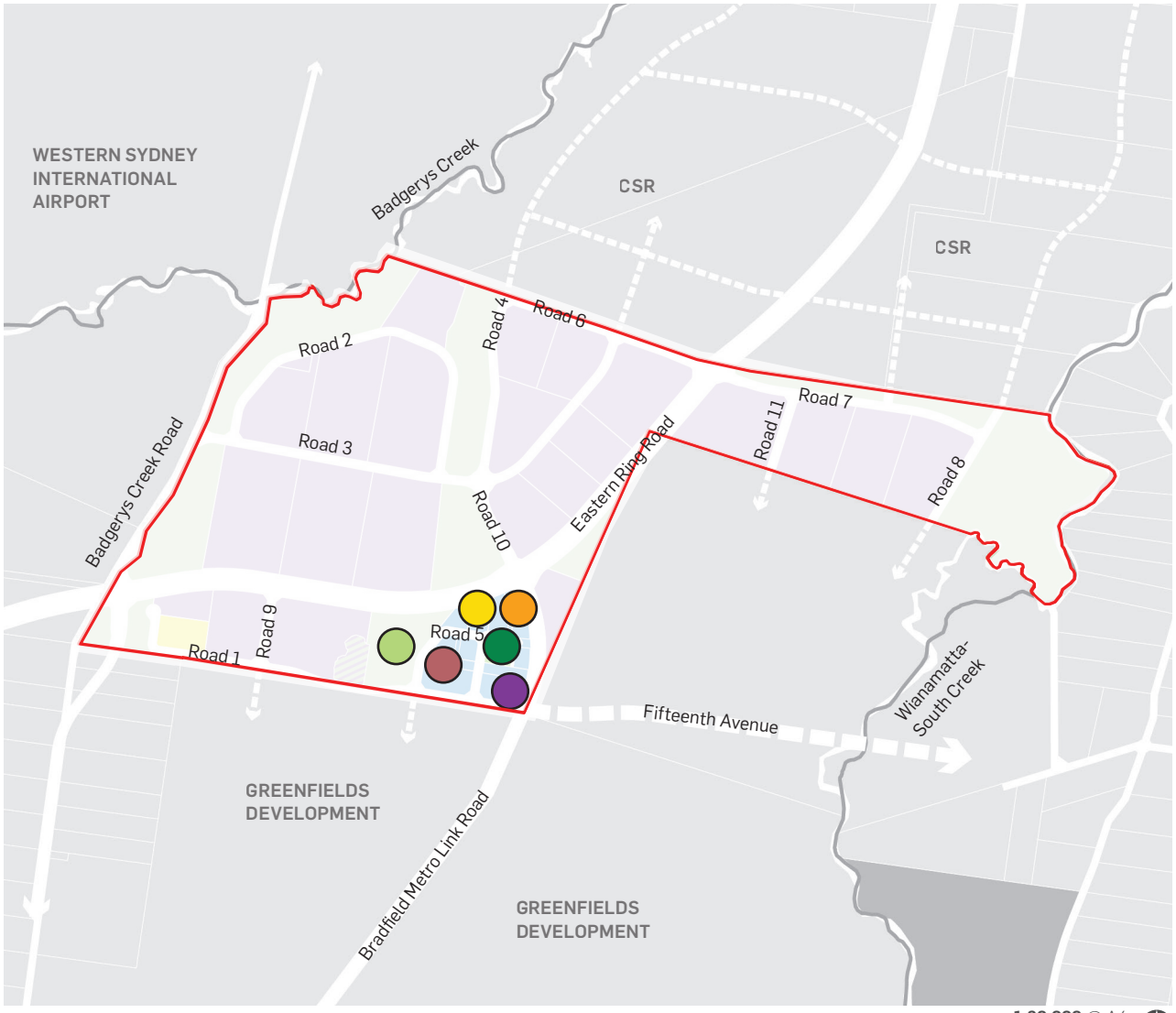


Figure 50 Social Infrastructure Needs Indicative Locations Plan

6.10 PUBLIC DOMAIN AND OPEN SPACE

6.10.1 Response to Vision/ Key Directions

LIVEABILITY

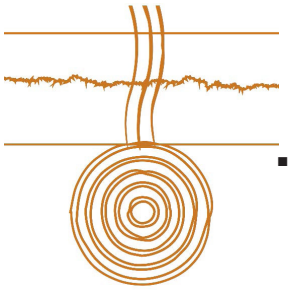
- The proposed open space network establishes connections to nature that will promote health and well-being. It also assists in creating a sense of community.
- Active transport links are supported through the proposed open space network which will enhance the quality of life.

SUSTAINABILITY

- The Draft Master Plan will restore and revitalise the riparian corridors which will cool the environment, enable water detention and retention and will also assist in connecting to the history of the site.
- WSUD strategies are proposed across the site to contribute to the water quality, functionality and health of the catchment.
- The Draft Master Plan proposes a tree canopy of a minimum of 29.49%.

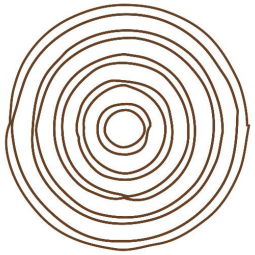
6.10.2 Response to Elements of Country

Deep Country



- Proposed open spaces and adequate separation between buildings allows for a direct visual connection to surrounding landscape features and riparian corridors.
- The Draft Master Plan is designed to work with the organic forms of the natural landscape.

Move with Country

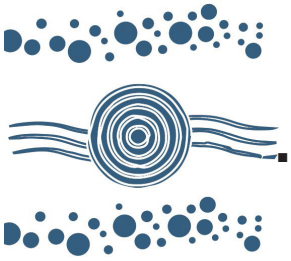


- The park at the Local Centre will retain the patch of existing trees.
- The landscape will be integrated into the built form and communal areas to create a seamless flow of spaces.
- The open spaces proposed could be utilised for community events, teaching and gathering.

Non-Human Kin Country

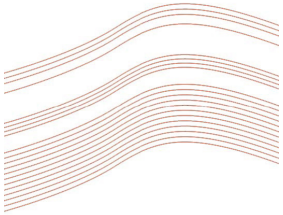
- The Draft Master Plan supports the regeneration of regionally significant creek lines and riparian corridor opportunities and allows the opportunity for people to engage and celebrate them.
- Opportunities to deliver on-lot vegetation that will compliment the overall landscape character where people can access and experience Country.

Water Country



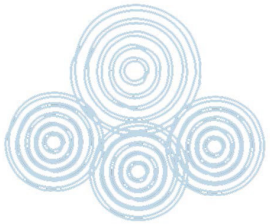
- The proposed lot arrangement and green spaces provide buffers to existing riparian corridors to limit development along the environmental and culturally sensitive land.
- Pathways have been proposed to connect to the natural watercourse.

Wind Country



- The three riparian corridors represent the 'green lungs' of the site and support the natural movement of wind through the site.

Sky Country



- The large open spaces and intimate tree lines proposed within the Draft Master Plan create opportunities for people to connect to the Sky.

Source: Yerrabingin

6.10.3 Ecology and Green/ Blue Infrastructure

There are three open space corridors within the site which are integral to the design of the Draft Master Plan. The Wianamatta-South Creek and Badgerys Creek corridors are major landscape elements which define the Western Parkland City, connecting the precincts within the Aerotropolis. The open space corridors reflect the riparian areas within the site and celebrate the significance of these culturally significant landscape corridors.

The Draft Master Plan incorporates a well-connected active transport network which connect all areas within the site to the open space and riparian corridors.

The Draft Master Plan proposes 0.7 hectares of open space within the Local Centre, and 44.96 hectares of area comprising riparian corridors, biodiversity basins and other open spaces along the riparian corridors.

Approximately 9.5 hectares as passive open space along the riparian corridors including the encroachment area of the outer 50% of riparian corridors.

Table 2 documents the types of green and blue infrastructure provided within the site.

Table 2 Indicative Green and Blue Infrastructure Summary

TOTAL GREEN & BLUE INFRASTRUCTURE	AREA (HA)	%
Usable Area	10.2	5.5%
Local Park	0.7	
Passive Open Space along Riparian Corridors (incl. Amenity Areas, and Pedestrian and Cycle path)	9.5	
Non Usable Area	35.46	19.3%
Vegetated area along Riparian Corridors (including retained HBV vegetation within the developable lot)	26.06	
Biodiversity Basins	9.4	
Total	**45.66**	24.8%
Site Area	**184**	

Source: Site Image

Note: Stormwater system is incorporated along the riparian corridors capitalising on the natural character of the site. Details of the regional and local stormwater system is demonstrated in the Landscape Design and Civil Engineering Reports.

Legend

- Site Boundary
- Riparian Corridor
- Proposed Local Park
- Retained HBV Vegetation
- Integrated Stormwater Basins
- Environmental Land in surroundings
- Major Creeklines - Badgerys Creek & Wianamatta-South Creek
- Creeklines
- Strahler Stream Order (X)
- Central Line of riparian corridors to define the inner and outer 50% of riparian corridors

Figure 51 Ecology and Green/Blue Infrastructure Plan

6.10.4 Tree Canopy Cover

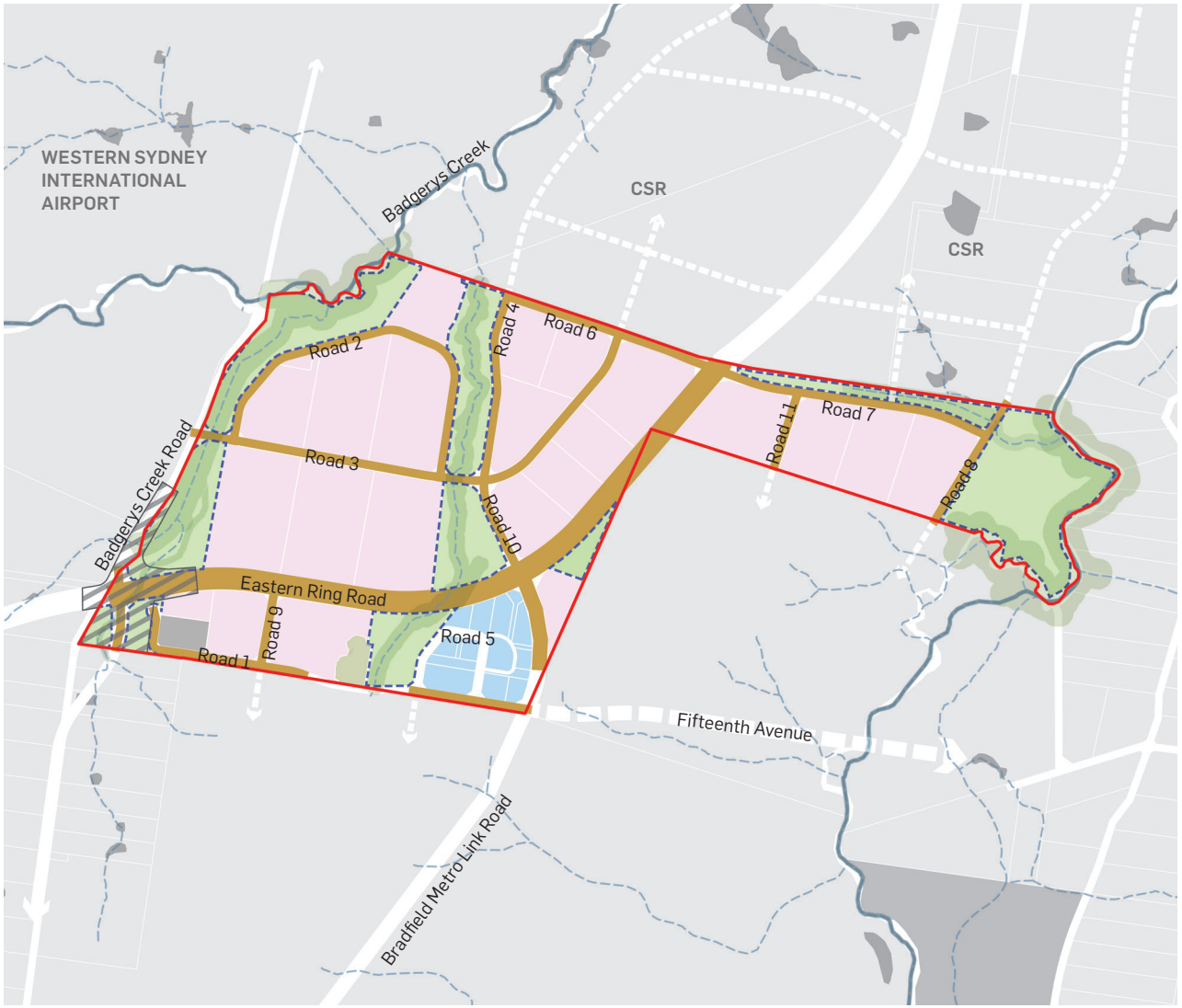
Tree canopy cover

The Landscape Plan identifies that the tree canopy coverage for Riparian Corridors will have a minimum coverage of 29.49%, which is below the target of 45% in accordance with Aerotropolis the DCP 2022 as the tree canopy wildlife risk performance measures minimises wildlife attracting habitat.

Riparian Corridors will aim for a tree canopy cover of approximately 50-52%, on lot will target 15%, streetscape and road corridors will target 50% and the Local Centre lots will target 30% canopy coverage. The canopy targets across these areas seek to provide a balanced approach between Aviation safeguarding measures and DCP Canopy Coverage targets.

Table 3 Indicative Tree Canopy Coverage

ZONE	AREA (HA)	CANOPY COVERAGE AREA (HA)	CANOPY COVERAGE (%)
Site Area	**184**		
Enterprise and Light Industry	98.1	14.71	15
Business and Enterprise	5.3	1.32	25
Local Centre	3	0.9	30
Road Corridors	31.5	15.75	50
Riparian Corridor (VMP Zone)	23.06	11.53	50
Riparian Corridor (Outer VRZ)	9.53	5.0	52
Riparian Corridor - SW Basins	9.4		0
Other	2.1		
Total Site Canopy Cover (ENT)		49.21	29.49



Legend

- Site Boundary
- Industrial Estate Landscape (15% canopy coverage)
- Local Centre (30% canopy coverage)
- Riparian Corridors (50% canopy coverage)
- Road Corridors (50% canopy coverage)

Figure 52 Tree Canopy Cover Plan

6.10.5 Open Space, Public Domain and Landscape Typology

Overview

Site Image Landscape Architects have prepared a Public Domain Landscape Strategy to inform the Draft Master Plan for the subject site.

The Draft Master Plan embraces a holistic approach to landscape design, aiming to achieve a harmonious balance between human activities, ecological regeneration, and cultural significance. Primary focus:

The plan prioritises the implementation of green and blue grids to enhance ecology, biodiversity, and canopy coverage. It strikes a balance between creating inviting spaces for people and restoring natural habitats.

The following pages provide an overview of the proposed open space, public domain and landscaping strategy. It includes the following:

- Landscape Draft Master Plan Typologies
- Landscape Draft Master Plan Design Principles
- Landscape Draft Master Plan Diagram
- Open Space Delivery Plan and Schedule

The full details of the Landscape Draft Master Plan Strategy including maps, sections and illustrative diagrams are provided in IPG Draft Master Plan - Public Domain Landscape Strategy Report.

Planting - The planting strategy needs to be cohesive across the site whilst ensuring considerations are made to suit each landscape typology.

There are numerous Landscape typologies within the site that have been broken down into the following:

- **Riparian Corridors -** The three riparian corridors located along the Eastern Boundary, Central Spine and Western Boundary will host cycleways, open space, amenity nodes, Re-vegetated/ naturalised areas, flexible use/sports and rehabilitated watercourses.
- **Local Centre -** The Local Centre will be a central urban amenity hub with light commercial and retail offerings, public open space, laneways, parking and a new local park.
- **Streetscape -** The Streetscape along all road types is an important component of the public domain design. The Streetscape will play an important role in the pedestrian network and provide structure through tree canopy planting and setback treatment.
- **Industrial Estate Landscape -** The On Lot Landscape design will pay a critical role in providing amenity and outdoor communal areas for workers as well as offering public retail amenity in some locations. It will also focus on canopy coverage, softening the built form and mitigating urban heat build up.

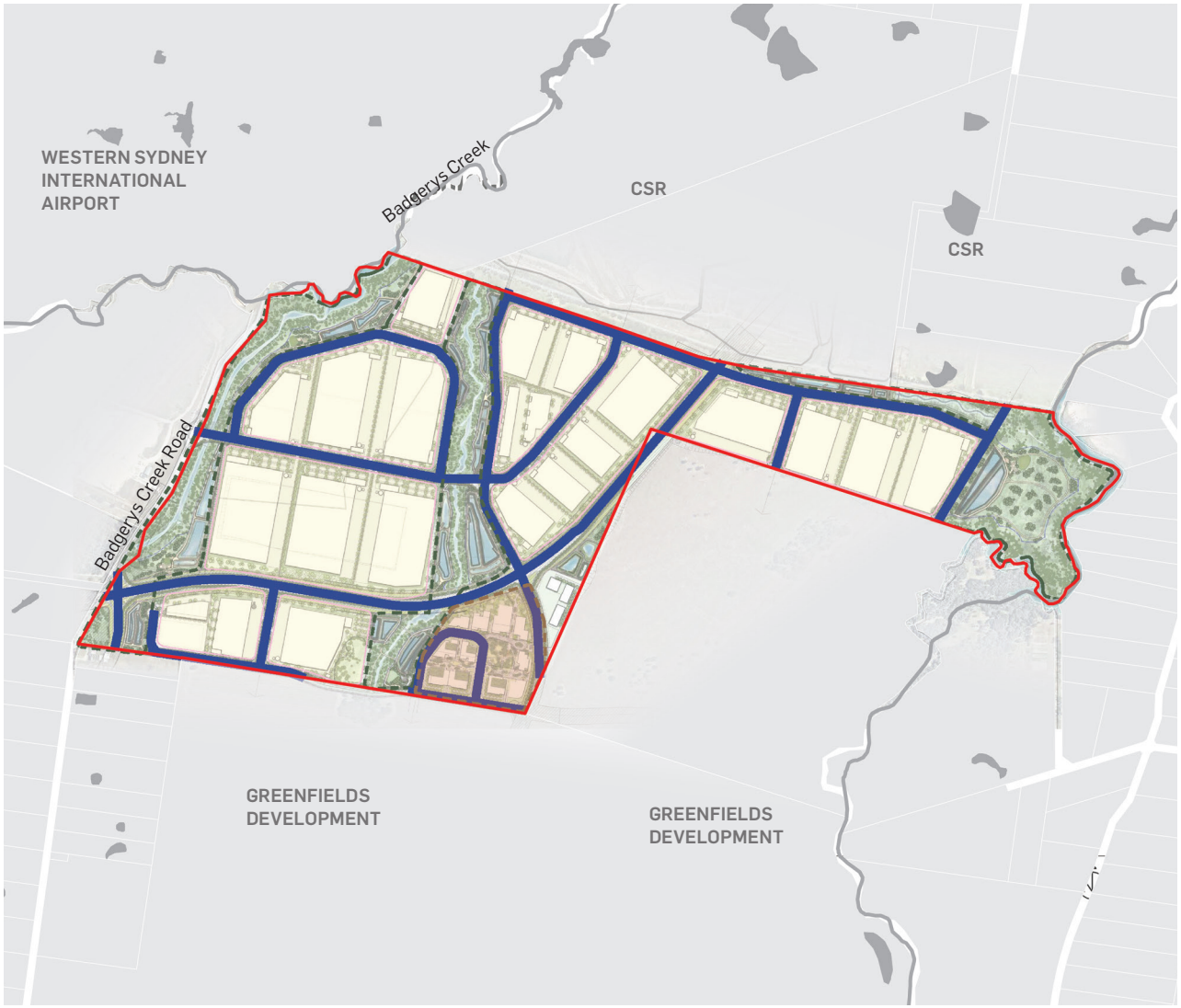


Figure 53 Landscape Typology Plan

Source: Site Image

6.10.6 Open Space, Public Domain and Landscape Design

DESIGNING WITH COUNTRY

The connection to country framework has been embedded throughout the design, incorporating key themes that honour the land, its history, and the cultural significance it holds. The themes of Water Landscape, Convergence of Three Clans and Community Driven Outcomes are at the forefront of the spatial and conceptual design across the site.

ECOLOGY

The Landscape Draft Master Plan recognises the critical need for ecological restoration, the importance of water management and its role in supporting ecological health and resilience. By integrating water-sensitive design strategies such as rain gardens, bioswales, and constructed wetlands, the design mitigates storm water runoff, filters pollutants, and recharges groundwater.

PLACES FOR PEOPLE

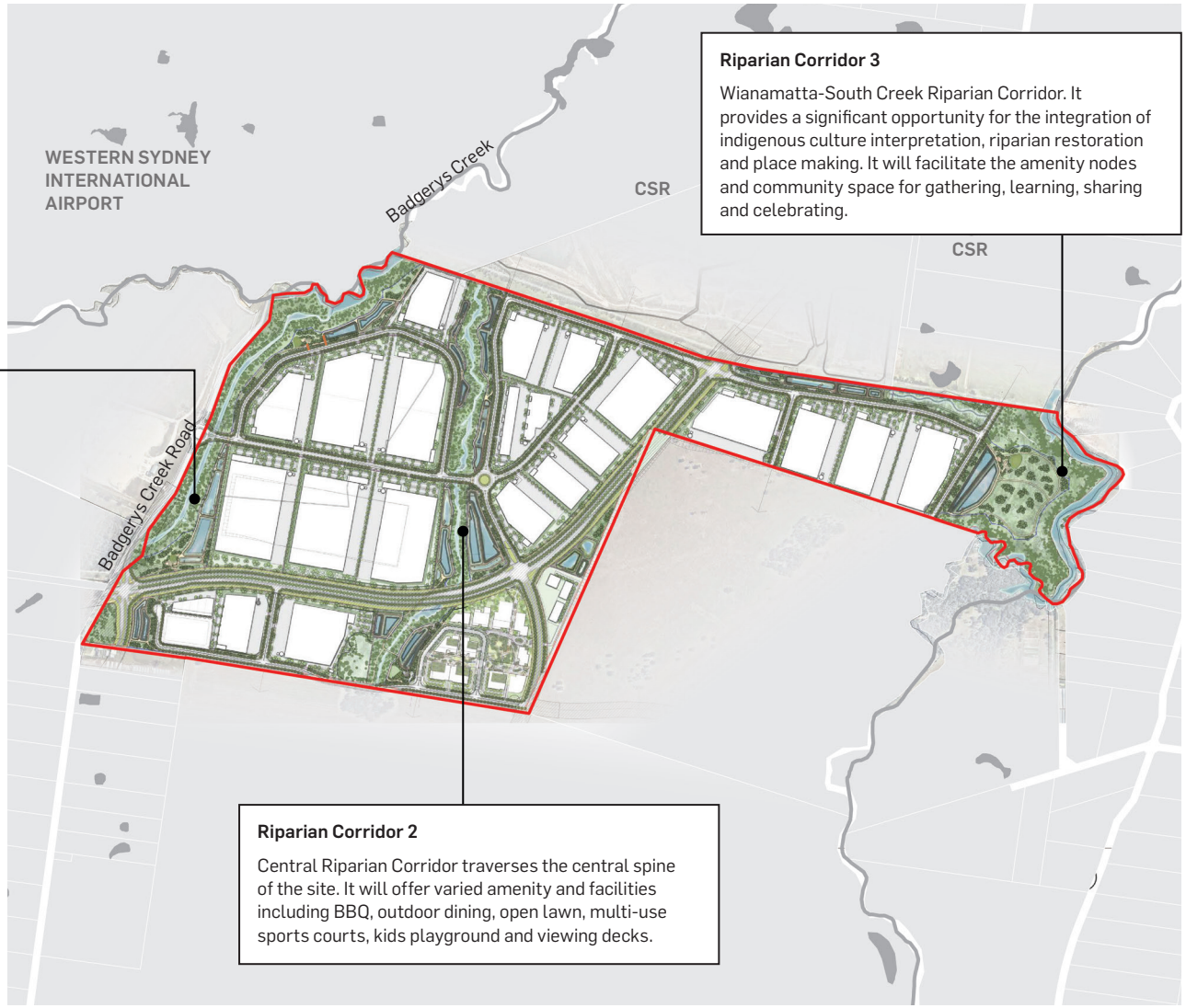
The Draft Master Plan provides opportunities for public amenity, places for community gathering, places for education and learning.

It also provides outdoor space for respite, connection to sky & country to maximise community's experience the site's unique characteristics.

Riparian Corridor 1

Badgerys Creek tributary Riparian Corridor.

It will cater two large amenity areas in the central connected by north-south cycleway, and basins and ponds for stormwater treatment, as well as the re-vegetated bank of the creek.



Legend

- Site Boundary
- Open Spaces
- Integrated Stormwater Basins
- Indicative Building Footprint

Figure 54 Public Domain and Landscape Plan
Source: Site Image

6.10.7 Open Space Delivery Plan

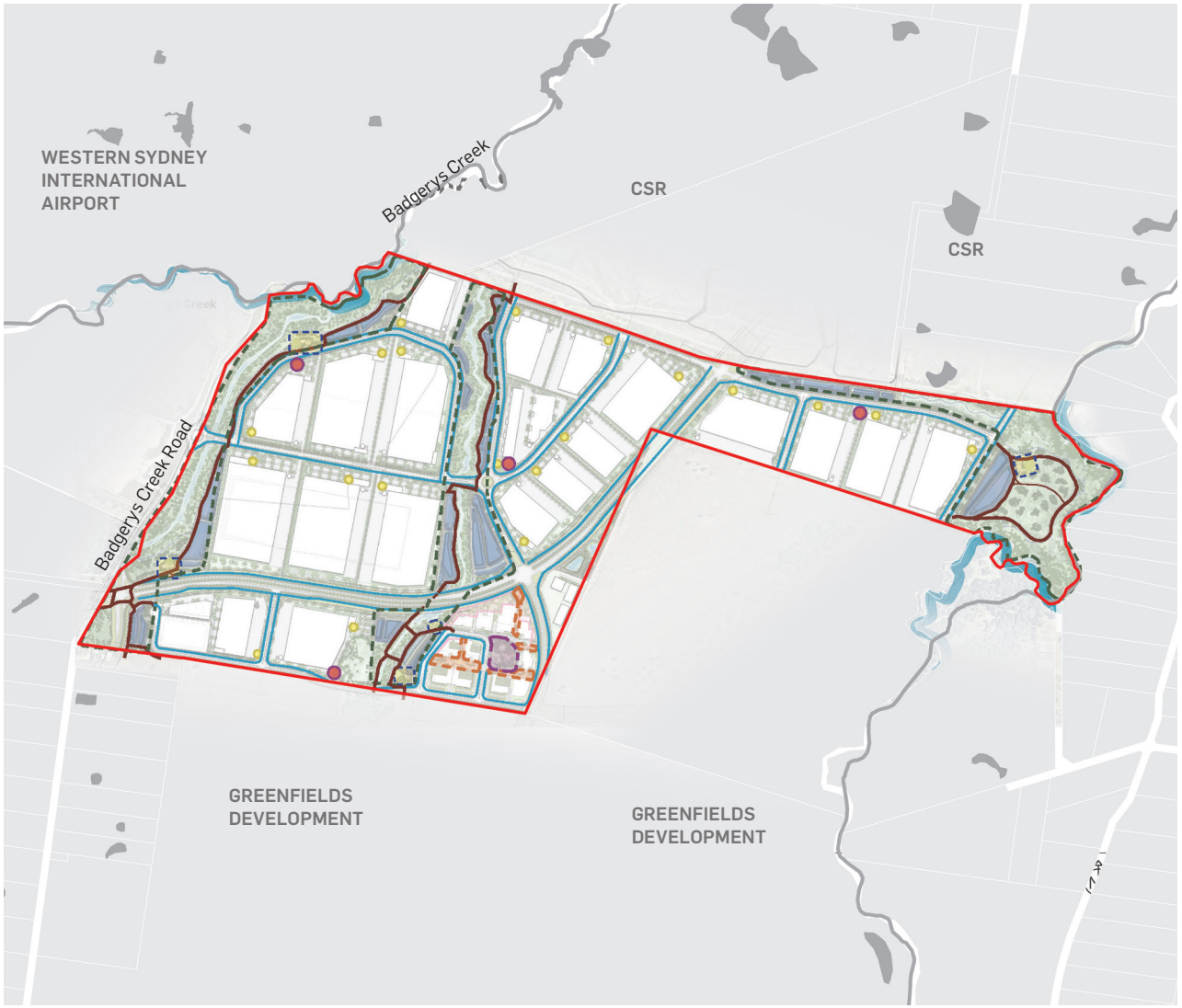


Figure 55 Public Domain and Landscape Plan

Source: Site Image

Figure 56 Artist Impression of Amenity Area

Source: Site Image

6.10.8 Open Space Delivery Schedule

Open Space Typology	Design Elements	Design Function	Indicative Imagery
Riparian Corridors **43ha** **23% of Site Area**	• Vegetated Riparian Corridors offset from edge of bank (vegetated area based on stream order) • Boundary and interface treatment • Wetland Basins and Storage Ponds • Accessible open space for public use **Note: Most of the Riparian corridor areas can be accessed by the public. Amenity areas are allocated spaces with BBQ, play elements etc**	• Restore dilapidated existing streams and re-establish riparian corridors to provide native habitat and increase biodiversity in line with parkland priority areas intent. • Utilise the corridors to enhance the sites canopy coverage . • Utilise storage ponds and wetland basins as not only WSUD elements but design features that help to reinforce the importance of the water landscape and WSUD elements.	
Riparian Corridor Amenity Areas **1.2ha** **0.6% of Riparian Corridors**	• Flexible use managed turf areas adjacent to amenity zones • BBQ and dining/ seating facilities • Viewing decks • Flexible community spaces • Outdoor Gym areas • Nature play areas	• To provide amenity for everyday site users (workers) and the wider community that is easily reached from key junctions and roads • Amenity areas that are surrounded by the natural environment to reinforce the importance of a connection to the sky and country. • Flexible Gathering spaces for the wider community to utilise for intimate gatherings or large scale events	
Active Transport Corridor **1.2ha** **0.6% of Riparian Corridors**	• 4m Wide cycleway/ Pedestrian paths through corridors • Naturalised grassland/ pastoral style planting around cycleway	• Provide active transport infrastructure for pedestrians and cyclists to easily access riparian corridors and utilise the space for active recreation and circulation through the site • Provide safe and equitable ramps and stair access with high visibility to encourage use of riparian corridors	
Local Centre Laneways/ Plaza Space **1ha** **0.5% of Site Area**	• Through Site Links/ laneways • Setback planting • Green roofs • Communal areas • Connection with Country • Plaza spaces • Alfresco dining and activated edges • Tree lined vistas	• Laneways to be Pedestrianised and prioritise place-making • Laneways to provide both active and passive amenity • Combating urban heat buildup through large areas of soft landscaping and green space • Offering outdoor amenity in an urban setting • Breaking up the scale of the built form • Encouraging walkability	

Source: Site Image

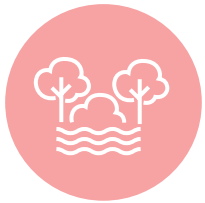
Open Space Typology	Design Elements	Design Function	Indicative Imagery
Local Centre Building Setbacks **1.3ha** **0.7% of Site Area**	• Lawn areas • Paving and forecourt areas to highlight entries • Setback planting • Seating	• Lawn areas at building entries where possible to help retain visibility and reduce large areas of hardstand • Lawn areas to include seating edge for passive use. These spaces offer a nearby amenity option for workers • Paving treatment to help with way-finding • Setback planting to help soften built form	
Local Centre Park **0.4ha** **0.2% of Site Area**	• Retention of existing trees where possible • BBQ area • Water-play/ water feature • Nature play • Community space • Lawn area • Soft landscaping	• The Local Park is to be designed with high-quality amenity and will include a variety of functional spaces for workers, visitors, and the broader community • Large Group of Eucalyptus sp. will be retained and protected	
On Lot Communal Outdoor Areas **0.9ha** **0.5% of Site Area**	• Communal Areas • Screen planting • Setback planting • Canopy Coverage • Deep Soil • Fencing	• Communal areas within industrial estates are to be located to ensure solar access is achieved in winter and shade in summer • Soft landscaping should be visually presentable along street frontages • Optimize deep soil zones/ adequate soil volumes in and around carparks and communal areas to ensure tree canopy targets are met	
On Lot Public Amenity Nodes **0.5ha** **0.7% of Site Area**	• Outdoor seating • Cafe / restaurant spill out space	• Public Amenity/ Restaurant/Cafe offering for users that can't easily walk to local centre • Spaces that utilise views and vistas and are immersed in nature • Optimise solar access and balance shade requirements	

Source: Site Image

6.11 BUILT FORM AND BUILDING DESIGN

6.11.1 Response to Vision/ Key Directions






CONNECTIVITY

- The proposed layout of the built form adopts a legible and efficient urban structure.

LIVEABILITY

- The proposed Local Centre will act as the activated core which will enrich the character and vibrancy of the precinct.

PRODUCTIVITY

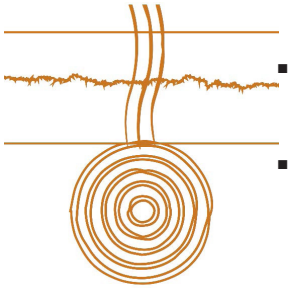
- A flexible urban form is proposed that allows for the evolution of densities and staging.
- The proposed layout of the built form follows a super lot strategy that responds to the market and allows for future transition in densities.

SUSTAINABILITY

- Through the placement of the proposed built form, the riparian corridors will be revitalised and restored.

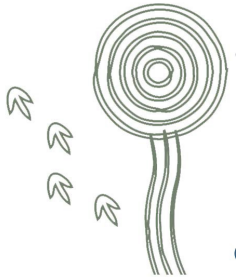
6.11.2 Response to Elements of Country

Deep Country



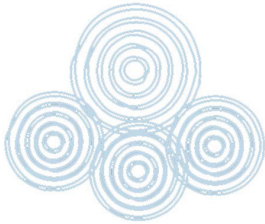
- The separation between the proposed buildings allows for visual connection to the surrounding landscape.
- The proposed built forms are oriented with reference to the natural landscapes.
- The proposed forms are designed to consider local weather conditions.

Non-Human Kin Country



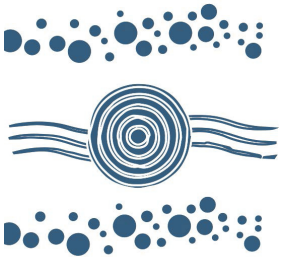
- Roof terraces in some commercial building will allow the planting of native species that allow habitat of endemic insects and invertebrates.
- The additional setbacks have been proposed to built forms to allow for more landscaping buffers to the riparian corridors.

Sky Country



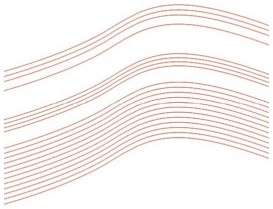
- The proposed building heights ensure adequate solar access to open spaces.
- The Draft Master Plan is designed to provide viewlines to significant landforms and the Sky.

Water Country



- The proposed built form configuration will provide adequate buffers to the riparian corridor.

Wind Country



- The proposed built form will be adequately separated to avoid canyon effect that traps hot air and pollution within the Local Centre.
- The volumes and scale of the built form will manage the wind conditions for the various activities and functions.

Source: Yerrabingin

6.11.3 Built Form Design Principles

The key built form principles established include the following:

BUILDING SETBACKS

The building setbacks will be established to take into consideration:

- Impact of scale to the public domain
- Alignment with the immediate adjoining properties
- Pedestrian comfort and experience
- View to the Sky from the street and open spaces
- Street patterns and composition in relation to the street presentation
- Opportunities for integration with the landscape

BUILDING HEIGHTS

The building heights will be established to take into consideration:

- Shadow impacts to neighbouring properties and public domain
- Location and relationship with the surrounding built form and amenity
- Proportions and scale perceived from the street
- Outlook to the surrounding environment
- Density associated with the building typologies

STREET FRONTAGE

The street frontage will be established to take into consideration:

- Spatial hierarchy, level of privacy and demarcation of programs
- Opportunities for views to the surrounding key features
- Entries and accessibility
- Safety of pedestrians where passive surveillance is encouraged
- Space for articulation of design and built form

BUILDING SEPARATION

The building separation will be established to take into consideration:

- Development potential of adjoining future built form
- Solar access to neighbouring buildings and public open space
- Service access
- Internal amenity and building depth

Source: SBA Architects

Figure 57 Proposed Commercial Office Render
Source: SBA Architects

6.11.4 Proposed Indicative GFA

The indicative Gross Floor Area (GFA) is calculated based on the proposed land use and indicative massing prepared by SBA as part of the master planning process, as shown in Section 6.10 of the Master Plan.

The indicative GFA is provided for two development scenarios, one of which contains regular warehouse buildings and the other option containing high-bay warehouse buildings in the appropriate locations as informed by the height strategy in Section 6.11.11 of the Urban Design Report. It should be noted that the indicative GFA is only a guide for future development, with other parameters including height and setbacks to control built form scale (refer Section 6.4 and Section 6.6 of Master Plan).

The estimated GFA breakdown is according to the Economic Study provided by Urbis which recommends that the Local Centre provides opportunity for approximately 91,540sqm.

The total GFA will be approximately 625,467sqm for all developable land and the breakdown between the uses is demonstrated in the summery table.

The current indicative building massing on page 63 for the Draft Master Plan demonstrates the compliance with the DCP controls and the proposed Design Excellence Strategy Report by Urbis.

*NOTE: Any retail GFA above 4,900sqm will require a Development Application (DA) to be lodged along with a retail impact assessment.

Table 4 Proposed Indicative GFA Summary - the indicative GFA is based on the Economic Study provided by Urbis.

Land Uses		Indicative GFA (sqm)
Warehouse		481,960
Business/ Enterprise (including Business Park)		26,877
Ancillary Office		24,570
Cafe (Amenity Nodes)		520
Commercial (including retail)		91,540
Total Retail GFA	4,900*	
Non-Retail – Large Gym	1,200	
Non-Retail – Medical Centre / GP	500	
Pub / Hotel	900	
Commercial Office	84,040	
TOTAL		**625,467**

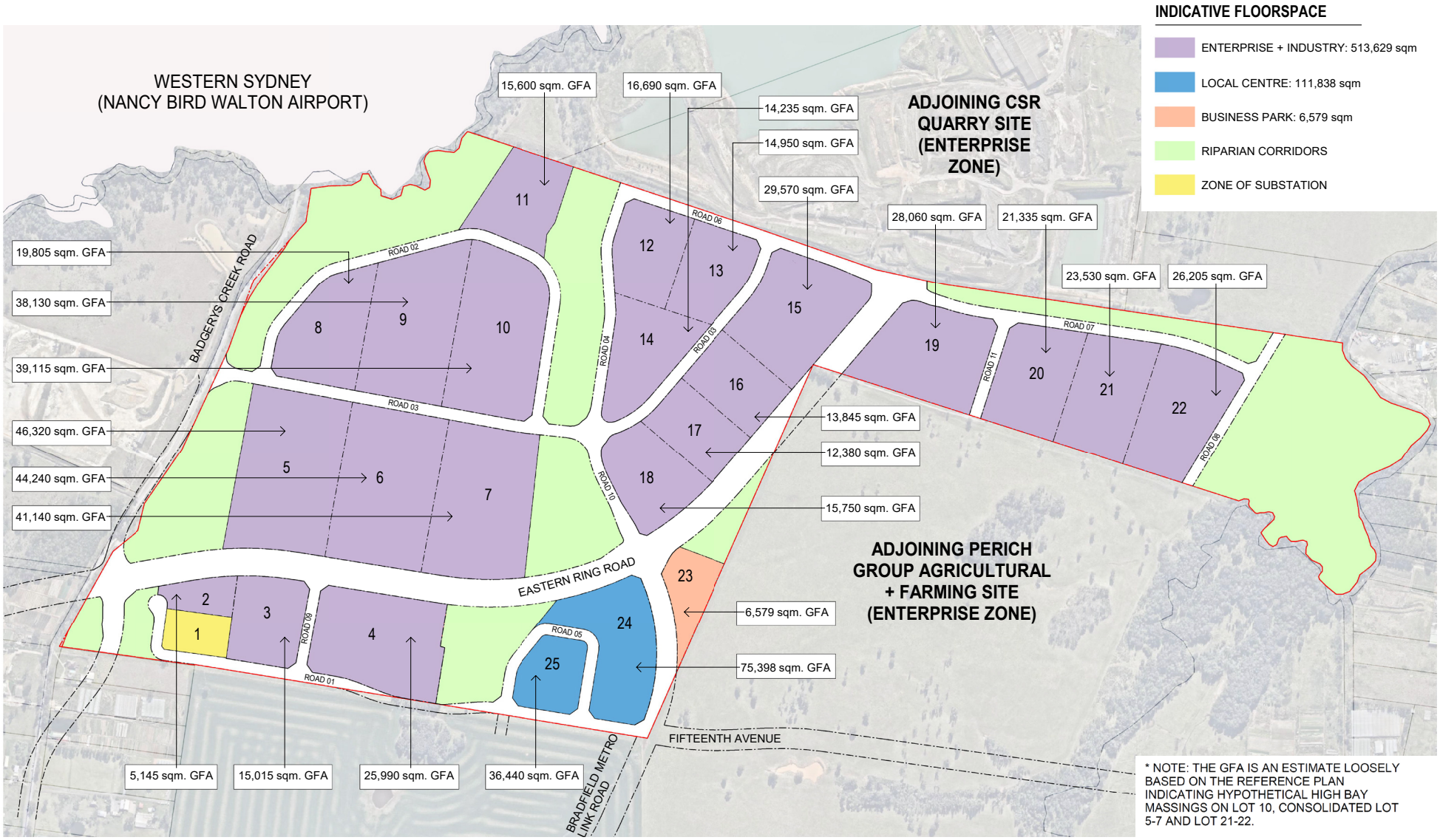


Figure 58 Indicative GFA Plan
Source: SBA

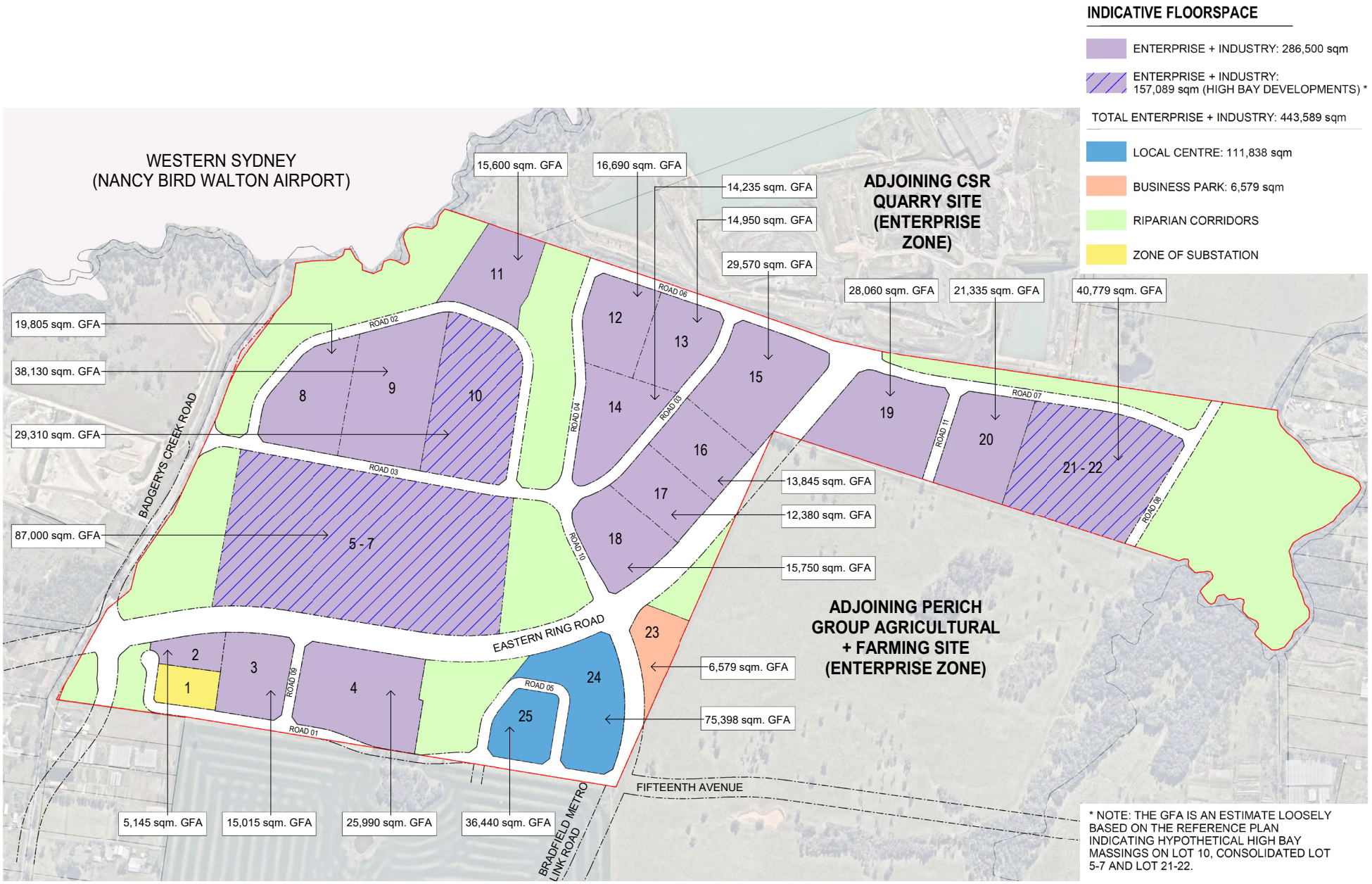


Figure 59 Indicative GFA Plan High-Bay Option

Source: SBA

6.11.5 Building Setbacks

The proposed building setbacks responds to the DCP requirements.

The proposed setbacks are consistent with the DCP requirements. Additional setback has been proposed for potential High-bay area to enhance the quality of the public domain and mitigate any adverse impacts from the proposed height.

Legend

- Site Boundary
- Min. 7.5m Building Setback to Local Road (including min.4m landscaped area)
- Or min. 13m Building Setback to Local Road where off-street parking is included within the landscaped area (which should be minimum of 6m)
- Min. 5m Rear Setback (including min.3m landscaped area)
- 6m Building Setback along BMLR
- Min. 10m Building Setback to Riparian Corridor (including min.5m landscaped area)
- 13m Building Setback to Local Road (including min.10m landscaped area and swale)
- 13m Building Setback to Local Road (including min.6m landscaped area)
- 20m Building Setback to Classified Road (ERR, including min. 10m landscaped area)
- 15m Building Setback for Potential High-bay Warehouses
- 20m Building Setback for Potential High-bay Warehouses

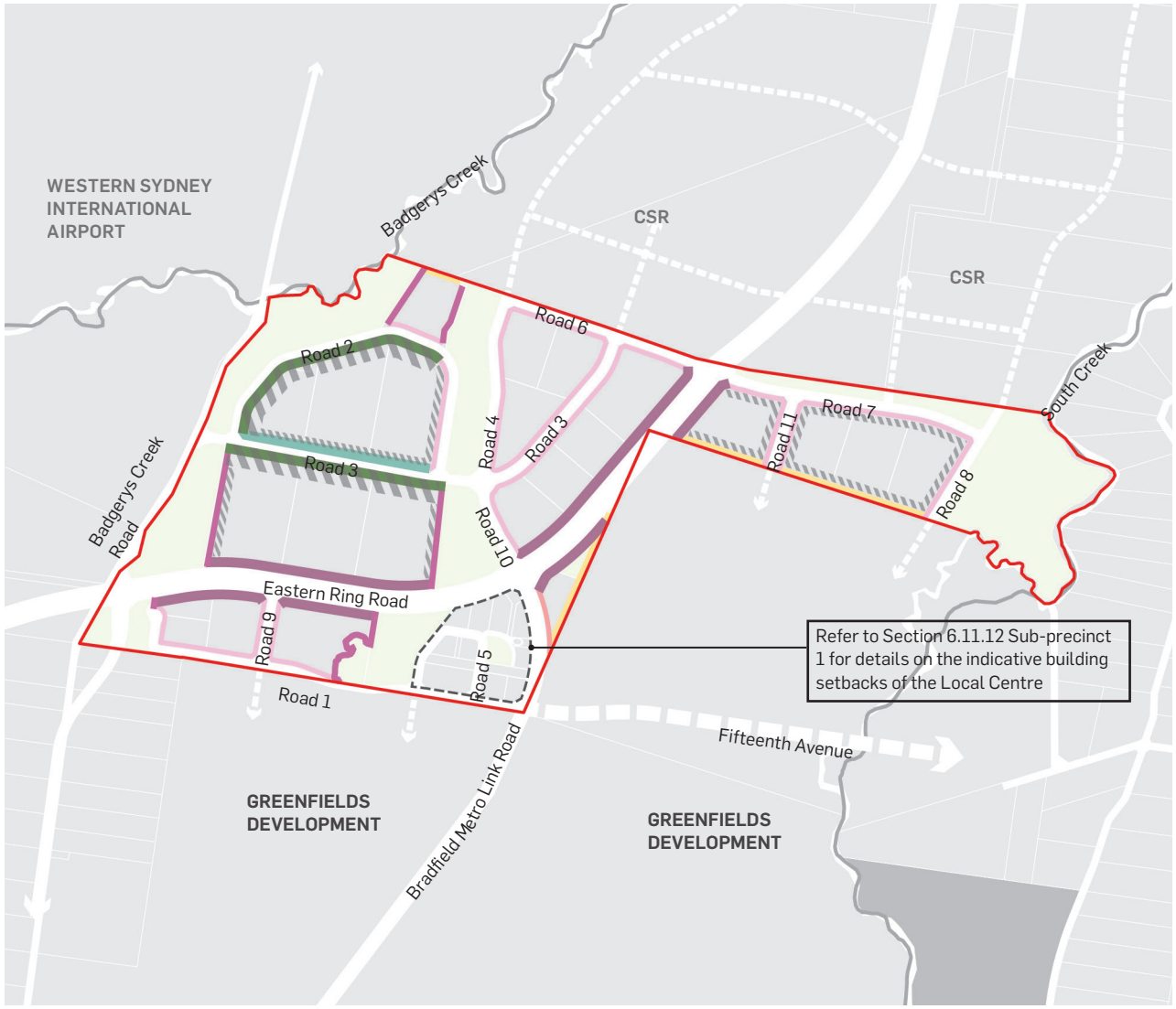


Figure 60 Building Setbacks Plan

6.11.6 Indicative Building Layout

The following strategies highlight the principles of place making and Connecting with Country that guide the built form:

- Reinforce creek to creek connections.
- Supporting walkability within the development.
- Great views and physical access to nature.
- Emphasis on maintaining east-west view corridors to highlight views towards the Blue Mountains and the relationship between Wianamatta and Badgerys Creek.
- Quality visual axis has been maintained and enhanced via integration of creek-to-creek principles and the pedestrian focused promenade within the Local Centre.
  - All potential industrial buildings with ancillary offices have been positioned to maximise outlook to the Riparian Corridors and naturalised channels.
  - All Local Centre buildings will have views to the Riparian Corridors, Local Park and the Promenade. Taller buildings will have unobstructed westerly views towards the Blue Mountains beyond.

The proposed built form design is an indicative design response that has been provided as part of this Draft Master Plan process.

Legend

	Site Boundary
	Open Spaces
	Integrated Stormwater Basins
	Indicative Building Footprint

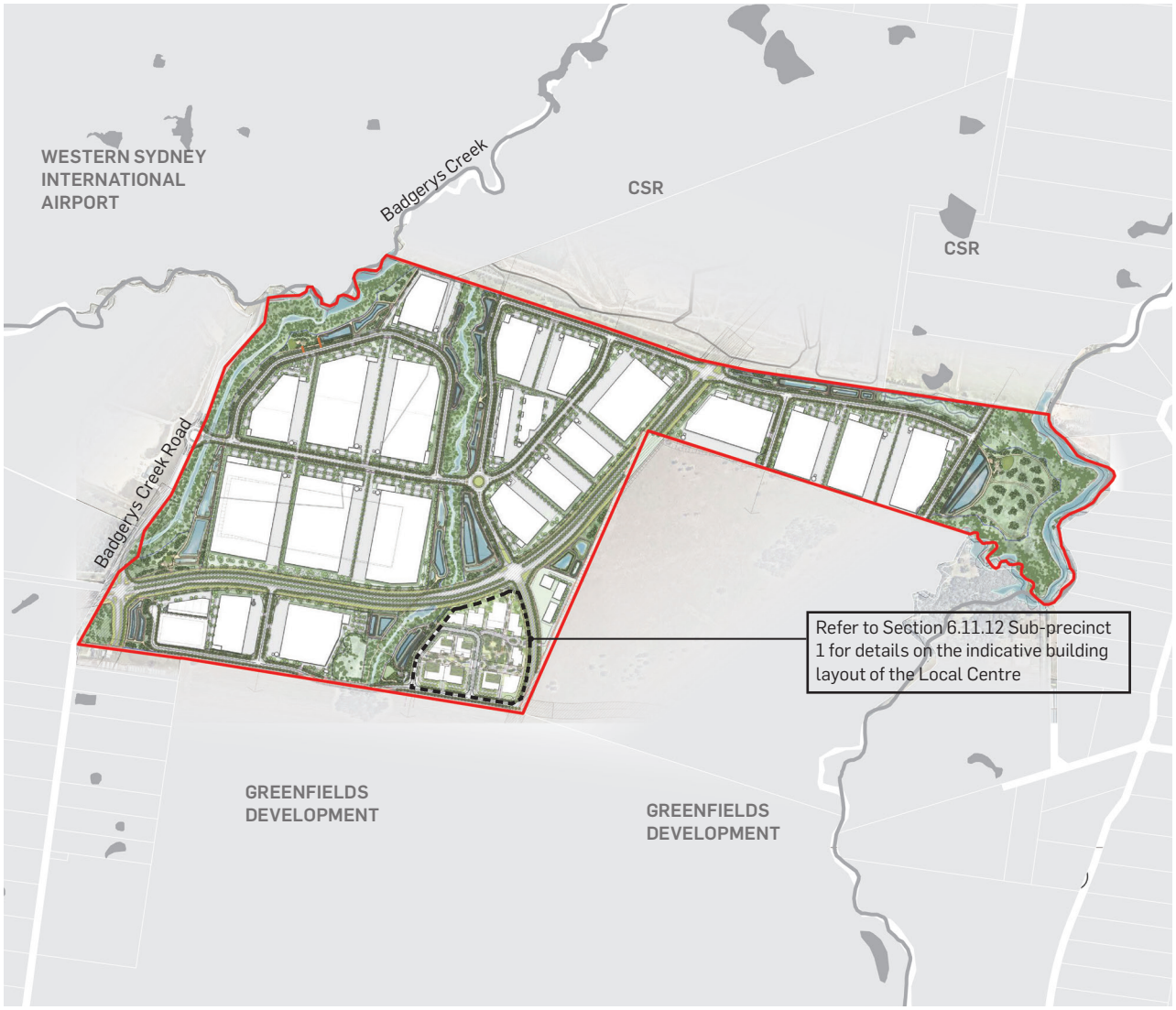


Figure 61 Indicative Building Layout Plan
Source: Site Image

6.11.7 Indicative Shadow Analysis (Draft Master Plan)

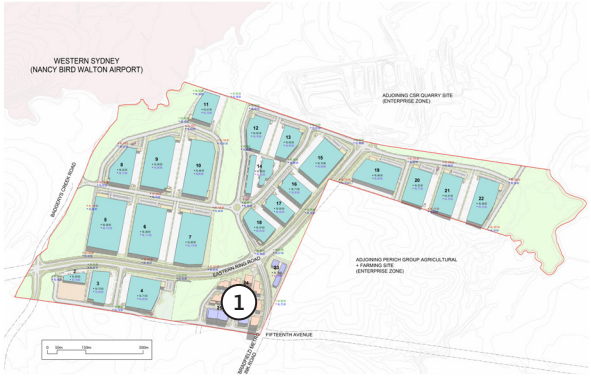
Shadow Impact Analysis

The shadow analysis has been undertaken for the two proposed scenarios of the Draft Master Plan on the 21st of June between 9am and 3pm.

The overall Draft Master Plan has been designed to minimise the overshadowing impacts to the public domain, riparian corridors and open spaces.

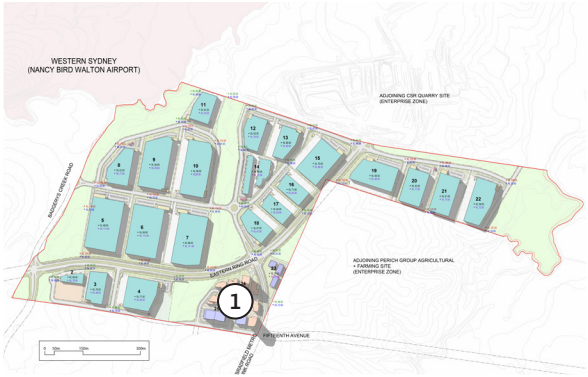
Refer to the Architectural Design Statement for the detailed shadow impact analysis.

9:00AM - June 21



11:00AM - June 21

1:00PM - June 21



3:00PM - June 21

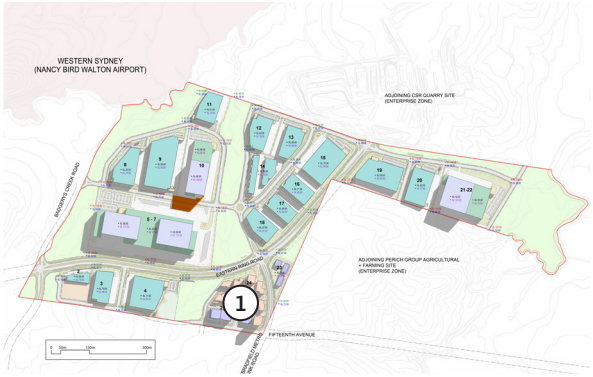
Source: SBA Architects

(1) Refer to Section 6.11.12 Sub-precinct 1 for details on the indicative building setbacks of the Local Centre

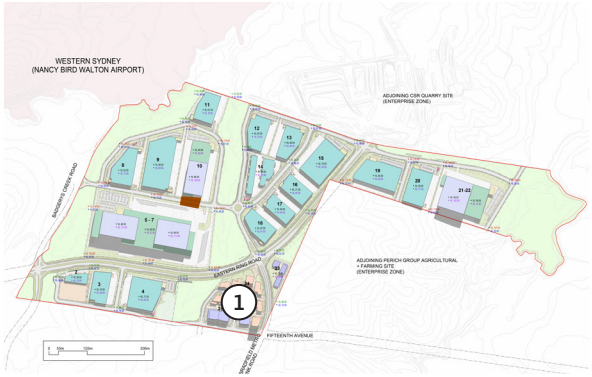
6.11.8 Indicative Shadow Analysis
(Draft Master Plan with High-bays)

Shadow Impact Analysis

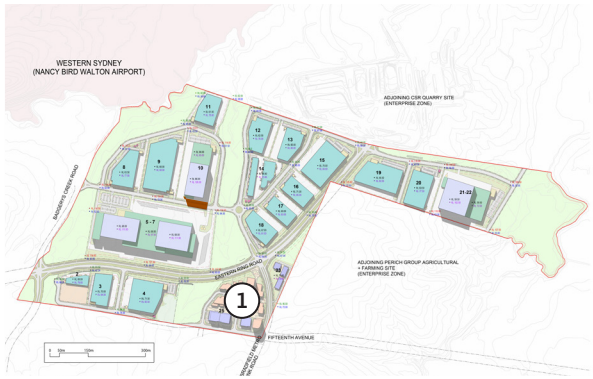
As shown on the diagrams, the High-bay Warehouse if developed, would only have a minimal impact on Road 3.



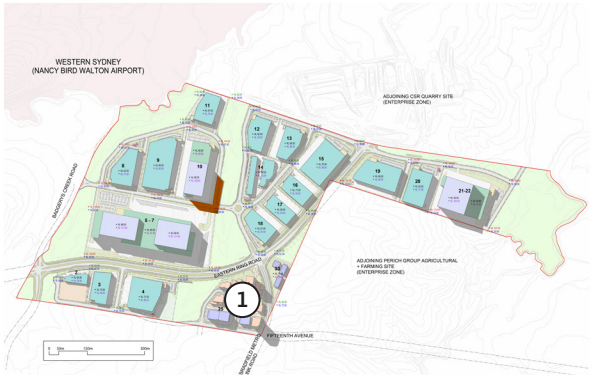
9:00AM - June 21



11:00AM - June 21



1:00PM - June 21



3:00PM - June 21

Source: SBA Architects

Legend

Additional Overshadowing Impacts

(1) Refer to Section 6.11.12 Sub-precinct 1 for details on the indicative building setbacks of the Local Centre

6.11.9 Building Typology

The following outlines the design approach and rationale for each of the proposed building typologies. However, these proposals do not exclude other types of development permitted under the Enterprise zone.

The proposed typologies respond to the site's vision and the proposed Draft Master Plan design principles, factoring in the life cycle use of the subject site, current market demands, and the potential shortage of industrial land use.

There are 4 main building typologies that have been identified under the proposed Draft Master Plan:

- Light Industrial Format Building
- Large/ Mid-sized Format Industrial Building
- Commercial and Ground Floor Retail Buildings within the Local Centre
- High-bay Industrial Buildings

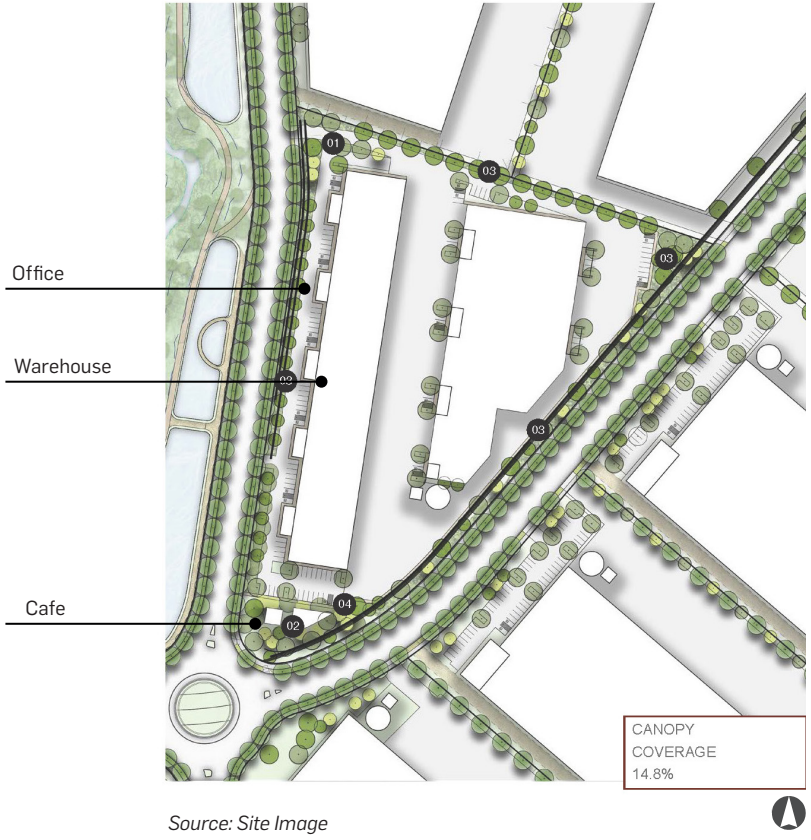
Light Industrial Format Building

While light industrial envelopes are similar in many aspect, the block forms are generally more elongated and modulated. The characteristics include:

- Smaller hardstand as side loading is possible.
- Ancillary offices usually occupy the upper level, freeing the ground plane for other programs or activities.
- Individual compact modules organised in row form. The form is highly adaptable due to the compact modulation and suited for irregular shaped site.
- Consideration of hybrid of programs comprising spaces such as showroom, storage, small scale manufacturing and so on.
- Integrated communal spaces such as footpath and pocket gardens for various tenancies within one lot.

Light Industrial Format Building (approximately 15,000sqm floor space)

Precedent Images Source: SBA Architects



Source: Site Image

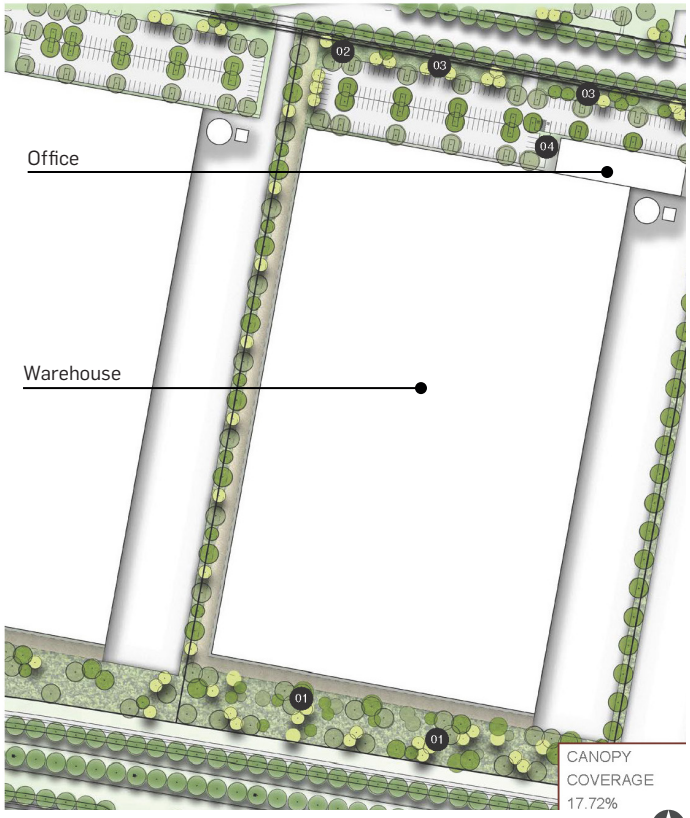
Large/ Mid-sized Format Industrial Building

Typical large and mid-sized format industrial building envelopes are characterised by a large rectangular geometry, which works best with the simple grid system of the Draft Master Plan. However, the building envelopes are further shaped by:

- Parking allowance.
- Setbacks and deep soil.
- The position of the ancillary office. This component is usually attached to the industrial building, reflecting the symbiotic relationship between these two differing typologies that complement each other.
- Hardstand provisions for loading services.
- Pedestrian, services and vehicular access.
- Provision of amenity, place of refuge and generous landscaping area

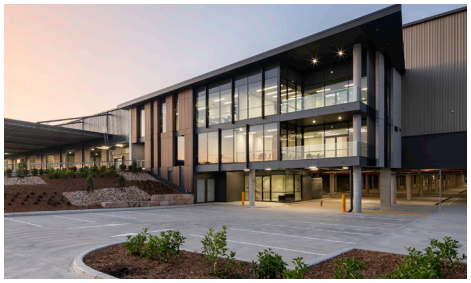
Large Size Format Industrial Building (approximately 40,000sqm floor space)

Precedent Images Source: SBA Architects

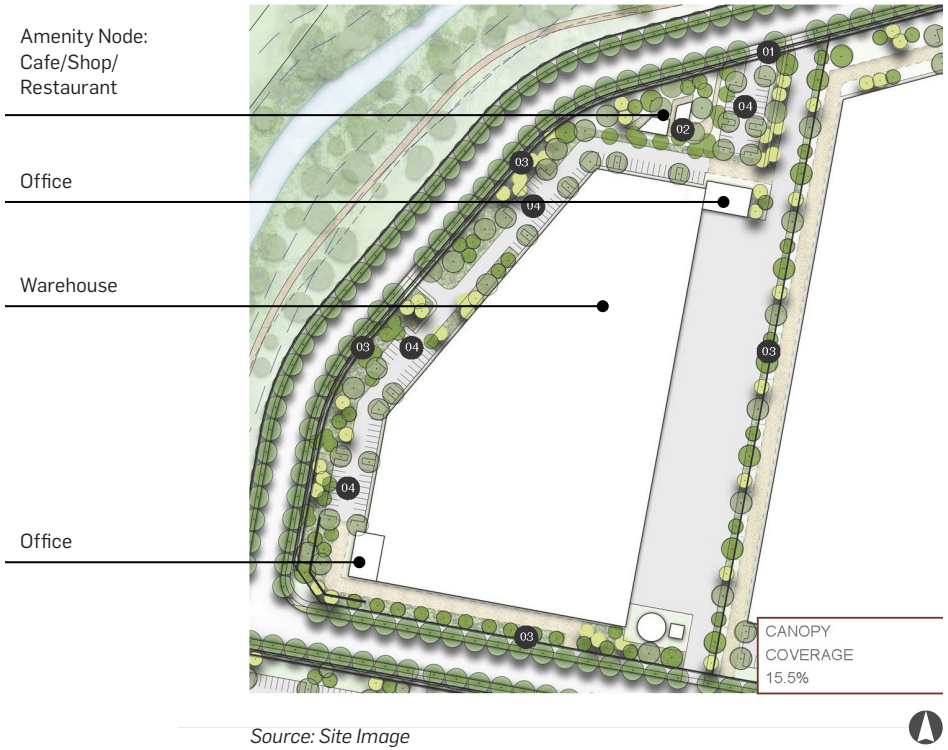


Source: Site Image

Medium Size Format Industrial Building (approximately 20,000sqm floor space)



Precedent Images Source: SBA Architects



Source: Site Image

Commercial and Ground Floor Retail Buildings within the Local Centre

The commercial and retail building envelopes within the Local Centre, comprise series of freestanding forms organised along the street. Responding to site conditions, each geometries are then repeatedly staggered, tapered, bent or split in order to:

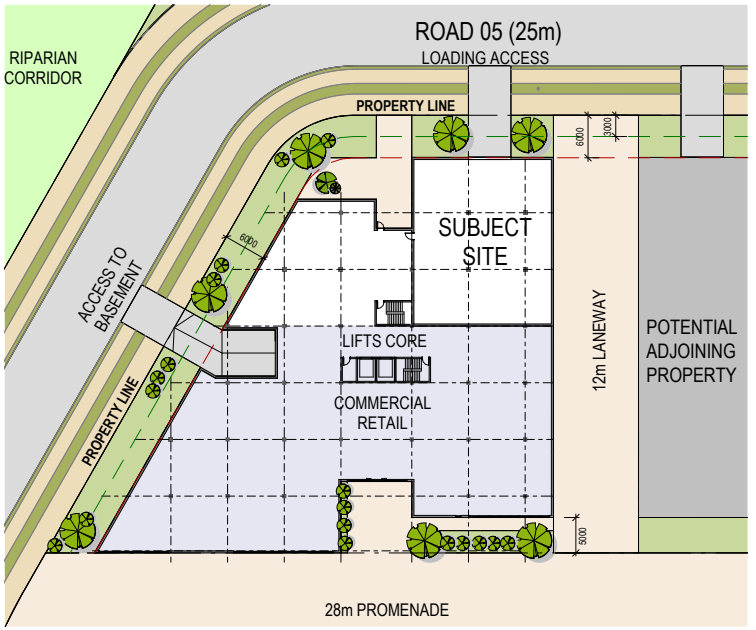
- Create rhythm and actively engage the streetscape.
- Increase porosity for pedestrian connectivity to adjoining development.
- Widen footpath and reduce shadow impact to public domain.
- Create diverse commercial built options.

Design approach:

- Open plan office with central lift core to provide a flexible framework for occupation
- External expression designed to accommodate different tenancies while maintaining the integrity of the design
- Embedding the idea of wellness for workplace
- Integration of urban terrace as part of the feature design
- Planning of entry, actives uses and services

Commercial and Ground Floor Retail Buildings

Precedent Images Source: SBA Architects



Source: SBA Architects

High-bay Industrial Buildings

High-bay warehouses within the site require the design considerations as follows:

Suitable scale to accommodate potential use for cold storage, food production and specialised manufacturing

Shadow impact towards sensitive areas such as public domain and ancillary office in relation to the position of High-bay component exceeding 35m in height.

Perceived visual impact of the building component that exceeds 24m height limit.

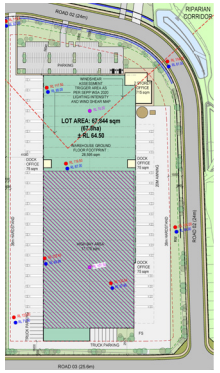
Lot sizes and layouts of the High-bay Warehouses lots can be varied according to the industrial practice. The indicative arrangements are illustrated, including:

TYPE	LOT SIZE (SQM)	High-bay FLOOR SPACE (SQM)
Type 1	68,000	7,105
Type 2	218,000	78,000
Type 3	89,000	12,000

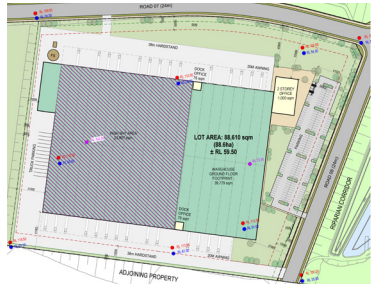
Details on the height strategy for High-bay warehousing is discussed in Section 07 of this report.

High-bay Warehouse Building

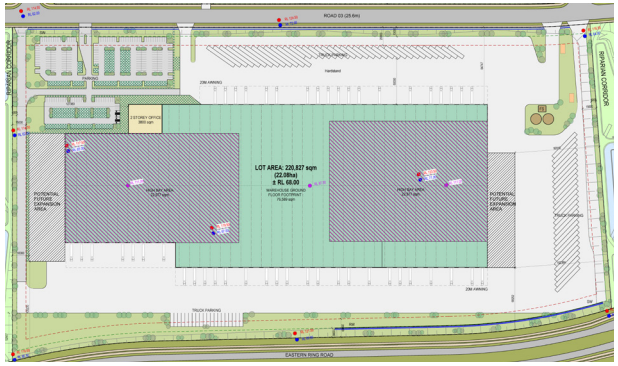
Precedent Images Source: SBA Architects



TYPE 1 (Lot 10)



TYPE 3 (Lots 21-22)



TYPE 2 (Lots 5-7)

Source: SBA Architects

6.11.10 Street Frontage - Industrial Building

The key design principles for building interfaces with the streets are as follows:

- Demarcation of programs, spatial hierarchy and level of privacy.
- Location of the ancillary offices to front the street, especially for the large and mid-sized format industrial lot, to provide finer built form with glazed facade treatment to increase the visual penetration and street activation.
- Opportunities for views to the surrounding and key features.
- Entries and accessibility and pedestrian safety.
- Space for articulation of design and built form.
- Passive surveillance to the street and riparian corridors.
- Active engagement along the street interface which supports a natural outdoor environment.
- Views to the internal streets and riparian corridors for community enjoyment.

Precedent Images Source: SBA Architects

6.11.11 Height

- Height Limits of 52.5m are proposed in three areas to accommodate high-bay warehouses as well as a landmark building. The heights have considered:
  - Shadow impact to neighbouring properties and public domain.
  - Location and the relationship with surrounding built forms and amenity.
  - Proportions and scale perceived from the street.
  - Outlook to surrounding environment.
  - Density associated with building typologies.

- The High-bay component of a warehouse does not take more than 60% of the overall building footprint. Through the Master Plan pathway, the Urban Design Principles, landscape-led approach and the integration of Connection with Country will lessen the impact of High-bay development via restoration of the Riparian Corridors, provision of amenity to support workers and provision of the Design Quality Strategy. There are two parcels of land within the IPG Draft Master Plan identified as being suitable for high-bay warehousing, referred to as the 'western parcel' and the 'eastern parcel'. The western parcel is situated within the first stage of the Draft Master Plan. The proposed height controls within the western and eastern parcels of high-bay areas have been assessed as part of an Aviation Impact Assessment (AIA) prepared by Landrum and Brown, and has been designed in compliance with aviation controls including the wind shear assessment trigger area.
  - All areas designated for potential High-bay developments in the western parcel of the estate will need to comply with the 10m landscape setback from Road 2 and 3 as stipulated in the Design Quality Strategy. The increased landscape setback from 6m (as required in the DCP) to 10m will enhance the public domain and reinforce the creek-to-creek connection. Through the Master Plan, a dedicated naturalised channel and landscape area were lined along north of Road 7 at the pan-handle, which will improve the public domain and lessen the visual impact of the potential High-bay development. This arrangement will also prevent over-shadowing over the naturalised channel.

NOTE: High-bay warehousing, if proposed will have to have to be undertaken under a separate planning pathway.

- The height strategy within the Local Centre is to reinforce the key gateways into the centre and also to create an active and vibrant streetscape which responds to the human scale.
- The proposed height strategy will be compliant with the relevant DCP controls and will minimise overshadowing impacts to the surrounding uses. Refer to the overshadowing analysis on pages 104 and 105.

Legend

- Site Boundary
- Maximum Building Height: 24m
- Maximum Building Height: 52.5m
- Maximum Building Height: 52.5m (Potential for Landmark Building)
- Maximum Building Height: 52.5m (Potential High Bay Warehousing)
- High-Bay warehouse development within the Wind Shear Area will require consultation with the relevant Commonwealth Department

Figure 62 Building Height Plan

6.11.12 Sub-precinct 1 - Local Centre

The Local Centre is envisaged as a community-focused hub that offers the convenience of public and commercial services and an energising sense of civic and public connectivity.

The built environment is friendly to the presence of people working, visiting, enjoying or spending time within the Local Centre, and as such, architecture characters such as the building access, street wall, height and scale should be geared towards human preoccupations of architecture, natural environment and urbanism.

The key features of the urban built forms within the Local Centre include:

- Local park as the heart of the centre and a people-oriented public realm
- Orientation to maximise views towards the Local Park, Central Riparian Corridor, and Blue Mountains beyond.
- Introduce ground level activation close to local park, east-west main promenade and public transport station.
- Enhance human scale design through sensitive building height.
- Prioritise pedestrian movement through the Centre.
- Awnings over footpaths for pedestrians without compromising street trees.
- Consistent street patterns that balance the street wall component and integration of greeneries.
- Potential to explore integrated basement car parking.

The key features of the urban built forms within the Local Centre:

- A height strategy to reinforce the key gateways into the centre. Taller buildings (52.5m) at both ends of the centre with lower buildings (26m) elsewhere to provide a human scaled development and transition to the surrounding context.
- Create an active and vibrant streetscape which responds to the human scale.
- Two tower form buildings locations on both north and south ends of the Local Centre to establish the gateway locations along Bradfield Metro Link Road into the Site.

Figure 63 3D view of the Local Centre

Source: SBA Architects

A Local Centre Indicative Plan

Legend

- Min. 0m Setback
- Min. 3m Setback
- Min. 6m Setback
- Min. 5m Setback above 3 Storeys
- Min. 20m Setback from ERR
- Through Site Link & Laneways
- Promenade
- Potential Landmark Building
- Street frontage will be activated with retail/cafés/restaurants
- Public Transport Route and Potential Stop
- Vehicle Access to Lots
- Primary Access to Lobby
- Public Open Space must receive a minimum of 3 hours direct sunlight between 11am and 3pm on 21 June
- Pedestrian and Cycleway Link

On- street parking integrated with planting and tree canopy.

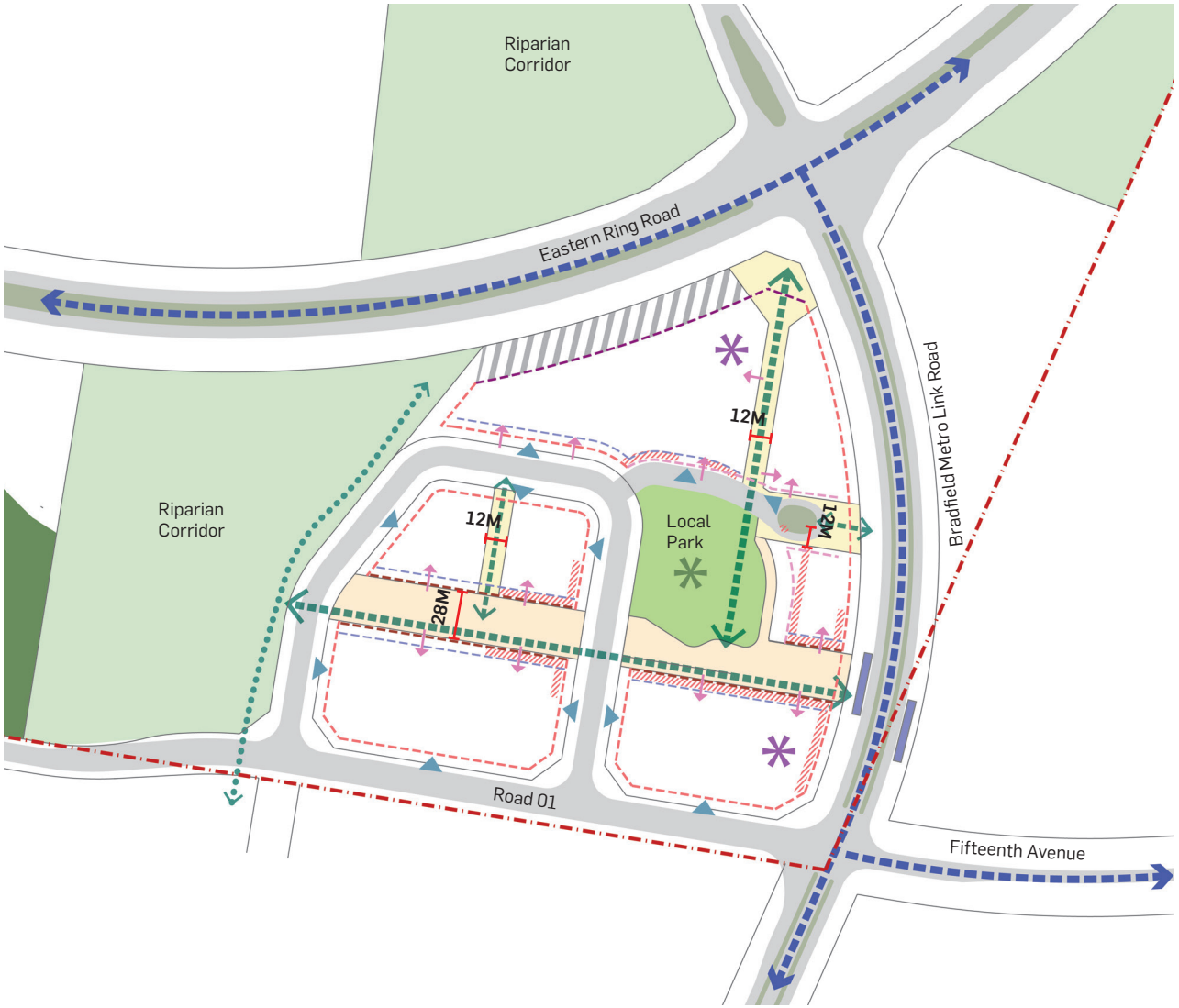
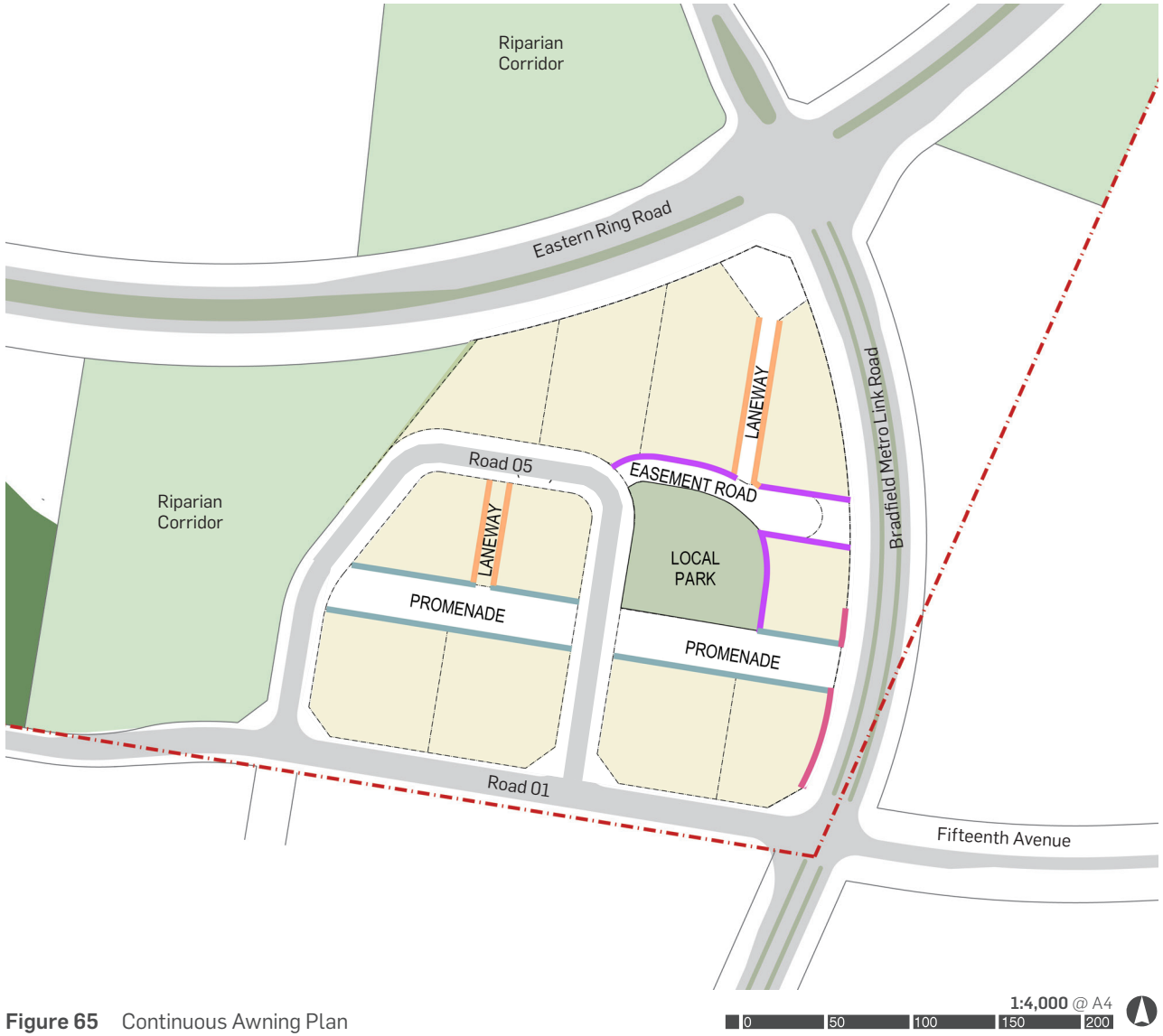


Figure 64 Local Centre Urban Design Guideline Plan

B Local Centre Awning Plan



Legend

- 2.5m Awning Projection from Property Boundary
- 3m Awning Projection from Building Line
- 3.5m Awning Projection from Property Boundary
- 3.5m Awning Projection from Building Line

Figure 65 Continuous Awning Plan

Source: SBA Architects

C Local Centre Landscape Master Plan

The Local Centre provides a variety of different services that are enhanced by landscape interventions. The key objectives for the proposed Draft Master Plan are to:

- Create safe and well-connected pedestrian network to prioritise pedestrian and cycle movement.
- Promote inclusive design solutions for the public domain.
- Appropriate size and locations of the public domain with a range of diverse uses to meet daily needs and amenity.
- Prioritise shared uses of the public domain.

Legend

01	Local Park
02	Through-Site Links/ Laneways
03	Deep Soil Planting to Setbacks
04	Promenade to Riparian Corridor
05	Green Roofs
06	Canopy Trees to Carpark

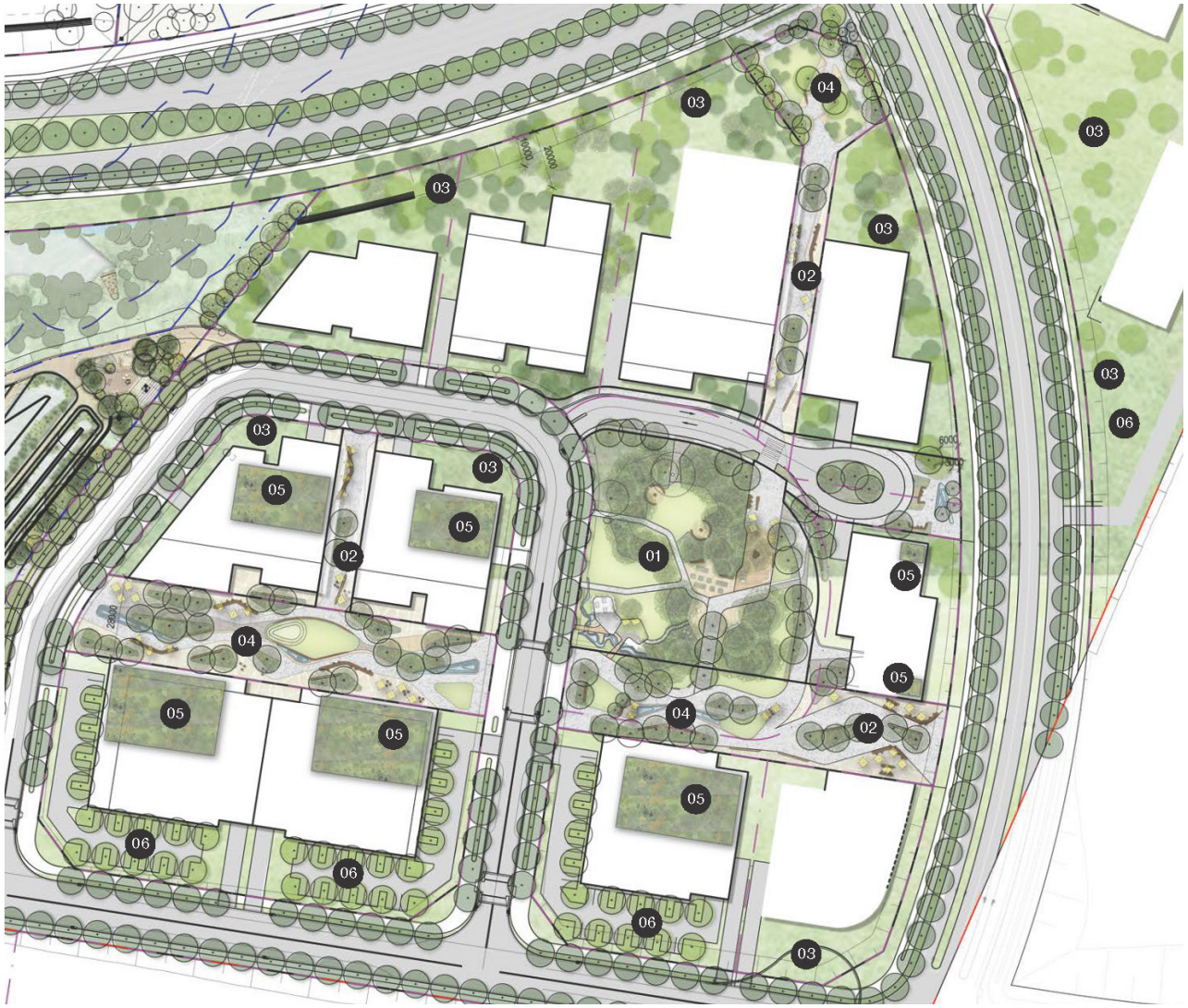


Figure 66 Illustrative Draft Master Plan of Local Centre
Source: Site Image

D Local Park

The Local Centre park provides a central hub for education, such as the sharing of stories of the two creeks and the context of the broader site. A grove of existing trees within the park will be partially retained and bolstered with additional shrub and ground cover planting to help promote a bio-diverse ecosystem. Sightlines through the park will highlight views of the surrounding natural landscape.

Legend	
01	Water Feature/ Creek Motif to the Northern Edge
02	Retention of Existing Trees
03	Communal Picnic Area
04	Nature Play Area
05	Flexible Area for Community Use
06	Passive Use Lawn Area
07	Arterial Pedestrian Connection
08	Boardwalk around Structural Root Zones
09	Mass Planting
10	Community Gardens

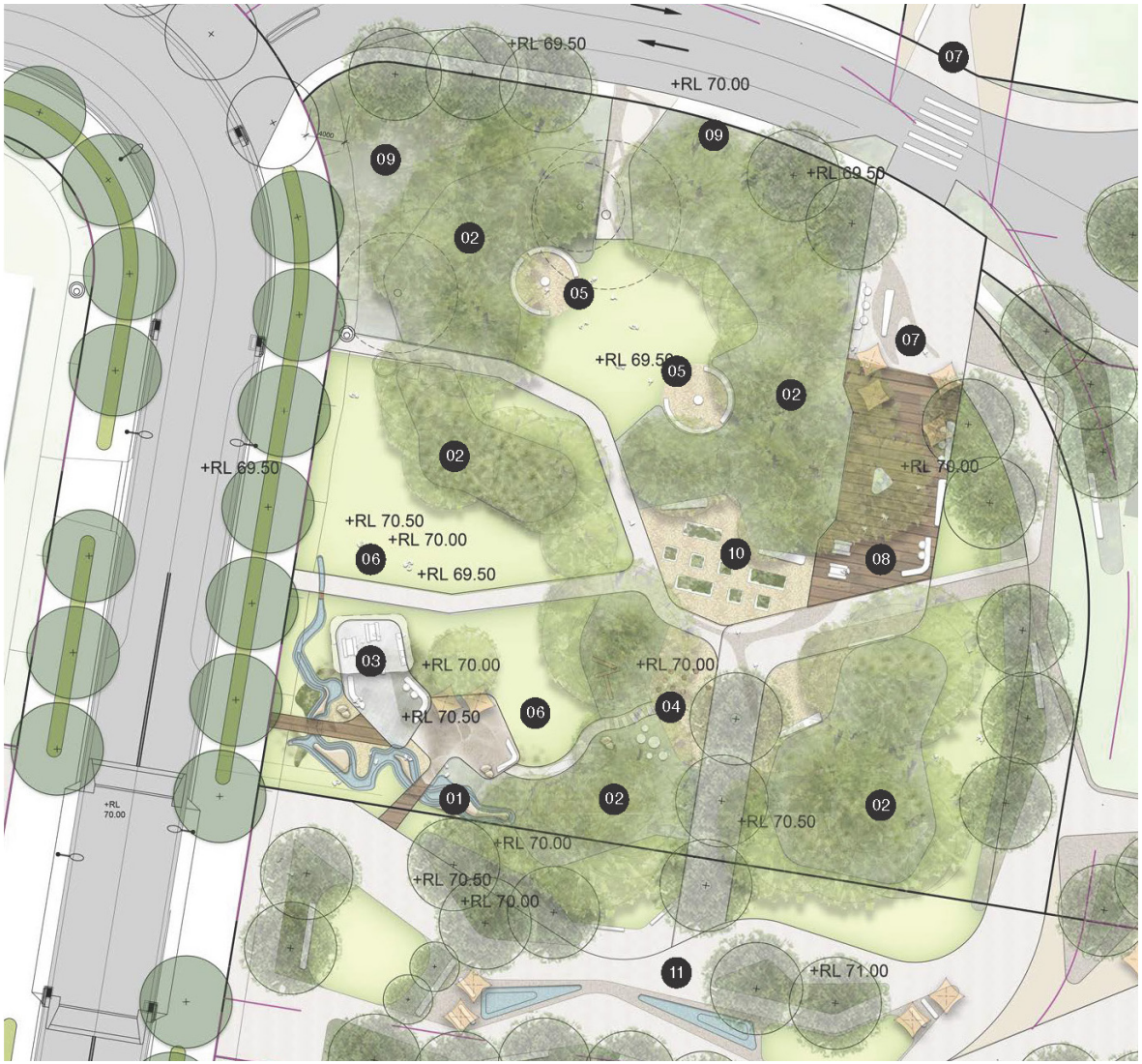


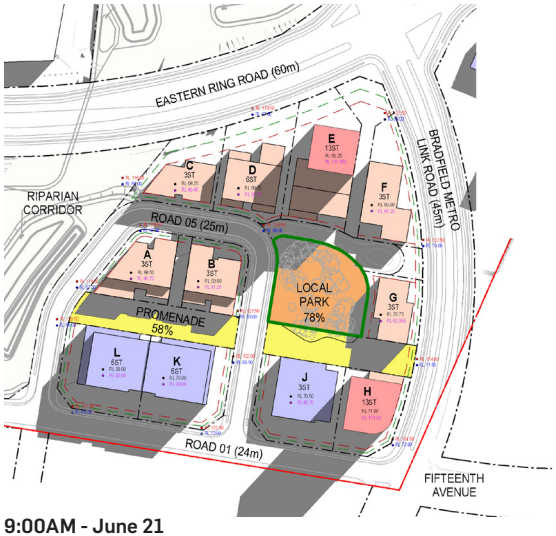
Figure 67 Detailed Local Park Plan

Source: Site Image

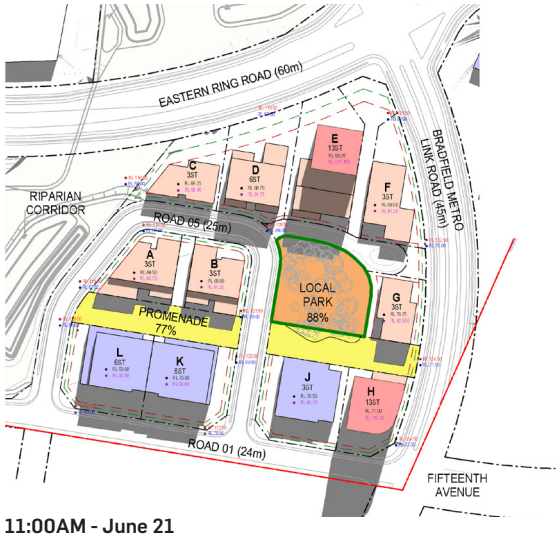
E Local Park Overshadowing analysis

The shadow analysis diagrams have been prepared to study the impact of the proposed building envelopes on the Local Park and Promenade between 9am to 3pm, Winter Solstice 21 June.

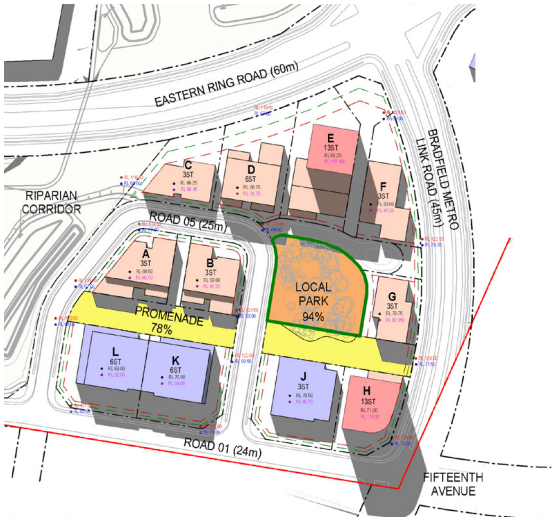
The diagrams show that between 9am to 3pm, approximately 70% or more area of the total Local Park and Promenade receives more than three hours of natural daylight, complying with the WSA DCP.



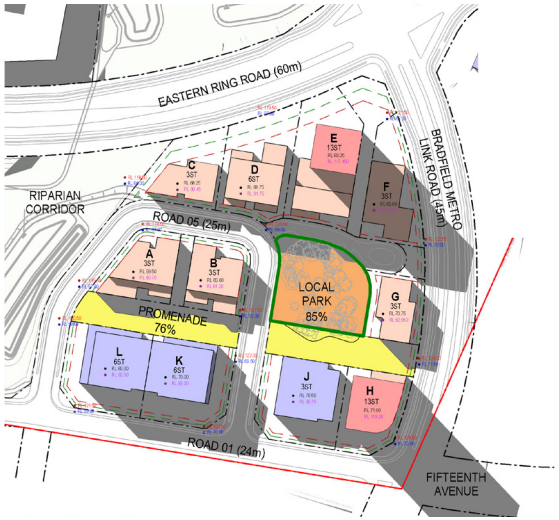
9:00AM - June 21



11:00AM - June 21



1:00PM - June 21



3:00PM - June 21

Legend

- Commercial/ Retail Use
- Business/ Enterprise Use
- 13 Storey Commercial Use
- Local Park
- Area of Local Park Receiving Solar Access
- Area of Promenade Receiving Solar Access

Source: SBA Architects

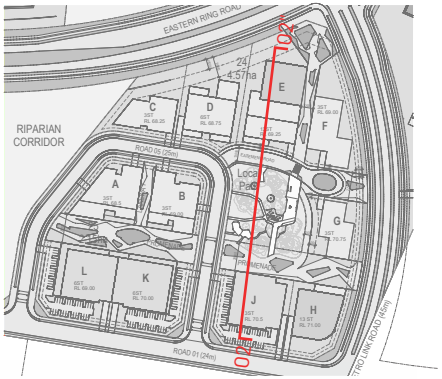
F Local Centre Typical Section

This north-south long section illustrates the following design intentions:

- Proposed building height and built form responses to the new Local Park in the middle compliance with the Precinct Plan building height requirement.
- Streetscape and building frontages along the new Service Lane surrounding the Local Park.

Legend

- Commercial/ Retail Use
- Business/ Enterprise Use
- Building Height Limit Line Measured from Existing Ground Line
- Existing Ground Line
- Proposed Level Line as per Civil Engineer's Detail



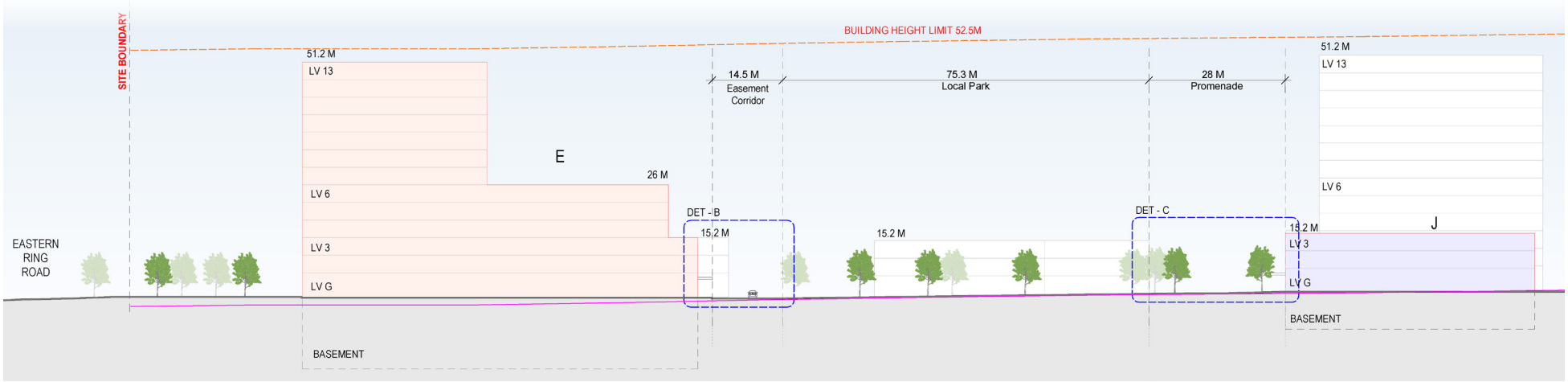


Figure 68 Indicative Long Section of Local Centre

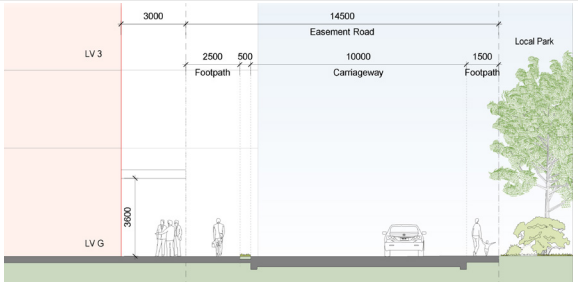


Figure 69 Detail B

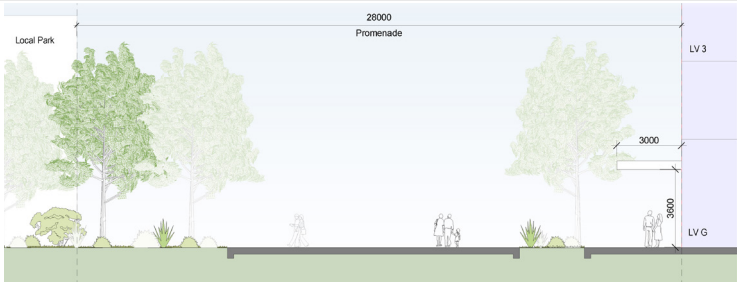
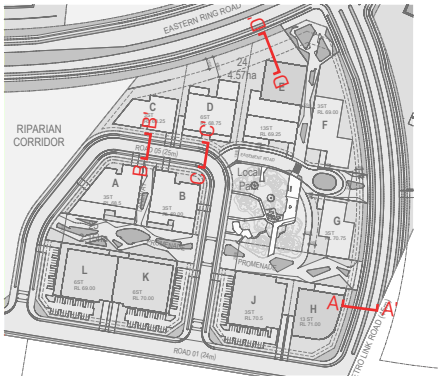


Figure 70 Detail C

Source: SBA Architects

G Local Centre Street Sections



Legend

- Carriageway
- Public Domain
- Building Footprint

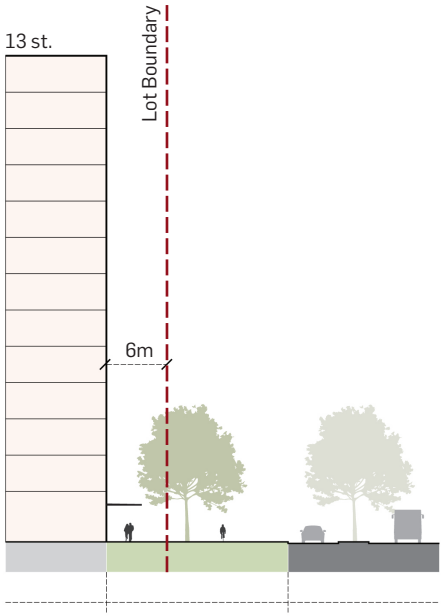


Figure 71 Section A - A'

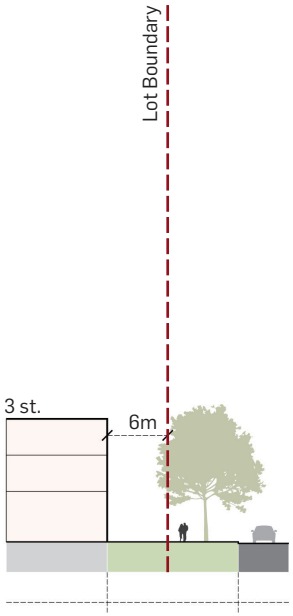


Figure 72 Section B - B'

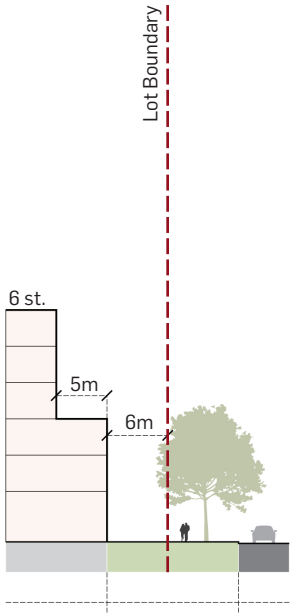


Figure 73 Section C - C'

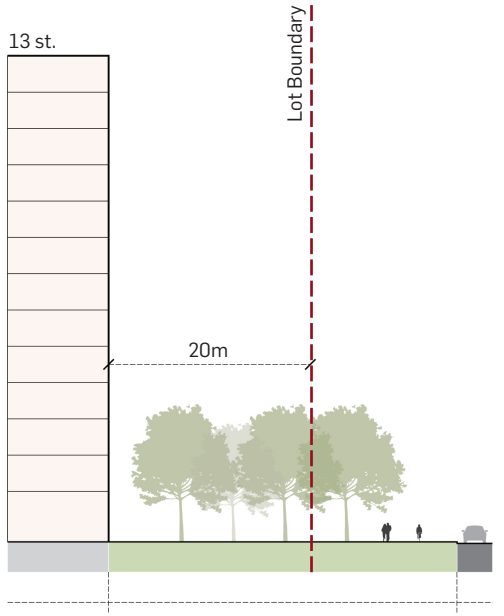


Figure 74 Section D - D'

1:750 @ A4

0 10 20 30 40

6.12 STAGING

6.12.1 Development Staging

The staging of the IPG Draft Master Plan has been informed by the planned delivery of road infrastructure to unlock parcels within the site.

The staging has been designed to allow flexibility to respond to the potential changes of the market and the ability to respond to the specific needs and preferences of potential tenants and end-users in the future.

The Staging Plan is largely governed by the timing of infrastructure provisions which enable access to the site, the spatial configuration of the parcels within each of the stages enable a range of enterprise and industry typologies which can cater to a range of tenants and end users.

Stages 1 and 2 form the gateway into the IPG site, which will attract key anchor tenants, given the large contiguous parcels and the potential for High-bay Warehousing. It will rely on immediate access off Badgerys Creek Road. It will also require a temporary road linking to BCR for the new zone substation and the adjoining lands at the first stages. The temporary road will be removed when the broader road network is established.

Subsequent stages have the possibility to be delivered in different order, as an example Stage 5 can be delivered before Stage 4 or Stage 7 before Stage 6, provided that the road, servicing and water infrastructure is appropriately delivered.

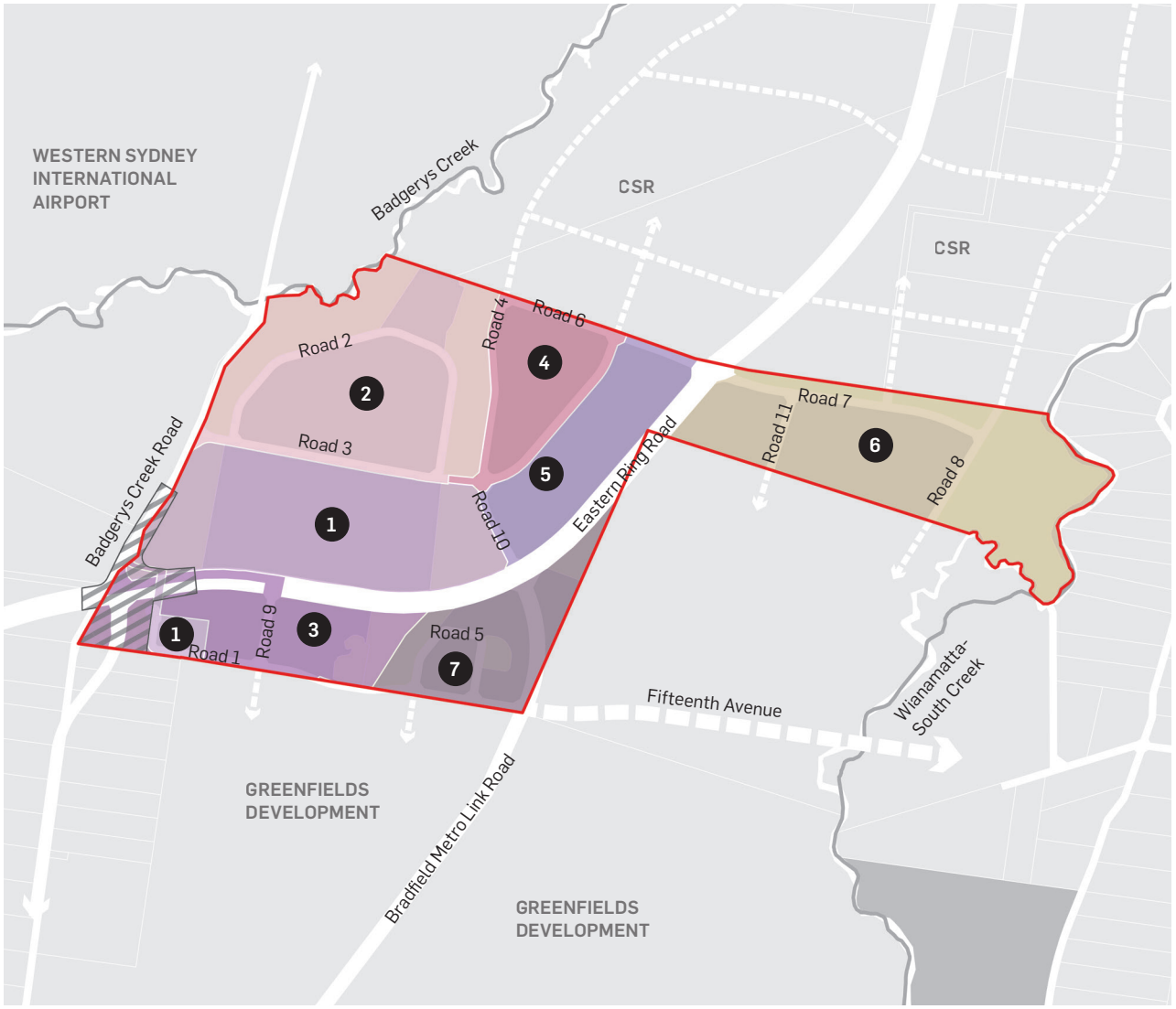


Figure 75 Indicative Staging Plan

Source: AT&L

6.13 GENERAL CONTROLS

- Infrastructure and Utilities
- Public Art Strategies
- Stormwater and Water Cycle Management
- Earthworks - Cut and Fill

6.13.1 Response to Vision/ Key Directions

LIVEABILITY

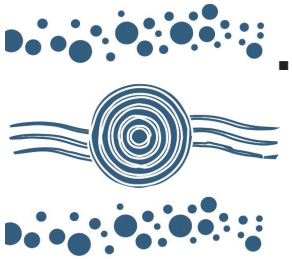
- The proposed public art strategy will assist in delivering great places that will enrich the local character.

SUSTAINABILITY

- Through the proposed stormwater management, the riparian corridors will be revitalised by enabling water detention and retention.

6.13.2 Response to Elements of Country

Water Country



- Public art opportunities have been explored along the creek lines and riparian corridors.
- The stormwater basins will be treat the water before it enters the watercourses.

6.13.3 Infrastructure and Utilities

The infrastructure and utilities have been designed to support the future employment focused development of the site. The design proposes water, sewer, gas, electricity, and telecommunications services to the site, mainly along the arterial, collector and local industrial roads as well as riparian corridors. Existing utilities along Badgerys Creek Road will be retained depending on the capacity and staged demand.

Legend

- Site Boundary
- Potable Water Services
- Sydney Water Trunk Gravity Main
- Sewage Services
- Temporary Sewer IOP for Stage 1&2
- Gas Services
- Telecommunication Services
- Electrical Services
- Zone Substation
- # Stage Number
- Staging Boundaries

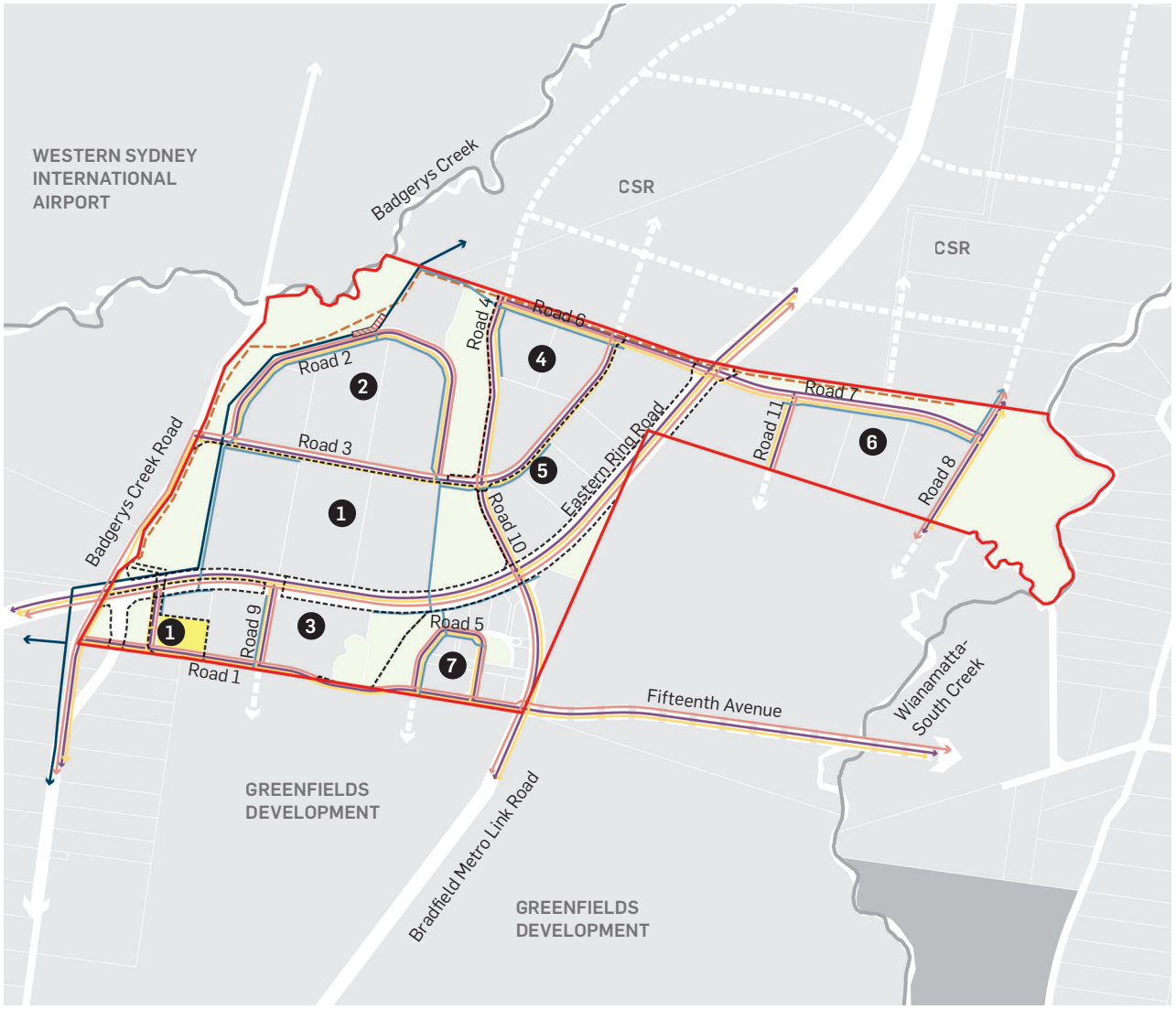


Figure 76 Infrastructure and Utilities Plan

Source: AT&L

6.13.4 Public Art Strategy

Site Image Public Art Consultants have provided the Public Art Strategy for the proposed Draft Master Plan in accordance with the Public Art objectives and performance outcomes outlined in the Western Sydney Aerotropolis DCP 2022. The landscape approach is integrated with the Connecting with Country Framework. It aims to guide the design and commissioning processes of public art for the site, ensuring a site wide approach to public art that supports and enhances the Draft Master Plan.

The Public Art Draft Master Plan identifies the opportunities for potential locations of the different art typologies / themes in consideration of natural features, proposed built form, circulation, view corridors, uses, amenity, activation, character and wayfinding.

The public art strategy provides a thorough framework and process for delivery of artwork that achieves design excellence, and public art codes and guidelines of Council, and Place making requirements of the Government Architect. The exact location, extent, style and form of the public art needs to be further developed with the ongoing design of the site and individual lots.

Public art have a range of social benefits and can be offered in many forms and varieties. The typologies considered appropriate for the site include:

- Gateway Art

  Large scale permanent installations to create entry statements to the site.
- Large Scale Wayfinding

  Large-scale installations that can be seen from a distance, such as murals, series of beacons, large installations.
- Environmental / Nature Art

  Planting arrangements, landform, installations responding to or incorporating the elements, installations that play with light and shadow, installations that draw on nature.
- Interpretive Art / Educational

  Information panels, plaques, installations and sculptures.
- Sensory / Interactive Installations

  Installations that evoke sensory experiences like touch and sound, Audio installations, textured materials, planting, light installations.
- Discovery / Wayfinding

  Path inserts, markers, planting arrangements, series of installations and sculptures.
- Integrated Art

  Integrated into public domain amenities, cladding and housing to utilities and bins, furniture frames, play elements, canopies.

CONNECTING WITH COUNTRY

Key site features/ elements have been identified as having high cultural value, including:

- Wianamatta - Mother Creek. Very important site culturally to the community.
- Badgerys Creek. Significant waterway within the region.
- View corridors towards the Blue Mountains. The Blue Mountains are significant to First Nations people.

Three principles were developed through the consultation process and include:

- The Convergence of Three Clans
- Water Landscape
- Community Driven

The public art commissioned for the site needs to draw on, express and respond to reflect one or more principles as identified above.

Legend

- Site Boundary
- A — Gateway Art
- B — Large Scale Wayfinding
- C — Environmental Art
- D — Interpretive Art / Educational
- E — Sensory / Interactive Art
- F — Discovery / Wayfinding Art
- G — Integrated Art
- Artworks on Development Lots
- XX — Artwork Specific Reference Code
- Potential High-bay Areas
- Indigenous Artworks

Figure 77 Indicative Public Art Strategy Plan

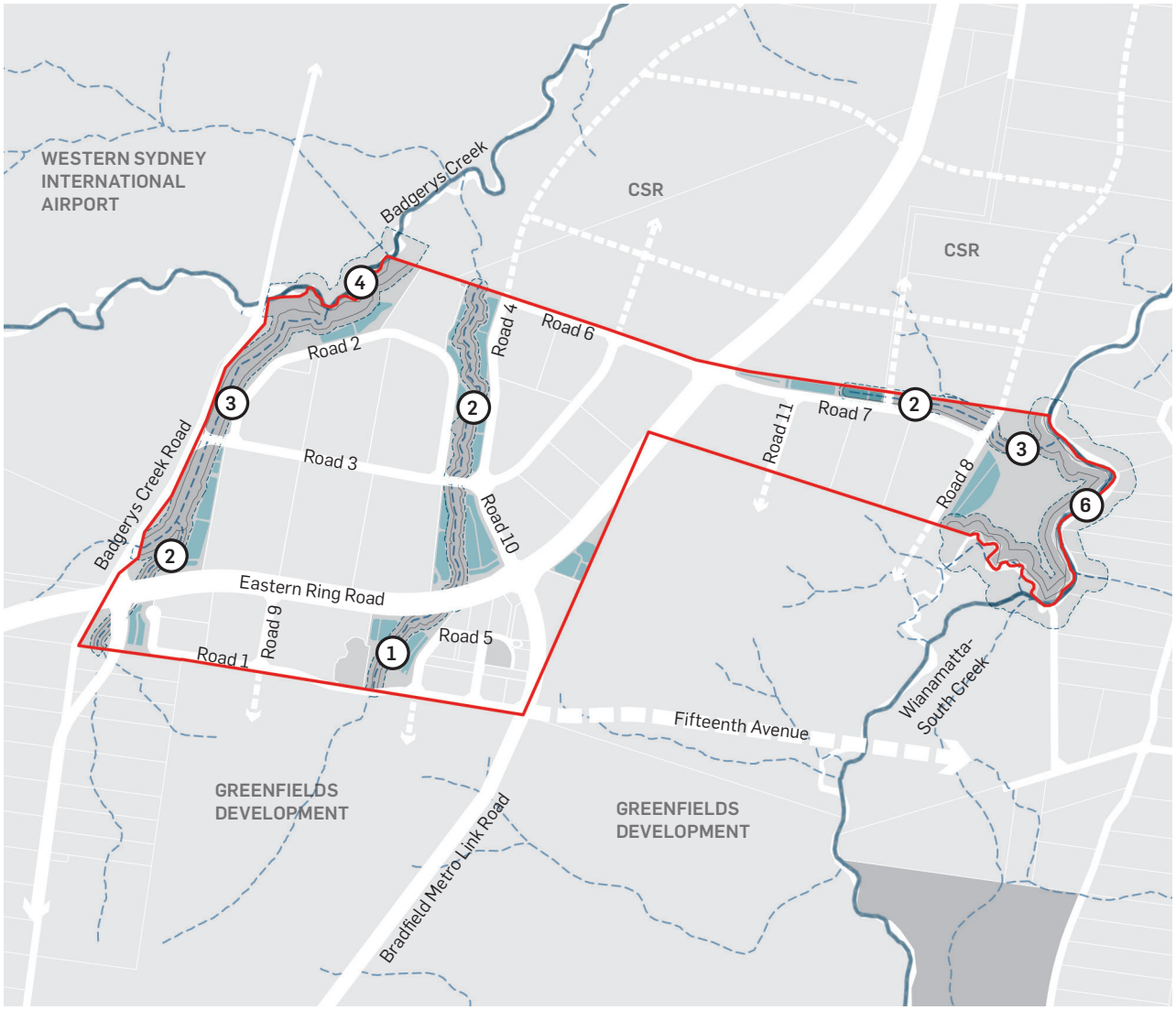
Source: Site Image

6.13.5 Stormwater and Water Cycle Management

IDC has prepared the Integrated Water Cycle Management Strategy and AT&L has designed biodiversity basins in response to the stormwater management requirements for the subject site.

Proposed basins are designed along the riparian corridors and within the proposed open spaces.

The encroachment to the outer 50% of the riparian corridors by the designed biodiversity basins is illustrated in Figure 79. More details are provided in relevant technical drawings and reports.



Legend

- Site Boundary
- Integrated Stormwater Basins
- Open Space / Retained vegetation / Local Park
- Creeklines
- Riparian Corridors
- Stream Order (X)
- Central Line of riparian corridors to define the inner and outer 50% of riparian corridors

Figure 79 Stormwater Basins Plan

6.13.6 Earthworks - Cut and Fill

The earthworks for the site have been developed to follow the topography of the site. The roads and lot pads have been graded to slope towards catchment drainage low points and to minimise overall cut and fill volumes as well as retaining walls.

For detailed information on the cut and fill volumes, refer to Civil Infrastructure Report provided by AT&L.

Legend

Site Boundary

Lower Value (m)	Upper Value(m)	Lower Value (m)	Upper Value(m)
-100	-8	0	1
-8	-7	1	2
-7	-6	2	3
-6	-5	3	4
-5	-4	4	5
-4	-3	5	6
-3	-2	6	7
-2	-1	7	8
-1	0	8	100

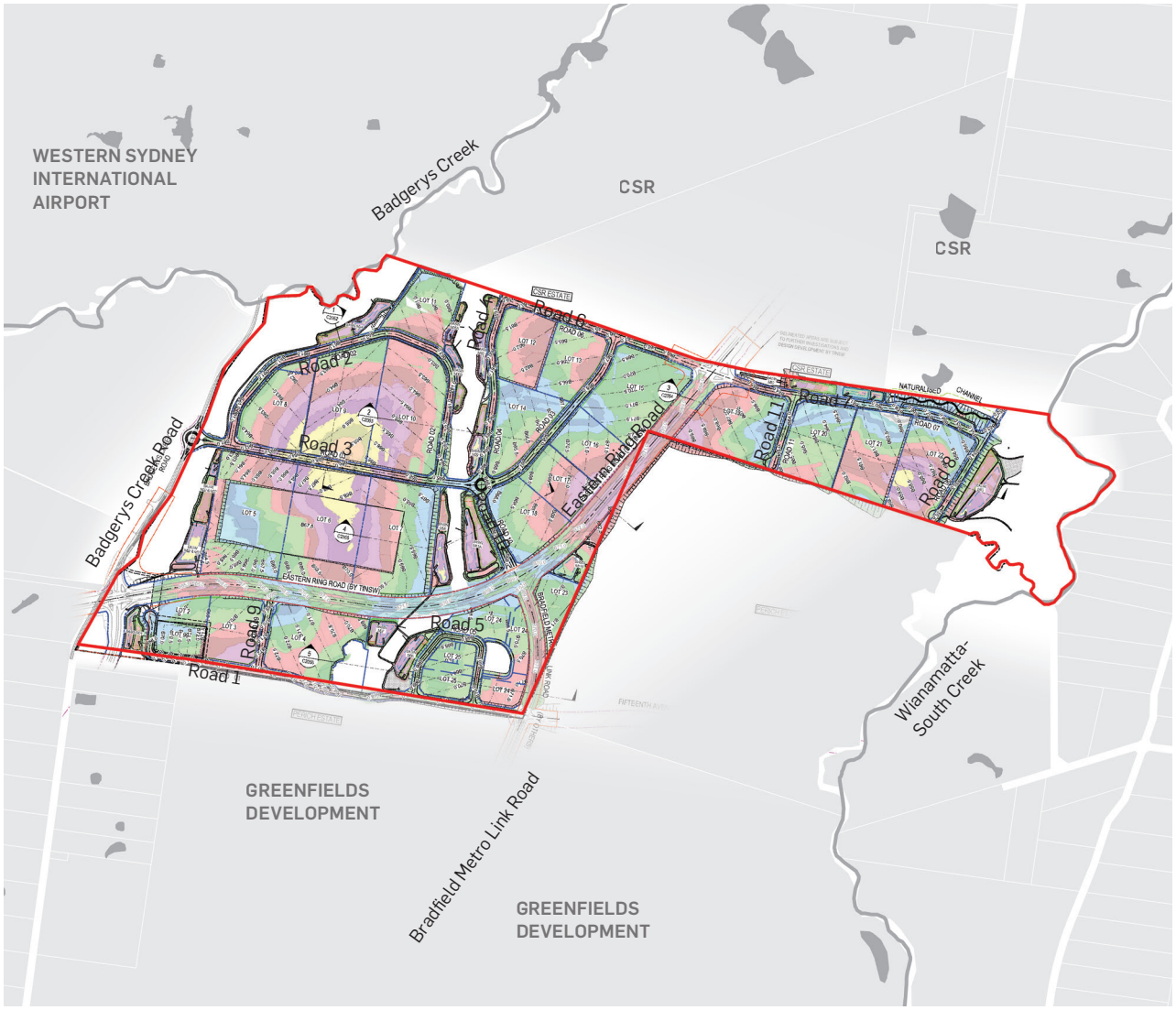


Figure 80 Cut and Fill Plan

Source: AT&L

07 HEIGHT STRATEGY JUSTIFICATION FOR HIGH-BAY WAREHOUSE

7.1 Introduction

This Height Strategy has been prepared by Urbis Pty Ltd (Urbis) on behalf of Ingham Property Group (IPG) to support the IPG Master Plan located at 475 Badgerys Creek Road, Bradfield (the site).

This Strategy accompanies a Master Plan application (WSA_MP01) with DPHI as part of the master planning process enabled under Clause 43 of the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (WPC SEPP). Through the master planning process, IPG is seeking an opportunity to access an alternative development approval pathway and depart from the Western Sydney Aerotropolis Precinct Plan (Precinct Plan), as it relates to the site.

This Strategy provides an overview of the existing height controls for the site identified by the Precinct Plan, the proposed height controls as part of the IPG Master Plan, and the justification for key departures from the Precinct Plan controls.

7.2 Height Strategy

7.2.1 Existing Height Controls

The existing height controls for the site are identified within the Precinct Plan. The IPG site has a maximum building height of 24m across the majority of the site and applies to the areas identified for 'Enterprise and Light Industry' and 'Business and Enterprise' uses. There is a small area within the southeastern corner of the site with a maximum building height of 52.5m, at the junction between Bradfield Metro Link Road and Fifteenth Avenue.

Refer to Figure 11.

7.2.2 Proposed Height Controls

The IPG Master Plan seeks to predominately retain the existing height controls under the Precinct Plan, with 24m applying the enterprise and industry uses across the site and 52.5m within the consolidated commercial local centre. This ultimately reflects the existing height controls within the Precinct Plan, albeit reconfigured to reflect the amended IPG Master Plan layout and structure.

The key variation to the existing height controls proposed by IPG is to propose a maximum building height for potential high-bay warehousing of 52.5m. There are two parcels of land within the IPG Master Plan identified as being suitable for high-bay warehousing, referred to as the 'western parcel' and the 'eastern parcel'.

The western parcel is situated within the first stage of the Master Plan and will be delivered in the initial phases of development, within interim access provided off Badgerys Creek Road to the west. This parcel also forms the largest contiguous developable area within the site.

The proposed height controls within the western and eastern parcels of high-bay areas have been assessed as part of an Aviation Impact Assessment (AIA) prepared by Landrum and Brown, and has been designed in compliance with aviation controls including the wind shear assessment trigger area (outlined in red in Figure 29). This is detailed in Section 4.19.

The eastern parcel situated within the 'panhandle' of the site provides smaller lot configurations compared with the western parcel which can cater for potential market demand for more compact high-bay warehousing. Proposing a 52.5m height limit in this location would not only respond to potential market demand, but also respond to the Precinct Plan's objective to deliver employment diversity which leverages off the proximity to the new Western Sydney International Airport (WSI). High-bay warehousing developments differ from the conventional warehouse footprint requirements, where there is an opportunity to re-orientate buildings and divert noise source north-south and away from nearby residential areas to the east such as Rossmore and Kemps Creek.

High-bay warehousing may have the potential to provide greater acoustic screening to nearby residential areas Rossmore / Kemps Creek areas. The critical aspect of noise to these areas is external truck movements, loading/unloading activities (rear docked loading/unloading preferred) and mechanical plant. Mechanical plant can readily be mitigated by either selection, location and/or noise controls in form of plant rooms and other dedicated areas.

7.2.3 High-Bay Warehousing

IPG would like to propose a flexible height strategy to ensure the site can cater for a range of tenant requirements and commercial operations. The Western Sydney Aerotropolis Plan reinforces the need to cater for emerging employment industries in defence and aerospace, advanced manufacturing and higher-order technology, all of which require varying industrial spaces and typologies as part of their operational needs. The IPG Master Plan, given its proximity to the WSI, provides a significant opportunity to support greater productivity and an increase in jobs in these industries, and to fulfil the Aerotropolis vision.

There are emerging trends in employment and enterprise areas across Western Sydney with demand for new warehouse models such as logistics, storage and advanced manufacturing facilities which utilise new technologies and operation requirements. High-bay warehousing are examples of emerging trends in new warehouse and logistics typologies for industries which require taller warehouses to process fast-moving goods and advanced technologies.

Figure 81 Aerial View Of High Bay Warehouse Facility, Robotic Fulfilment Distribution Centre + Typical Warehouse Facility

Source: SBA Architects

7.3 High-Bay Warehouse Design Considerations

7.3.1 Connecting with Country

The Connecting with Country Framework highlights the importance of responding to views out to nearby landmarks such as mountains and waterways. Given the topography of the site and its proximity to the WSI site, there are no significant view corridors identified through the site, however key views at certain high points of the site were acknowledged.

The proposed high-bay warehousing at the eastern and western parcel do not impede of view lines within the site. The proposed setbacks and building separation, reinforced lot configuration and internal network, responds to key east-west view lines within the site. The western and eastern parcels identified for high bay have been largely identified as a result of the site-specific merit and design principles from the urban design analysis such as the need for contiguous and regular lots, building height transition from the local centre, access arrangements to Badgerys Creek and compatibility with adjoining land uses.

The additional setbacks proposed for the western parcel provide opportunities for WSUD elements along Road 02 (Figure 60), which is a key road providing creek-to-creek connections between Badgerys Creek and the central riparian corridor.

7.3.2 Urban Design Response

The key drivers associated with the proposed locations for high-bay warehousing include:

- The proposed height control applies to the western and eastern parcels only where high-bay warehousing is proposed.
- Whilst the majority of the Draft Master Plan proposes the comply with 24m and 52.5m height limits under the Precinct Plan, the proposed heights are well under the existing height limits.

The proposed locations for high bay warehousing have been informed by range of design principles and considerations including:

- Proximity to the airport – the strategic location of the site being directly adjacent to the WSI present a desirable attribute to attract cargo and logistics industries which require high-bay warehousing facilities.
- Land size and configuration – The contiguous and regular lot configuration and land size within the eastern and western parcels provides suitable block layouts for high-bay warehousing. Given the scale of this typology, IPG are proposing additional setback requirements as part of the Design Quality Strategy (refer to Appendix C of the Master Plan Report), to ensure minimal impacts and overshadowing, and also to improve sight lines within the streetscape.
- Built form transition from the local centre – The western parcel proposed for high-bay warehousing are suitably distanced from the local centre to ensure a gradual transition in building height towards the areas of highest amenity and urban activity.
- Access arrangements – The western parcel of high-bay warehousing is situated within the first stage of the Master Plan which will be unlocked in the interim through access from Badgerys Creek Road.
- Response to wind shear restrictions – To ensure future development and proposed height controls comply with wind shear trigger controls and requirements (refer Section 7.3.4).
- Compatibility with adjoining land uses – the proposed location of high-bay warehousing within the eastern and western parcels ensures there are no impacts on adjoining land uses. The eastern parcel within the panhandle directly adjoins enterprise and light industry uses to the immediate north and south which is a compatible land use with similar operations.

7.3.3 Architectural Considerations

The Architectural Design Statement prepared by SBA Architects provides a breakdown of the design response to architecture and built form considerations within the IPG Master Plan. The Design Statement provides an assessment of high-bay warehousing to ensure future built form maintains appropriate interfaces with the public domain and streetscape, whilst protecting view lines.

It is understood the exact height of high-bay warehousing is ultimately dependent on tenant requirements and operations, which at this stage is unknown. The proposed height limit of 52.5m within the western and eastern parcels is sufficient to capture the requirements of a range of operations which utilise this warehouse typology. A key design quality consideration (refer to the Master Plan Report) which aims to control the overall bulk and scale of high bay warehousing is that only 60% of the of warehouse building footprint can achieve the 52.5m height limit.

The rationale for this provision is defined in the Architectural Design Statement prepared by SBA.

To enforce this provision, a key technical document to note is the Design Quality Strategy which provides tier system for the Design Quality Review process. Under Tier 2, it is identified that warehouses with a floorplate over 40,000sqm and/or height above 18m will be subject to a Design Review Panel, which will include high-bay warehousing.

This development can be approved through the CDC Framework following consideration by the design review panel, subject to the endorsement of the Panel being provided to the Registered Certifier (refer to the Master Plan Report).

SBA have provided indicative built form in Figure 82 which demonstrate the different built form scales high-bay warehousing can comprise. This reinforces the need for flexibility within the height strategy to respond to different tenant needs and industry operational requirements.

The key architectural design considerations for high-bay warehousing include:

- The future height of high-bay warehousing is dependent on tenant requirements and operations.
- The placement of buildings to ensure east-west views through the site are maintained, through the implementation of reduced building footprints and additional setback controls over and above the Aerotropolis Development Control Plan (DCP).
- High-bay warehousing to provide an appropriate interface with the public domain and streetscape, and to minimise overshadowing to communal areas and office components of high-bay warehouses (Refer to page 105). Page 110 provides an indicative layout for a high-bay warehouse arrangement within the eastern and western parcel. The office component to the warehouse is located along the northern interface of the building which minimises impacts from overshadowing.
- The introduction of high-bay warehousing does not impact on the permeability targets under the Aerotropolis DCP for the IPG Master Plan across the western and eastern parcels.

Figure 82 Indicative built form of High-Bay Warehousing

Source: SBA Architects

7.3.4 Aeronautical Impact Assessment

Landrum and Brown have been engaged to prepare an Aeronautical Impact Assessment (AIA) to assess the aviation considerations related to the WSI and explore maximum permissible height for buildings at different locations within the site. The Precinct Plan highlights a key height consideration – notwithstanding maximum building height controls, all buildings and structures, including equipment used during construction (such as cranes) are required to be contained within Obstacle Limitation Surface (OLS) limits established under the WPC SEPP, which the IPG Master Plan complies with.

The AIA provides an assessment of the IPG Draft Master Plan in accordance with the National Airports Safeguarding Framework (NASF) which aims to enhance the current and future safety, viability and growth of aviation operations. The key assessment principle under the NASF of concern for building height is the Wind shear and Turbulence, defined by the windshear assessment trigger area. The north western corner of the site is situated within the trigger area (Figure 29), which includes the small portion of the western high-bay area (referred to as the 'red triangle').

The AIA provides a detailed review of the Draft Master Plan and identifies all future development across the entire site, including red triangle, is considered permissible from an aviation perspective to a height of around 125.5m Australian Height Datum (AHD). Future development above 96m AHD on the development site and in the windshear assessment trigger area is permissible, however would need to be subject to more considered evaluation, i.e. CFD modelling, prior to any specific planning decision or approval.

7.3.5 Design Quality Considerations

A Design Quality Strategy (DQS) (Section of the Master Plan at Appendix C) has been prepared to support the delivery of the IPG Master Plan to ensure design quality is achieved across the precinct. Through the master planning process, IPG is seeking an opportunity to access an alternative development approval pathway and depart from the Aerotropolis Core Precinct Plan, as it relates to the site.

The DQS is underpinned by a series of design quality principles which capture high-bay warehousing, including land use, urban built form and architecture. The DQS adopts a principle-based approach to design quality and a hierarchy approach to the verification and review of the design quality for future development across the Master Plan area. Each design principle contains associated design elements (including a design statement, objectives, and outcomes). In terms of design quality assessment and review process, the DQS adopts the following Design Quality Review Process which is based on location (either Enterprise and Industry or Commercial), along with bulk or scale.

The Design Quality Strategy is underpinned by a series of design quality principles which respond to Master Plan Requirements design considerations. These overarching principles, each of which is defined by a series of design elements, include:

- Topography
- Land Use
- Cultural Heritage – Connecting with Country
- Urban Built Form
- Architecture
- Sustainability; and
- Public Domain

Table 6 Design Quality – High-Bay Warehousing Design Quality Outcomes

Design Element	Design Quality Outcomes
Land Use	
Enterprise and Industry	■ Flexibility to the land for a variety of industrial and warehousing including high bay warehouse, and the future evolution of the Aerotropolis.
Urban Form	
Building Alignment	■ Reinforce the street edge of key creek-to-creek road connections, particularly Road 02 and Road 03 to establish a street pattern. ■ The development should enhance the street presentation without compromising the green landscape while ensuring balance development. ■ Ensuring development provide generous area of landscaping along key creek-to-creek road connections.
Architecture	
Massing and Proportions	■ Perceived bulk of industrial buildings fronting the street should be broken down to avoid long façades. ■ Where the light industrial adjoins the Riparian Corridor but is not separated by a road reserve, the building scale, interfaces and programs fronting the riparian should promote safe travel and pedestrian movement. ■ The development should have dedicated footpaths along the interface of the riparian corridor.
Materials and Colours	■ Materials used for façade should be robust, easy to maintain and consistent with the functional programs. ■ If the development consists of an ancillary office, the design of the ancillary offices should be expressed as a finer grained component using materials with varying colours and texture and provide engagement with the street.

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