

S5 - NEXTDC DATA AND INNOVATION CENTRE | SSSA Architectural Report

SEPTEMBER 2025

Revision: CP02 - SSSA AMENDMENT



Executive Summary

This NEXTDC S5 Data Centre and Innovation Hub Architectural Design Report has been prepared by HDR on behalf of NEXTDC Limited to accompany a detailed State Significant Development Application (SSDA) for the data centre development at 269 Lane Cove Road. The legal description of the site is Lot 3 in Deposited Plan (DP) 1129811.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-63168959).



Acknowledgement of Country

We acknowledge that Macquarie Park sits on the local land belonging to the Wallumattagal people of the Dharug Nation whose culture and customs have nurtured, and continue to nurture this land.

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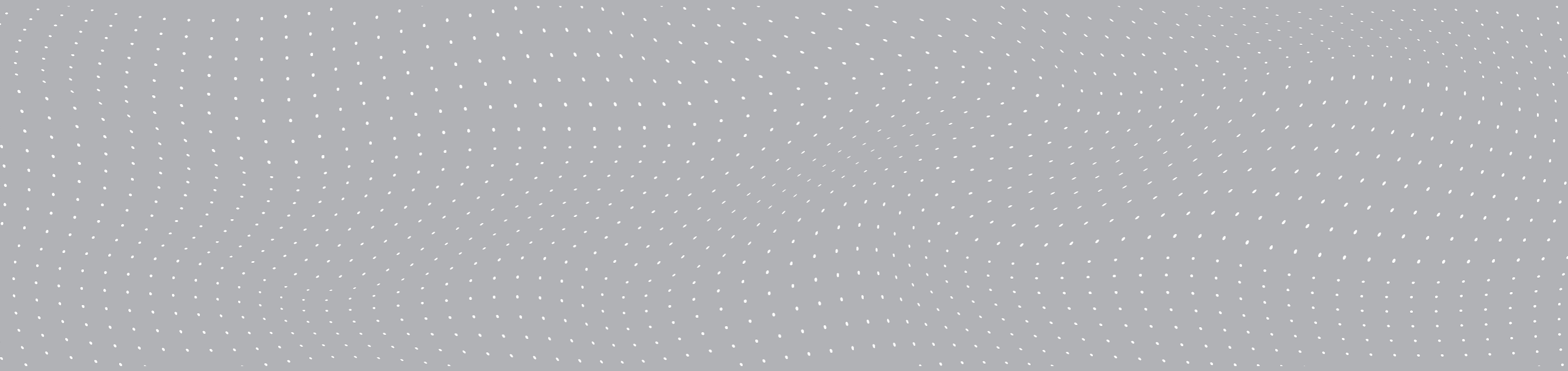
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01_ Overview

1.1. Project Introduction

This report has been prepared to accompany a detailed SSDA for the proposed data centre development at 269 Lane Cove Road, Macquarie Park (SSD-63168959).

The application seeks consent for construction and operation of a data centre development and includes site preparation works, bulk earthworks and infrastructure, and construction of the buildings, ancillary facilities, and associated site works.

The SSDA also includes public domain enhancements including the delivery of internal roads and an urban plaza adjacent to the Macquarie Park Metro Station entrance.

Specifically, the Project comprises the redevelopment of the site as summarised below:

- Site preparation works including demolition and removal of existing structures, tree removal and bulk earthworks.
- Staged construction and operation of two connected data centre buildings (Building A and Building B) with a maximum height of 65 metres and a combined total gross floor area (GFA) of 47,285m² comprising 33,142m² of technical data hall floor space and 14,143m² of office, retail and innovation hub floor space.
- Building A will be delivered in Stage 1 and will comprise the following:
 - Basement parking for 51 car spaces including two accessible spaces and 10 EV spaces
 - Seven storeys of technical data floor space accommodating seven data houses: 16,571m²
 - Utilities including diesel generators (3MWe), above-ground water tanks for industrial water (600kL each), above-ground diesel storage tanks (100kL each) and an aboveground water tank for fire water (400kL each).
 - Business identification signage facing Waterloo Road and Lane Cove Road.
 - Integrated 'Building O' component within Building A, comprising:
 - Two retail tenancies at ground level: 326m²
 - Lobby and innovation hub including auditorium and training rooms: 3,186m²
 - NEXTDC and ancillary office floor space on upper levels: 10,631m²
- Building B will be delivered in Stage 2 and will comprise the following:
 - Seven storeys of technical data floor space accommodating seven data halls: 16,571m²
 - Utilities including diesel generators (3MWe), above-ground water tanks for industrial water (600kL each), above-ground diesel storage tanks (100kL each) and an aboveground water tank for fire water (400kL each).
 - Business identification signage on the western and southern building facades.
- Landscaping across the site in accordance with the project staging, delivering a mix of native and endemic plant species, shrubs and grasses, including 139 additional trees within a total area of 4,959m² deep soil and a resultant tree canopy cover of 5,707m²
- Staged delivery of public domain works including:
 - Stage 1: construction of Road 13 within the subject site and urban plaza.
 - Stage 2: construction of Road 6 (half-width) within the subject site, including provision for a future pedestrian/cycle overbridge (to be delivered by others), and works along Lane Cove Road.
- Delivery of 90 megawatts of power with a 33kV switching station to be accommodated on site, as well as other site services, including stormwater infrastructure.

01_ Overview

1.1. Project Introduction

The following table provides a comparative analysis of the original proposal and revised proposal based on the key development features.

Element	Original Proposal	Revised Proposal	Change
Land Use Activity	Data centre with 14 data halls, ancillary office and innovation space plus two retail premises	Data centre with 14 data halls, ancillary space office and innovation plus two retail premises	Nil change
Total Site Area	22,381m ²	22,381m ²	Nil change
Total GFA	46,935m ²	47,285m ²	+350m ²
Data Hall	33,643m ²	33,142m ²	-501m ²
Lobby/Innovation Hub	3,192m ²	3,186m ²	-6m ²
Ancillary Office	9,765m ²	10,631m ²	+866m ²
Total Retail GFA	335m ²	326m ²	-9m ²
Floor Space Ratio	2.1:1	2.11:1	+0.01:1
Car Parking	105 spaces	51 spaces	-54 spaces
Bicycle Parking	12 spaces	20 spaces	+8 spaces
Motorbike Parking	11 spaces	17 spaces	+6 spaces
Maximum Building Height	<p>Building O: office and innovation hub - 49 metres over 10-storeys</p> <p>Building A: data centre - 65 metres over nine-storeys</p> <p>Building B: data centre - 65 metres over nine-storeys</p>	<p>Building O: office and innovation hub - 49 metres over 10-storeys</p> <p>Building A: data centre - 65 metres over nine-storeys</p> <p>Building B: data centre - 60 metres over nine-storeys</p>	<p>Nil change to Building O</p> <p>Nil change to Building A</p> <p>-5 metres for Building B</p>
Deep Soil and Landscaped Area	<p>Deep soil zone: 1,825m² (8.1% total site area, 13.1% future site area)</p> <p>Soft landscape: 5,251m² (23.5% site area)</p>	<p>Deep soil zone: 4,959m² (22.16% total site area, 35.6% future site area)</p> <p>Soft landscape: 6,570m² (29.4% site area)</p>	<p>+3,134m² deep soil (+14.06% site area, +22.5% future site area)</p> <p>+1,319m² soft landscape (+5.9% site area)</p>

Element	Original Proposal	Revised Proposal	Change
Tree Removal	<p>Tree removal = 146</p> <p>Retained trees = 70</p> <p>Proposed trees = 81</p> <p>Total trees = 151</p>	<p>Tree removal = 126</p> <p>Retained trees = 90</p> <p>Proposed trees = 139</p> <p>Total trees = 229</p>	<p>-20 trees removed</p> <p>+20 trees retained</p> <p>+58 trees proposed</p> <p>+78 additional trees</p>
Tree Canopy Cover	5,688m ² (25.4%)	5,707m ² (28.7%)	+19m ² (+0.1%)
Cut and Fill Volume	Net cut 46,530m ³	Net cut of 75,650m ³	+29,120m ³
Power Consumption	90 megawatts	90 megawatts	Nil
Operating Hours	24-hours, 7 days a week	24-hours, 7 days a week	Nil
Jobs - full-time equivalent (FTE) employees	<p>Construction: 942</p> <p>Operation: 490</p>	<p>Construction: 942</p> <p>Operation: 490</p>	Nil
Utilities and services	<p>60 x diesel generators (@2Mwe = 120Mwe)</p> <p>12 x above-ground diesel storage tanks (@110kL = 1,320kL)</p> <p>8 x above-ground water tanks for industrial water (@460kL = 3,680kL)</p> <p>2 x above-ground water tanks for fire water (@350kL = 700kL)</p> <p>1 x 33kV switching station</p>	<p>48 x diesel generators (@3Mwe = 144MWe)</p> <p>16 x above ground diesel storage tanks (@100kL = 1600kL)</p> <p>8 x above ground water tanks for industrial water (@600kL = 4,800kL)</p> <p>1 x above-ground water tank for fire water (@400kL) total)</p> <p>1 x 33kV switching station</p>	<p>-12 x diesel generators (+24MWe)</p> <p>+4 x above-ground diesel storage tanks(+280kL)</p> <p>Nil change to number of tanks (+1,120kL)</p> <p>-1 above-ground water tank (-300kL)</p> <p>Nil</p>

01_ Overview

1.2. SEARs Response

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 8 November 2023 issued for the SSDA (SSD-63168959). Specifically, this report has been prepared to respond to the SEARS requirement issued below

Item	Description of Requirement	Section Reference
Design options	Identify design options considered during the iterative process and demonstrate the proposed development has been optimised to provide an integrated landscape design and to minimise amenity impacts by having regard to the relevant evaluation criteria in Better Placed (Government Architect NSW, 2017)	Section 4_Built Form and Design Strategies
Site Analysis	Explains and illustrates the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach	Section 2_Site Context & Analysis Section 3_Site Design
Built Form	Demonstrates how the proposed built form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, streetscape and existing and future character of the locality	Section 3_Site Design
Building and Facade Design	Demonstrates how the building design will deliver a high-quality development, including consideration of facade design, articulation, materials, finishes, colours, any signage and integration of services	Section 5_Materiality and Facade
Better Placed	Demonstrates how the development will achieve good design in accordance with the seven objectives for good design in Better Placed (Government Architect NSW, 2017)	Section 7_Better Placed
DDA	Assesses how the development complies with the relevant accessibility requirements.	Refer to SSDA Access Review Report

01_ Overview

1.3. Project Vision

A new approach to Data and Innovation Centre Design

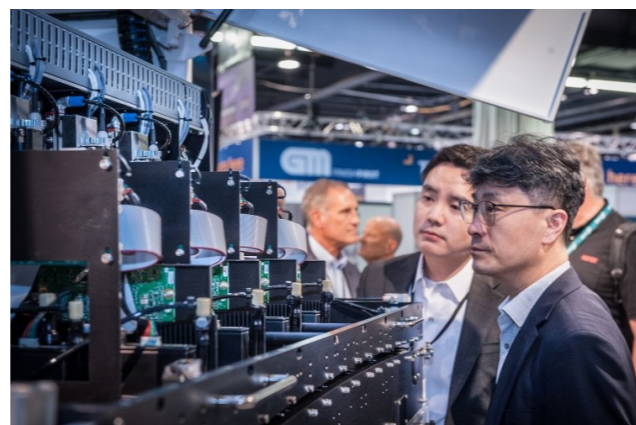
The S5 Innovation Centre is a true mixed use facility and is unlike any other Data Centre. It takes a significantly different approach to standard industry security design for the sake of the public domain, landscape and active publicly accessible uses.

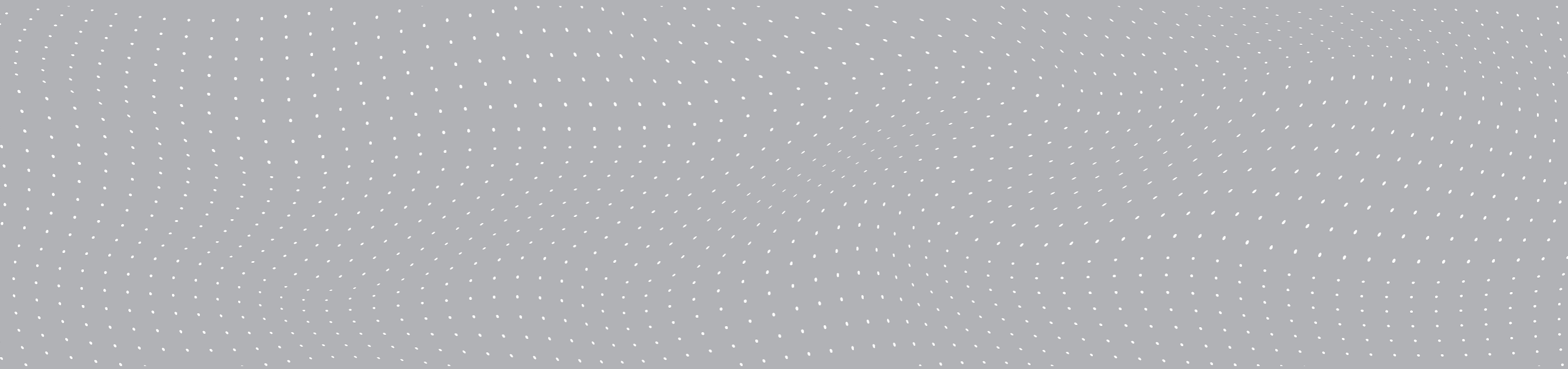
Within the facility are display areas for technology showcases such as; communications and security technology, advanced batteries and energy systems, computer cooling technology as well as new types of computers and microprocessors underpinning neural networks and artificial intelligence.

The auditorium and support spaces allow for industry seminars, conferences, workshops and other learning and training opportunities for tenants, clients, consultants and contractors as well as broader industry partners and stakeholders in government and universities.

The data halls and offices provide specially designed, resilient spaces for tenants and agencies which require guaranteed levels of uptime such as; telecommunications, banking, commercial cloud, defence and disaster recovery.

With its broad glazed frontage to a large public forum, sky gardens, public transport integration, generous unfenced landscape curtilage, public streets and ways crossing the campus and retail shops embedded in the envelope, S5 Innovation Precinct inverts the standard model of a ring fenced fortress to deliver critical digital infrastructure in a way which is completely new, different and engaging.





02_ Site Context & Analysis

2.1. Regional Context



Legend

- S5 Site
- Sydney CBD
- Other Data Centres

02_ Site Context & Analysis

2.2. Site Description

The site is located at 269 Lane Cove Road, Macquarie Park and is legally described as Lot 3 in Deposited Plan (DP) 1129811. It is located on the corner of Lane Cove Road and Waterloo Road and is made up of a single rectangular lot and is approximately 22,381m² in size. An aerial photograph of the site is provided at Figure 1.

The site is located in the City of Ryde Local Government Area (LGA) within the Macquarie Park corridor, an established employment precinct with a particular focus on innovation. Macquarie Park is a nationally significant research and employment centre and includes the head offices for some of Australia's leading companies including Foxtel, Optus and Siemens. The site is approximately 2km southeast of Macquarie University, and 1.5km southeast of Macquarie Shopping Centre.

Existing development includes a two-storey office furniture store (Work Arena) at the northern end of the site and offices and studios associated with Foxtel in the southern portion of the site. Scattered trees exist along the site boundaries, particularly within the western setback to Lane Cove Road, along the southern boundary and the eastern boundary.

Vehicle access to the site is currently provided from Waterloo Road with an internal driveway providing access to several at-grade parking areas. A further vehicle crossover has been constructed along the Lane Cove Road frontage; however, it is not currently in use and barriers have been installed prohibiting access.

The site is well serviced by public transport with several bus routes operating along Lane Cove Road and Waterloo Road. The entrance to Macquarie Park Metro Station is immediately to the north of the site. The site includes a lengthy frontage to Lane Cove Road which provides access to the M² Hills Motorway and Epping Road.



02_ Site Context & Analysis

2.3. Site Access



Legend

- Site
- Bus
- Metro
- A3 Arterial Roads

02_ Site Context & Analysis

2.4. Solar Study

The subject site is located within Macquarie Park, and forms part of the strategic centre of the Macquarie Park Corridor.

The subject site is bound to the north by Waterloo Road, and to the west by Lane Cove Road (which connects directly to the M² Motorway) generating significant traffic noise.

The site has its major façades facing east-west which will increase exposure to heat loads to the future built form.

Macquarie Park train station is located in the NW corner of the site providing great public transport connectivity.

The site has a significant fall from south down to the north-east of approximately 14m. A landscaped berm exists along Lane Cove Road.

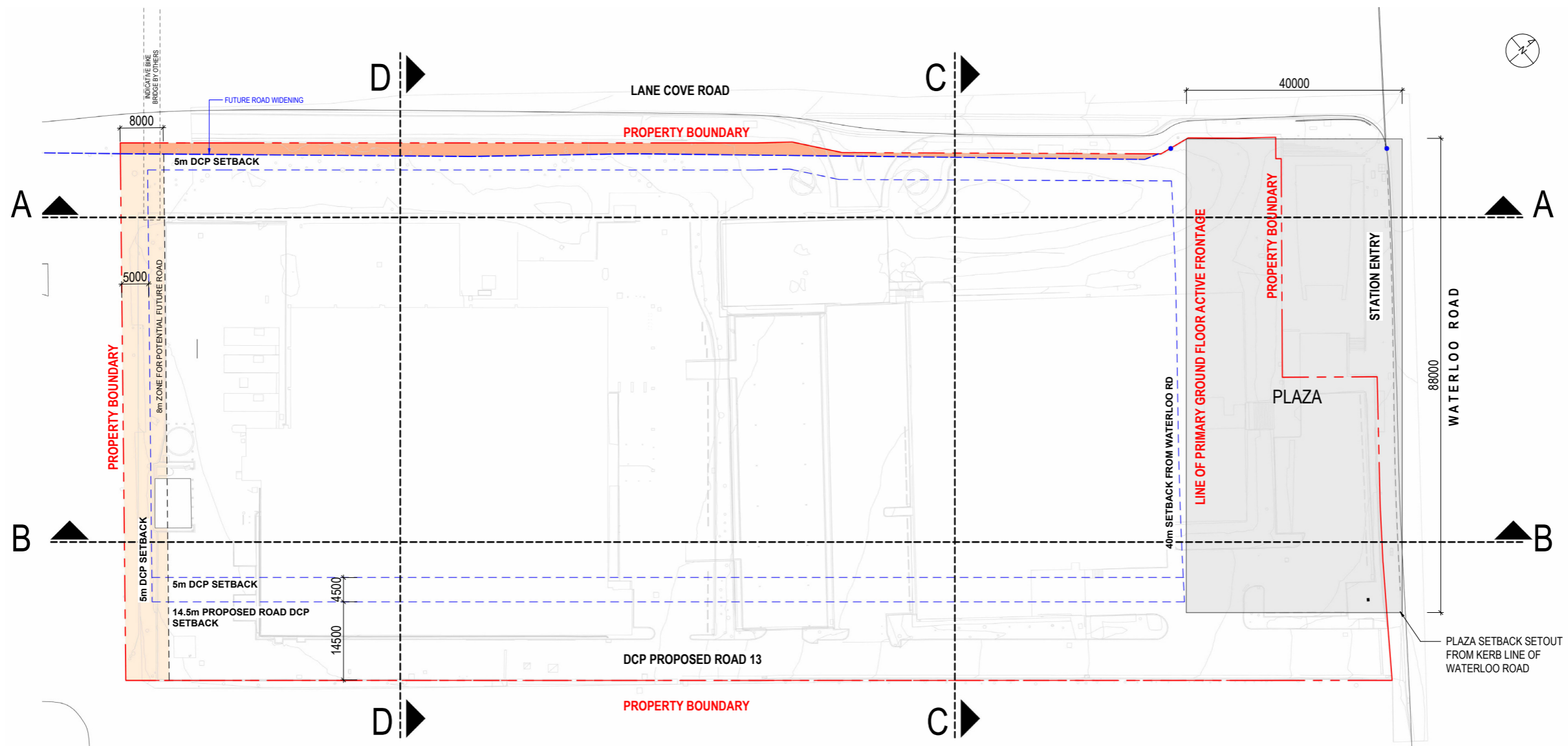
Upper levels of the office will provide district views and views to the Lane Cove National Park to the north of the site.

The Macquarie Park Corridor is already a key economic contributor for the wider catchment, with further strategic intent to evolve as a health and education precinct, providing an important economic and employment centre for Sydney's Northern District.



02_ Site Context & Analysis

2.5. Site Topography and Site Constraints



Site Section A



Site Section B



Site Section C



Site Section D

Legend

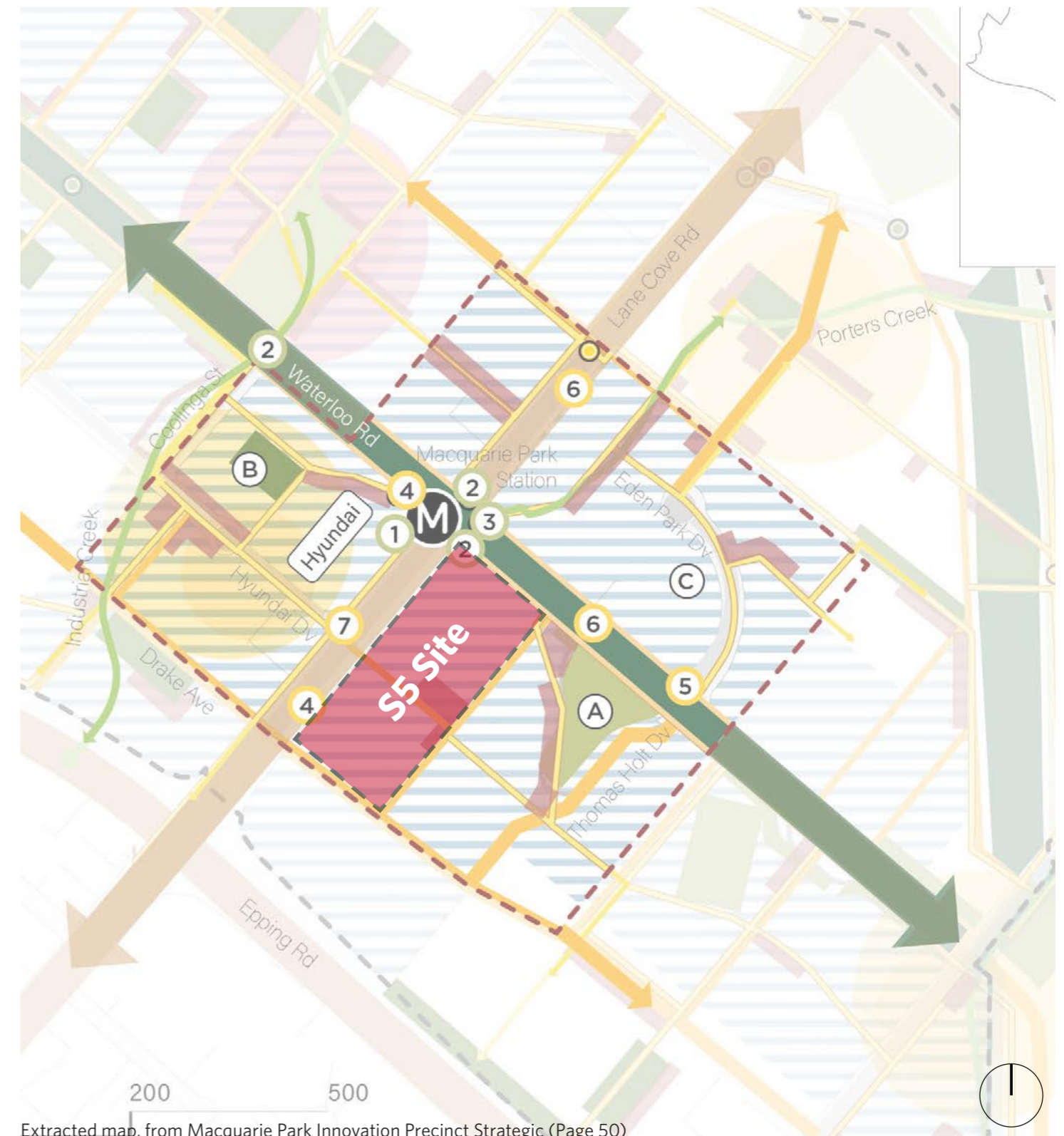
- Site Boundary
- DCP Setback
- 8m Future Indicative Bridge Zone
- Proposed Widening Lane Cove Road
- Public Plaza

02_ Site Context & Analysis

2.6. Planning Control Summary

- Deliver a series of high-quality open spaces
- Connectivity between the open spaces and providing woven ways and through-site access
- Urban tree canopy area includes 122 additional and 121 retained trees within a total area of 2663 sq.m deep soil and a resultant tree canopy cover of 5820 sq.m.
- Locate taller buildings where they have least shadow impact on public realm spaces and take advantage of views
- Encourage innovative, creative, and high-quality building design that positively contributes to the public domain
- Achieve a high-level of sustainable development
- Taller building avoid visual bulk when viewed from the public domain
- Ensure active frontages are prioritised to address open spaces and human scale at the street level

<p>1.4 km of new road connectivity 2.3 km of new fine grain pathways</p> <p>1 Macquarie Park to Randwick via Train Link</p> <p>2 Pedestrian crossings - Lane Cove Rd/Waterloo Rd</p> <p>3 Grade separated pedestrian crossing of Lane Cove Rd at Waterloo Rd</p> <p>4 BPIP Stage 1 and 2 improvements</p> <p>5 Waterloo Rd improvements: bus lanes, fine grain street access</p> <p>6 Lower speed limits - Waterloo Rd, Lane Cove Rd</p> <p>7 Pedestrian grade separated overpass/landbridge over Lane Cove Rd at Hyundai Drive</p>	<p>Legend</p> <p>Movement</p> <ul style="list-style-type: none"> Arterial roads Road network Proposed new roads Proposed pedestrian footpaths <p>Open Space</p> <ul style="list-style-type: none"> Waterloo Road linear park Existing open space New open space Fine grain open space Woven ways 	<p>Land Use</p> <ul style="list-style-type: none"> Metro station Commercial core Previously Rezoned Precincts Activity hub Activity hub (commercial focus) Fine grain active frontages <p>7,000 - 8,000sqm of enhanced open space 2,000 - 3,000sqm of new open space</p> <ul style="list-style-type: none"> A Thomas Holt Drive park B Local plaza C Corridor square
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02_ Site Context & Analysis

2.7. Macquarie Park Place Strategy

GARI NAWI (SALT WATER CANOE) MACQUARIE LIVING STATION

Gari Nawi, meaning the saltwater canoe, is the Southern end of Nawi or Waterloo Corridor.

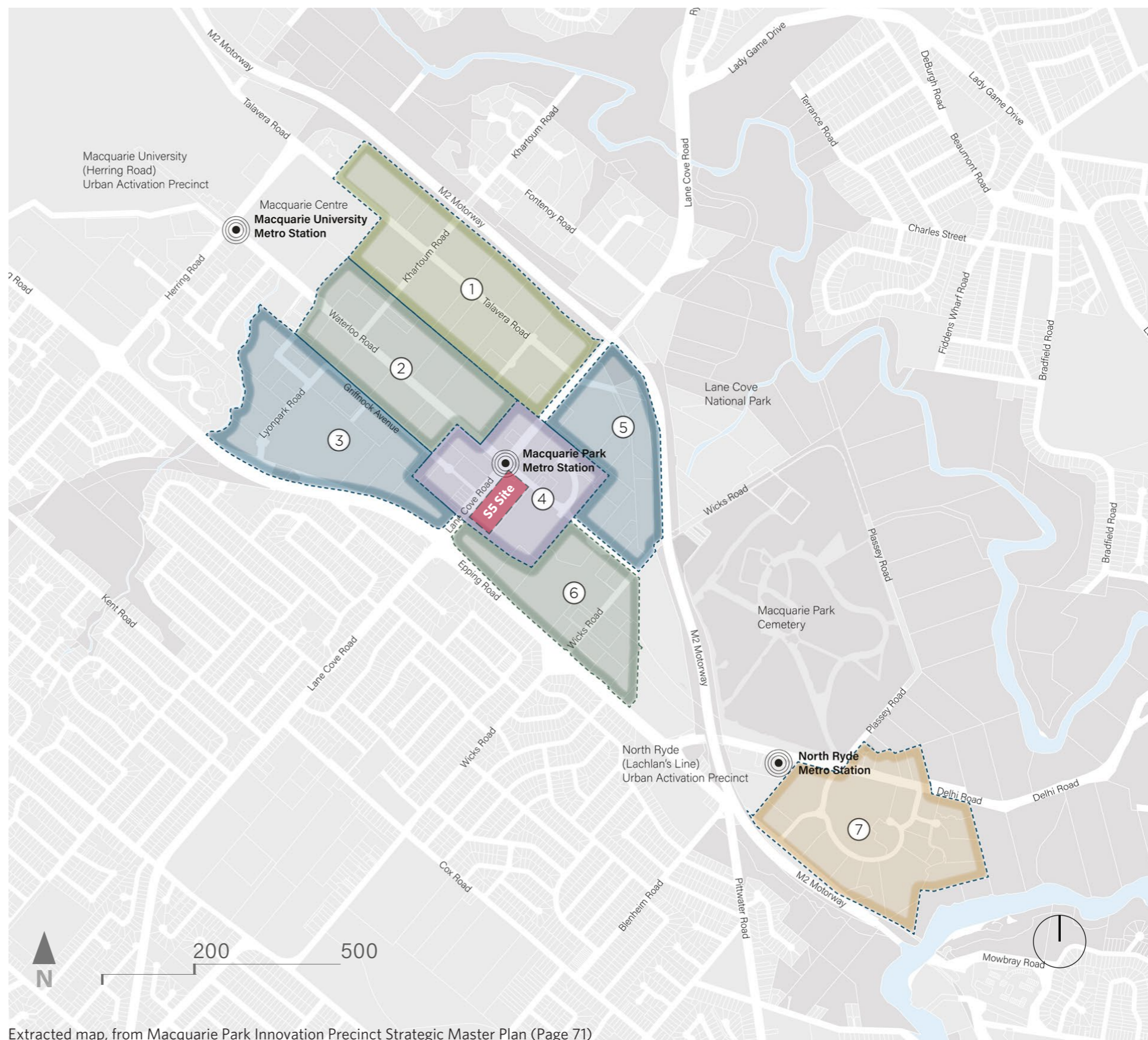
The Macquarie Living Station is characterised by high levels of metro connectivity and access to strategic bus routes. The neighbourhood has capacity to develop into a denser and more integrated place to support economic vitality.

The approach to each neighbourhood is underpinned by a series of key moves which build upon the structure plan – these key moves cover:

-  **Anchors** - Commercial anchors or differentiating business cluster with a range of scales of business type
-  **Connections to Ngurra** - An accessible natural asset and connections to Ngurra, specifically the creeks
-  **Spaces for Culture** - Cultural anchors or potential to form new cultural places of gathering and/or learning
-  **Focus of Movement** - A movement structure / interchange that can encourage public transport usage and support walking*
-  **Collaborative Partners** - Aligned and assembled landowners and stakeholders working towards the delivery of the vision
-  **Residential Opportunity** - An approximate number of dwellings that will be introduced

The seven neighbourhoods are:

1. **Ngalawala (Reciprocity)** - North Park
2. **Butbut (Heart)** - Waterloo Park
3. **Waragal BIRRUNG (Evening Star)** - Shrimptons Quarter
4. **Gari Nawi (Saltwater Canoe)** - Macquarie Living Station
5. **Burbigal (Morning)** - Porters Creek
6. **Garungul (Unbreakable)** - Wicks Road South
7. **Narrami Badu-Gumada (Connecting Water Spirit)** - North Ryde Riverside

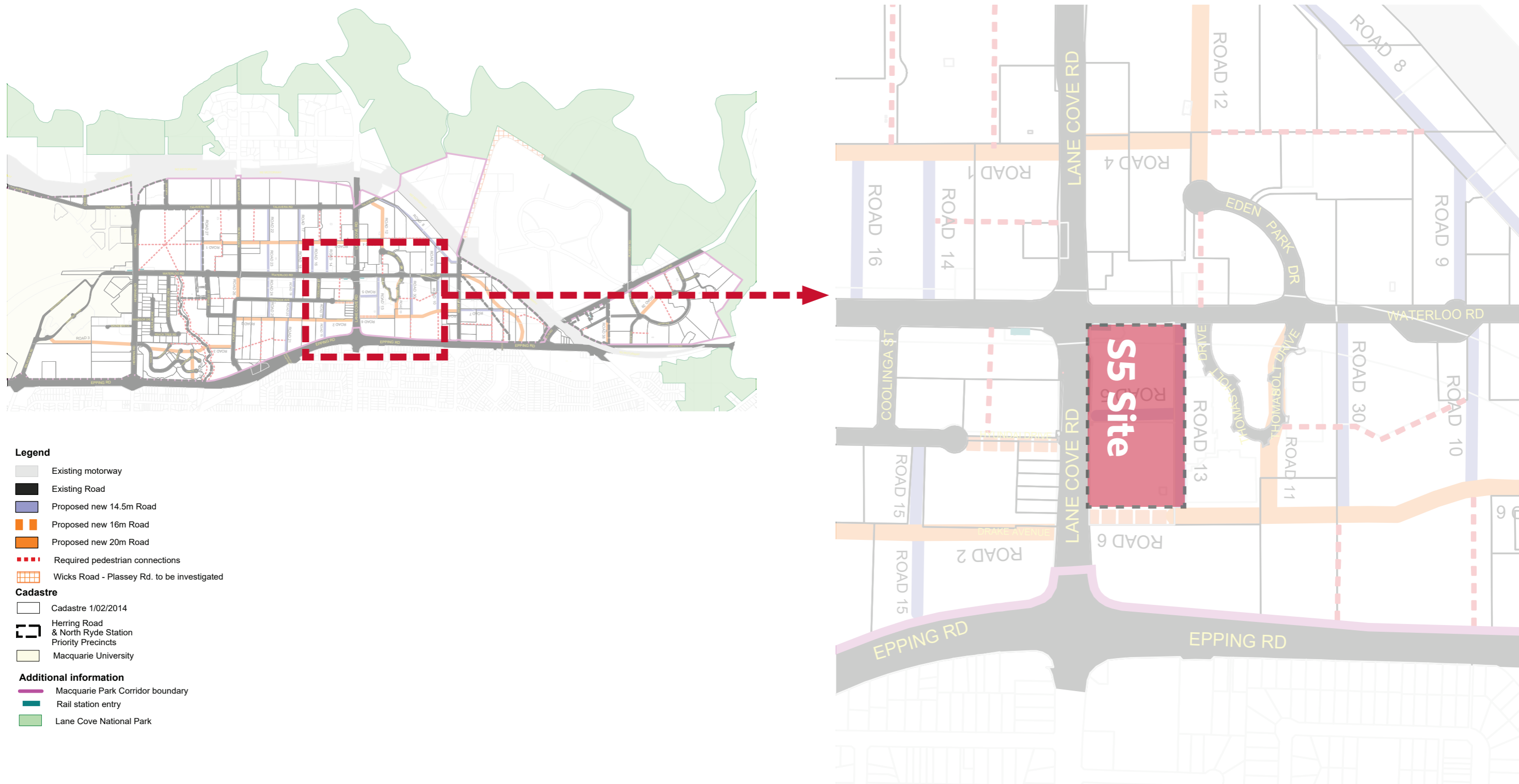


Extracted map, from Macquarie Park Innovation Precinct Strategic Master Plan (Page 71)

02_ Site Context & Analysis

2.8. Development Incentives

Fine Grain Road 5, 6 and 13



02_ Site Context & Analysis

2.9. Public Plaza and Primary Active Frontage

5.7 Rail Station Plazas

Objectives

1. To provide a square/ plaza, with active building frontages.
2. To provide clear unimpeded views and access from station square from surrounding streets.
3. To address level changes by creating a series of terraces that tie into adjoining footpath levels.

Controls

a. Provide the following Station plazas (including fittings):

- i. Macquarie Park Station Plaza - West
Area: Provide minimum 0.35 ha
Dimensions: Provide minimum 88 x 40m
Install minimum 10 park benches and 10 bicycle parking spaces.
- ii. Macquarie Park Station Plaza – East
Area: Provide minimum 0.35 ha
Dimensions: Provide minimum 88 x 40m as shown in Figure 5.7.3.
Install minimum 10 park benches and 10 bicycle parking spaces.
- iii. Macquarie University Station Plaza – East
Area: Provide minimum 0.67 ha
Dimensions: Provide minimum 80 x 80 m as shown in Figure 5.7.4.
Install minimum 10 park benches and 10 bicycle parking spaces.

Note: The Macquarie University Station Plaza - West has an approximate area of 0.5 ha

- b. Station plazas are to be privately owned public space. Station plazas are to be accessible at all times.
- c. Provide Continuous Active frontage to station plazas refer also Figure 5.7.3, 5.7.4, and 5.7.5.
- d. Minimise large banks of stairs. If stairs are used to provide alternative access to ensure equitable access for all.
- e. Provide unimpeded and generous entrances and circulation paths into and through the plaza.
- f. Provide infrastructure (such as gas, power and water supply) and subject to consent, appropriately scaled kiosks, vendor stalls, cafes and restaurants) that will enhance the rail station plazas as meeting places and support activities such as markets, community events, leisure and recreation.
- g. Provide wireless internet connection to all publicly accessible space, particularly station plazas.

Station Plaza Setbacks

- h. Provide building setbacks for adequate pedestrian circulation space around train stations.

Paving and Park Furniture

- i. Provide paving, lighting bins and directional and information signage in accordance with Macquarie Park Public Domain Technical Manual.
- j. Install lighting to contribute to public safety.
- k. Locate bins at square entries/exits.

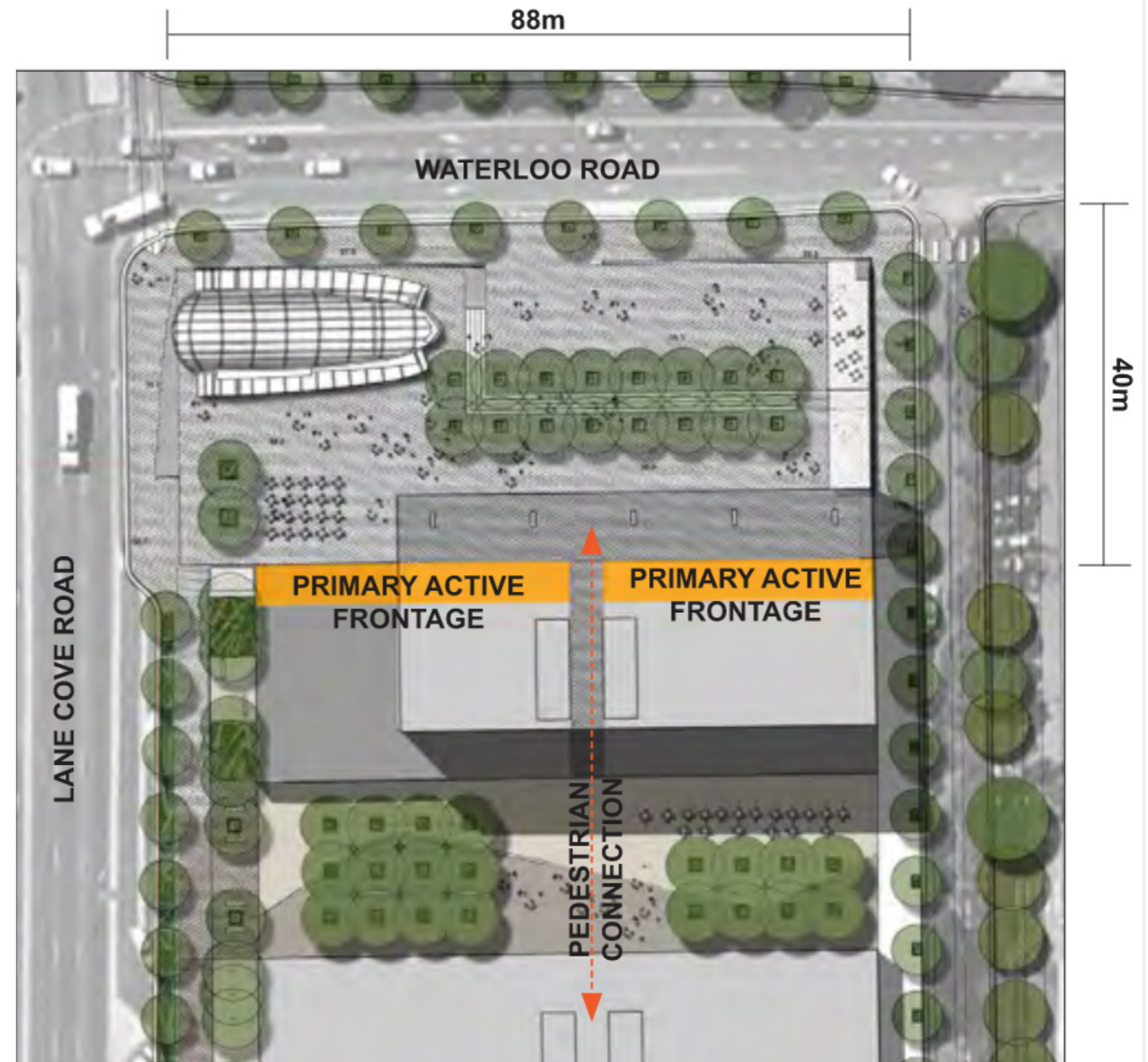
Development Control Plan 2014

Final

Adopted

Extracted from City of Ryde DCP 2014, Part:4.5 Macquarie Park Corridor (Page 35)

NEXTDC - SHIRAZ S5

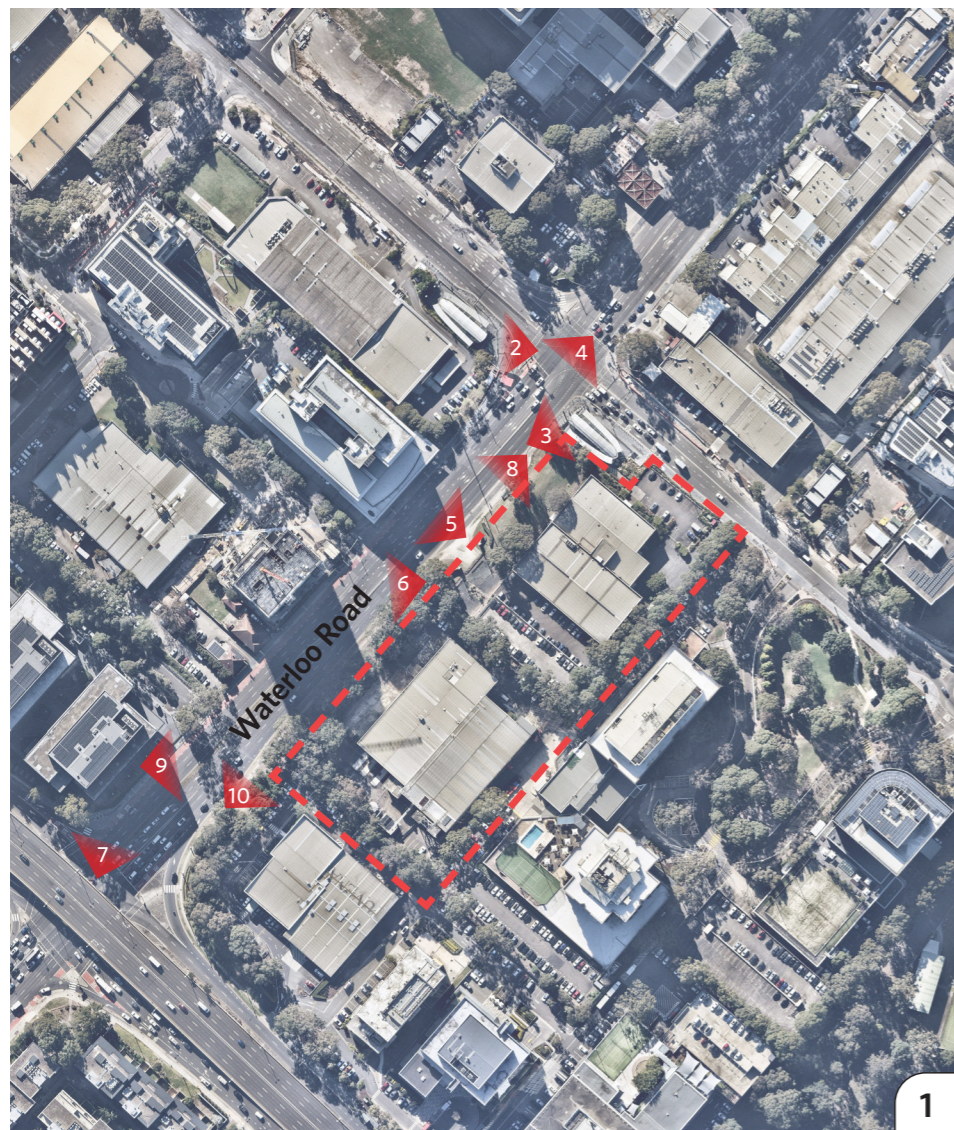


Extracted map from City of Ryde DCP 2014, Part:4.5 Macquarie Park Corridor (Page 36)

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02_ Site Context & Analysis

2.10. Site Character - Existing



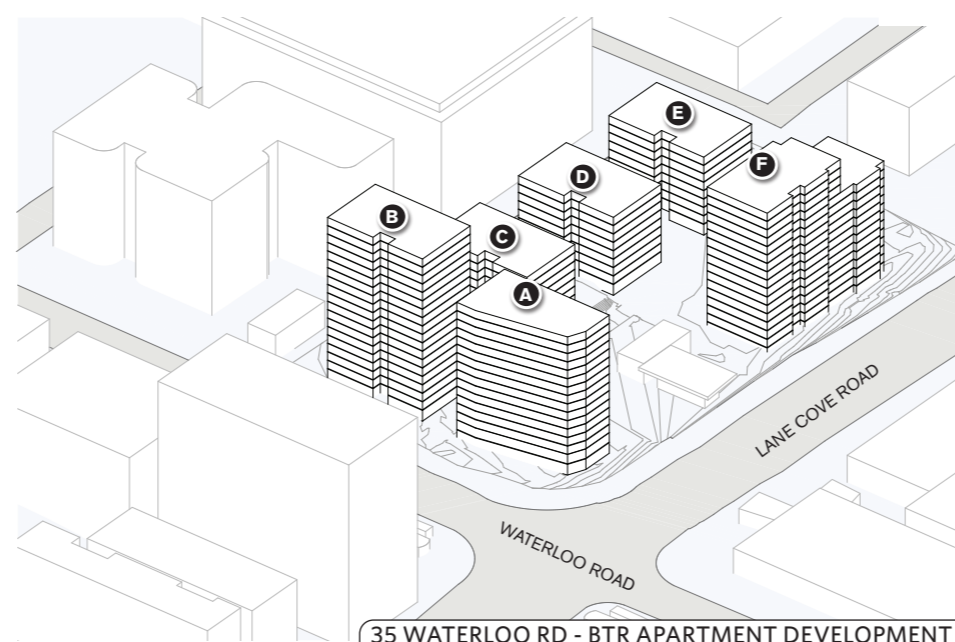
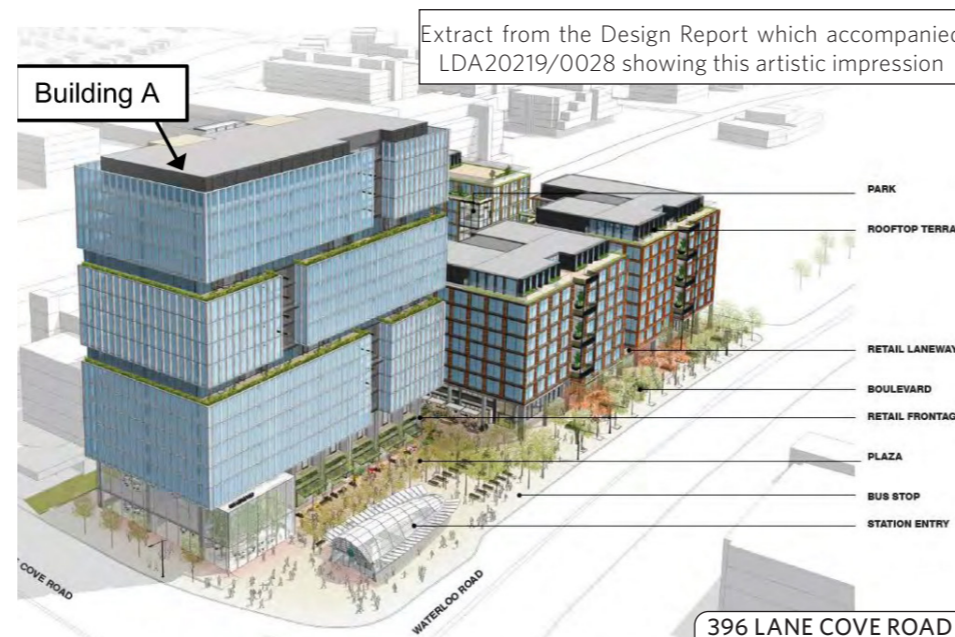
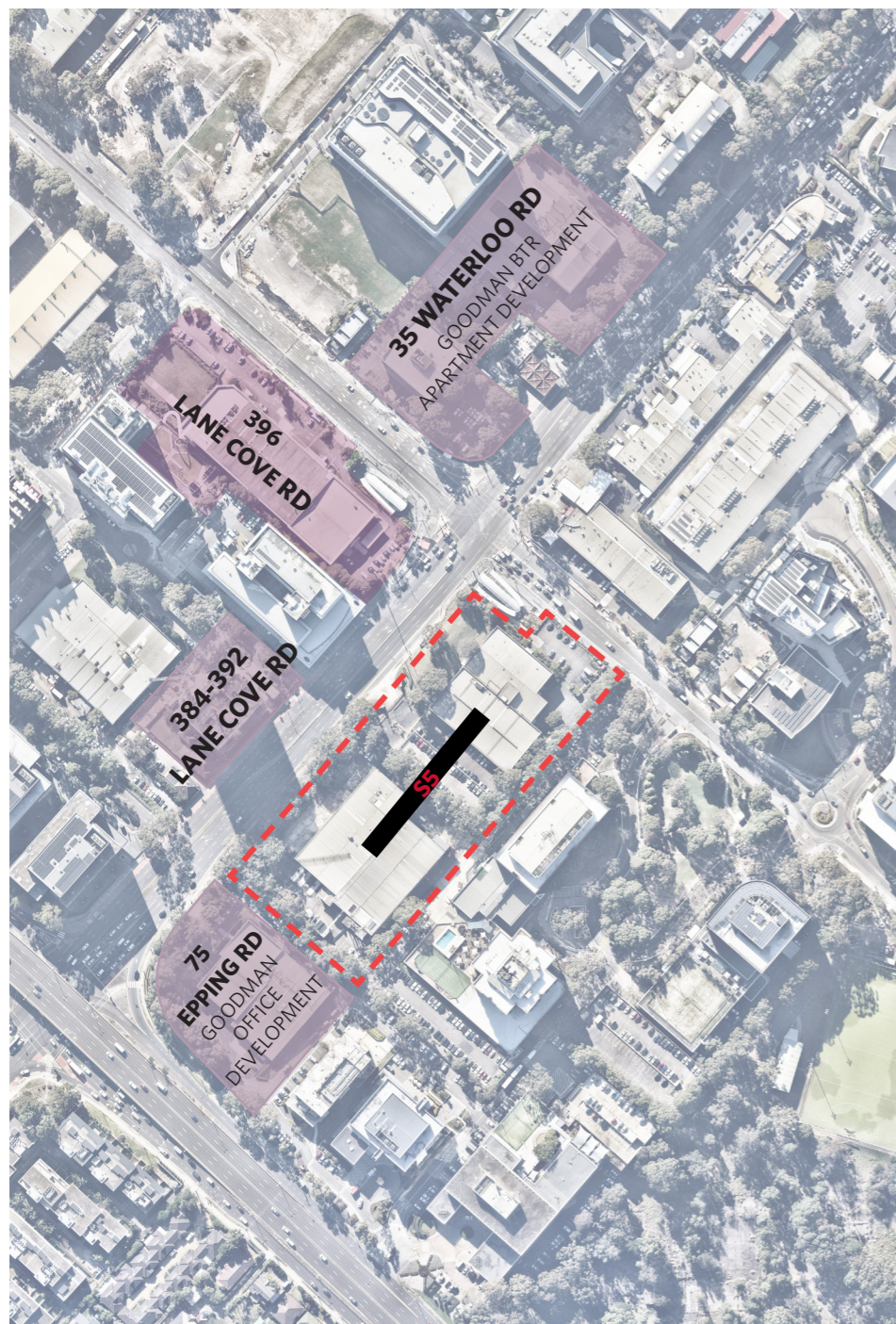
02_ Site Context & Analysis

2.10. Site Character - Existing



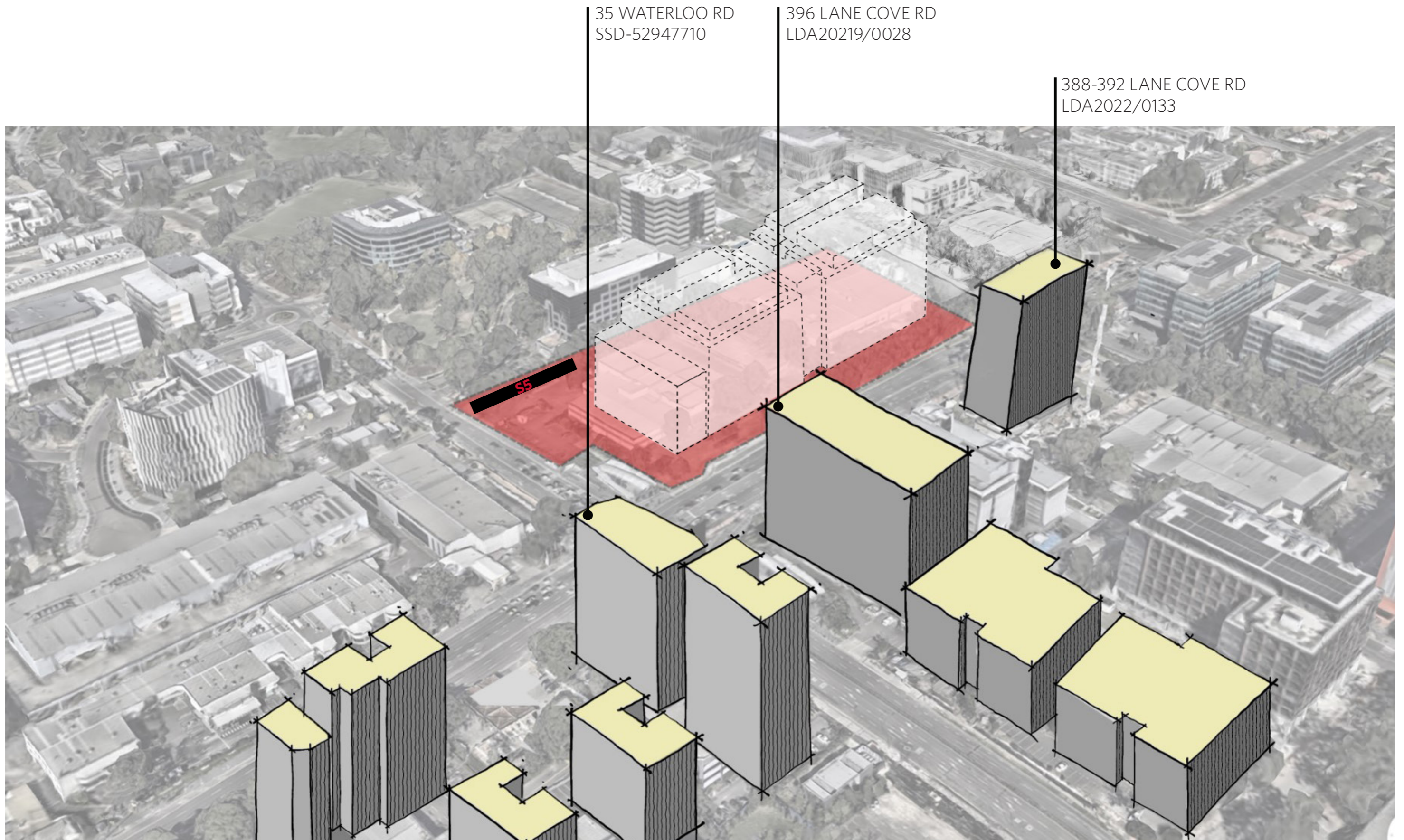
02_ Site Context & Analysis

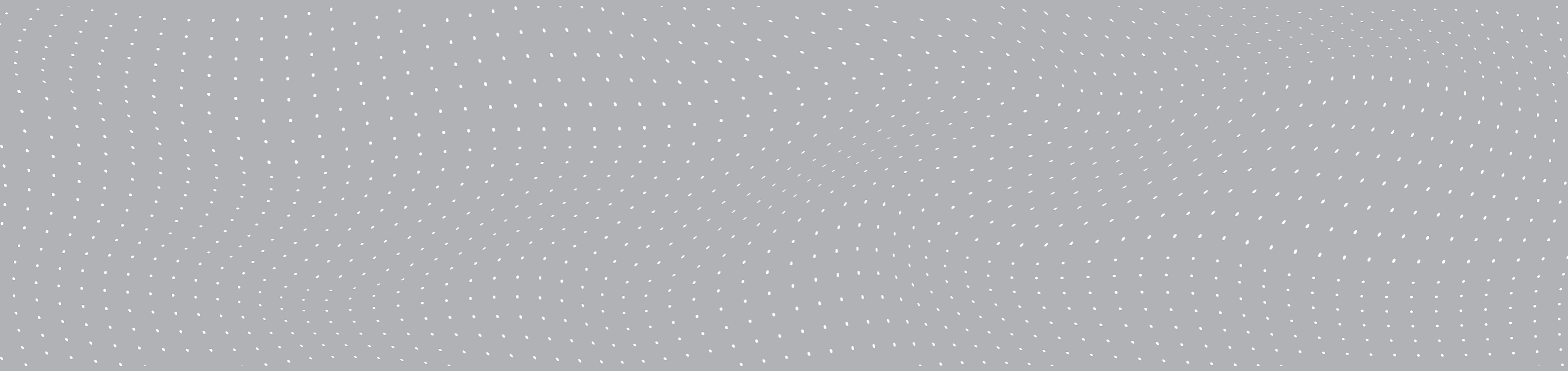
2.11. Site Character - Future Development



02_ Site Context & Analysis

2.11. Site Character - Future Development



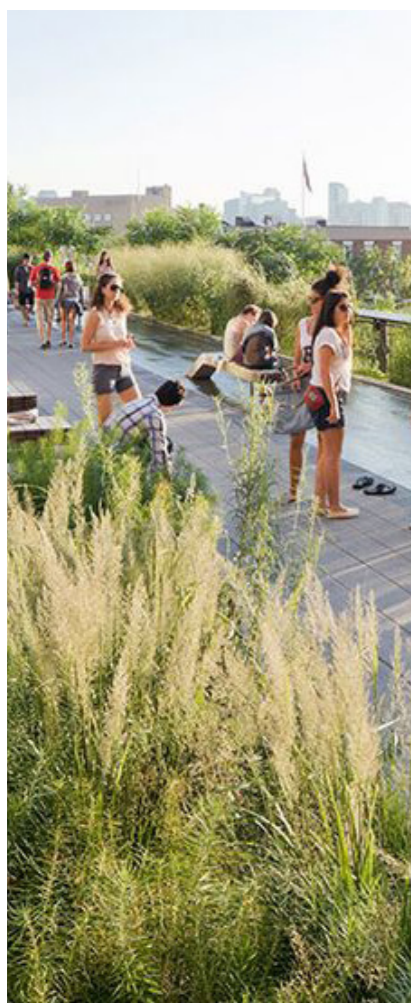


03_ Site Design Response

3.1. Key Design Principles

1

Create an Active Civic Plaza



2

Reinforce Future Street Pattern



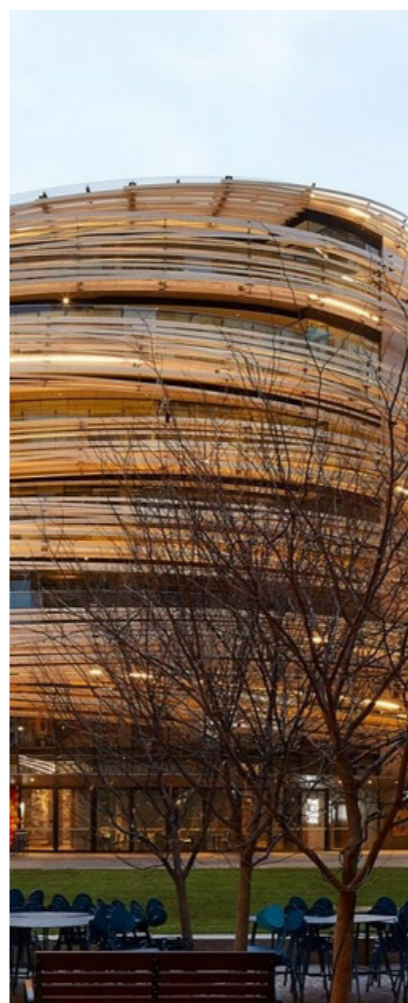
3

Extending the Green Network



4

Landmark Gateway Building



5

Sustainability



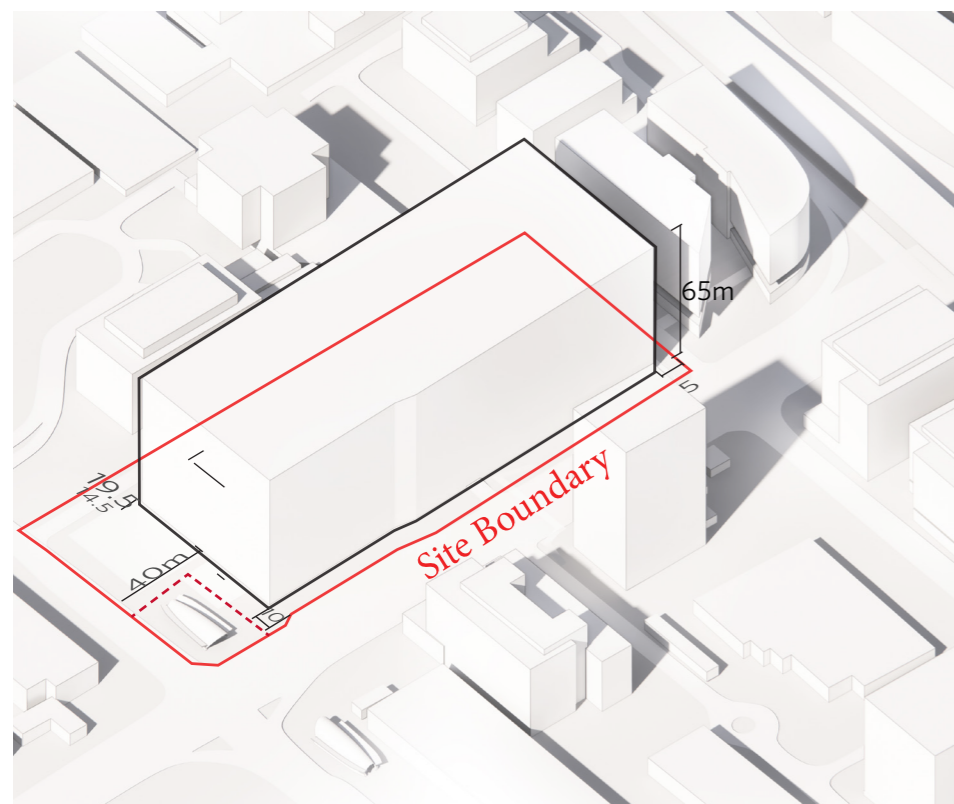
6

Connection to Country



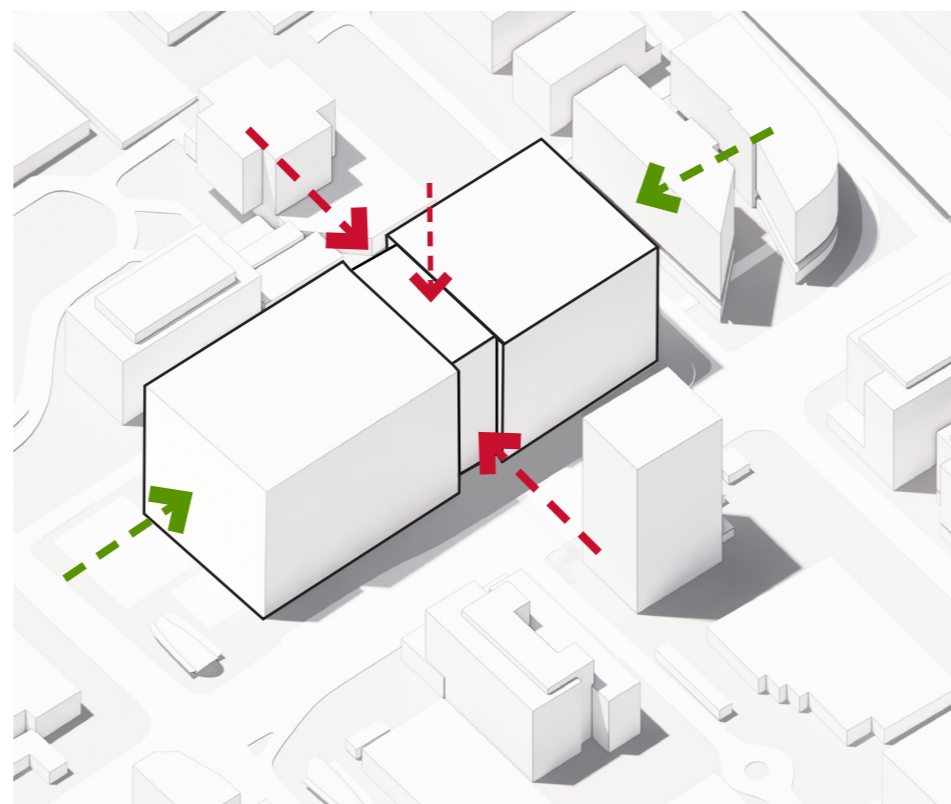
03_ Site Design Response

3.2. Urban Design Response



Maximum Building Envelope

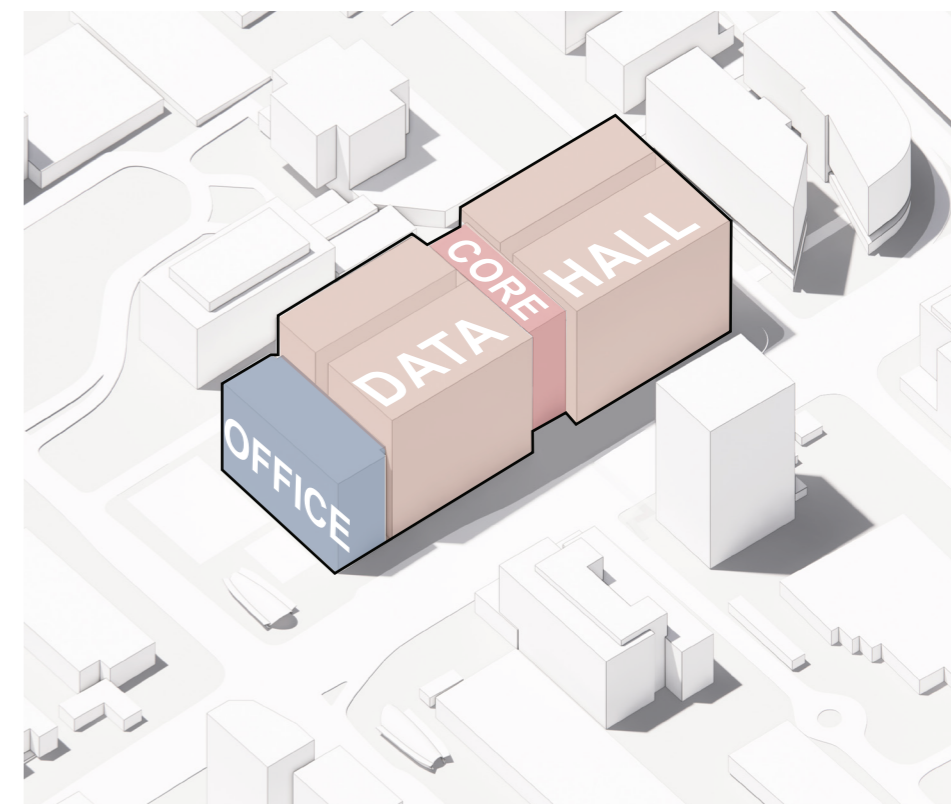
The above diagram indicates the maximum permissible planning envelope for the site. The proposed design for the site sits entirely within this permissible envelope



Animate the Form

The proposed massing is divided into two distinct building blocks, expressing the central core while reducing perceived bulk. Along Lane Cove Road, the clear setback with vertical balconies, and landscaped elements create articulation and activation.

The building footprint is consolidated to maximize public plaza space and enhance landscaping opportunities along the future proposed Road 6.

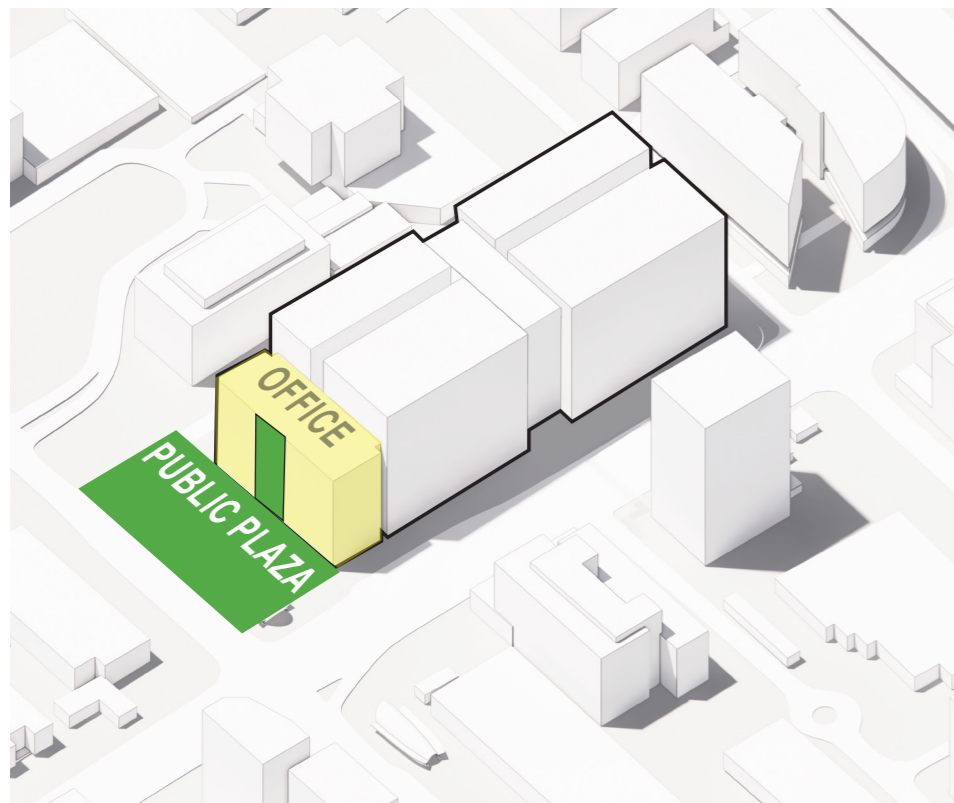


Clear Articulation of the Building Components

The overall massing has been arranged and articulated to reflect the primary building functions. The office building is located to the North East, with the data halls located behind and to the South West

03_ Site Design Response

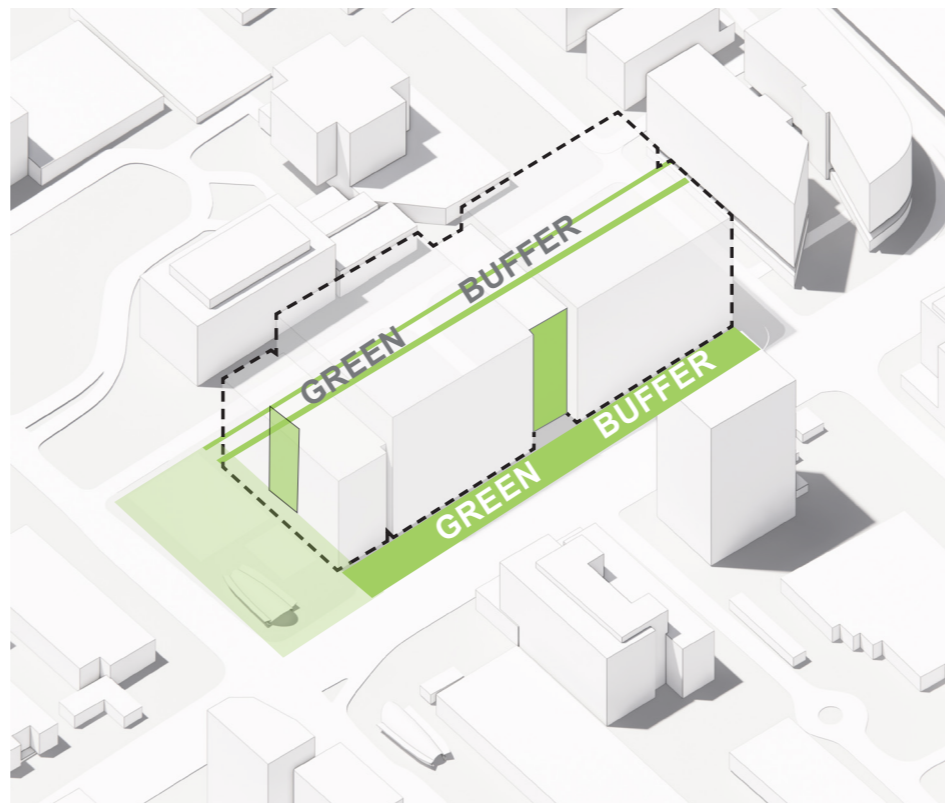
3.3. Respond to Urban Environment



The Public Plaza

The office component of the proposal has been located towards Waterloo Road, to activate, the new public plaza that anchors the north eastern corner of the site. This plaza provides public and community amenity at the intersection of Waterloo and Lane Cove Roads, and directly adjacent the Macquarie Park Metro Station entrance.

The landscape extends up the façade through landscaped balconies, creating a dynamic connection between the building and its surroundings while enhancing activation along the elevation.

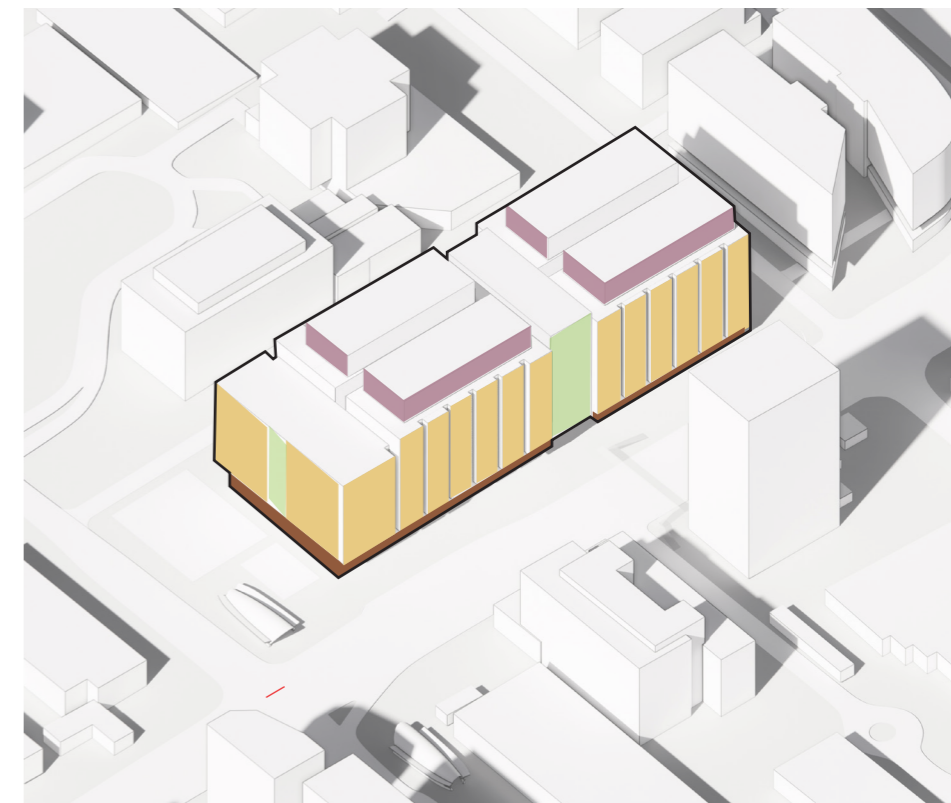


Quality of Streetscapes

Emphasis has been placed on the quality and generosity of the bounding streetscapes. To the South East, the proposed building envelope has been pulled 8.5m away from the adjacent roadway to allow for a green buffer and enhanced urban amenity.

Mature existing trees have been retained extensively and will be complemented by new plantings to create a green edge and to enhance the quality, visual amenity and comfort of this streetscape.

The landscape design extends along Lane Cove Road and into the plaza, integrating biophilic principles to enhance the experience of building occupants while visually anchoring the development to the surrounding landscape.



Mass articulation

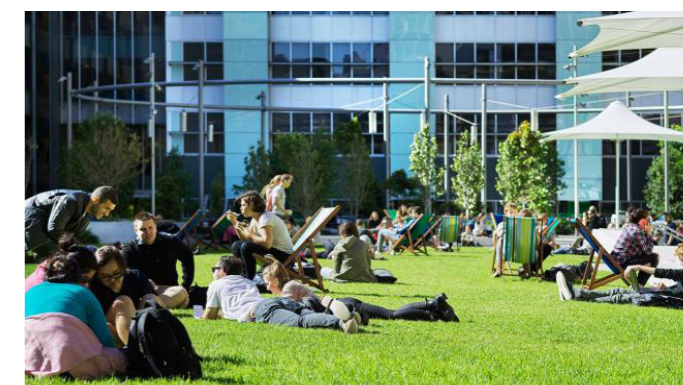
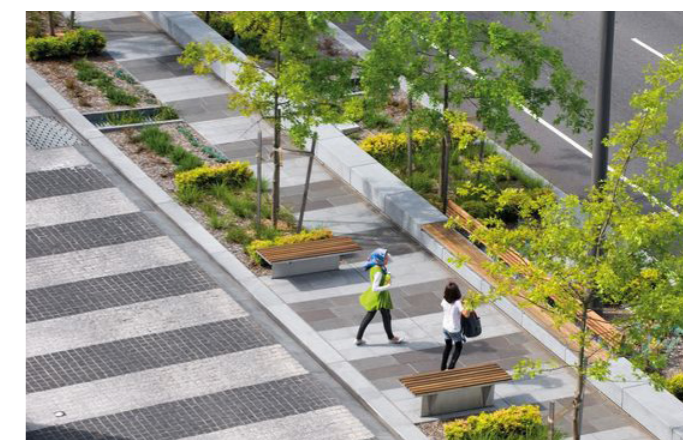
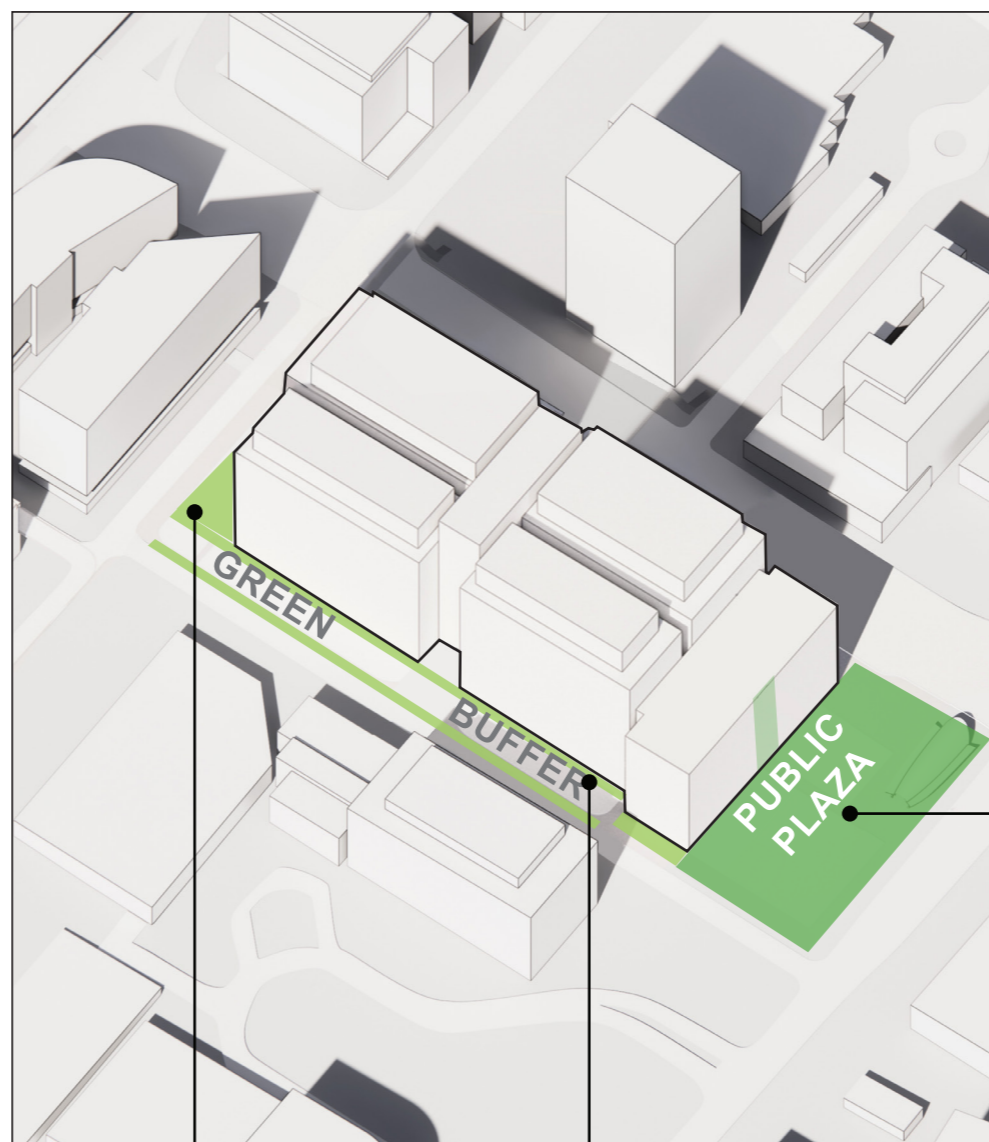
The overall mass of the data halls has been broken down to provide a more considered urban scale and finer grained architectural response.

Key moves include the establishment of a 2 storey base (reflecting the articulation of adjoining developments), a finer grained vertical expression to the primary side elevations, and a recessive roof plant enclosure top to the internal elevations and a cladding material change to the primary side elevations addressing lane cove road & road 13, that reduces the perceived height and scale of the proposal.

03_ Site Design Response

3.4. Public Open Space

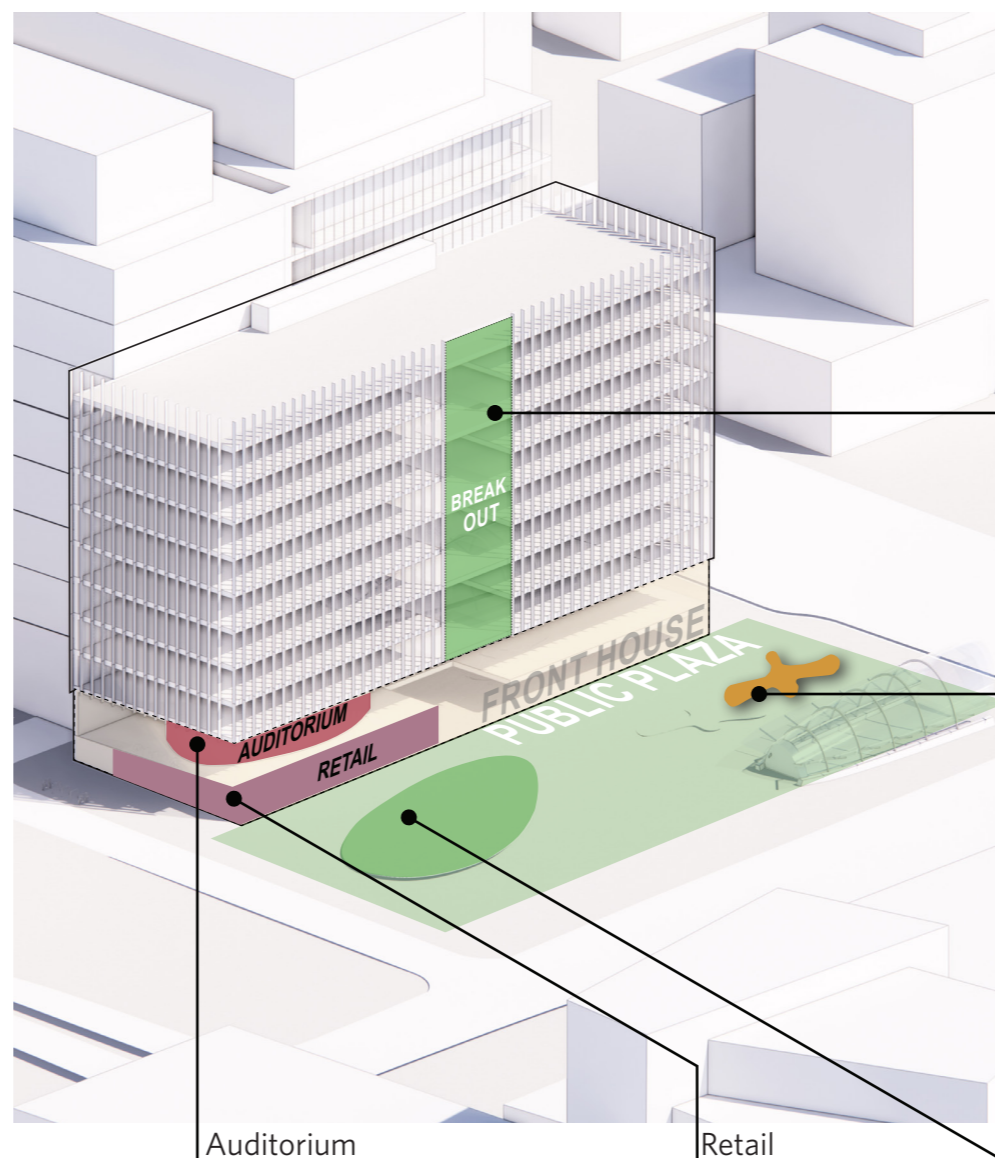
- Prioritizing inclusivity and accessibility, the Green Buffer along Road 13 features naturally covered walkways connecting to the civic plaza and public transport stops for commuters' convenience.
- With family gathering spaces branching from an active play zone, pockets of seating, shaded areas, and verdant landscaping, the public plaza fosters various degrees of social engagement and tranquility..
- The public plaza fronting the data centre embodies a spirit of civic generosity and community enrichment by opening up to the street with welcoming softscape and amenity for a variety of groups and individuals who not only engage with the office spaces but who may be passing through, in need of a place of respite, or wanting a space for their family to come together that's conveniently placed by the Metro Station.
- Integrated with public transport bus stops and the metro station, the plaza enhances accessibility and convenience for the public, employees, and commuters with places to meet, to rest, to wait for their next bus or train, and to park their bicycle at their convenience. Boasting a variety of seating options, verdant landscapes, and sheltered areas, the plaza fosters a welcoming atmosphere conducive to social cohesion.
- Boasting a variety of seating options, verdant landscapes, and naturally sheltered areas, the the landscape of the plaza and linear parks fosters a welcoming atmosphere conducive to social cohesion for an array of groups in the community.
- Enhanced by robust lighting, clear sightlines, and various options for unimpeded pedestrian movement through the site, it provides a safe and inviting space for communal gatherings and leisure activities.
- Retail spaces with spill out zones that blend into the plaza further establish the plaza as a vibrant economic and social hub, catering to diverse community needs.



03_ Site Design Response

3.5. Civic Presence

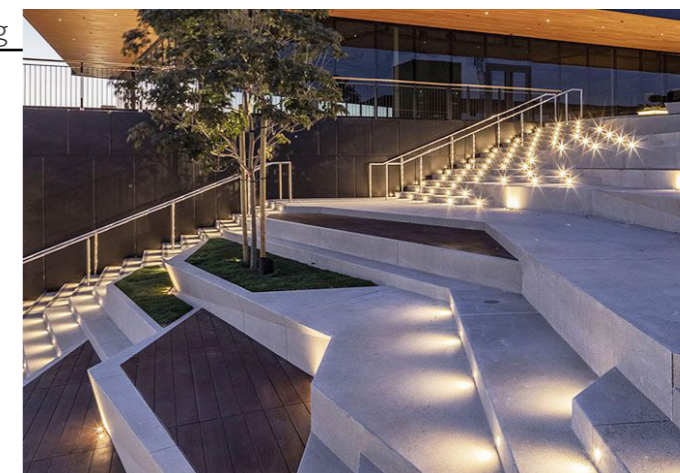
- Breakout terraces feature gardens and biophilic design with improved natural day lighting and ventilation, providing tranquil spots for connection and collaboration for relaxation, networking, and enhancing the well-being for the building occupants. The landscape cascades up and down the facade and offers a green connection between the building and the plaza.
- Redefines workplace comfort by bridging the gap between work and leisure.
- The public plaza visually connects the indoor office areas with outdoor tranquillity, enhancing productivity and fostering a stronger sense of community.
- The open and welcoming breakout space is copied across to the Lane Cove Road facade to bring well-being and biophilica into the heart of the data centers. This is breaking up the built form, yet draws a connection between the data hall block, the plaza space and the linear parks.
- The amphitheatre provides a dynamic space for events, further enhancing the site's appeal as a hub for interaction and collaboration.



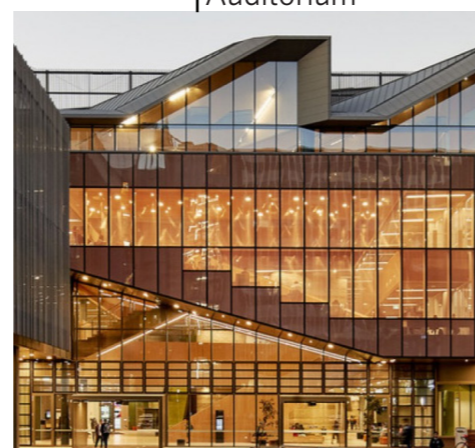
Breakout



Tiered seating and Play



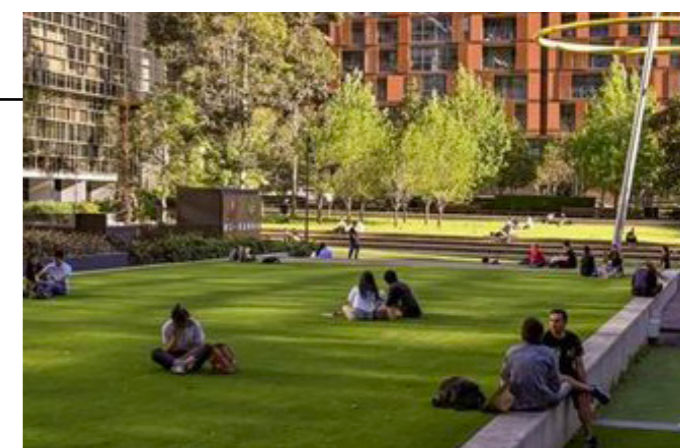
Auditorium



Retail



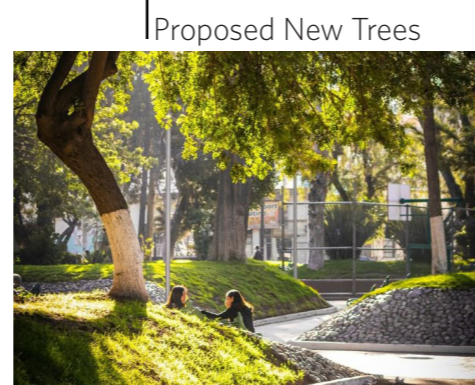
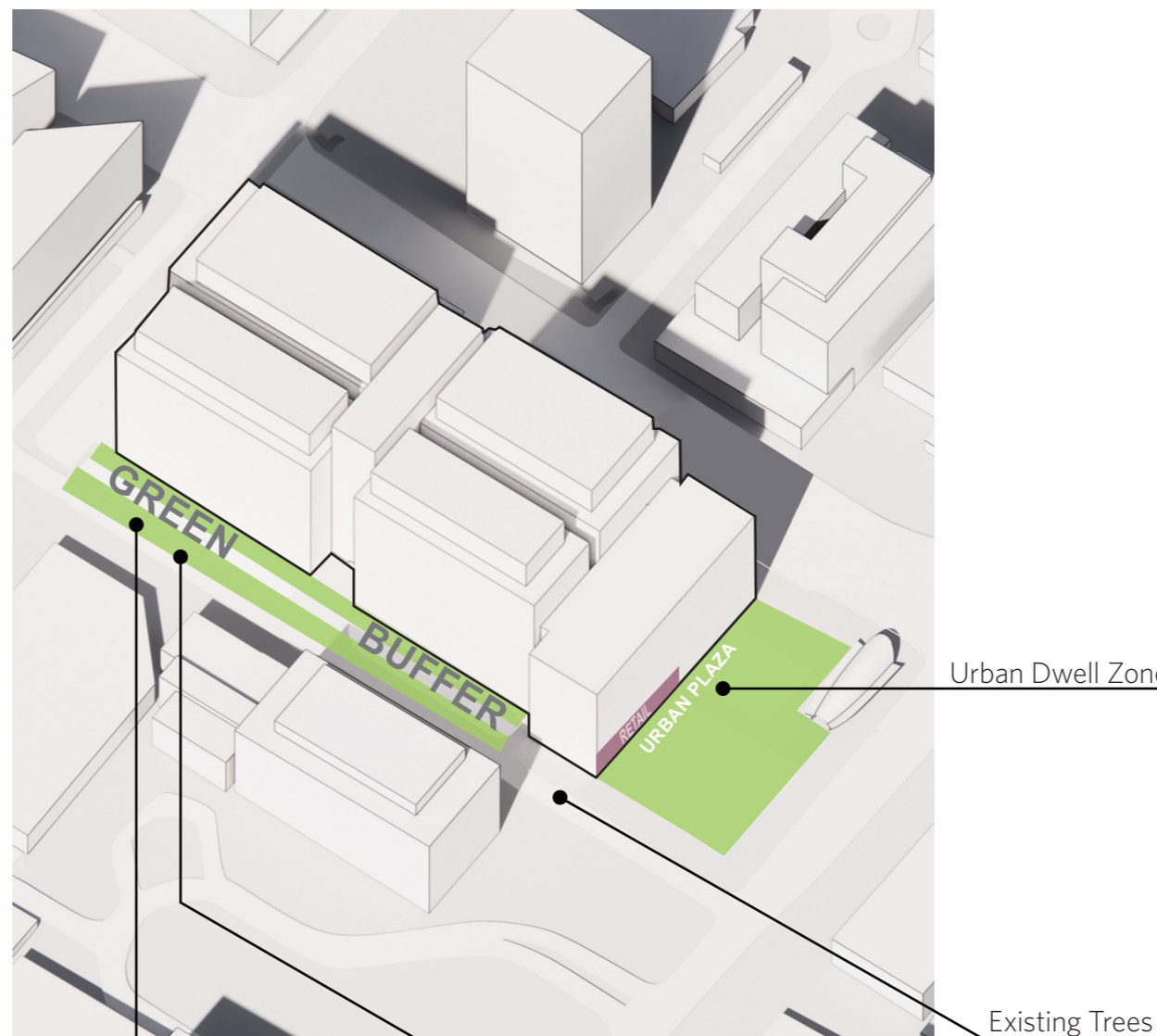
Lawn



03_ Site Design Response

3.6. Green Buffer- Road 13

- The green buffer acts as natural dividers and environmental enhancers, strategically positioned to mitigate impact. Trees, shrubs and ground cover provide shade, reduce noise pollution, and improve air quality.
- A meandering path through the landscaping offers a peaceful retreat within the tech hub as a vibrant fusion of technology and serenity.
- Retail shops integrated into the ground floor of the innovation centre provides occupants and the general public an opportunity to relax in the cafe outdoor colonnade seating or spill out on the lawn or various seating options throughout the civic plaza.



03_ Site Design Response

3.7. Road 6 Integration

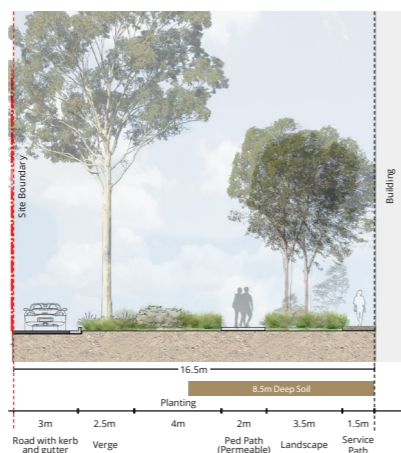
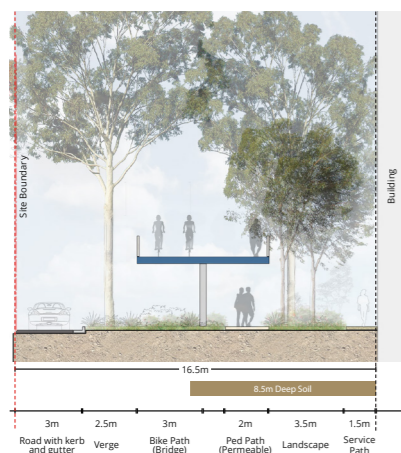
BIKE BRIDGE BY OTHERS

Design Intent: The design intent for Road 6 is to create a dynamic and engaging pedestrian connection while accommodating future infrastructure and maximising landscaping opportunities.

The landscaping proposed for Road 6 establishes an engaging connection between Lane Cove Road and Road 13, while preserving the space required for the future pedestrian and cycle bridge link (to be delivered by others).

New footpath gardens are integrated into the design to reinforce the corridor's role as part of a broader public access network, enabling the bridge connection across Lane Cove Road to function as a link to future development areas.

The design prioritises greening through generous deep soil provision and maximises opportunities for meaningful landscaping along the street. In doing so, it enhances the legibility and amenity of the pedestrian network, creating an attractive streetscape that balances function, ecological outcomes and public enjoyment.



Proposed Green Buffer

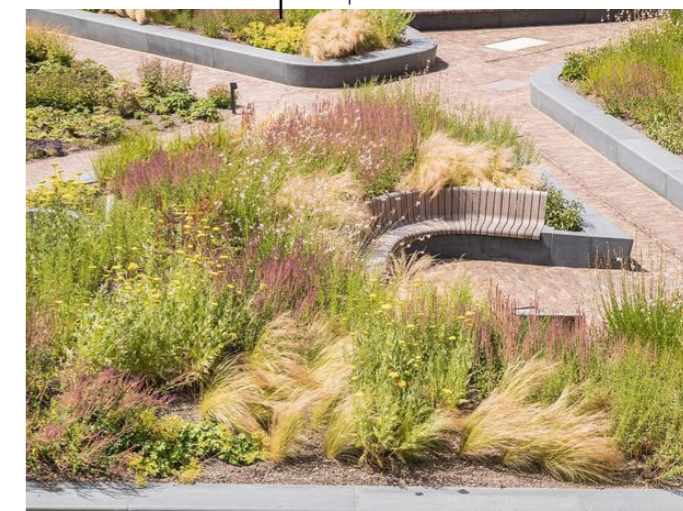
Flexibility For Future Linkbridge



Sharepath Integration



Footpath Garden



03_ Site Design Response

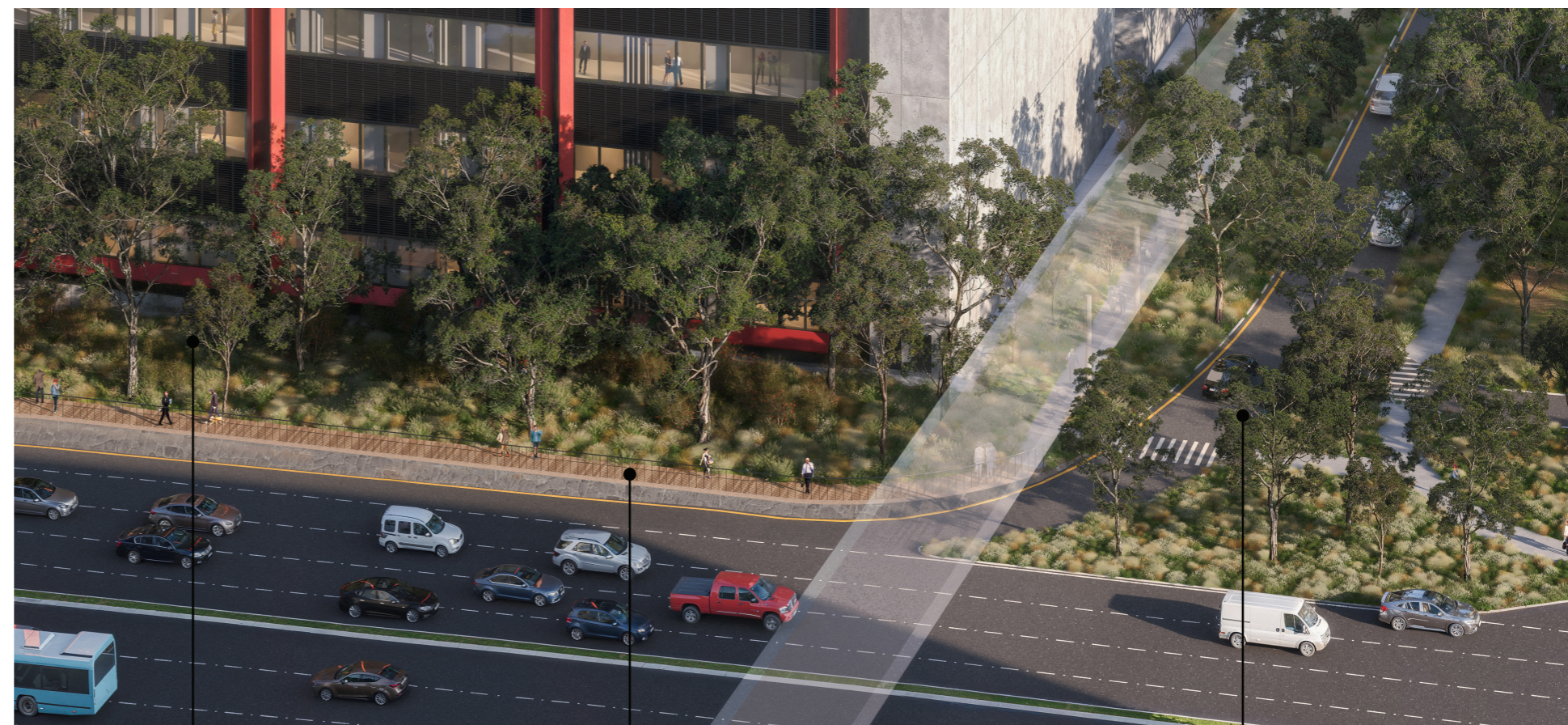
3.7. Road 6 Integration

Design Intent: The design intent for Lane Cove Road is to integrate and celebrate the existing mature turpentine forest while creating a functional and attractive pedestrian environment.

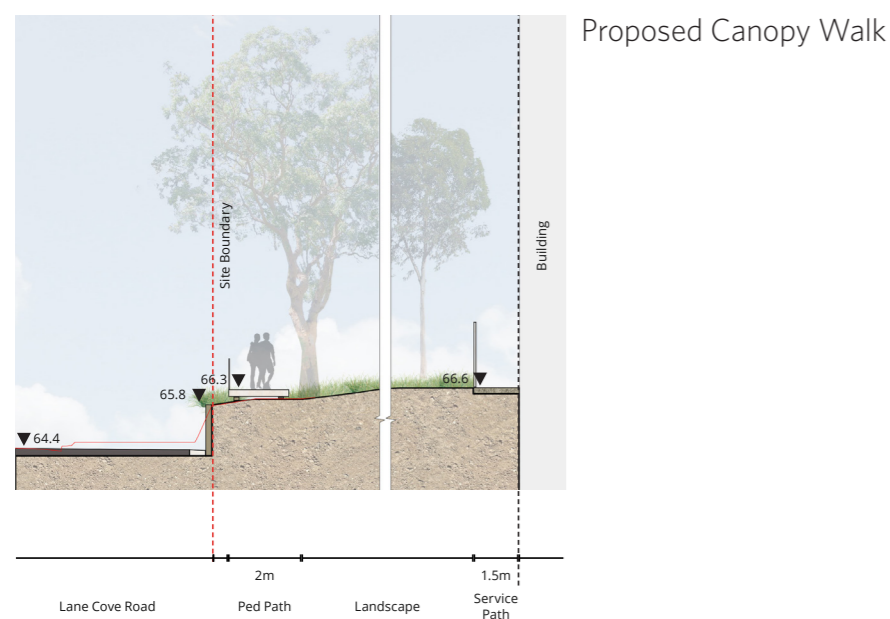
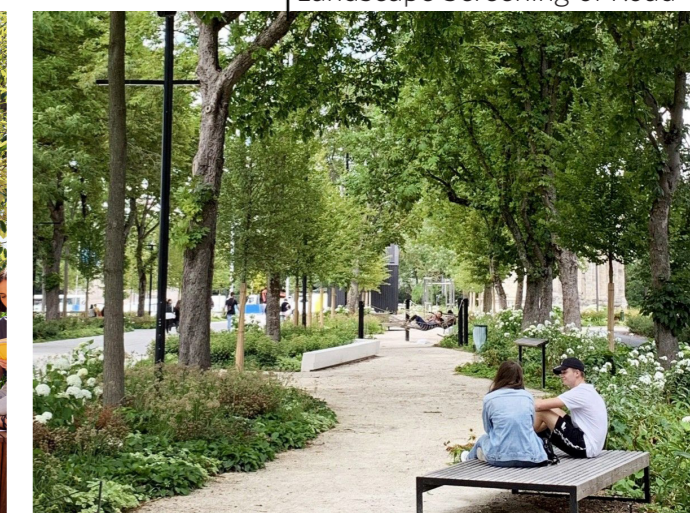
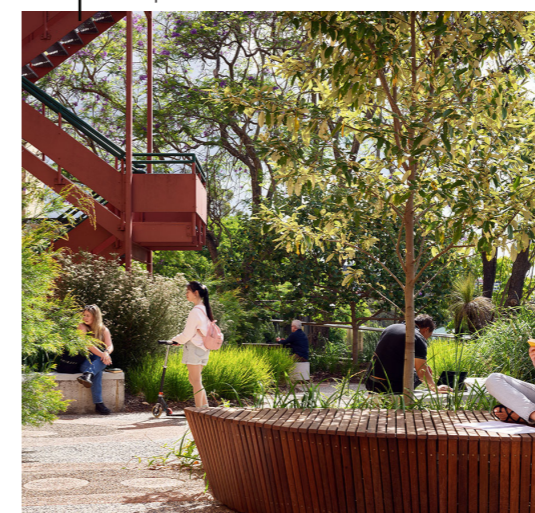
The landscape design along Lane Cove Road embraces the turpentine forest as a defining element of the site's character. The public footpath has been carefully incorporated into the scheme, transforming what is currently an underutilised corridor into a meaningful green space.

This approach establishes a substantial buffer between pedestrians and the heavily trafficked road, significantly improving amenity and safety. By retaining existing trees and complementing them with new, substantial planting, the design creates a raised canopy walk that enhances the pedestrian experience while contributing to the broader urban ecology. Importantly, the design strategy minimises site cut in order to maximise retention of the turpentine forest, ensuring that the landscape is not treated as a barrier but as a permeable, ecological buffer that adds long-term value to both the site and its surrounds.

BIKE BRIDGE BY OTHERS



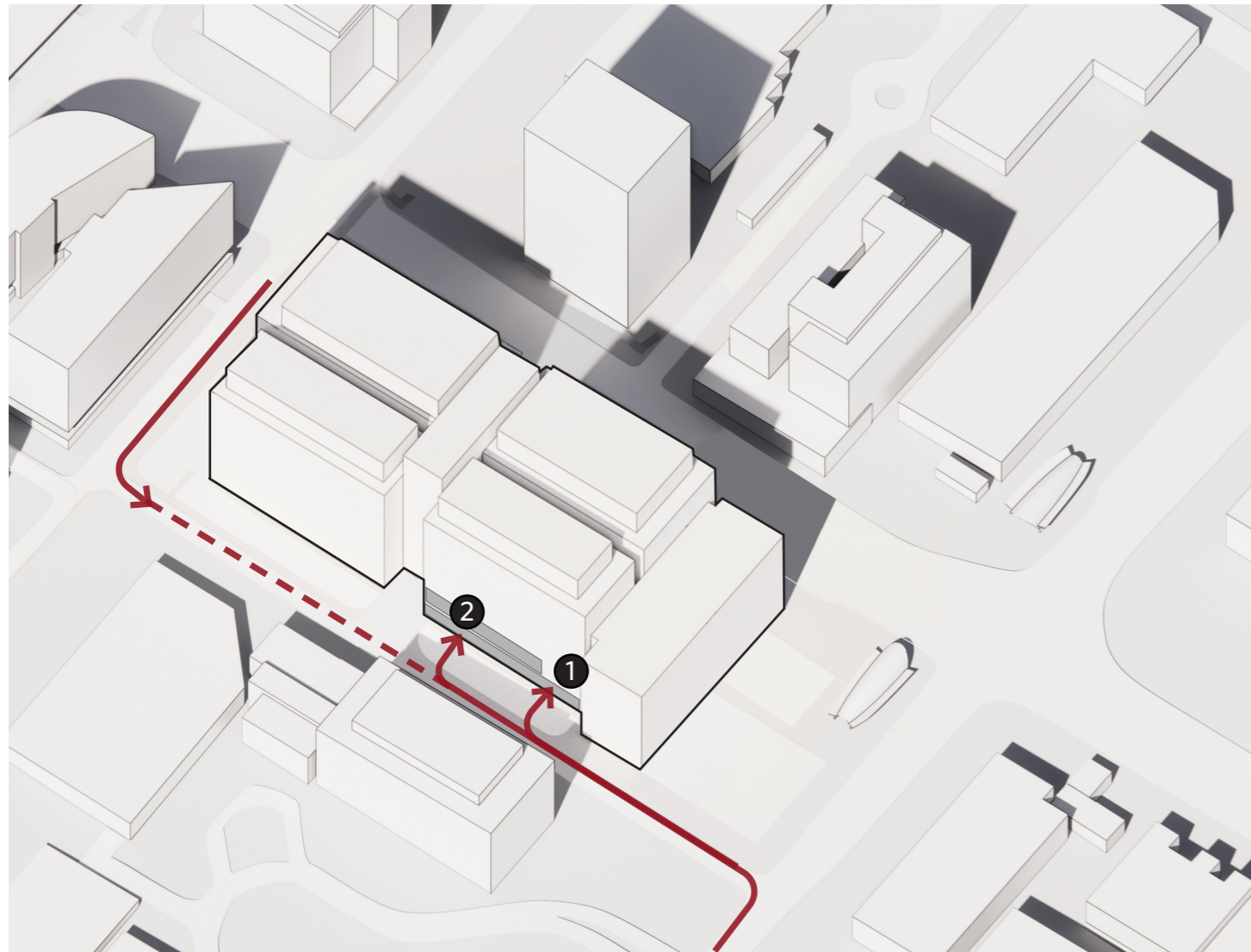
Existing Trees Retained Proposed Permeable Boardwalk Landscape Screening of Road







03_ Site Design Response

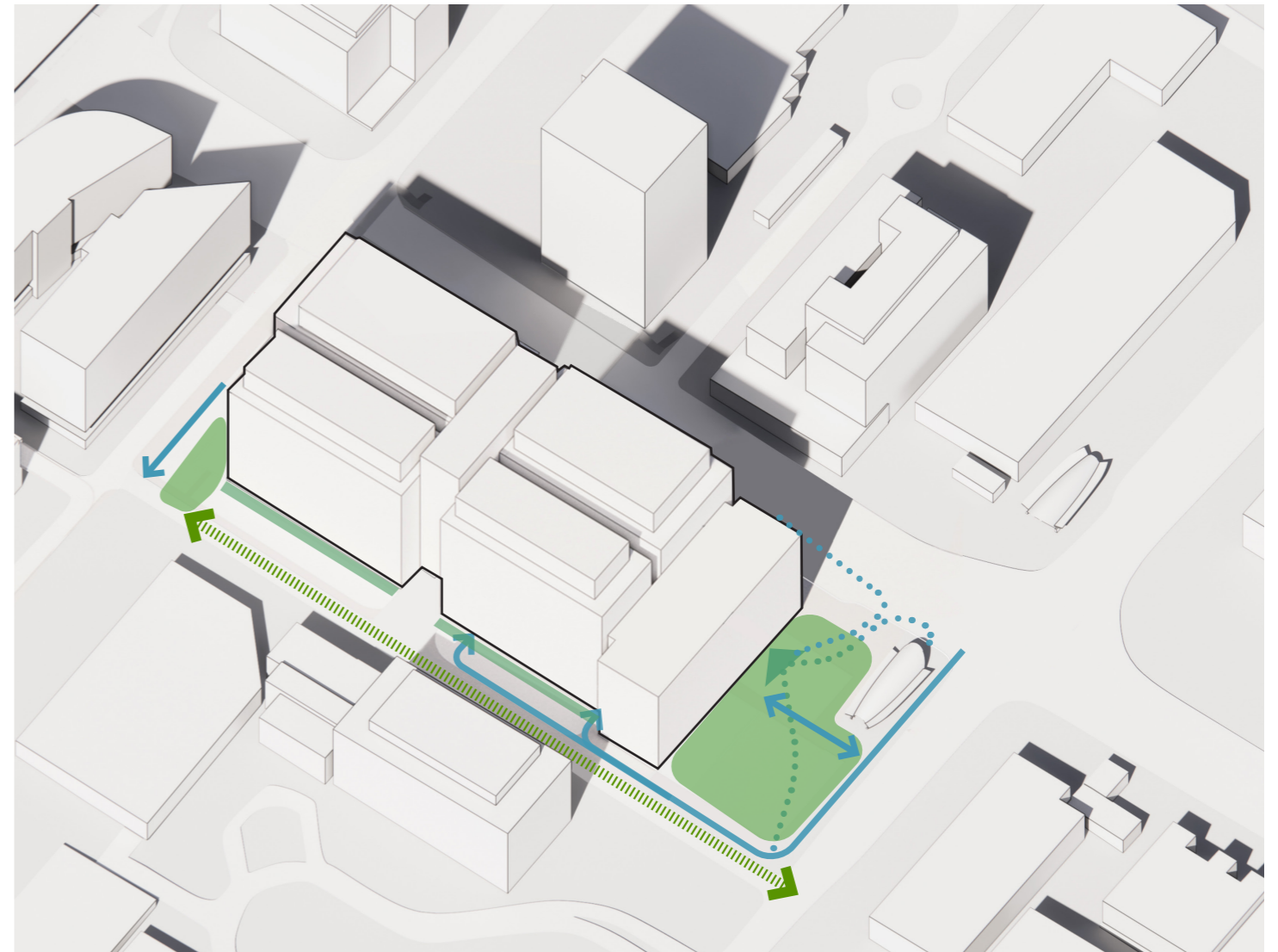
3.8. Site Traffic and Active Frontage




Vehicle access & Inter-building connection



-  Vehicle Access
-  Parking area/Loading dock
-  Entry/Exit - Staff and Customer Car Park
-  Entry/Exit Service Vehicle/Truck

Urban connection & Pedestrian access

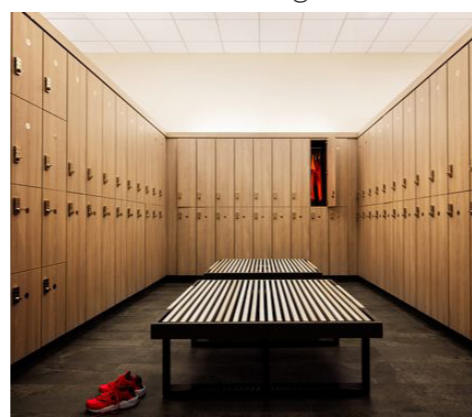
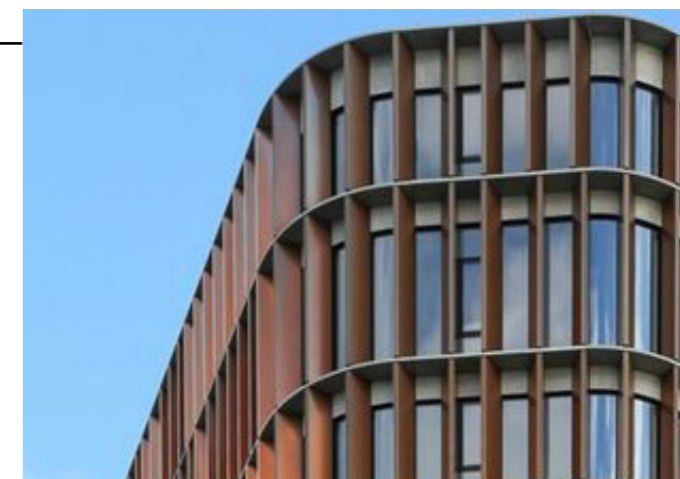
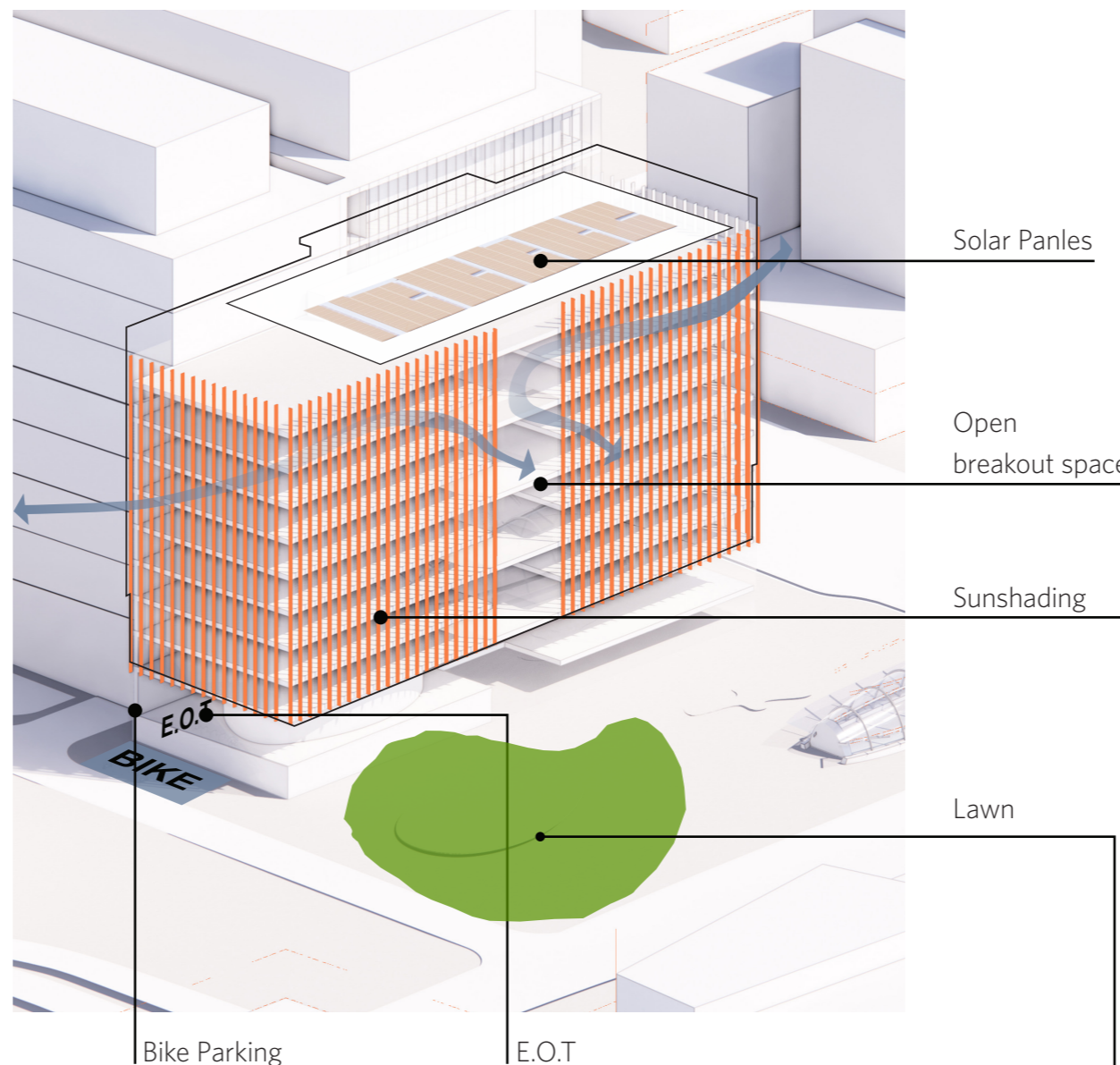


-  Civic Plaza & Pocket Parks
-  New DCP Roads through Site
-  Pedestrian Access

03_ Site Design Response

3.9. Sustainability Initiatives

- Provision of convenient bike parking, and an end-of-trip facility and vehicle EV charging bays, transform the data and innovation centre into an eco-conscious building.
- A breathable facade, and sunshading at strategic locations optimize energy efficiency.
- Lush terrace gardens and biophilic design within the facility contribute to urban greenery and biodiversity.
- A lively civic plaza links retail areas and public transport, such as the metro station and integrated sheltered bus stops fostering social interaction and community engagement.
- In this vibrant ecosystem, sustainability seamlessly merges with community needs.



03_ Site Design Response

3.10. Design with Country

Wallumattagal Country

For over sixty years, Macquarie Park has evolved into a highly valuable centre of Sydney and Australia's economy. For millennia prior, Wallumattagal Country was a significant place of higher learning, river systems and trade. Central to all aspects of life and culture was the waterways and continuum of knowledges within the eel Songline.

The future of Macquarie Park is where these two histories meet, where opportunities to reconnect strongly to pre-colonial history as a place of trade, exchange and learning, meet a future of business, knowledge and innovation.

The Macquarie Park Innovation Precinct Place Strategy has involved extensive community consultation. The engagement process has prioritised Wallumattagal Custodians first who have lived in and been caretakers in the Macquarie Park and North Ryde area for generations, and emanating out to Custodians from the broader Dharug Ngurra.

Seven new neighbourhoods have been proposed for the precinct masterplan masterplan. These are defined by natural elements, geographical boundaries and named to reflect the area's deep-time history and a connection to the songlines, stories and traditional knowledge of the Wallumatta.

-Macquarie Park, Innovation Precinct Place Strategy

Gari Nawi (Salt Water Canoe)

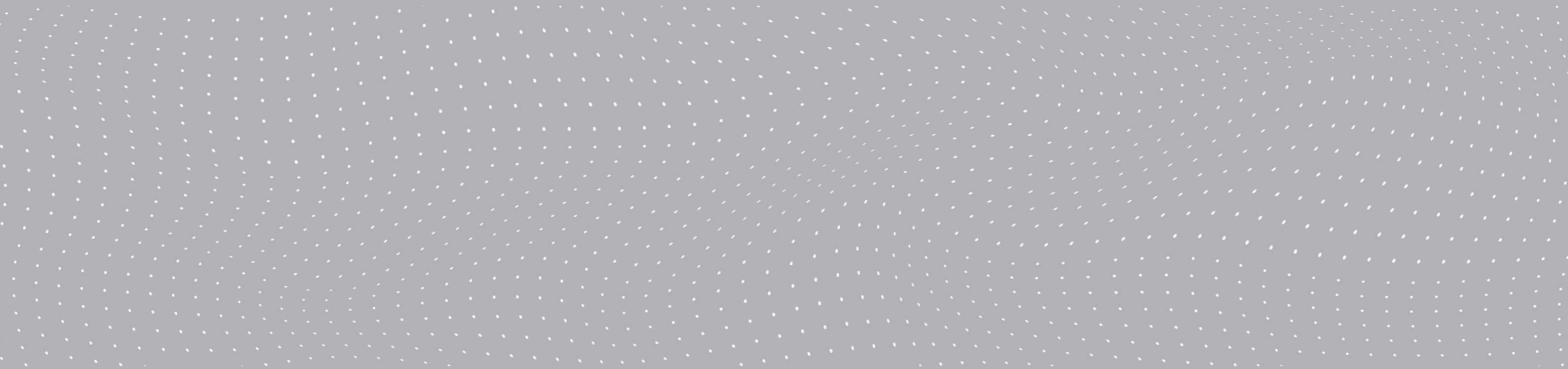
S5 Innovation Precinct sits at the heart of Gari Nawi. As a data and innovation centre it functions as a store of memory, learning and connection but it also provides a space for cultural memory. Within the landscape and plaza, scribed into the base of the facility and into the interior, opportunities will be made to make and record connections to, and memories of, Gari Nawi, the Eel Songlines, Wallumai and other dreaming of Dharug Ngurra such as the Seven Sisters constellation, a universal and transcontinental story which has informed the seven neighbourhoods of the Macquarie Place Strategy.



NEXTDC Data Centre - Sydney

Yukupin (Toby Bishop) (b. 1996) is a Kungarakan (NT) artist and designer who grew up on the South Coast of New South Wales, where he now resides.





04_ Built Form and Design Strategies

4.1. Design Statement

The proposed Data Centre facility, epitomizes a paradigm shift in data centre architectural design, where built form and design strategies converge to create a cohesive and innovative urban infrastructure. At its core, the project's built form is characterized by two data hall blocks, meticulously designed to optimize space utilization and operational efficiency, with a dynamic office component strategically located to the NE to address, to activate, the new public plaza.

DATA HALLS

Rising to a maximum height of 65 metres, the structures house strategically segmented 14 data halls, on several floors. This vertical stratification not only enhances spatial efficiency but also ensures a logical flow of operations, facilitating ease of access and maintenance while enhancing scalability.

OFFICE BUILDING & INNOVATION CENTRE

Integral to the design narrative is the integration of a high-rise building tower within Stage 1 of the project, serving as a multifunctional hub for corporate operations and community engagement. Each floor is thoughtfully curated to accommodate diverse functions, ranging from Main Entry Foyers and security amenities to auditoriums, meeting rooms, and office spaces. The incorporation of retail outlets at the ground floor Front of House area further enriches the project's contextual relevance, fostering a dynamic interplay between private secured and public civic zones.

Moreover, the project's design strategies extend beyond mere functionality, embracing principles of sustainability and environmental stewardship. Pockets of gardens at upper floor terraces, coupled with pedestrian-friendly infrastructure like tree covered walkways, play spaces and tiered seating arrangements, underscore the project's commitment to green urbanism and vibrant communal spaces conducive to social interaction.

In conclusion, the proposed Data Centre facility, S5, represents a fusion of architectural innovation, technological sophistication, and environmental consciousness. By prioritizing principles of built form and design strategies rooted in functionality, sustainability, and community engagement, the project emerges as a beacon of excellence in the realm of digital infrastructure, poised to redefine the urban landscape for generations to come.

The innovation centre is a critical component of the overall site design response, and in conjunction with the public plaza represents the primary public face of the development.

The design response for this innovation centre has been driven by two anchoring conceptual themes. Connection and Performance.



04_ Built Form and Design Strategies

4.1. Design Statement

Connection

The idea of connection stems from the fundamental purpose of a data centre and its essential role in empowering information exchange and the connection of people and ideas from all over the world.

Throughout the design, this idea of connection emerges in a multiplicity of ways at an urban scale, it is embedded in the new through site linkages and the increased generosity of the bounding public domain

At a civic scale, it is embedded in the new public plaza that has been designed as a space for community – a space that is designed to draw people in and provide them with amenity and respite, a place to enjoy and linger and connect.

At scale of the building, this ideal is revealed firstly through the lightweight and transparent base. A base that provides retail amenity and activation, and that is intentionally designed to connect the public with the technology showcase on display inside.

And then within the building, the central winter-garden and vertically stacked atriums provide a place to bring building users together. Visual connection between levels, connection between top and bottom, connection between inside and outside

Performance

The second theme explored is one of performative architecture, again inspired by the nature of a data hall as a high performance, precise, efficient machine.

Here it begins to reveal itself in the architectural aesthetic - precise, engineered, high performance – with the simplicity in building form, high efficiency in layout and precision in detailing.

It also manifests in the idea of a performative architecture, shaped by environmental considerations of shading, daylight, internal amenity, energy efficiency and carbon efficiency.



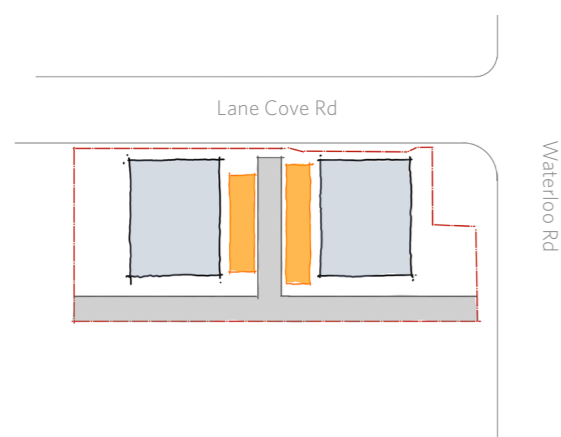
Glazed facade - Designed as a striking amalgamation of modernity and functional efficiency, characterized by dynamic architectural elements that not only enhance the building's aesthetic appeal but also optimize natural light penetration and thermal performance.



04_ Built Form and Design Strategies

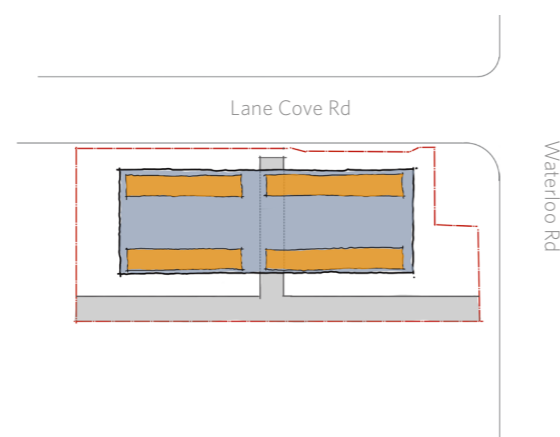
4.2. Some Of The Design Options Explored Throughout The Process

Option 1



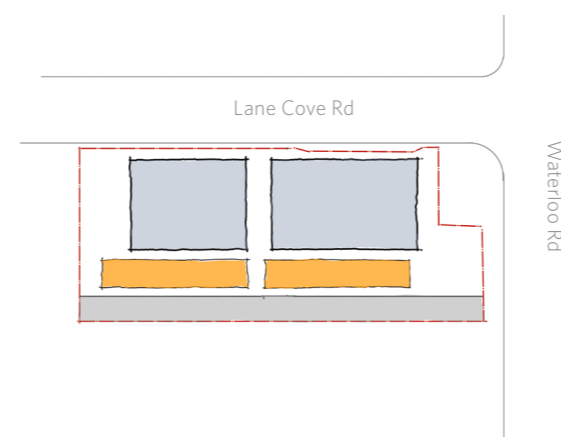
- Two data hall buildings proposed separated by DCP Road 5
- 3 floors of of containerised generators on external structural steel frame either side of DCP Road 5.
- Electrical plant rooms and data halls orientated in opposite directions
- Total of 66 generators
- Office divided into four separate zones

Option 2



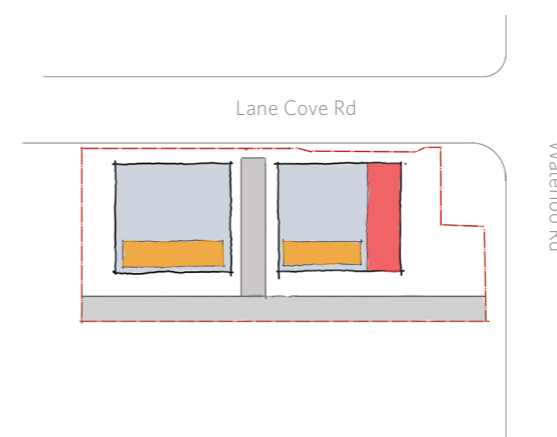
- Concept of housing all generators on the roof plant arranged in 2 lines of 16 generators for each data hall tower. Containerised chillers and cooling towers centrally located.
- Roof area required to accommodate roof plant larger than the data hall tower floor plates
- Roof plant floor required to span DCP Road 5
- No allowance has been made for core(s), stairs etc.

Option 3



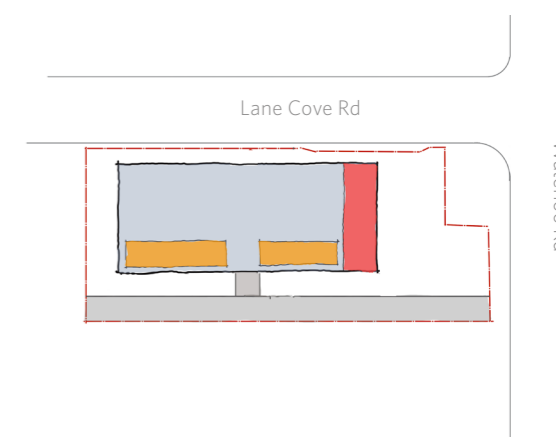
- 2 lines of 15 generators per data hall tower roof plant
- Containerised chiller plant and cooling towers centrally located on roof plant enclosure
- Roof plant area required larger than the typical data floor area
- No allowance for building core

Option 4



- Office tower located to address the civic plaza and Lane Cove Road & Waterloo Road intersection. Providing district views over Lane Cove National Park with a north-east orientation.
- Generators and electrical plant rooms internalised on data hall floor levels. Located away from Lane Cove Road elevation addressing DCP Road 13.

Option 5



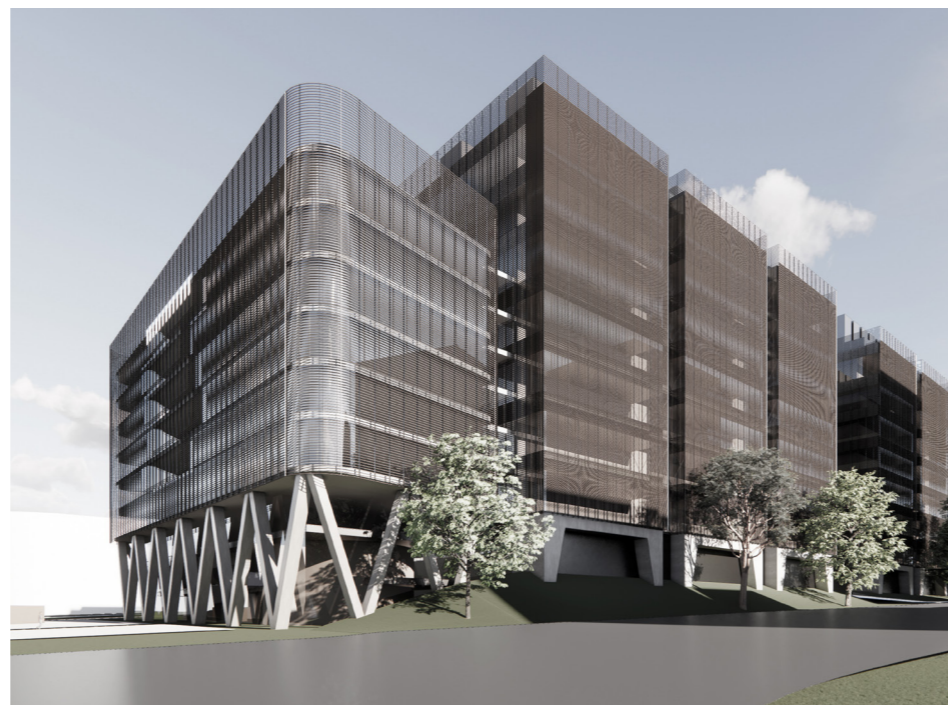
- Combined buildings to offer a more generous public plaza at the front.
- Civic Plaza and DCP Road 13 incorporated into concept design.
- Generous green space provided to complement the existing landscape.
- Provision for the Road 6 and future sharepath bridgelink connection to south provided.
- Glazed facade customer corridors located to address Lane Cove Road to activate facade.
- Retail tenancies incorporated into Ground Floor Office tower to activate the public plaza.

04_ Built Form and Design Strategies

4.2. Some Of The Design Options Explored Throughout The Process



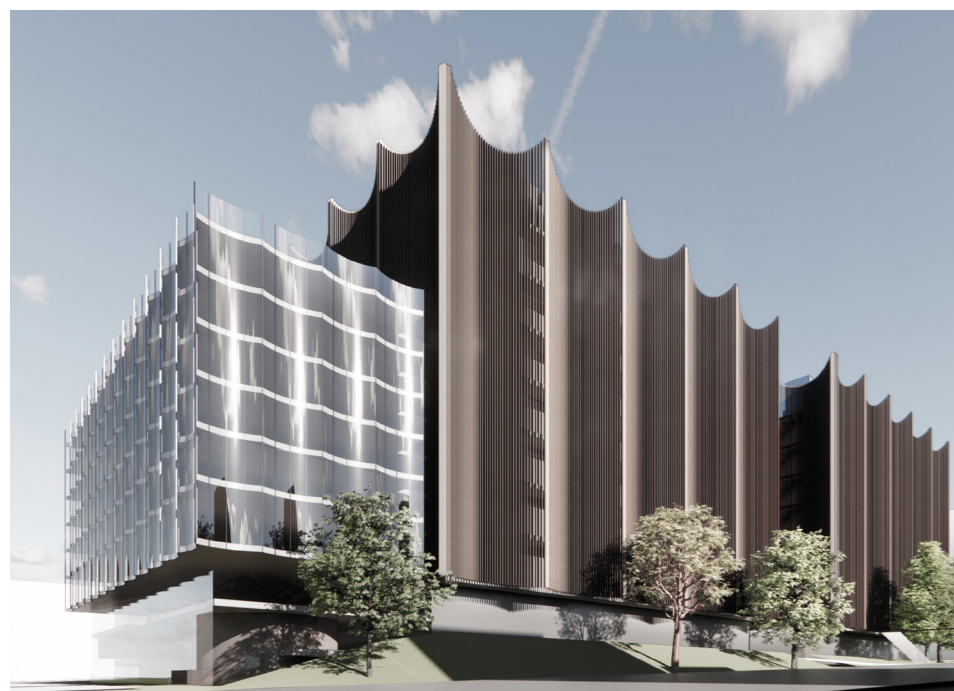
Feasibility Study



Concept Design Option 1



Concept Design Option 2



Concept Design Option 3



Concept Design Option 4

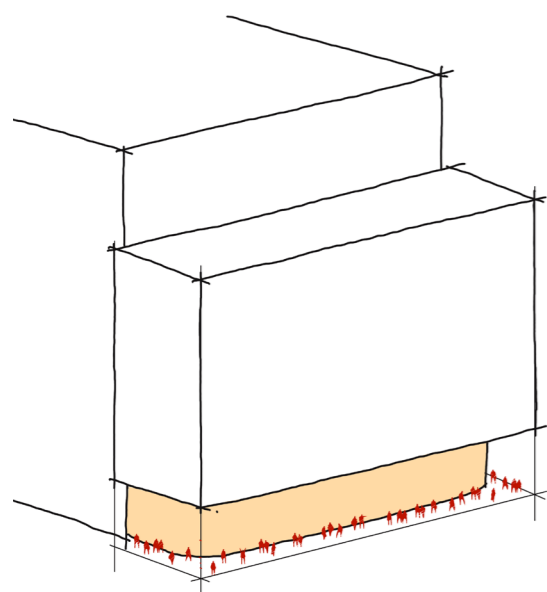


Concept Design - Option 5, Current Design

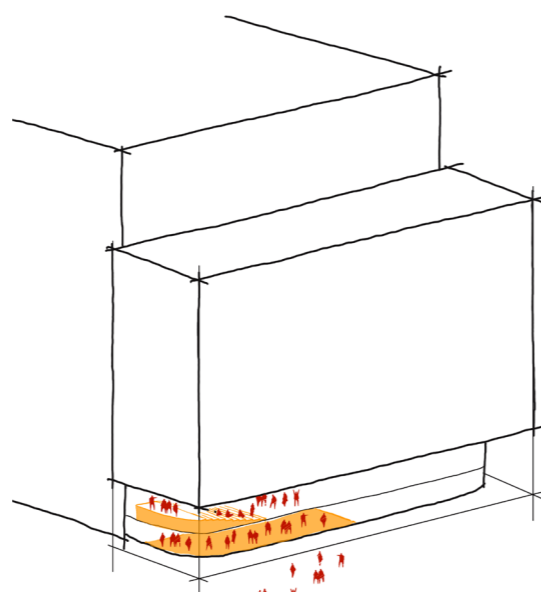
04_ Built Form and Design Strategies

4.3. Key Design Drivers - Office Building

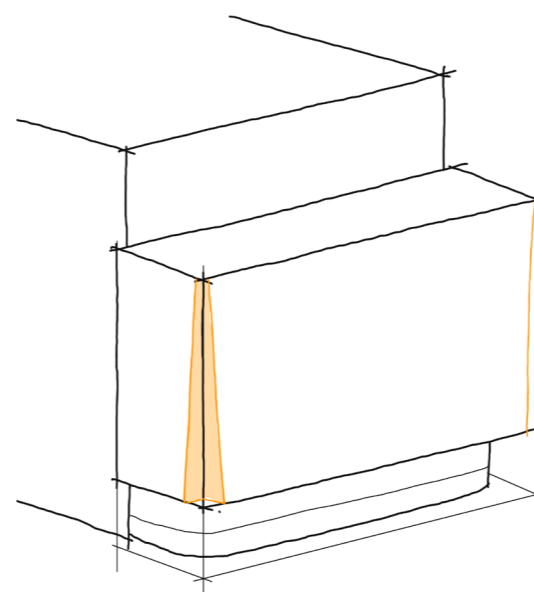
Expressed Base



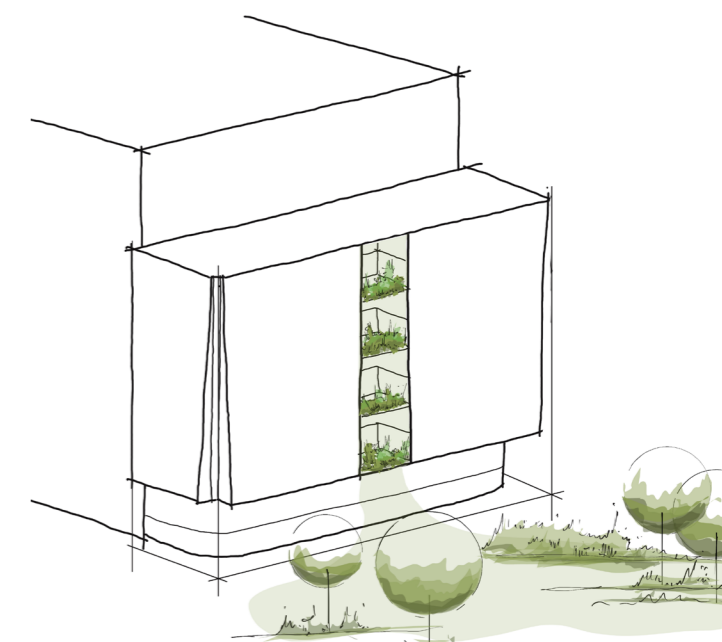
Activated Ground Plane



The Corners



Central Gardens



The lower two floors of the building are clearly separated from the building above, and are expressed as a transparent and recessive glazed base. This transparent base provides for strong visual connections with the bounding public Plaza, whilst also helping to break down and reduce the perceived scale of the office building.

The transparency of the building base allows for a high degree of activation and animation, and for visual connections between users of the building and users of the plaza.

Accessible retail space at ground level and a visible auditorium at level 01 each contribute to that connection between inside and outside and allow for an engaging user experience.

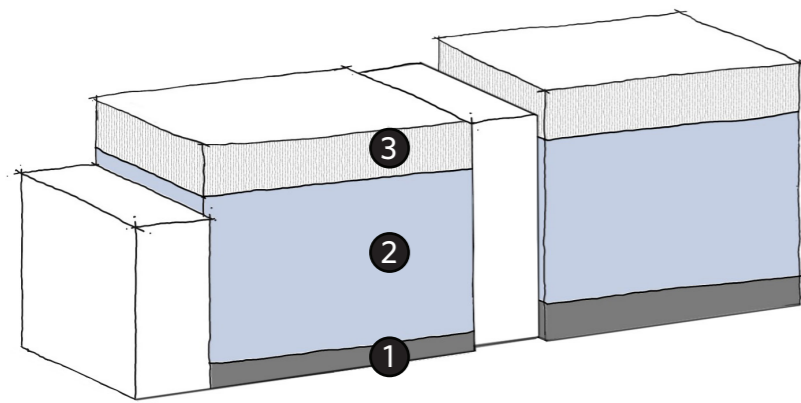
The two leading corners of the building have chamfered and articulated with a recessive slot, adding visual interest and allowing the building to better engage outwards with the adjoining public realm and street in all directions

The overall mass of the building has been further broken down through the introduction of a series of double height and centrally located stacked atriums. These garden terraces soften the presentation of the building from the outside, whilst for the building users they allow zones of amenity, respite, outlook and social connection.

04_ Built Form and Design Strategies

4.4. Key Design Drivers - Data Halls

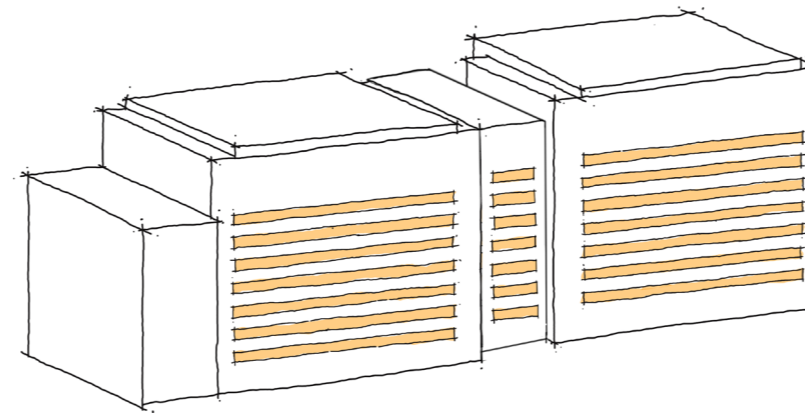
Facade break down



Building mass has been divided in three horizontal sections to break down the facade height and massing. Each facade material/element reflects a particular internal programme:

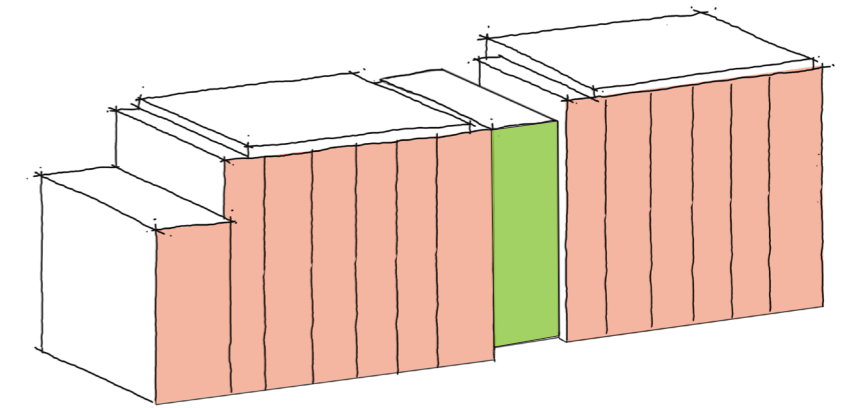
1. Parking/Loading dock/Plant Rooms
2. Data Halls
3. Roof enclosure plant area

Activated facade and recessive top



Corridors have been brought to facade surface of the data hall central facade element to animate the facade at night time, break down the building mass and offer a more transparent facade to building environment

A finer grained vertical articulation



The overall mass of the data hall towers have been further broken down with the introduction of a finer grained recessed vertical expression, aligned to the buildings structural grid to the primary side elevations.

The vertical gardens further help to break up the building mass and add a softer, human centric expression.

04_ Built Form and Design Strategies

4.5. Civic Plaza - Design Principles

BUFFER THE EDGE



Landform and Vegetation

Waterloo Road Masterplan

- Linear Park
- Sydney Green Grid
- Urban Forest

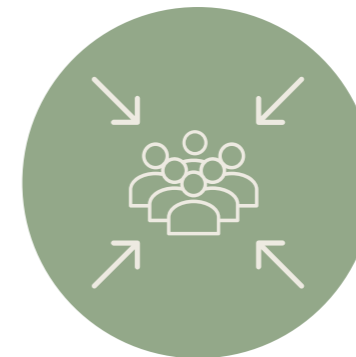
OLD WAYS NEW



Reimagining the Hardscape

- Seamless public domain
- Robust and durable materials
- High-quality Cyclist interfacing
- Lighting and signage

A PEOPLE PLACE



Placemaking, activation and community

- Prioritising pedestrian amenity
- Visual interest through public art
- Improve amenity and safety
- Equitable access

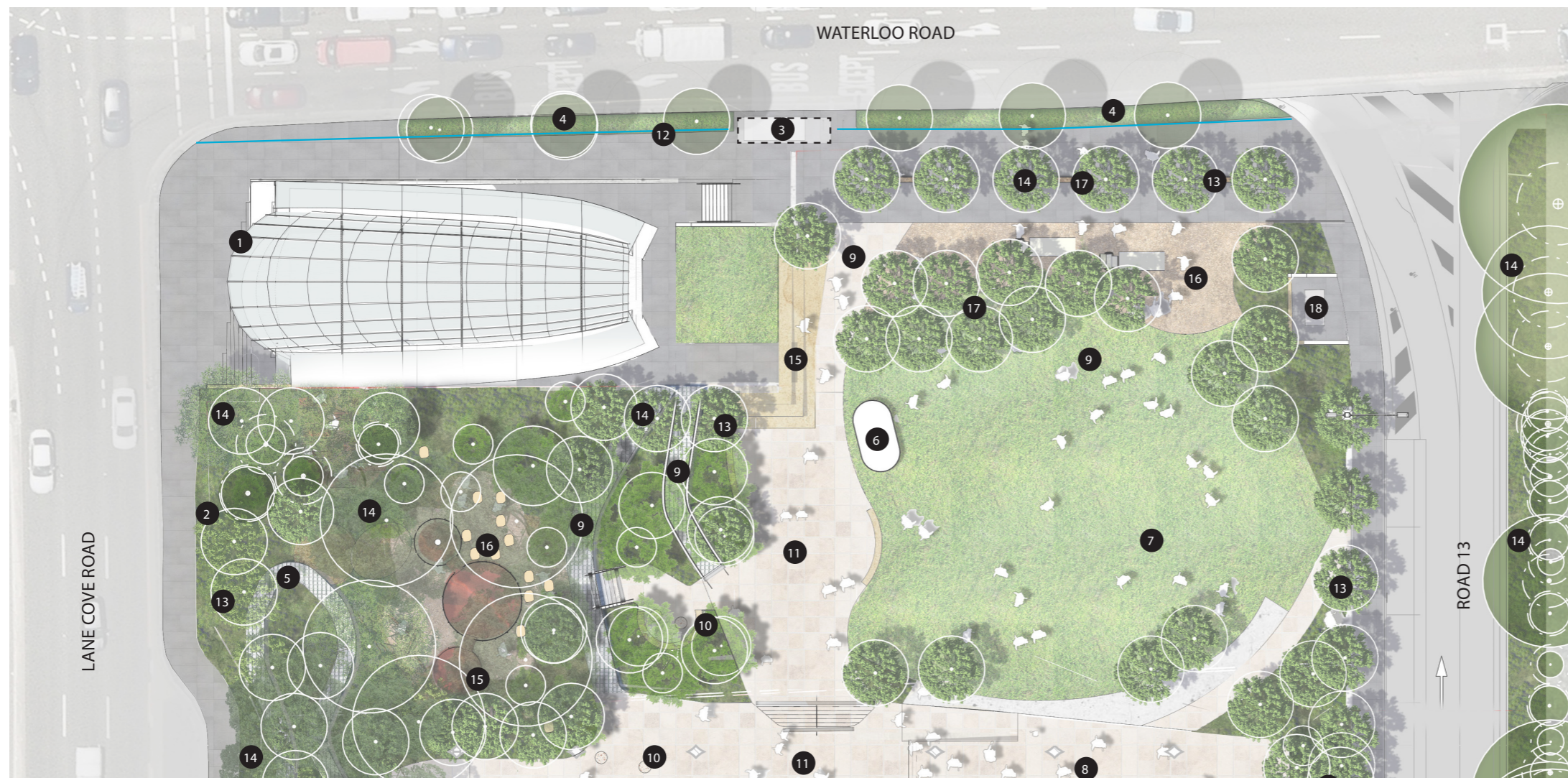
- 1 EXISTING METRO WEST STATION ENTRY
- 2 REINSTATED PLANTING TO LANE COVE RD
- 3 COUNCIL APPROVED BUS STOP SHELTER WITH ADVERTISING
- 4 WATERLOO ROAD VERGE PLANTING AND STREET TREES

- 5 ACCESSIBLE EGRESS FROM LANE COVE ROAD TO THE PLAZA
- 6 CAFE KIOSK
- 7 OPEN TURF SPACE
- 8 RETAIL AND CAFE SPILLOUT

- 9 WHEELCHAIR ACCESSIBLE RAMP LEADING TO STATION ENTRY
- 10 OUTDOOR MEETING ROOMS AND GATHERING SPACES WITH FIXED FURNITURE
- 11 OPEN PROGRAMMABLE PUBLIC PLAZA SPACE
- 12 SHARED PATH LINE MARKING AS PER WATERLOO RD MASTERPLAN

- 13 PROPOSED FEATURED TREES
- 14 NATIVE PLANTING PALETTES TO SITE PERIMETERS AND PLAZA SPACES
- 15 TERRACE SEATING

- 16 FLEXIBLE PLAY
- 17 NATIVE TREE GRID WITH FIXED PUBLIC AMENITY
- 18 RELOCATED SERVICE KIOSK



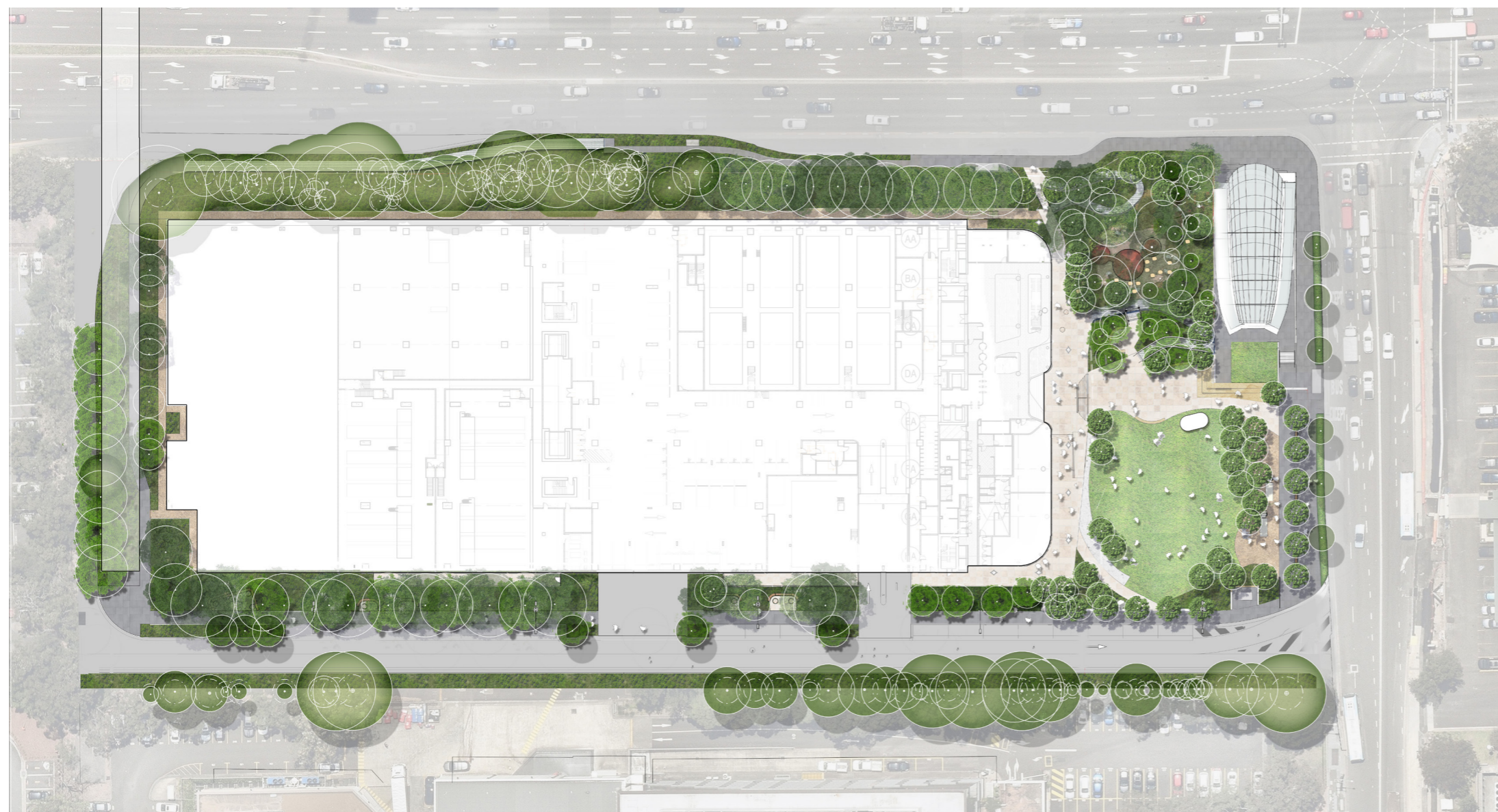
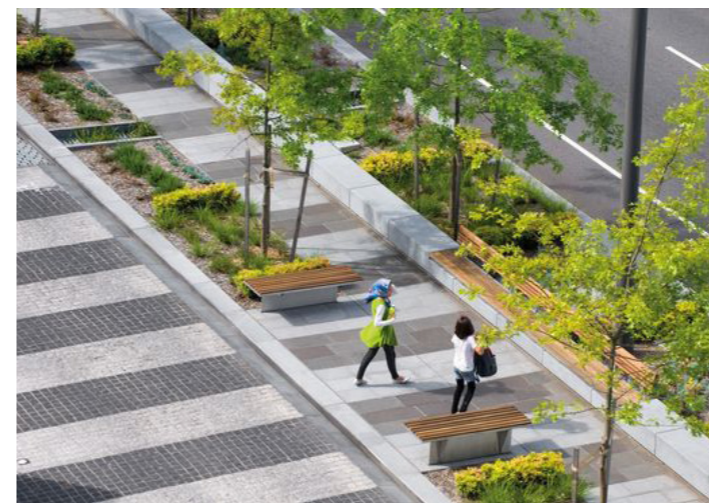
A vibrant local plaza for urban dwellers offering a welcoming civic experience that accommodates local needs, celebrates culture, inclusivity, and practical amenity.



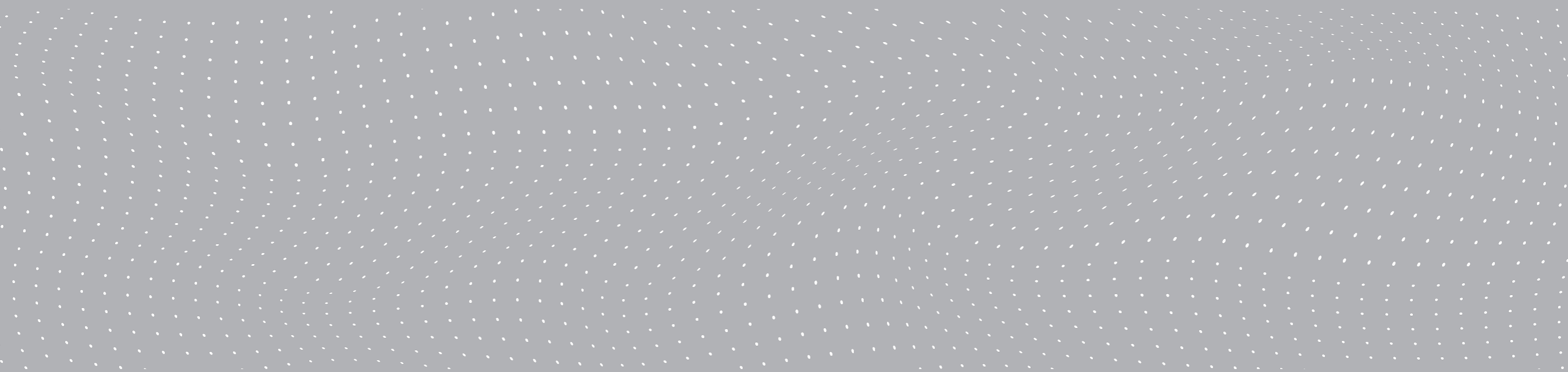
04_ Built Form and Design Strategies

4.3. Landscape

The landscape design seamlessly blends green spaces with practicality, emphasizing the importance of S5 Innovation Precinct public civic areas. Utilizing natural elements, such as terrace gardens at upper floors and selective flora, serves a dual purpose: not only do they contribute to energy efficiency and minimize environmental footprint, but they also elevate the quality of communal spaces. Thoughtful placement of greenery also creates visual screens, enhancing air purity and fostering biodiversity within the community's shared areas.



05_ Facade Design and Materiality



05_ Facade Design and Materiality

5.1. Office Building Facade

Preferred Concept Design

High-tech Architecture suits the mechanic nature of a data center precisely. Therefore the design outcome follows the aesthetic of high-tech architecture, with the simplicity in building form, high efficiency in layout and precision in detailing.

Diagrammatically the office component, as the main civic presence of this project, is interpreted as a floating box on a series of expressed "Y" columns, with splitted corners to address the street corners.

Through the information exchange and virtual network, data centres connect people from all over the world together. The architectural design also encourages connectivity in various levels. The transparent groundplane under the soffit encourages visual engagement with the plaza, and the shopfronts physically connect the building with the public.

The proposed skygardens on the facade can be seen as an vertical extension of the plaza, also it enables social interaction by creating a breakout space where all the tenants can share and enjoy.

View From Road 13



05_ Facade Design and Materiality

5.1. Office Building Facade

View From Waterloo Rd



Vertical Battens
Color: Dark Grey



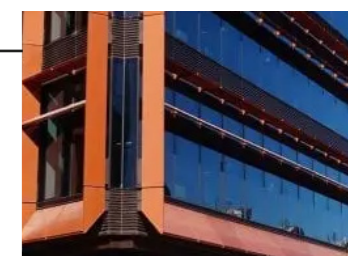
Vertical Louvers
Color: Dark Grey



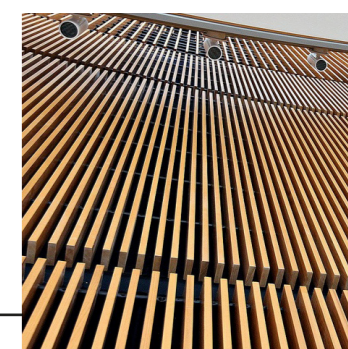
Double Glazed Facade
Color: Grey



Powder Coated Aluminium Panels
Color: Red



Timber-look Aluminium
Extrusion and soffit lining



05_ Facade Design and Materiality

5.1. Office Building Facade

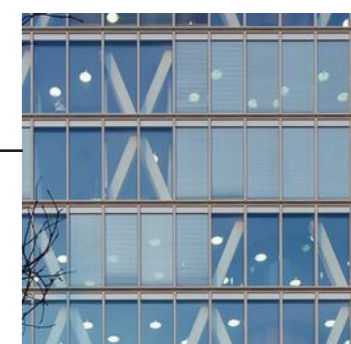
View From Waterloo Rd



Timber-look Aluminium Extrusion Cladding & Soffit



Vertical Louver Blades
Color: Dark Grey



Aluminium spandrel panel
Color: Dark Grey



Glass, Color: Grey

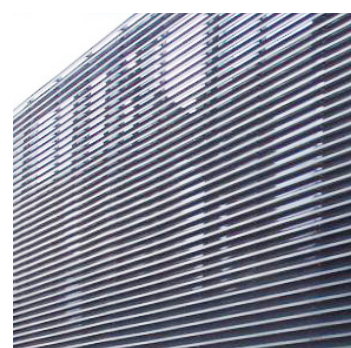
05_ Facade Design and Materiality

5.2. Data Hall Building Facade

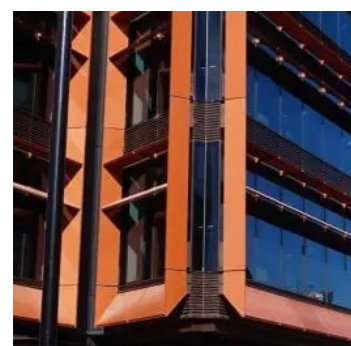
View From Lane Cove Rd



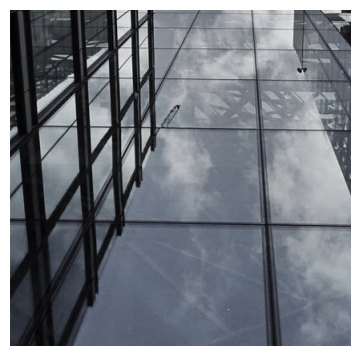
Vertical Battons, Color: Dark Grey



Metal Louvre, Color: Grey



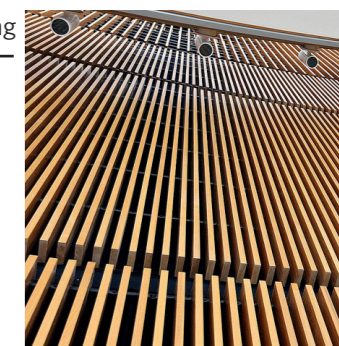
Metal Cladding, Color: Red
Soffit and Wall Cladding



Glass, Color: Grey



Metal Cladding
Color: Dark Grey



Timber-look cladding

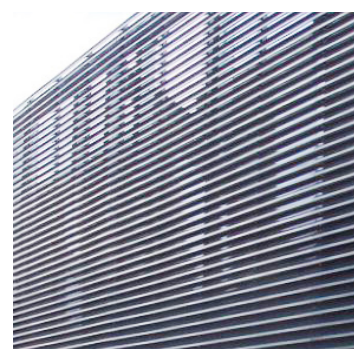


Light Grey Panels

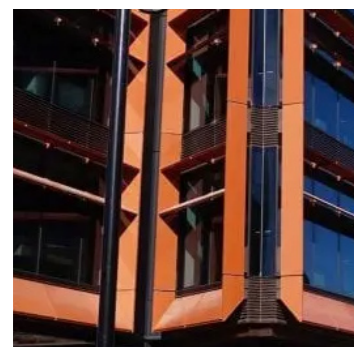
05_ Facade Design and Materiality

5.2. Data Hall Building Facade

View From Road 13



Metal Louvre
Color: Medium Grey



Metal Cladding, Color: Red
Soffit and Wall Cladding



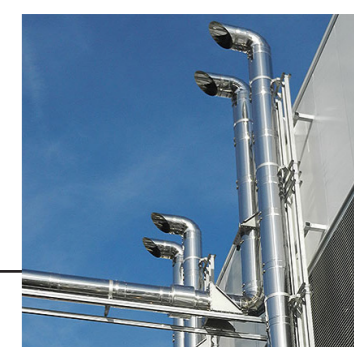
Light Grey Panels



Metal Cladding
Color: Dark Grey

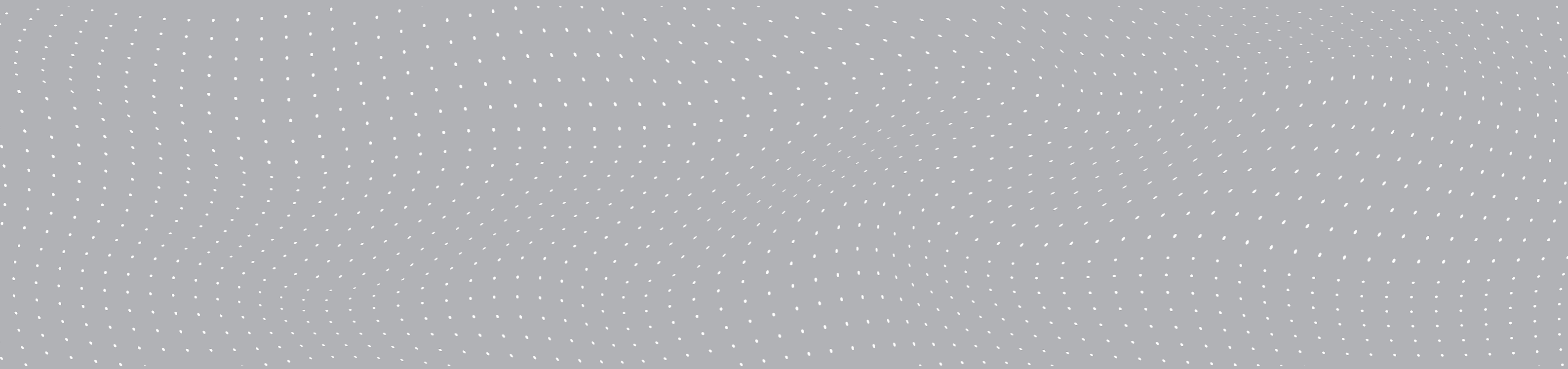


Generators Flue



Light Grey Panels





06_ Environmental Responses

6.1 Initiatives and sustainability

Greenhouse Gas Emissions and Energy

With up to 40% of global Greenhouse Gas Emissions attributed to buildings, increasing building energy performance is a critical step in addressing the growing issues of sustainability and climate change. It is also an important step in future-proofing a development for the energy grid that is increasingly relying on renewable energy.

The NSW State government has a target Net zero emissions by 2050 with a 50% reduction in emissions by 2030.

For S5 Innovation Precinct, we are aiming for operational energy use reduction through the following:

- Aiming for NABERS 5.5 Star Energy from the site’s operation.
- Passive design – limiting glazing extent with spandrel glazing, strategically placed sun shading devices on the exterior of the building to control sunlight exposure, well-insulated and sealed wall construction to minimise heat transmission
- Efficient building systems including LED lighting with smart controls
- Selection of energy efficient equipment, focusing on low-GWP refrigerant
- Selection of low embodied carbon materials.
- Reduce energy consumption by allowing automatic dimming or brightening of lights based on the amount of natural light in a room, and triggered by people entering an area.
- Low ‘E’ insulated doubled glazed curtain wall panels

Water Consumption

Potable water use reduction through the following:

- Efficient fixtures and fittings for toilets and sanitary appliances
- Water Tanks for condensate water recycling, generated by the data centre’s cooling systems.
- Rainwater harvesting and reuse for irrigation and toilet flushing.



06_ Environmental Responses

6.1 Initiatives and sustainability

Landscape

The project utilises the following design responses:

- Emphasis on maximizing deep soil areas for green spaces and landscaping
- Drip irrigation system for the landscaping to efficiently water plants and reduce water wastage
- Massed planting to the north west corner and west frontage
- Smart irrigation technology to monitor soil moisture levels and optimize watering schedules
- Utilising native, drought-tolerant plants
- Strategically placed trees around the data centre to provide natural shade

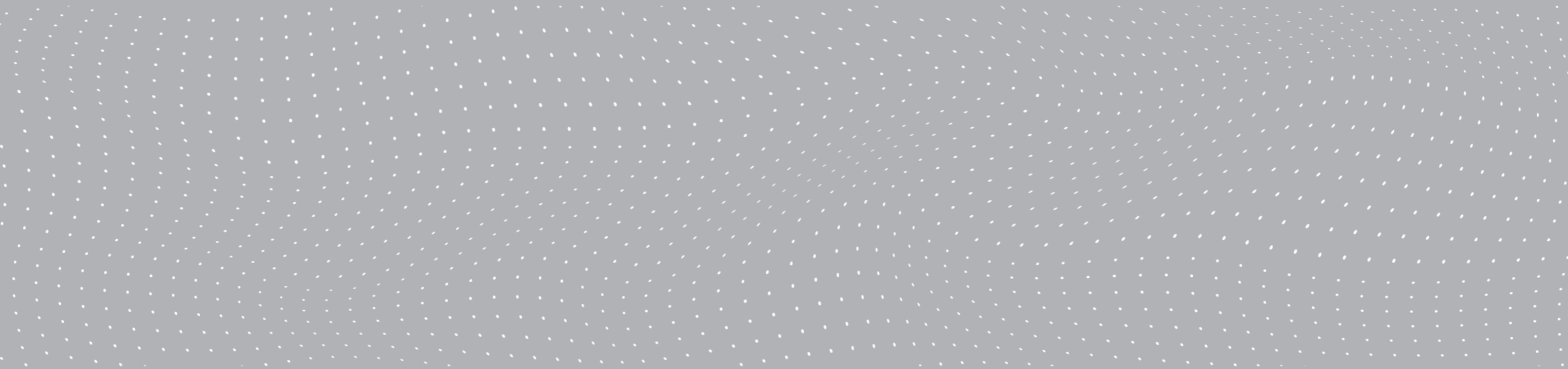


Supporting health and wellbeing

The following helps the site's users to maintain physical and mental wellbeing:

- Low or ultra-low VOC/formaldehyde finishes
- Windows that give access to daylight and views of landscaped areas
- Rooftop facilities including seating area to allow social connection
- End of Trip facilities including bicycle parking to facilitate fossil-fuel free transport to and from the site.





07_ Design Repsonse to GANSW

7.1. Better Placed



1. Better Fit: Contextual, local and of its place

The S5 Data Centre project exemplifies the “Better Fit” ethos of the Better Placed guidelines by integrating seamlessly into the Macquarie Park commercial zone. It is designed to align with the area’s urban fabric while addressing the needs of its diverse community, fostering a transition into an innovation district, grounded in businesses, research, and development.

1. **Respect for Surroundings and Enhanced Connectivity**
The development respects its surroundings, harmonizing with the existing urban context. Situated in close proximity to the S1 and S2 data centers, the S5 facility strengthens the area’s role as a hub for technological infrastructure while enhancing community connectivity. Thoughtful design elements, such as the generous usage of commercial glazed facade to activate the buildingblocks, ensure smooth integration with the surrounding commercial, educational, and residential precincts.
2. **Active Ground Floor Engagement**
By including retail spaces on the ground floor, the data center fosters active engagement with the adjacent civic plaza. This feature contributes to the council’s goal of creating vibrant and accessible public spaces, supporting community interaction and economic activity in alignment with Macquarie Council’s development objectives. The 24/7 nature of the building will ensure activation at all hours and during the entire week.
3. **Welcoming Public Spaces**
The design incorporates covered walkways, tiered seating, and thoughtfully landscaped gardens that create a well-lit and welcoming environment. The majority of the public space is located at street level to entice easy access and to create visual connectivity, to entice the community to utilise the public plaza. These spaces are not only functional but also promote social interaction and community engagement, reflecting the essence of the precinct while catering to local needs.
4. **Commitment to Sustainability and Resilience**
The S5 Data Centre underscores a commitment to a sustainable, responsive, and resilient built environment. The design integrates environmentally conscious practices, including advanced water and energy management systems, contributing to Macquarie Park’s transition into a sustainable urban precinct.
5. **Appropriate Scale at Key Junctions**
The scale of the development is carefully calibrated to its location at a major traffic junction, supporting and addressing the surrounding urban infrastructure without overwhelming the neighboring buildings. This thoughtful approach supports both the functionality and aesthetics of the precinct.
6. **Supporting Innovation and Growth**
The S5 Data Centre is designed to meet the growing demand for robust data infrastructure, particularly in light of the projected needs of the local university and research precinct. As metadata research becomes increasingly prominent and university networks face capacity challenges, S5 will provide critical support. It will help strengthen the innovation precinct by offering opportunities for university collaboration and enhancing local data networks.
7. **Addressing Community Needs**
In response to feedback from the Department of Planning and the local community, the project supports a mix of commercial, educational, and residential developments in the area. It addresses concerns regarding residential densification and its potential impact on the success of the innovation precinct growth by prioritizing infrastructure that bolsters Macquarie Park’s position as a leading hub for innovation and collaboration



2. Better Performance: Sustainable, adaptable and durable

The S5 Data Centre project fully aligns with the Better Placed policy’s “Better Performance” objective by prioritizing sustainability, adaptability, and durability in its design and operation. These principles ensure long-term functionality, environmental responsibility, and resilience in a rapidly evolving technological landscape.

1. **Sustainability at the Core**
The project incorporates advanced energy-efficient systems, including smart energy management, optimized cooling solutions, and renewable energy integration where feasible. These measures significantly reduce operational costs and the facility’s carbon footprint, contributing to Macquarie Park’s broader sustainability goals.

Water-saving technologies and waste management systems have been integrated to further minimize the environmental impact, promoting responsible resource use.
2. **Future-Proof Adaptability**
Designed with adaptability in mind, the facility’s infrastructure can seamlessly evolve to accommodate technological advancements. It supports a progression from basic air-cooled servers to liquid-cooling systems, and even cutting-edge submersible technologies, all without necessitating substantial architectural changes.

Flexible interior layouts and modular systems ensure the facility remains relevant and efficient as industry demands shift, reinforcing its position as a future-ready asset.
3. **Enhanced Durability and Longevity**
The choice of materials and construction techniques ensures a robust, low-maintenance structure capable of withstanding wear and tear over time. This reduces the need for frequent upgrades or replacements, making the building both cost-effective and environmentally responsible.

The design considers climate resilience, incorporating design strategies to mitigate the impacts of extreme weather, ensuring uninterrupted operations and low carbon cost for the ongoing maintenance of the building.
4. **Community-Centric Performance**
The project transcends its functional purpose by enhancing the broader community and local context. Through sustainable and adaptable design, it supports the Macquarie Park area’s ambition to balance technological growth with environmental and social responsibility.

By offering the opportunity for collaboration with local stakeholders, including educational and research institutions, the S5 encourages knowledge sharing and innovation within the precinct.
5. **Integrated Longevity**
By providing a resilient, flexible and adaptable, state of the art building, the S5 Data Centre contributes to a resilient, integrated, and equitable built environment, beyond meeting immediate functional requirements

The project’s emphasis on adaptability ensures it remains an asset to the region, addressing current demands while being prepared for future challenges and opportunities with only minimal adjustments.

07_ Design Repsonse to GANSW

7.1. Better Placed



3. Better for community: inclusive, connected and diverse

The S5 Data Centre goes beyond addressing technological needs by fostering community integration and diversity. It aligns with the Better Placed policy's objectives for good design, emphasizing inclusivity, connectivity, and the creation of shared spaces that enhance social and cultural interaction.

1. Fostering Inclusivity through Civic Design

The project enhances the civic plaza by integrating retail spaces and seamless connections to public transport, creating a hub of activity that is accessible to everyone.

Landscape elements, such as shaded walkways, tiered seating, and thoughtfully designed greenery, provide inviting spaces for people to gather, interact, and feel a sense of belonging within the public realm.

Universal accessibility features ensure that individuals of all abilities can fully engage with the site, reinforcing its commitment to inclusivity.

2. A Connected Community Hub

By creating clear connections to the transport networks and integrating pedestrian pathways, the S5 Data Centre acts as a hub for increased local engagement.

By emphasizing connectivity, diversity, and engagement, the project contributes to a more inclusive and resilient community, setting a benchmark for connected development.

The design encourages permeability of the public realm, and allows the building to function as both a high-tech facility and a welcoming public space. The building distinctive siting will enable it to function as a beacon for this new community hub

3. Round-the-Clock Public Activation

The project's 24/7 operational nature promotes continuous activation of the surrounding public domain. This constant activity enhances safety and visibility, encouraging greater utilization of the area both during the day and at night.

The integration of community-oriented spaces, such as retail and outdoor play and work zones, ensures that the site remains vibrant and active, supporting the surrounding neighborhood's social and economic vitality.

4. Diversity and Cultural Expression

The potential inclusion of spaces for community events, public art installations, and cultural programming in the proposed plaza ensures that the S5 Data Centre reflects the diversity of its local context.

Planned future collaboration opportunities with local artists and cultural organizations further enrich the site's identity, celebrating the uniqueness of Macquarie Park and its people.

5. Sustainability in Community Spaces

The civic plaza incorporates environmentally conscious design elements, such as permeable ground surfaces and native plantings, enhancing both usability and ecological balance. These sustainable practices reinforce the project's long-term community benefits



4. Better for People: Safe, comfortable and livable

The S5 Data Centre prioritizes the well-being of all individuals who interact with its spaces, ensuring a design that is safe, comfortable, and livable. By integrating thoughtful urban design principles with community-oriented features, the project aligns with the Better Placed policy's objectives to create environments that enhance quality of life.

1. Prioritizing Safety through Design

The activation of the civic plaza, combined with 24/7 operational activity, promotes a heightened sense of security. Adequate lighting, clear sightlines, and well-planned landscaping ensure a safe environment for both workers and visitors.

The design incorporates modern security measures, to protect the facility and its surrounding spaces, fostering a secure atmosphere for the community. Unlike many other similar facilities, S5 remains open to its surrounding, with minimal fencing, and utelises digital security measure over physical, thus retaining an inclusive approach to its surrounding area.

2. Comfortable and User-Centric Spaces

Features such as tiered seating, shaded walkways, and landscaped green areas provide spaces for relaxation and informal gatherings, enhancing the comfort and usability of the public domain.

Covered walkways linking key areas, such as retail spaces and public transport stops, encourage pedestrian movement while providing shelter and convenience for users. Open and natural-light filled office spaces with direct visual connections to the external surroundings, ensure intuitive navigation and mental wellbeing for all users, creating a welcoming environment that supports productivity and satisfaction. This approach extends even to the data hall buildings where large glazed corridors open up to Lane Cove Road, activating the façade towards this important arterial connection.

3. Round-the-Clock Livability

The data centre's 24/7 activity ensures continuous activation of public spaces, fostering safety, utilization, and vibrancy throughout the day and night.

The combination of retail opportunities and accessible communal areas creates a lively and engaging public realm, supporting the livability of the broader Macquarie Park precinct.

4. Landscaping as a Livability Asset

Thoughtful landscaping around the entire building, preserves a large amount of the existing Turpentine forest. The mature trees screen the building, while also providing functional benefits, such as seating zones, shaded areas, and open green spaces that encourage social interaction and relaxation.

The integration of greenery improves air quality and reduces the urban heat island effect, contributing to a healthier environment for all.

5. Supporting Local Employment and Economic Stability

As highlighted during the finalization of the Macquarie Park Masterplan, economic stability is a key concern for the local community. The S5 project directly addresses this by creating up to 490 new jobs, supporting the community's desire for stable employment opportunities.

With the technology sector as one of the fastest-growing industries globally, the S5 data centre provides a foundation for long-term local employment, driving economic growth and stability well into the future.



5. Better Look and Feel: Engaging, inviting and attractive

The S5 Data Centre embodies the "Better Look and Feel" principle by inviting interaction with the public and supplying a soft and vibrant plaza at a fast and transient high traffic intersection. The scale and language of the building holds the corner but alos allows for community centric pockets and opportunities that shelter from noise and visual impact of the major intersection.

1. Creating Vibrant Public Spaces

The civic plaza, featuring tiered seating, landscaped green areas, and pedestrian-friendly pathways, serves as a vibrant focal point for the community. These features encourage social interaction, relaxation, and community events, fostering inclusivity and engagement within the urban locality.

2. Softening the Built Environment with Greenery

The landscaping strategy integrates greenery throughout the site, softening the visual impact of the high-rise towers. These green spaces not only enhance the project's visual appeal but also provide areas for respite and well-being, making the space inviting and approachable.

The build form is intersected buy vertical gardens towards the plaza nad Lane Cove Road, that draw the landscape up the building to create a break in the built form. The shape and materiality of these spaces is rounded and natural to juxtapose the design-tech approach of the data hall buildings.

3. Harmonizing with the Urban Context

As mentioned in Principle 1. the building holds a strong position at a major traffic junction. The scale and changing character on each elevation, booth anchors the corner as well as contributes to visual interest when moving around the site.

4. Transforming the Data Center into a Community Asset

As mentions under the previous Principles, the civic plaza and public spaces ensure the S5 Data Centre is not just a functional facility but a community-focused development. By offering accessible and engaging spaces, the project reinforces the Better Placed policy's aim of creating attractive, inviting, and user-centric places.

07_ Design Response to GANSW

7.1. Better Placed



6. Better Working: Functional, efficient and fit for purpose

The S5 Data Centre embodies the “Better Working” principle by creating a highly functional, efficient, and fit-for-purpose facility that prioritizes modern workplace needs. Through thoughtful design and alignment with the Better Placed policy, the project delivers an environment that supports productivity, collaboration, and well-being for all users.

1. Functionality for Modern Needs

The high-rise data halls and commercial spaces are meticulously designed to meet the technical demands of modern data storage while maintaining flexibility for future advancements. The project’s adaptability planning (as outlined in Principle 2) ensures it can evolve with emerging technologies, such as liquid or submersible cooling systems, without compromising its architectural integrity.

Efficient layout planning optimizes operational workflows, ensuring seamless integration of workspaces, data storage facilities, and civic areas.

2. Efficiency Through Sustainable Design

Energy-efficient systems and resource management strategies reduce operational costs and environmental impact, aligning with the sustainability goals emphasized in Principle 2. The inclusion of green spaces and outdoor amenities on the north and west facades, supports employee well-being while contributing to a more efficient and enjoyable workplace environment.

3. Fit-for-Purpose Civic Integration

The civic plaza and landscaped public areas are not only aesthetically pleasing but also highly functional, offering spaces for relaxation, social interaction, and informal collaboration. These spaces, detailed in Principle 3, enhance inclusivity and create a workplace that fosters a sense of belonging and engagement.

Covered walkways, tiered seating, and connectivity to public transport provide practical benefits for employees and visitors, ensuring convenience and accessibility.

The landscape principles and the extensive distribution of generous and lush landscaping all around the building embed the development into the site and ensure the green spine of the Macquarie Masterplan is integrated not just towards Waterloo Road but all around the S5 site.

4. Enhancing Work-Life Balance

Access to retail shops, outdoor seating areas, and green spaces enriches the workplace experience, not just for S5 employees but all surrounding commercial and residential occupants, by providing opportunities for relaxation and recreation during breaks.

By integrating these amenities, the project promotes work-life balance, improving employee satisfaction and productivity.

5. Round-the-Clock Activation for Safety and Utility

As highlighted in Principle 4, the 24/7 activity within the data centre ensures that the spaces remain active, safe, and utilized throughout the day and night, creating a secure and efficient working environment.

6. Connectivity and Community Impact

The project supports connectivity by seamlessly integrating with the broader community context, as emphasized in Principle 3. Employees benefit from a design that balances technological efficiency with community inclusivity, fostering engagement and collaboration both within and beyond the workplace.

7. Resilience and Durability

The S5 Data Centre’s design prioritizes durability and resilience (as noted in Principle 2) to minimize the need for frequent upgrades or replacements, ensuring long-term operational efficiency and cost-effectiveness.



7. Better Value: Creating and adding value

The S5 Data Centre goes beyond its core function of housing cutting-edge technological infrastructure by delivering tangible benefits to the local community and Council. Through thoughtful integration, strategic design, and alignment with the Better Placed guidelines, the project creates enduring value for all stakeholders.

1. Boosting Local Economic Activity

The development integrates retail spaces, creating opportunities for local businesses to thrive, generating employment, and increasing economic activity.

The state-of-the-art data centre, coupled with commercial spaces, attracts complementary businesses to the area, fostering economic growth and diversifying the local economy.

2. Job Creation and Economic Stability

As emphasized in Principle 4, the S5 Data Centre will support up to 490 new jobs, offering stable employment opportunities for the local community and responding to the strong demand for jobs in the tech sector—a key driver of economic resilience.

The project helps future-proof the local economy by leveraging the rapid global growth of the tech industry, ensuring long-term economic benefits.

3. Enhancing Connectivity and Accessibility

By creating strong links between the development and public transport systems, the project enhances regional accessibility, encouraging visitation and facilitating the seamless movement of people.

Features like the civic plaza and pedestrian-friendly landscaping (outlined in Principle 3) foster inclusivity and bring added value to the community by making the site accessible to all.

4. Activating Spaces

The inclusion of vibrant public spaces, retail areas, and amenities transforms what might have been a purely utilitarian facility into a lively hub of activity, addressing Council’s concerns about activation.

The project aligns with Council’s vision of creating integrated, multi-use developments that enhance the urban fabric rather than detract from it.

5. Sustainability and Cost Efficiency

As discussed in Principle 2, the project’s focus on sustainability, such as energy-efficient systems and resource management, not only strives to minimize environmental impact but also reduces long-term operational costs—an economic benefit for tenants and operators alike. Making S5 an accessible facility for the local innovation precinct needs.

The facility’s adaptability and durability ensure it remains functional and relevant, avoiding carbon-costly retrofits and upgrades over time.

6. Catalyst for Urban Renewal

The inclusion of accessible civic spaces and amenities helps integrate the data centre into the fabric of the community, demonstrating how technology-oriented infrastructure can coexist harmoniously with public needs.

7. Strengthening Community Connections

By hosting public spaces such as the civic plaza and integrated respite nodes towards the south of the site, the project fosters community engagement and creates a sense of belonging. These features ensure the development serves not just as a workplace but as a valuable community resource.

8. Aligning with Broader Council Objectives

The S5 Data Centre supports Council’s goals for inclusive, connected, and equitable development (as discussed in Principles 3 and 4), proving its value as a community-centric project rather than a standalone facility.

The project also offers a platform for demonstrating leadership in sustainable, multi-use urban design, which aligns with the Council’s broader strategic planning priorities.

9. Showcasing Design Excellence

The high-rise format of the data center allows for efficient land use, leaving more space available for community-enhancing features such as landscaped public areas and pedestrian pathways. These elements help mitigate concerns about the impact of large-scale infrastructure by prioritizing shared community benefits.

Moreover, the presence of the S5 Data Centre in a prime location strengthens the area’s capacity to attract and support other businesses. By acting as a magnet for local commerce and employment, the project contributes to long-term economic growth.

By incorporating high-quality public spaces, sustainable features, and an innovative, open approach to data centre design, the development demonstrates a commitment to design excellence.



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CAMPUS SOUTH

MACQUARIE SHOPPING CENTRE

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