

Bradfield City Centre REF 2(a) - Enabling Works

LANDSCAPE ARCHITECTURAL DESIGN REPORT



I WELCOME TO COUNTRY

Taylor Brammer acknowledges more than 60,000 years of continuous Aboriginal connection to the land that makes up New South Wales. Since time immemorial, Aboriginal people have managed, cultivated, and cared for the landscape where Sydney was established and continues to grow. Aboriginal people hold profound knowledge, understanding, obligation and custodianship of the landscape.

Taylor Brammer acknowledges the traditional owners of the lands that include the Western Parkland City and the living culture of the traditional custodians of these lands.



I CONTENTS

Contents

1. Introduction	4
2. Design	12

Amendment register

DOCUMENT ISSUE	REVISION	DATE	STATUS	PREPARED	CHECKED
50% issue	P1	10.07.2023	DRAFT	CS/VH	AL
80% issue	P2	29.09.2023	DRAFT	CS/VH	AL
FINAL DRAFT	P3	27.10.2023	FINAL	VH	AL
FINAL ISSUE FOR REF 2(a)	A	13.11.2023	FINAL	VH	AL
FINAL ISSUE FOR REF 2(a)	B	20.11.2023	FINAL	VH	AL
FINAL ISSUE FOR REF 2(a)	C	13.12.2023	FINAL	VH	AL
FINAL ISSUE FOR REF 2(a)	D	19.12.2023	FINAL	VH	AL
FINAL ISSUE FOR REF 2(a)	E	26.02.2024	FINAL	VH	AL



The images shown are for illustration purposes only

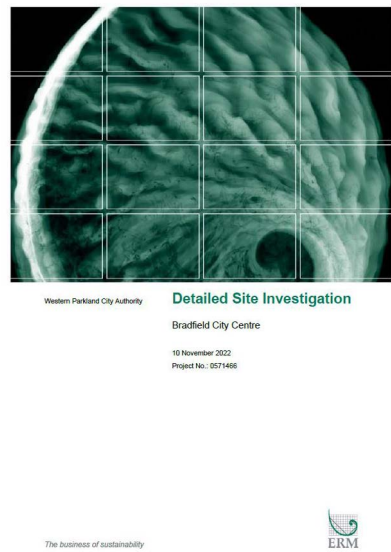


INTRODUCTION

INTRODUCTION

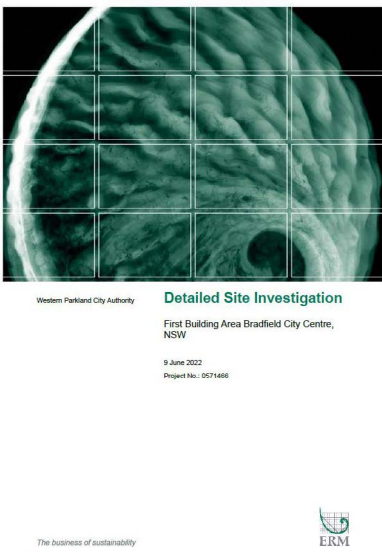
1.1 Reference Documentation

ERM DSI (2022)



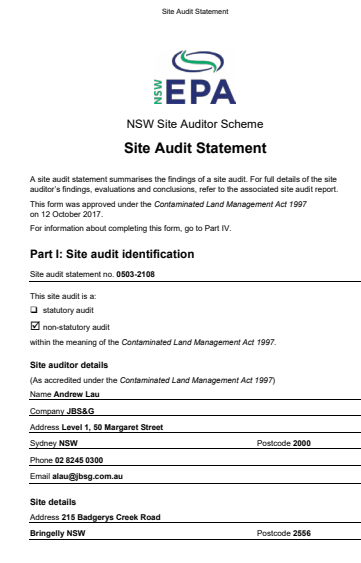
Key Considerations

- Site identification, setting and history
- Soil and ground water values
- Soil, sediment and surface water testing and investigation



Key Considerations

- Site identification, setting and history
- Soil and ground water values
- Soil, sediment and surface water testing and investigation



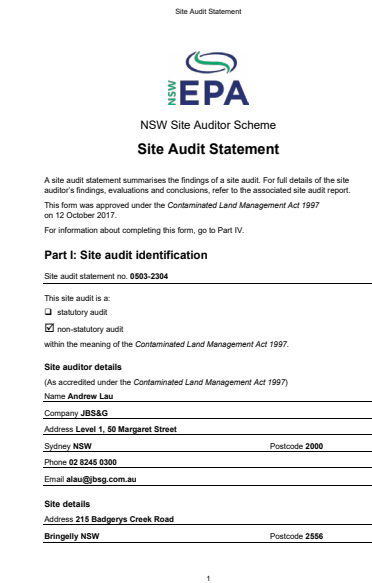
Key Considerations

- Previous site audit reports and statements relating to the site
- Low risk of migration of contaminants of potential concern

0571466_DSI_WPCA Bradfield_City Centre_Rev05

DSI_First Building_Rev2

L002 (SAS Bradfield City Centre - First Building)



Key Considerations

- Previous site audit reports and statements relating to the site
- Asbestos Management Plan



Key Considerations

- Previous site audit reports and statements relating to the site
- Existing site conditions - Landform, Soils and Geology, Hydrology, Climate, Surrounding Environment
- Site history
- Reports relating to land management
- Soil and ground water assessments
- Evaluation of land use suitability



Key Considerations

- Asbestos Management Plan

L002 (SAS Bradfield City Centre Rev 0)_with AMP

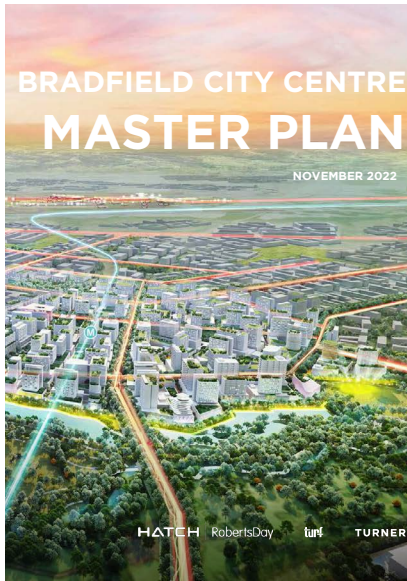
R002 SAR Bradfield City Centre - First Building

R002 SAR Bradfield City Centre Rev 0

INTRODUCTION

1.1 Reference Documentation

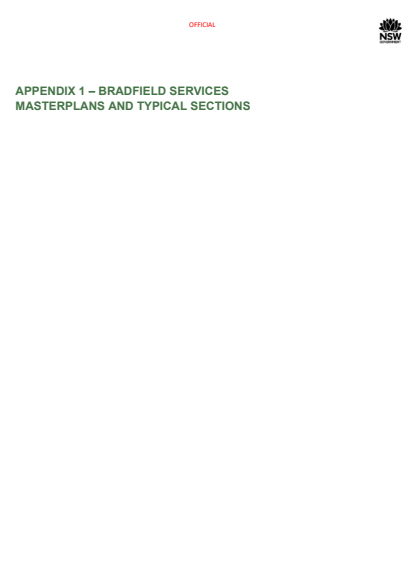
RFT Information Documentation



Key Considerations

- Streetscapes - spaces that are human scale, safe and walkable
- Broader Aerotropolis context
- Connecting with Country - adopting non-hierarchical perspective which considers all of the entities of the land, soil, rocks, sky, water, plants, animals, stories and people as independent and held in relation to one another
- Existing site conditions and landscape typologies
- Topography
- Hydrology - existing waterways
- Ecology - existing vegetation communities
- Airport Wildlife Buffer and Bush Fire buffer zone
- Aboriginal and European cultural heritage
- Local climate
- Land use zoning
- Airport noise

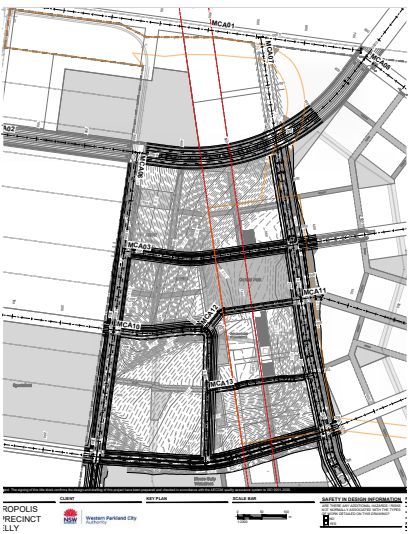
Attachment A - Bradfield City Centre - Master Plan Report



Key Considerations

- Street type layouts
- Road network

Attachment B - Attachment A Appendix 1 - Bradfield Services Masterplans and Typical Sections



Key Considerations

- Topography
- Road network

Attachment D - AECOM - Masterplan - BCC (Stage 1) Road Alignment - 2022



Key Considerations

- Roads part of Stage 1
- Proposed surrounding built context
- Proposed parkland locations

Attachment C - Bradfield City Centre Stage 1 Strategy - Roads and Landscaping



Key Considerations

- Dharawal six seasons planting strategy
- Airport Wildlife Buffer
- Planting strategy - Locally endemic species only for Green Loop, Central Park, Ridge Park, City Parklands, and residential streets
- Street types
- Design principles - Connection to Country, Urban Forest, Character, Climate, Ecology
- Street orientation and tree design (solar considerations)

Attachment E - Bradfield City Centre Stage 1 Strategy - Street Tree Design

INTRODUCTION

1.1 Reference Documentation

RFT Information Documentation

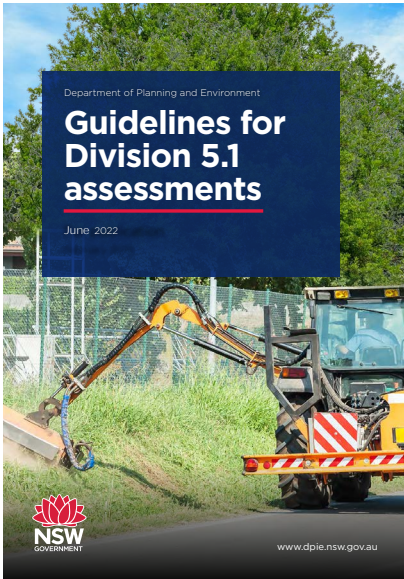


220718_WSY AIR_Design Guidance

Key Considerations

- Street setbacks
- Street activation - Ground Level active frontages, Fine Grain at Street Level, Building Frontage diversity, Pop-up and temporary Uses
- Solar access
- Wind impacts - mitigate prevailing winds through streetscapes and larger open spaces through proposed vegetation
- Water sensitive urban design
- Tree canopy and native vegetation
- Street furniture and urban elements - bike racks, benches, tree grates, bin enclosures, drinking fountains
- Locally endemic species only for Green Loop, Central Park, Ridge Park, City Parklands, and residential streets (Bangawara 2022)

WPCA Division 5.1 Procedure



Guidelines-for-Division-51-assessments

Key Considerations

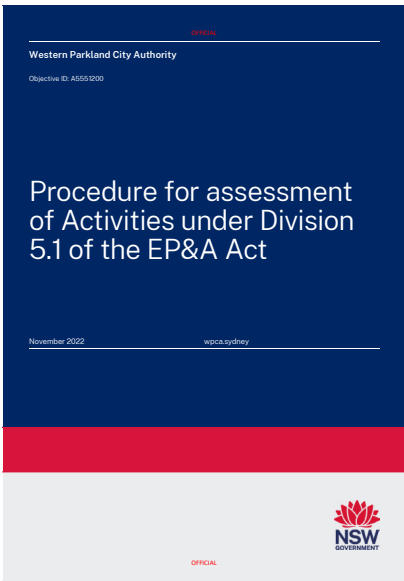
- Identifying considerations to environmental factors impacted by proposed works
- Analysis and evaluation of potential impacts
- REF document requirements



DRAFT 20221130 Master Plan Report - Public Domain & Landscape

Key Considerations

- Public domain principles - Design with Country, re-imagining and enhancing water, a cool, green and livable city, and interconnected, innovative and sustainable city
- Key city spaces - Central Park, Ridge Park, City Walk West, City Walk East, Green Loop, Local Parks, City Parkland West, City Parkland East, Waterfront Promenade
- Open space requirements
- Tree canopy (40% target)
- Tree retention



WPCA Part 5 Procedure - Final Approved

Key Considerations

- Responsibilities of Determiners - Proper, genuine and realistic consideration to the fullest extent possible must be given to matters affecting or likely to affect the environment
- Checklist of the key steps and actions required under the Procedure and the person responsible to undertake them

INTRODUCTION

1.2 Project & Scope

The proposed activity under this Review of Environmental Factors (REF) relates to the Stage 2A Enabling Works for the Bradfield City Centre.

In summary, the proposed activity relates to site clearing, construction of new roads, the provision of service authority utilities, street landscaping, and drainage and stormwater infrastructure.

Specifically, the scope of works for the BCC Stage 2A REF will include the following:

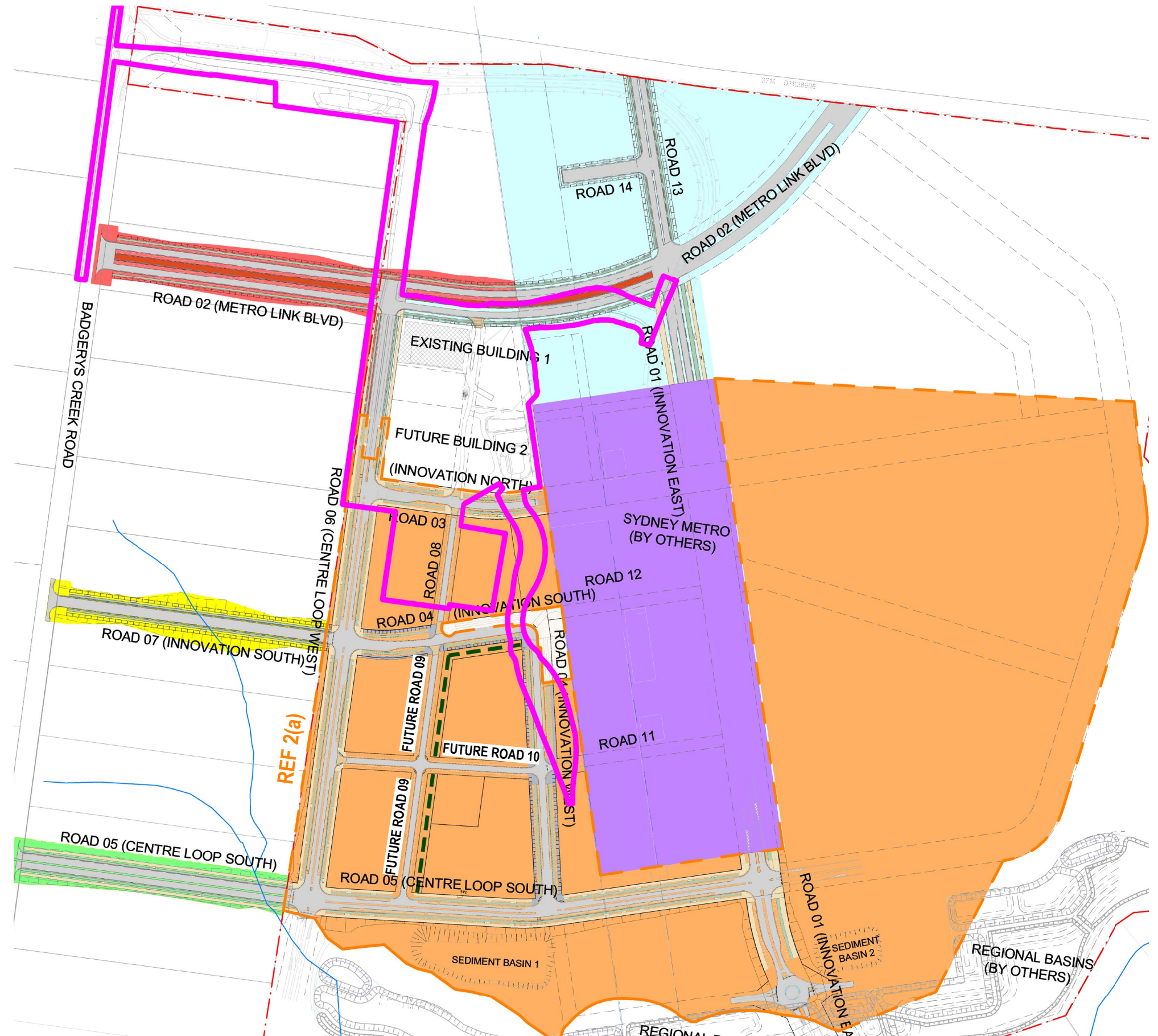
- Construction of new roads, and associated stormwater, earthworks and civil works.
- Provision of waste water, potable water, recycle water infrastructure.
- Provision of electrical services network and reticulation infrastructure.
- Provision of data and telecommunications network infrastructure.
- Streetscape landscape works.

In addition, the BCC Stage 2A REF will also involve several activities which are ancillary to the construction of roads, including:

- Site clearance (including removal of vegetation).
- Provision of service authority utilities within the road corridors.
- Street landscaping.
- Drainage and stormwater infrastructure (including temporary stormwater basins. Stockpiling of excess soil.
- Construction of temporary haul roads during construction, (together with the construction of the new roads).
- Road works.

The REF is accompanied by concept plans and a range of supporting technical studies which have been prepared to inform the proposed design.

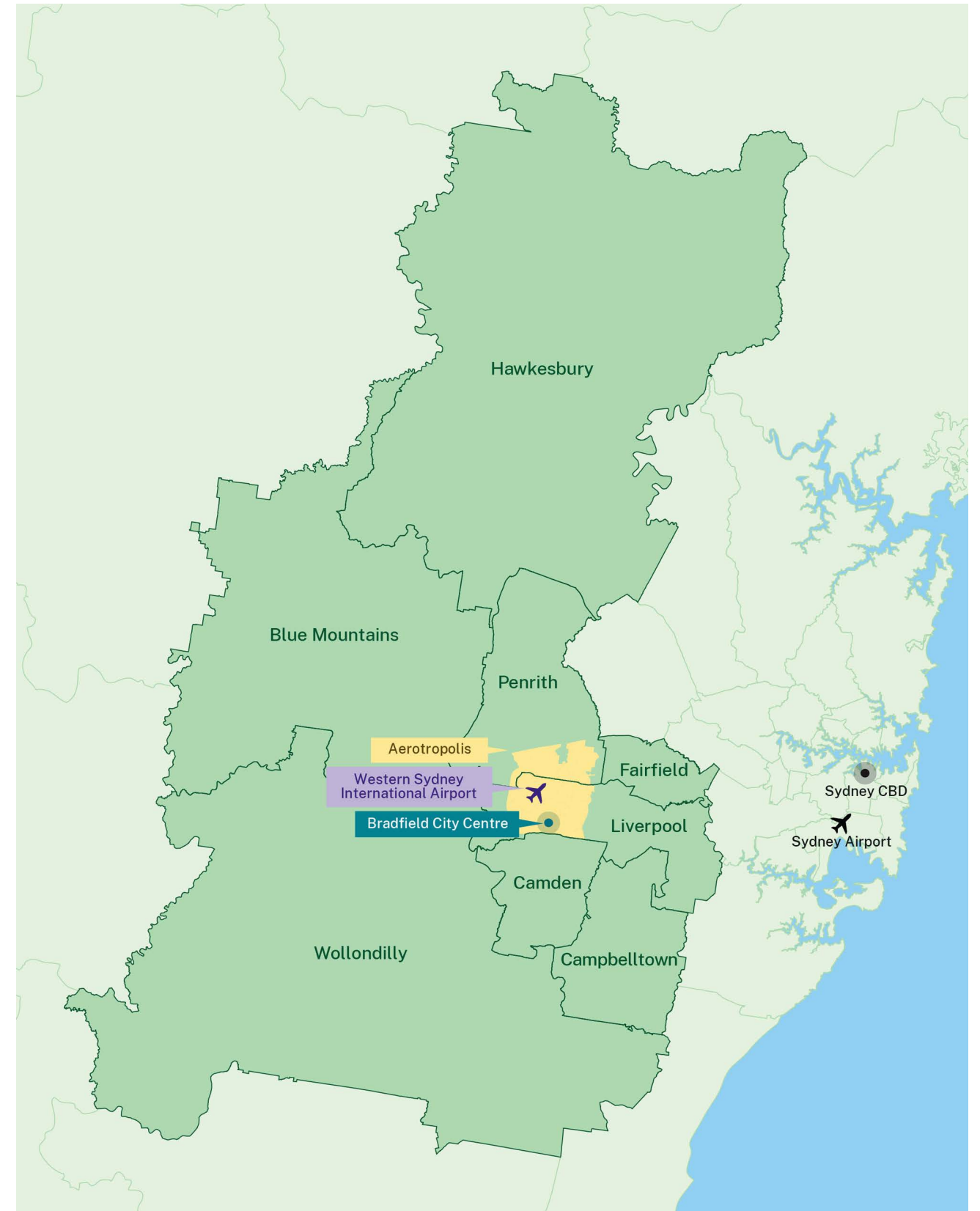
The proposed road alignments and civil infrastructure for the Stage 2 Enabling Works are generally in accordance with the Western Sydney Aerotropolis Precinct Plan and Western Sydney Aerotropolis DCP and is consistent with the BCC Master Plan.



I INTRODUCTION

1.3 Regional Context

Bradfield City will be situated within Western Sydney Aerotropolis which is within the Greater Sydney Metropolitan Region. Upon Completion of this new city, Bradfield will be located 56km from Sydney CBD, 50km from Sydney Kingsford Smith Airport, and will be in close proximity to the new Western Sydney International Airport.



Source: Western Parkland City Authority

I SITE ANALYSIS

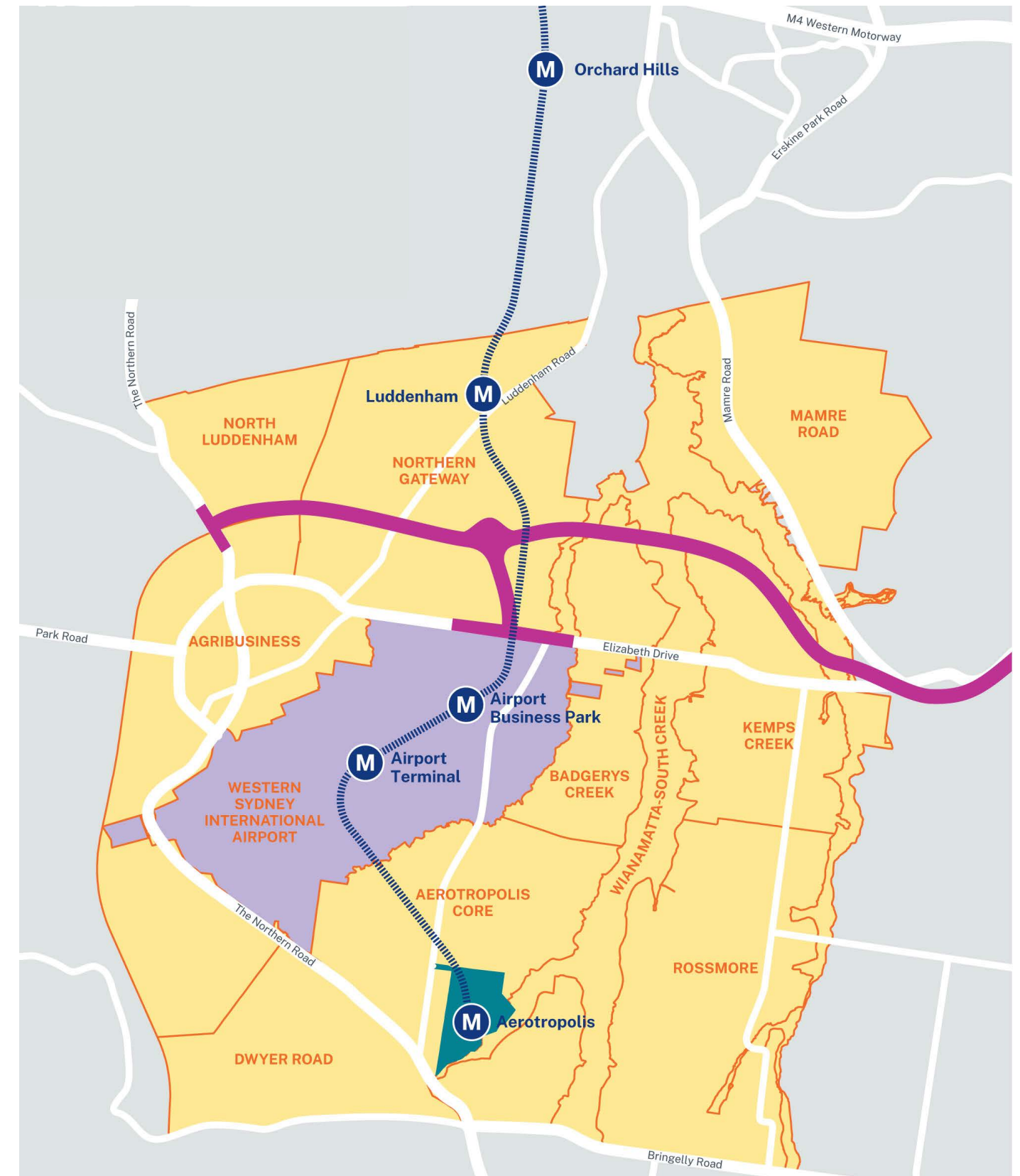
1.4 Site Context

Bradfield City Centre will be situated within the southern zone of Western Sydney Aerotropolis. Main arterial roadways and Metro line will provide a transport network with Bradfield City, neighboring suburbs, Western Sydney Airport and Sydney CBD.

Wianamatta-South Creek runs along the south eastern boundary of Bradfield City Centre providing endemic Cumberland Plain flora and fauna. This Indigenous Cumberland Plain ecology of the region will inform the streetscape vegetation so to promote biodiversity and provide habitat for native fauna species.

Legend

- Precincts
- Aerotropolis
- Bradfield City Centre
- Western Sydney International Airport
- M12
- Sydney Metro – Western Sydney Airport route
- Sydney Metro station



Source: Western Parkland City Authority



DESIGN

02

DESIGN

2.1 Design Principles

COUNTRY



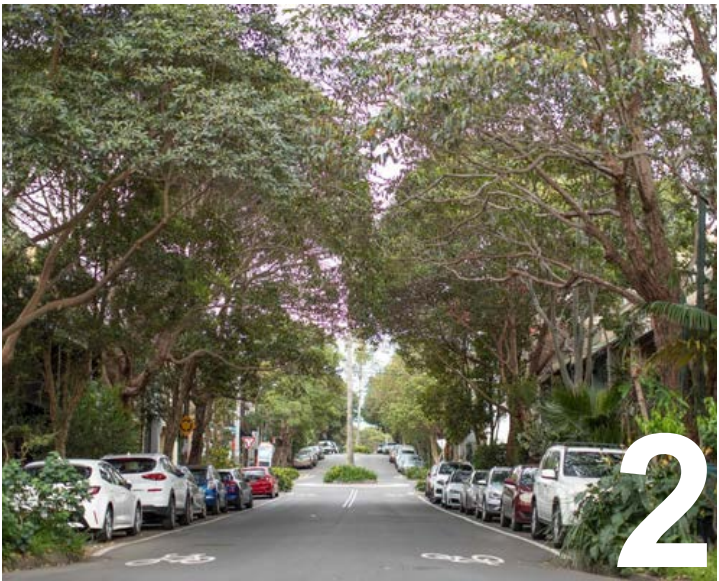
Connecting to Country

The design approach integrates all facets of Country by incorporating first nations people knowledge and relationship with Country. Re-vegetation and regeneration of the Bradfield City Centre will incorporate predominance of endemic Cumberland Plain species to promote biodiversity and habitat for native fauna.

Key Considerations

- Endemic tree and understory planting to Cumberland Plain Woodlands
- Promote biodiversity and fauna habitat
- Revegetation & regeneration of native bushland
- Evergreen canopy trees

URBAN COMFORT



Urban Heat Island Mitigation

Western Sydney is particularly susceptible to the effects of global warming, reaching record temperatures above 48°C. As such it is imperative the design of Bradfield City streetscapes promote urban cooling through 40% canopy coverage, light coloured hardscapes and the utilisation of water.

Key Considerations

- 40% canopy cover to reduce urban heat impacts
- NSW Government Greener Places Policy
- Aesthetic natural environments & improved air quality
- Light coloured hardscape materials
- Vegetated traffic islands to increase softscapes and decrease hardscape
- Cooling comfort for pedestrians and cyclists

ENVIRONMENT



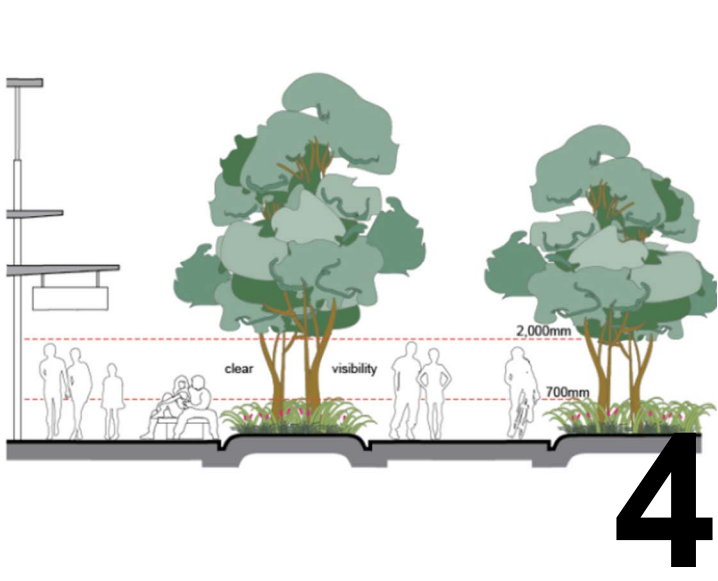
Water Sensitive Urban Design (WSUD)

Water is a scarce and invaluable resource which is particularly significant in the Western Sydney region which is susceptible to both severe drought and flood. Bradfield City streetscape design will incorporate WSUD principles that addresses both these environmental water calamities via the use of drought tolerant endemic species and stormwater retention.

Key Considerations

- Endemic drought tolerant species
- Permeable paving to reduce stormwater runoff and stormwater pollution
- Rainwater retention basins to harvest and store stormwater for use during dry periods.
- Vegetated street edges and vegetated traffic islands to prevent roadway pooling and flooding

SAFETY AND SECURITY



Crime Prevention Through Environmental Design (CPTED)

Public spaces should be safe and comfortable places for all users. Bradfield streetscapes will be designed to promote safety for pedestrians, cyclists and drivers. Crime prevention design strategies such as clear sightlines will also be incorporated to further promote safe streets.

Key Considerations

- Promotes safety and security in public spaces
- Crime mitigation and prevention
- Clear sightlines created with considered planting
- Lighting and clear signposting for safe 24/7 use
- Pedestrian and cyclist friendly design

I DESIGN

2.2 Design Guidance and policies

Greener Places Policy:

The Government Architect NSW guidelines

The landscape design approach for the development engages the green and blue infrastructure as per policies of GANSW across the site in expanding the existing tree and vegetation cover.

The Greener Places Design Guide (The Design Guide) provides guidance for this green infrastructure design framework. In particular the following policies are referenced:

- Open Space for Recreation – Green infrastructure for people
- Urban Tree Canopy – Green infrastructure for climate adaptation and resilience
- Bushland and Waterways – Green infrastructure for habitat and ecological health.

Tree Canopy Cover

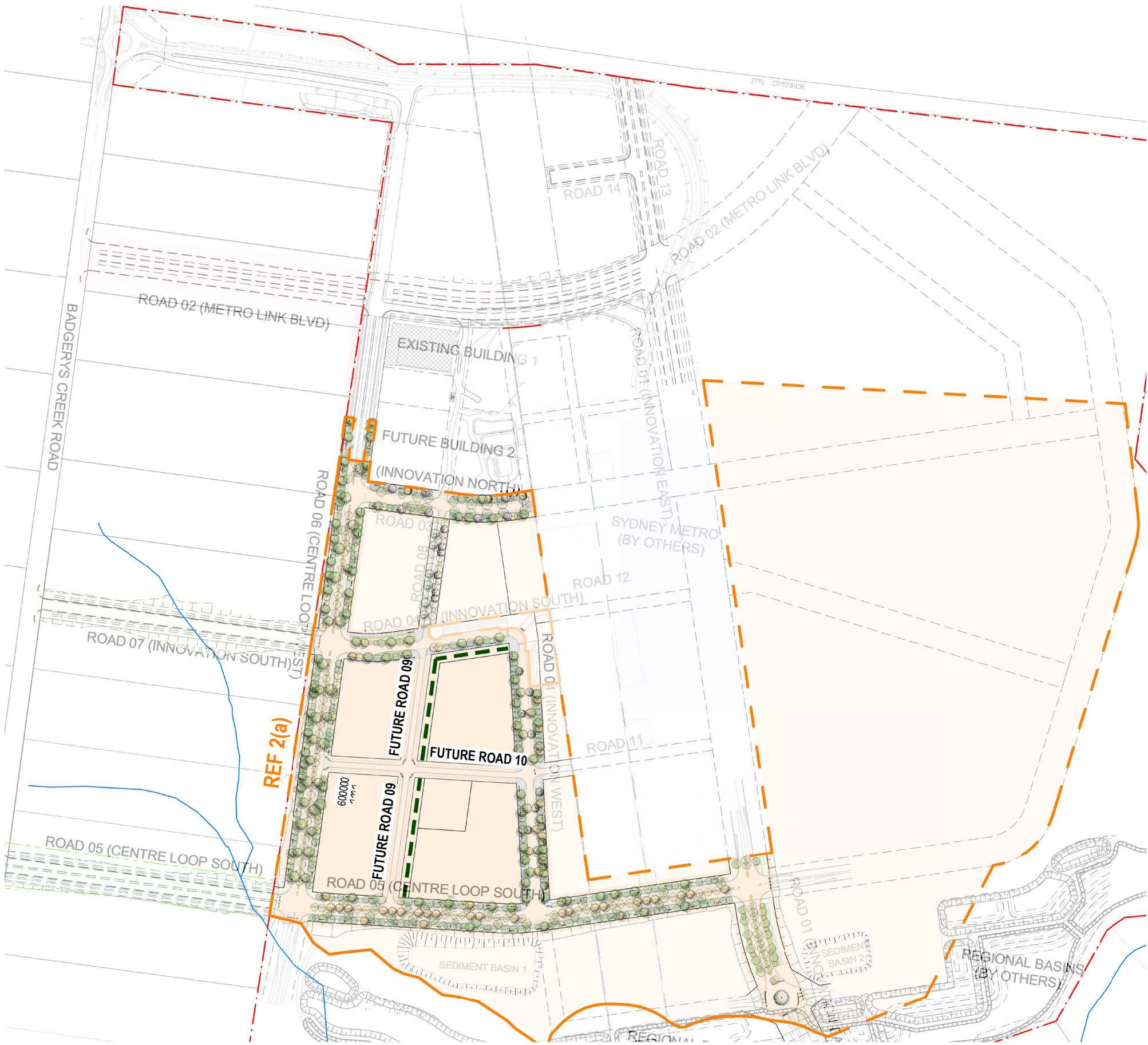
Due to the nature of the development, the proposal seeks to apply an extensive tree planting strategy to achieve urban tree canopy targets. The tree canopy strategy develops on established design and masterplan design principles including the design with Country framework along with multiple background masterplan documentation. This guidance documentation outlines the typical tree densities along with species listed from Aerotropolis DCP list to ensure a environmentally sustainable development is created.

Tree Canopy Calculations

Quantity of new canopy trees within project scope	622
Tree canopy cover at maturity	55% + at maturity

Legend

- Property Boundary / Extent of works
- Road surface and marking by Civil engineer
- Proposed mixed use land detailed by others
- Proposed open space detailed by others
- Proposed civil / cultural use land detailed by others
- Banded pedestrian pavement as detailed

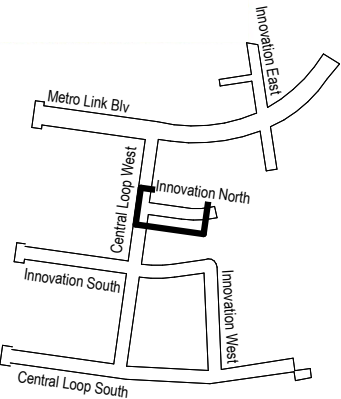


1:4000 @ A3

DESIGN

2.2.1 Innovation North & West - Streetscape Plan

Key Plan



Design Notes

- 1 Proposed native street tree in deep soil
- 2 Proposed mass planted raingarden
- 3 Proposed mass planted understory
- 4 Proposed cycleway (to civil engineers detail)
- 5 Proposed stone paved pedestrian pavements with banding and feature junctions
- 6 Proposed permeable pavement

Canopy Coverage Calculation

Target Percentage: 76%
Proposed percentage: 79%
(Based on 50m typical street layout)

Legend

Property Boundary /
Extent of works

Road surface and marking
by Civil engineer

Cycleway
by Civil engineer

Banded pedestrian
pavement as detailed

Mass planted garden area
as detailed

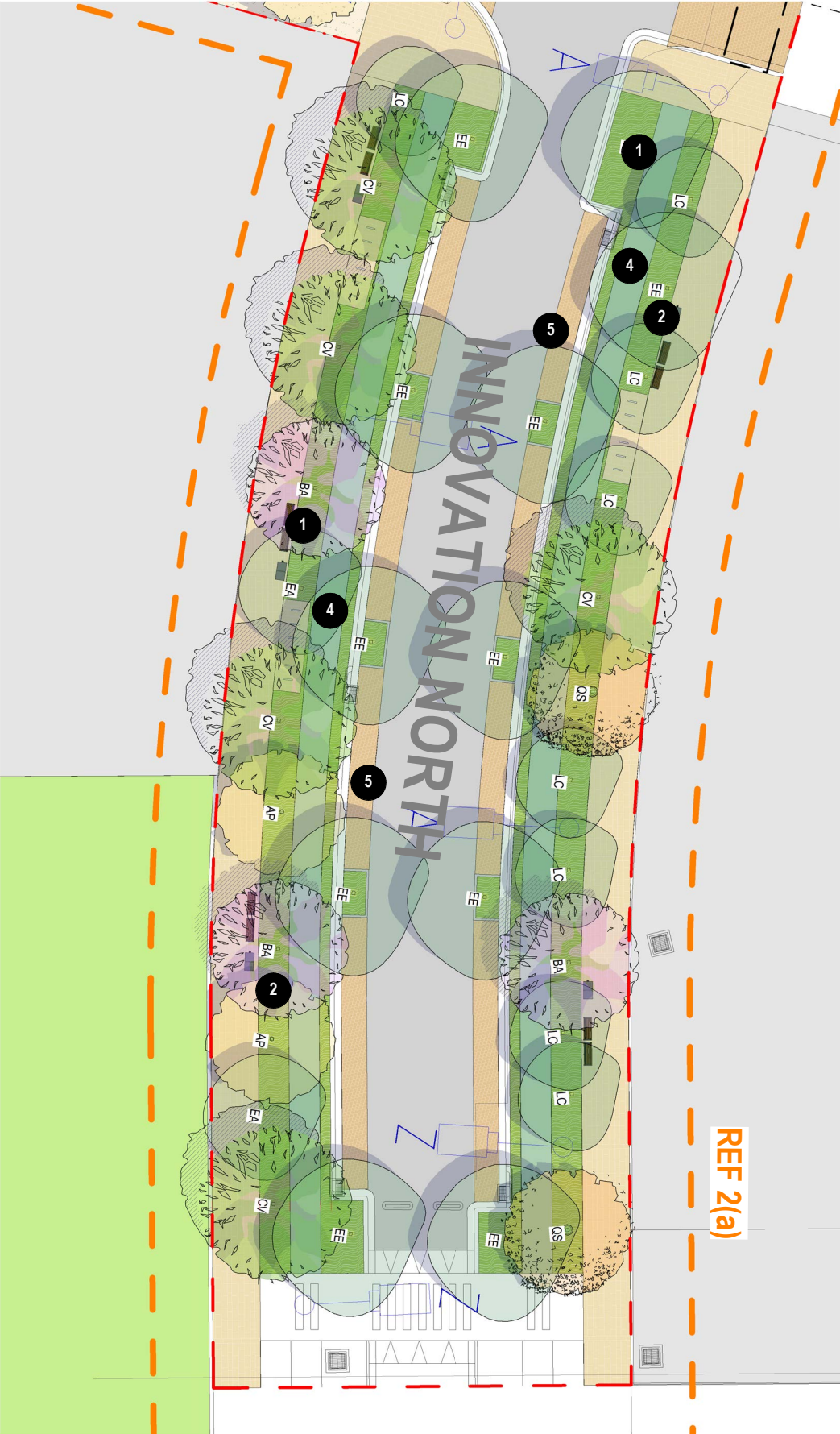
Permeable pavement
as detailed

Proposed tree planting
in deep soil as detailed

LEGEND

Street furniture
as detailed

Proposed understory planting
in deep soil as detailed



I DESIGN

2.2.2 Innovation North & West - Planting & Materiality

Planting



Brachychiton acerifolius *Eucalyptus amplifolia* *Lophostemon confertus* *Quercus sp.*

Groundcovers



Dianella caerulea *Dichondra repens* *Lomandra fluviatilis* *Myoporum parvifolium* *Poa labillardieri*



Correa alba *Hibbertia scandens* *Imperata cylindrica* *Wahlenbergia communis*

Materials



Granite in varying dimensions for pedestrian pavements Decomposed granite under seating areas for permeability Sturt Seat with backrest and armrest Supplier: Mos Urban Street Furniture Linea Range

Tree Schedule

AP	Acacia parramattensis	Parramatta wattle	15000	8000	200L
BA	Brachychiton acerifolius	Illawarra flame tree	18000	9000	200L
CV	Corymbia variegata	Spotted gum	15000	10000	200L
EA	Eucalyptus amplifolia	Cabbage gum	15000	8000	200L
EE	Eucalyptus eugenioides	White stringybark	25000	10000	200L
LC	Lophostemon confertus	Brushbox	15000	7000	200L
QS	Quercus sp.	Oaks	15000	8000	200L

DESIGN

2.2.3 Innovation North & West - Character Image

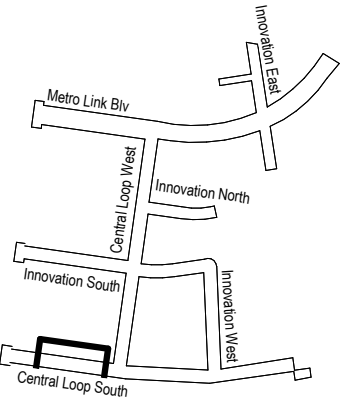


The images shown are for illustration purposes only

DESIGN

2.3.1 Central Loop South & West - Streetscape Plan

Key Plan



Design Notes

- 1 Proposed native street tree in deep soil
- 2 Proposed mass planted raingarden
- 3 Proposed mass planted understory
- 4 Proposed cycleway (to civil engineers detail)
- 5 Proposed stone paved pedestrian pavements with banding and feature junctions
- 6 Proposed permeable pavement

Canopy Coverage Calculation

Target Percentage: 86%
Proposed percentage: 86 %
(Based on 100m typical street layout)

Legend

Property Boundary /
Extent of works

Road surface and marking
by Civil engineer

Cycleway
by Civil engineer

Banded pedestrian
pavement as detailed

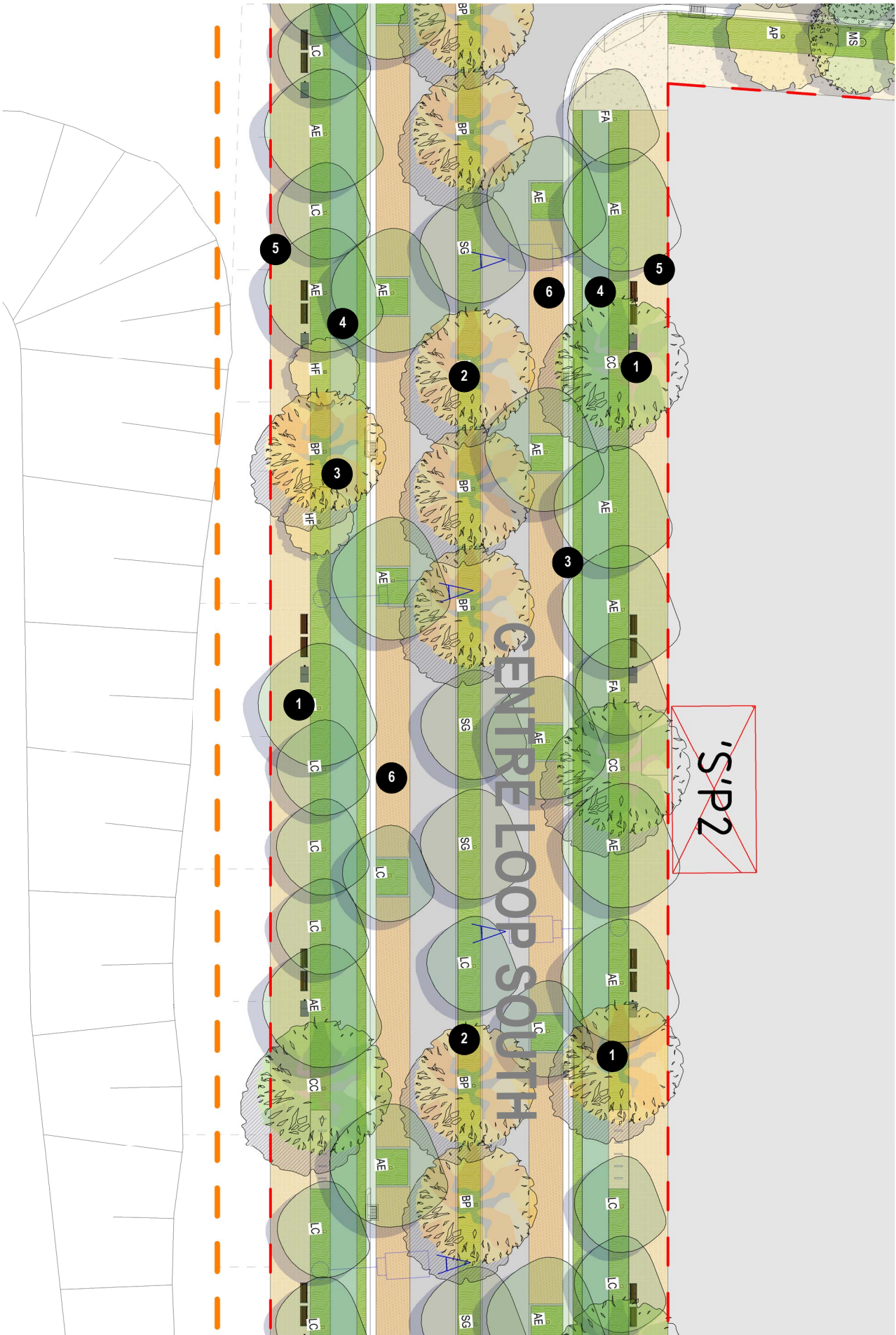
Mass planted garden area
as detailed

Permeable pavement
as detailed

Proposed tree planting
in deep soil as detailed

Street furniture
as detailed

Proposed understory planting
in deep soil as detailed



DESIGN

2.3.2 Central Loop South & West - Planting & Materiality

Trees



Alphitonia excelsa



Corymbia citridora



Eucalyptus pilularis



Hymenosporum flavum

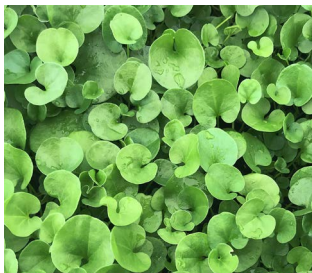


Syncarpia glomulifera

Groundcovers



Dianella caerulea



Dichondra repens



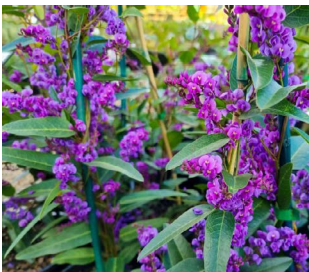
Lomandra fluviatilis



Myoporum parvifolium



Poa labillardieri



Hardenbergia violacea



Isolepis nodosa



Pimelea linifolia



Westreingia fruticosa

Materials



Granite in varying dimensions for pedestrian pavements



Granite of varying colours for intersections and crossings



Permeable pavements to parking areas



Tree Schedule

AE	Alphitonia excelsa	Red ash	20000	9000	200L
BP	Brachychiton populneus	Kurrajong	12000	9000	200L
CC	Corymbia citridora	Lemon scented gum	15000	10000	200L
EP	Eucalyptus pilularis	Blackbutt	35000	12000	200L
FA	Flindersia australis	Crow Ash	12000	7000	200L
HF	Hymenosporum flavum	Native franjipanni	9000	5000	200L
LC	Lophostemon confertus	Brushbox	15000	7000	200L
SG	Syncarpia glomulifera	Turpentine	12000	8000	200L

I DESIGN

2.3.3 Central Loop South & West - Character Image



I DESIGN

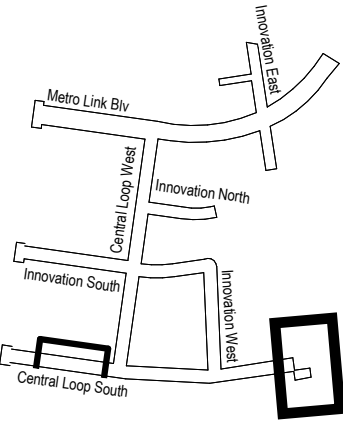
2.3.3 Central Loop South & West - Character Image



DESIGN

2.4.1 Innovation East - Streetscape Plan

Key Plan



Design Notes

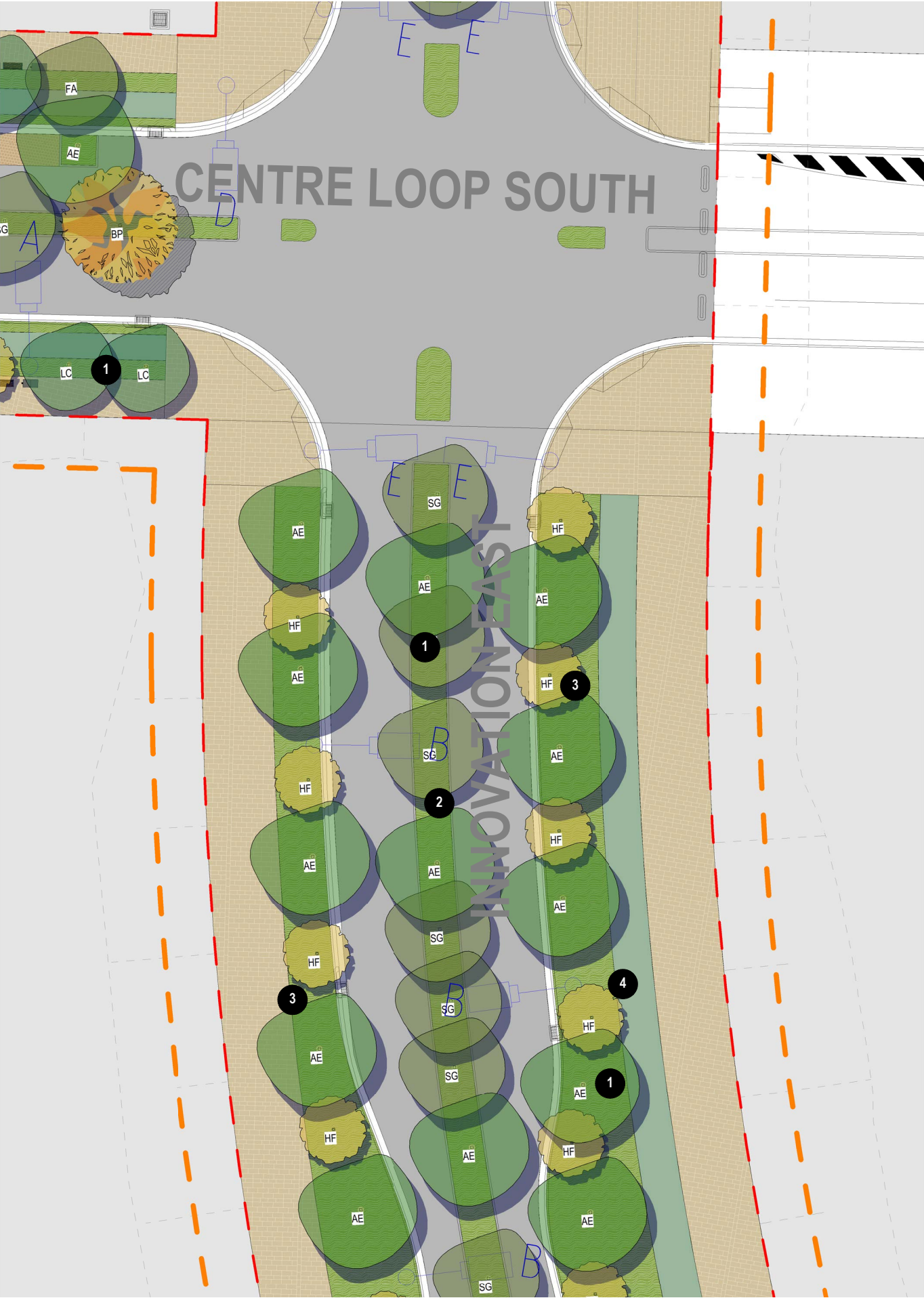
- 1 Proposed native street tree in deep soil
- 2 Proposed mass planted raingarden
- 3 Proposed mass planted understory
- 4 Proposed cycleway (to civil engineers detail)
- 5 Proposed stone paved pedestrian pavements with banding and feature junctions

Canopy Coverage Calculation

Target Percentage: 77%
Proposed percentage: 78 %
(Based on 60m typical street layout)

Legend

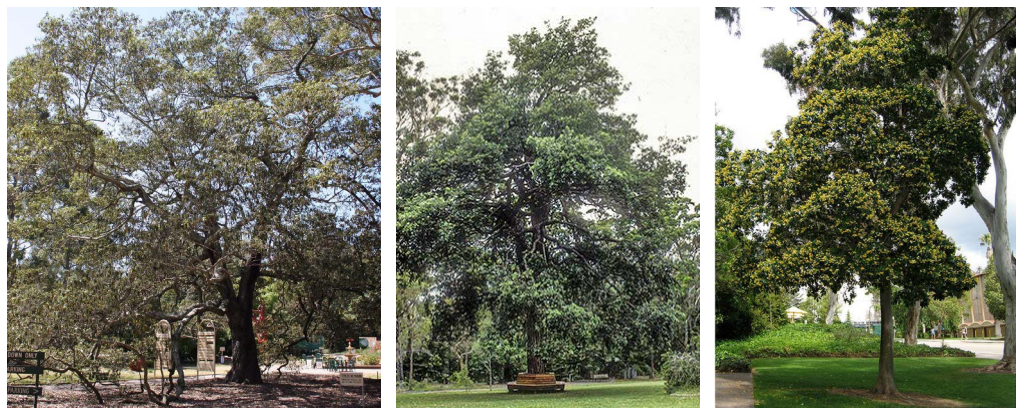
- Property Boundary / Extent of works
- Road surface and marking by Civil engineer
- Cycleway by Civil engineer
- Banded pedestrian pavement as detailed
- Mass planted garden area as detailed
- Permeable pavement as detailed
- Proposed tree planting in deep soil as detailed
- Street furniture as detailed
- Proposed understory planting in deep soil as detailed



I DESIGN

2.4.2 Innovation East - Planting & Materiality

Planting



Alphitonia excelsa Syncarpia glomulifera Hymenosporum flavum

Groundcovers



Dianella caerulea Dichondra repens Lomandra fluviatilis Myoporum parvifolium Poa labillardieri



Correa alba Hardenbergia violacea Isolepis nodosa Pimelea linifolia

Materials



Granite in varying dimensions for pedestrian pavements Granite of varying colours for intersections and crossings Permeable pavements to parking areas Street Furniture Linea Range

Tree Schedule

Tree Planting Schedule - Innovation East					
Code	Botanical Name	Common Name	Mature Height (mm)	Mature Spread (mm)	Pot Size
AE	Alphitonia excelsa	Red ash	20000	9000	200L
FR	Ficus rubiginosa	Port Jackson Fig	20000	15000	200L
HF	Hymenosporum flavum	Native franjipanni	9000	5000	200L
SG	Syncarpia glomulifera	Turpentine	12000	8000	200L

I DESIGN

3.4.3 Innovation East - Character Image



END OF DOCUMENT

TaylorBrammer

