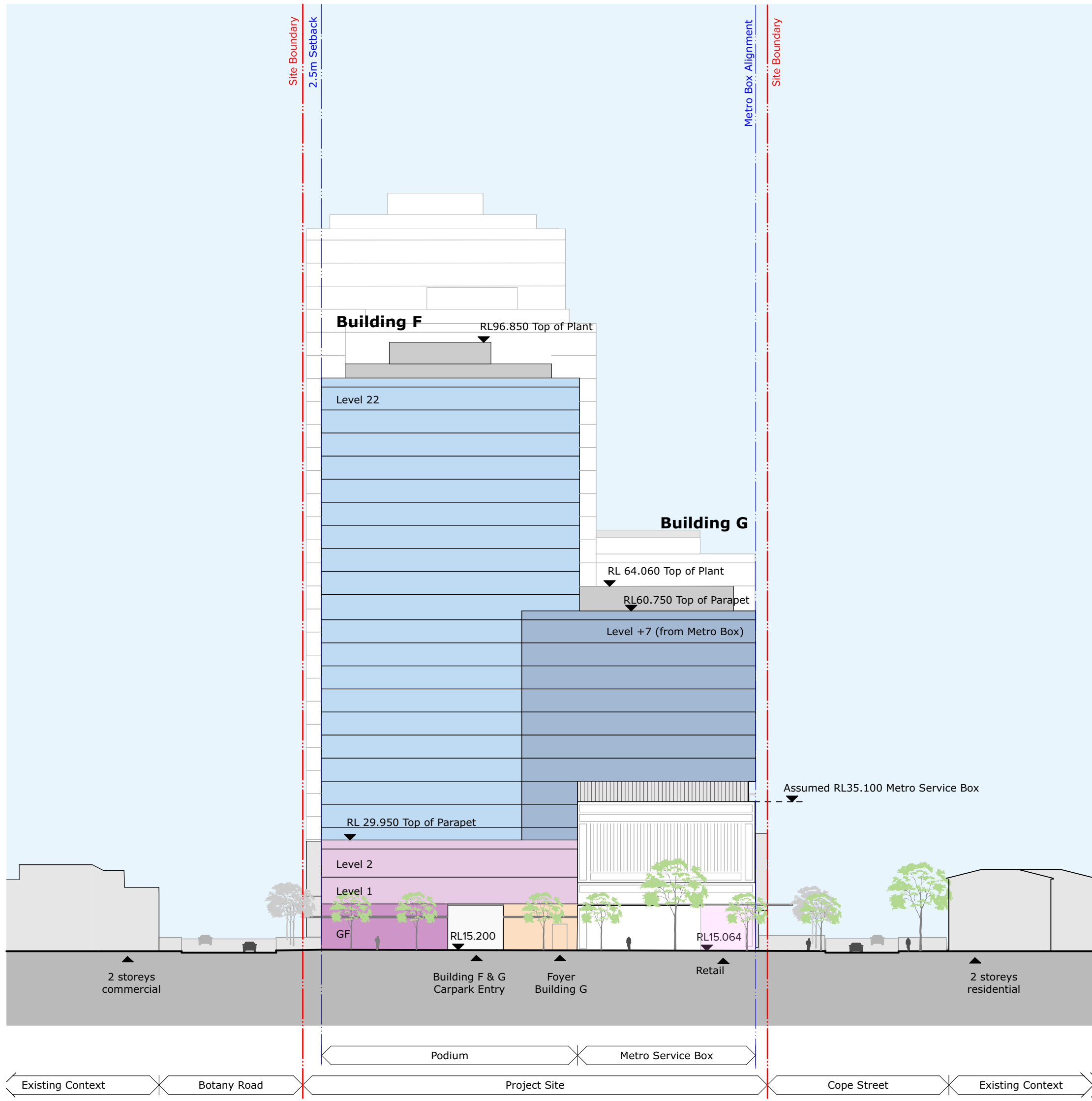


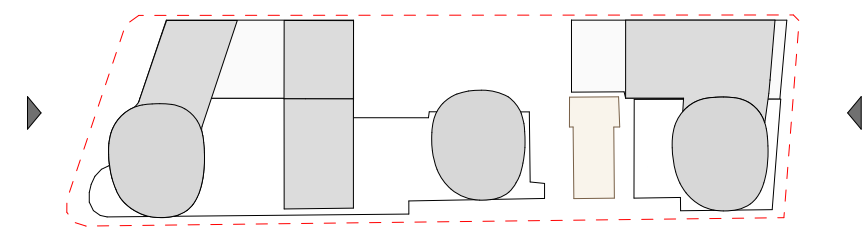
Raglan Street Elevation



Wellington Street Elevation

Legend

- | | | | |
|--------------------------|--------------------|--------------------|-----------------------|
| Ground Level - Retail | Residential Towers | Building Beyond | Surrounding Buildings |
| Podium - Non-Residential | Mid-Rise Buildings | Community Building | Plant / Lift Overrun |
| | | | Transfer |



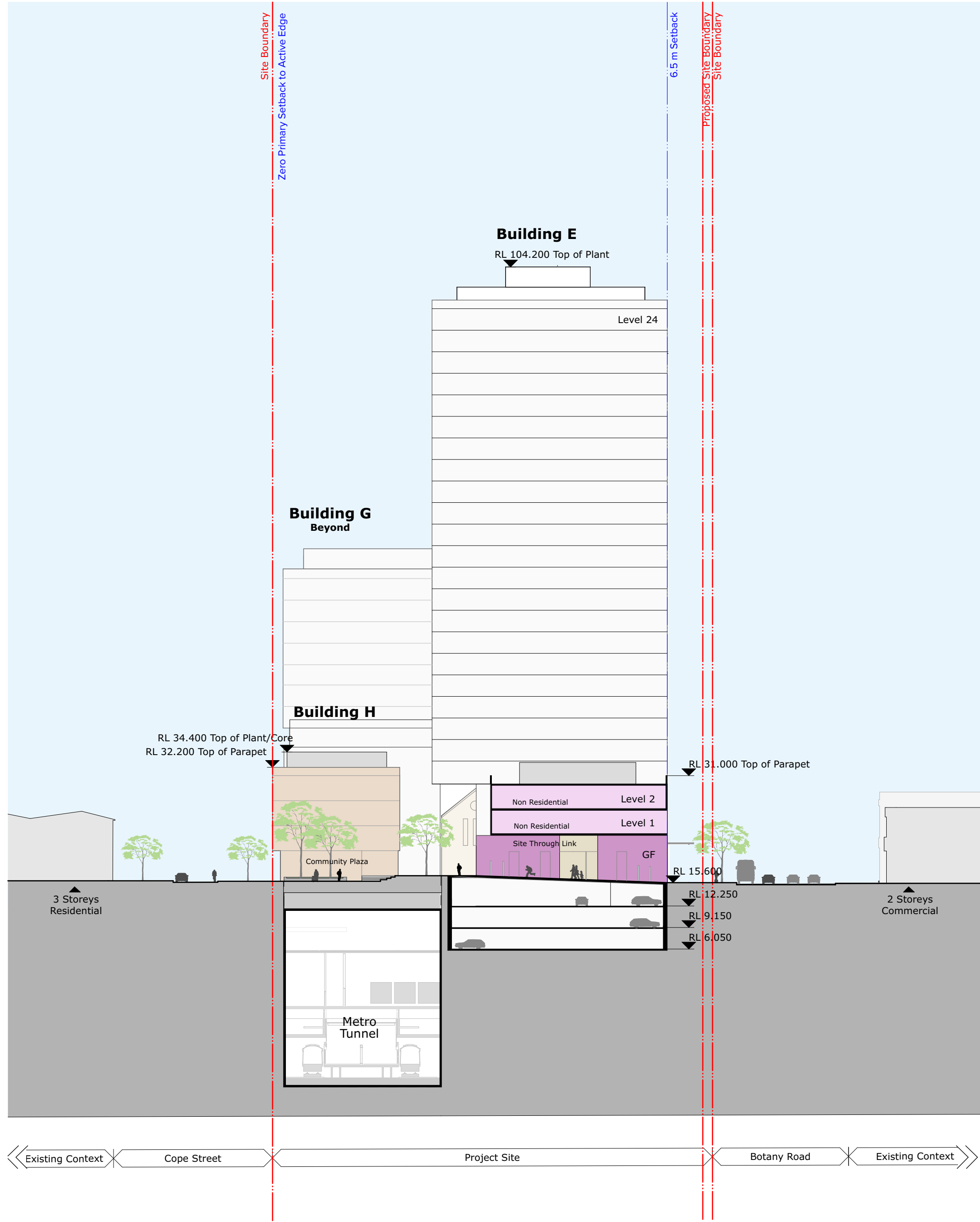
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Refer to consultant documentation for further information.
DLS Quality Endorsed Company ISO 9001:2008, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, AIN 86 064 084 911

Client
UrbanGrowth NSW
Development Corporation
Level 12, 19 Martin Place Sydney NSW 2000

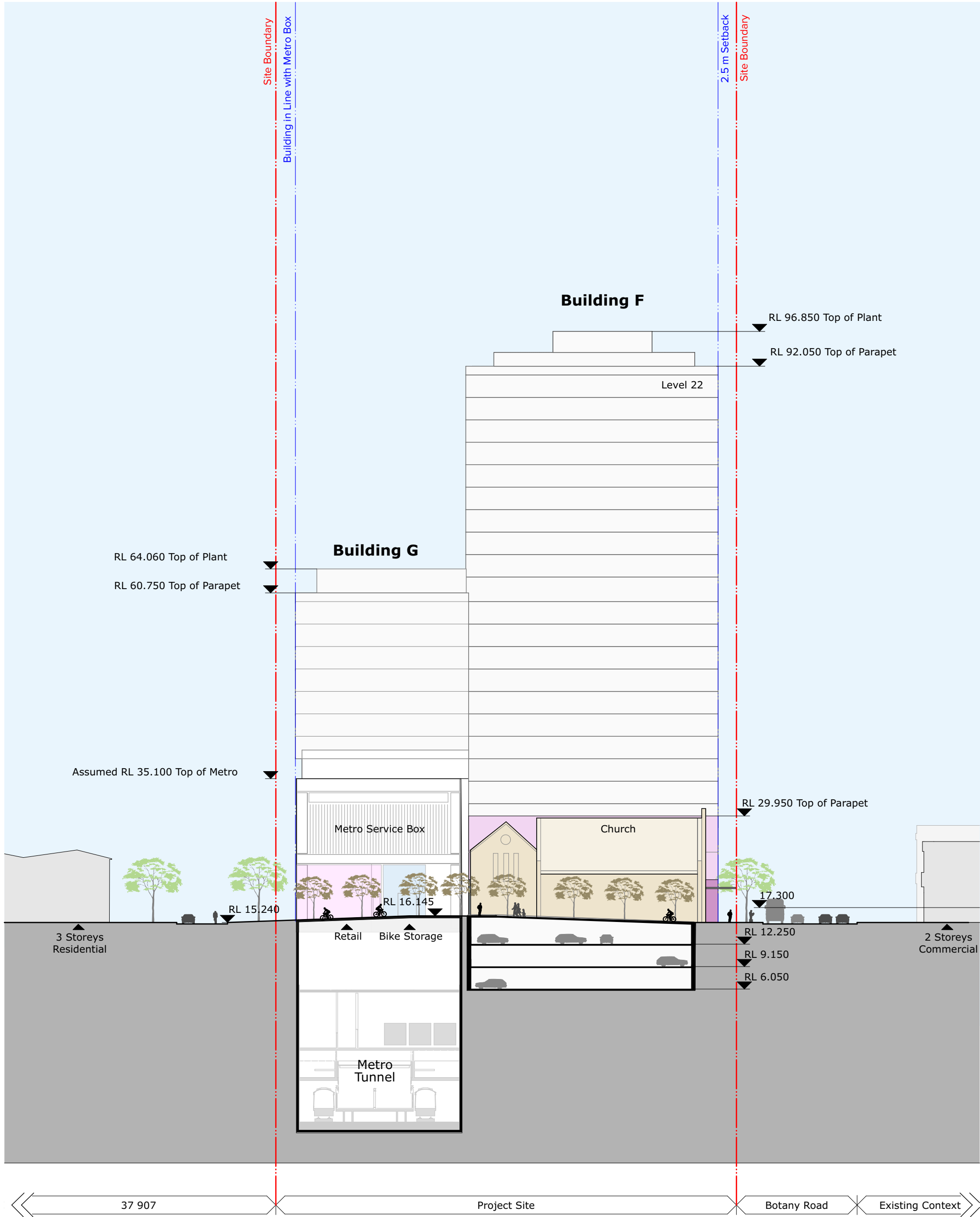
Project Title
**Waterloo Metro Quarter
SSP**
Drawing Title
Envelope Elevations
North & South Elevation_Raglan & Wellington Street

4	05.11.2018	CH	Issued for Submission
Rev.	Date.	Approved.	Revision Notes.
Scale	1:500 @A1, 50%@A3	Job No.	Issued by
Status	For Submission	Dwg. No.	TURNER
		MP-250-301	Revision
			4

TURNER turn












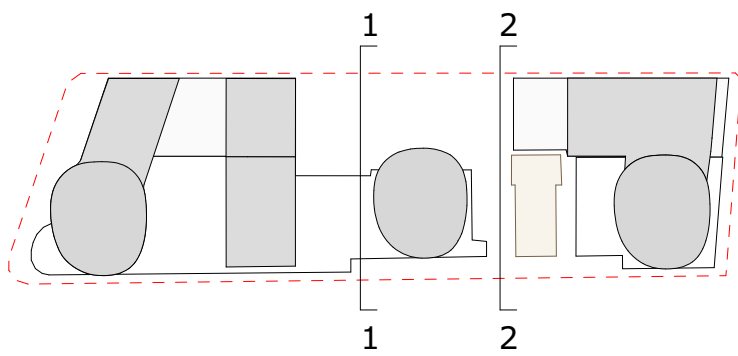
Section 1 - Pedestrian Through-site Link



Section 2 - New Shared Street

Legend

	Ground Level - Retail		Residential Towers		Building Beyond		Surrounding Buildings
	Podium - Non-Residential		Mid-Rise Buildings		Community Building		Plant / Lift Overrun
					Transfer		



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Refer to consultant documentation for further information.
DLS Quality Endorsed Company ISO 9001:2008, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, AIN 86 064 084 911

Client
UrbanGrowth NSW
Development Corporation
Level 12, 19 Martin Place Sydney NSW 2000

Project Title
**Waterloo Metro Quarter
SSP**
Drawing Title
**Envelope Sections
Section 1 & 2**

4	05.11.2018	CH	Issued for Submission
Rev.	Date.	Approved.	Revision Notes.
Scale	1:500 @A1, 50%@A3	Job No.	17019
Status	For Submission	Dwg. No.	MP-350-301
		Issued by	TURNER
		Revision	4

TURNER turnf



8.2 APPENDIX B_INDICATIVE CONCEPT PROPOSAL ANALYSIS

8.2.1 APARTMENT AMENITY

Built form that responds to the environment

The residential towers have been designed to maximise views and access to daylight while minimising wind and noise impacts. Apartment amenity is consistent with the objectives of the Apartment Design Guide (ADG).

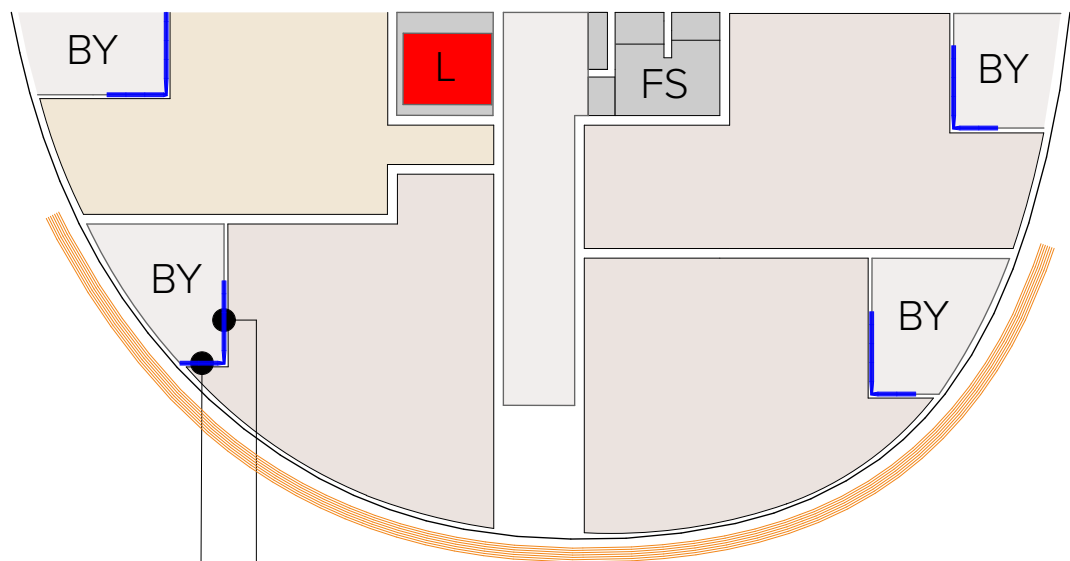
Botany Road presents a significant noise source to the development (70dB background). The apartments directly fronting Botany Road are most affected, though those further into the site also require consideration. To achieve acoustic levels of 55dB to living rooms and 45dB to bedrooms the following planning strategies have been adopted:

- Building orientation reduces frontages facing Botany Road, with no single aspect apartments facing the street
- All balconies are provided as re-entrant to the building facade
- Operable windows are located off protected balconies instead of the external façade
- Bedroom openings typically face east, north or south to minimise potential noise impact from Botany Road to the west
- All glazing/façade fronting Botany Road is not required to be operable to satisfy ventilation requirements.

While Botany Road facing apartments would ordinarily achieve cross ventilation compliance through their corner location, the preclusion of operable openings to exclude noise removes this ability to be counted. Similarly the apartments affected by Botany Road where the balcony and/or living area has been relocated to mitigate noise infiltration removes the ability for these balconies and/or living areas to capture solar access. The resulting cross ventilation and solar access percentages in the illustrative 'noise responsive' scheme are lower than the 'base case' scheme and ADG.

Natural ventilation and solar access complies with NCC requirements.

Vehicular Noise



Operable openings are typically located off the protected balconies and set back from the facade line

Bedroom openings typically face east, north or south to minimise potential noise impact from Botany Road

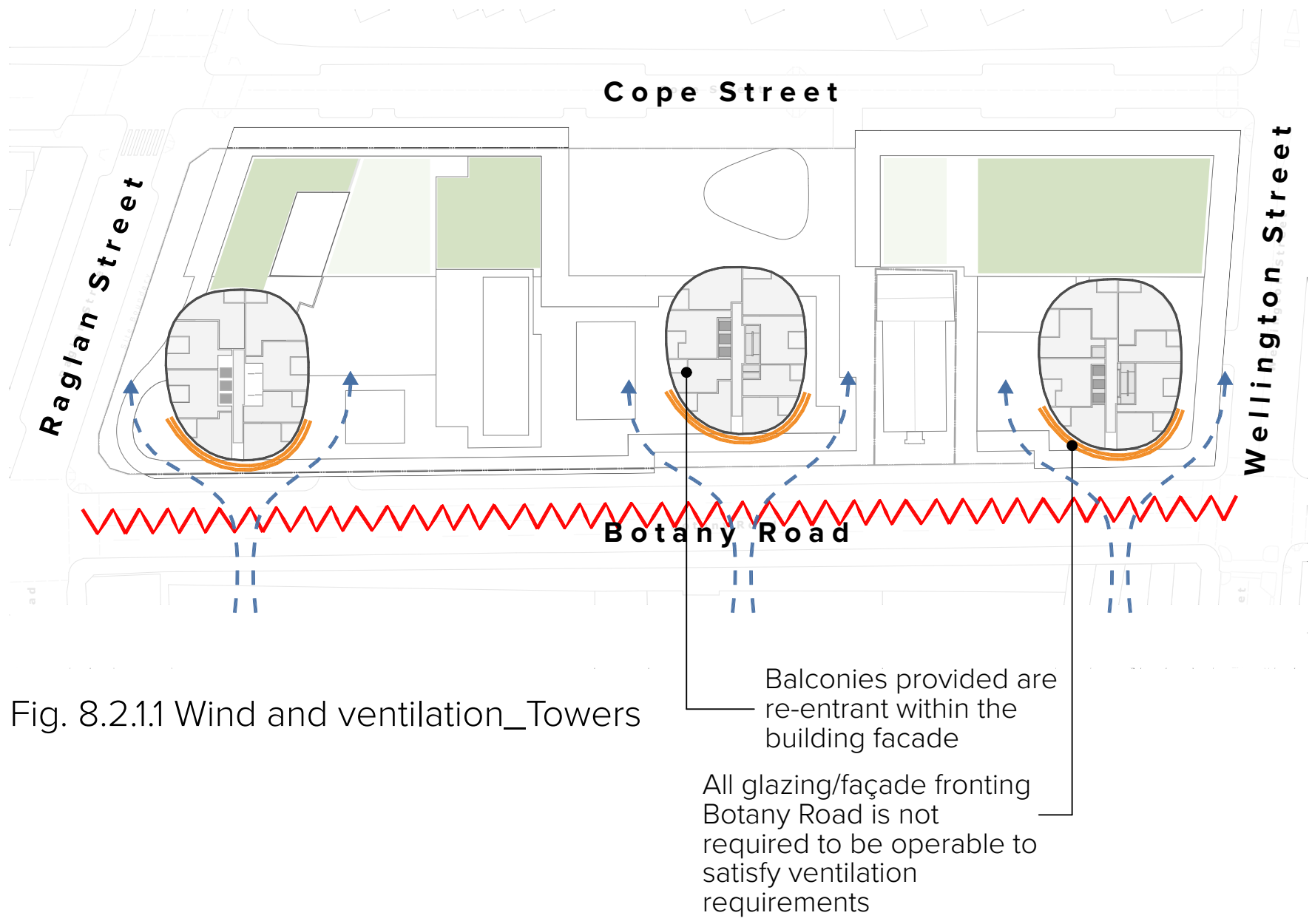


Fig. 8.2.1.1 Wind and ventilation_Towers

Balconies provided are re-entrant within the building facade

All glazing/façade fronting Botany Road is not required to be operable to satisfy ventilation requirements

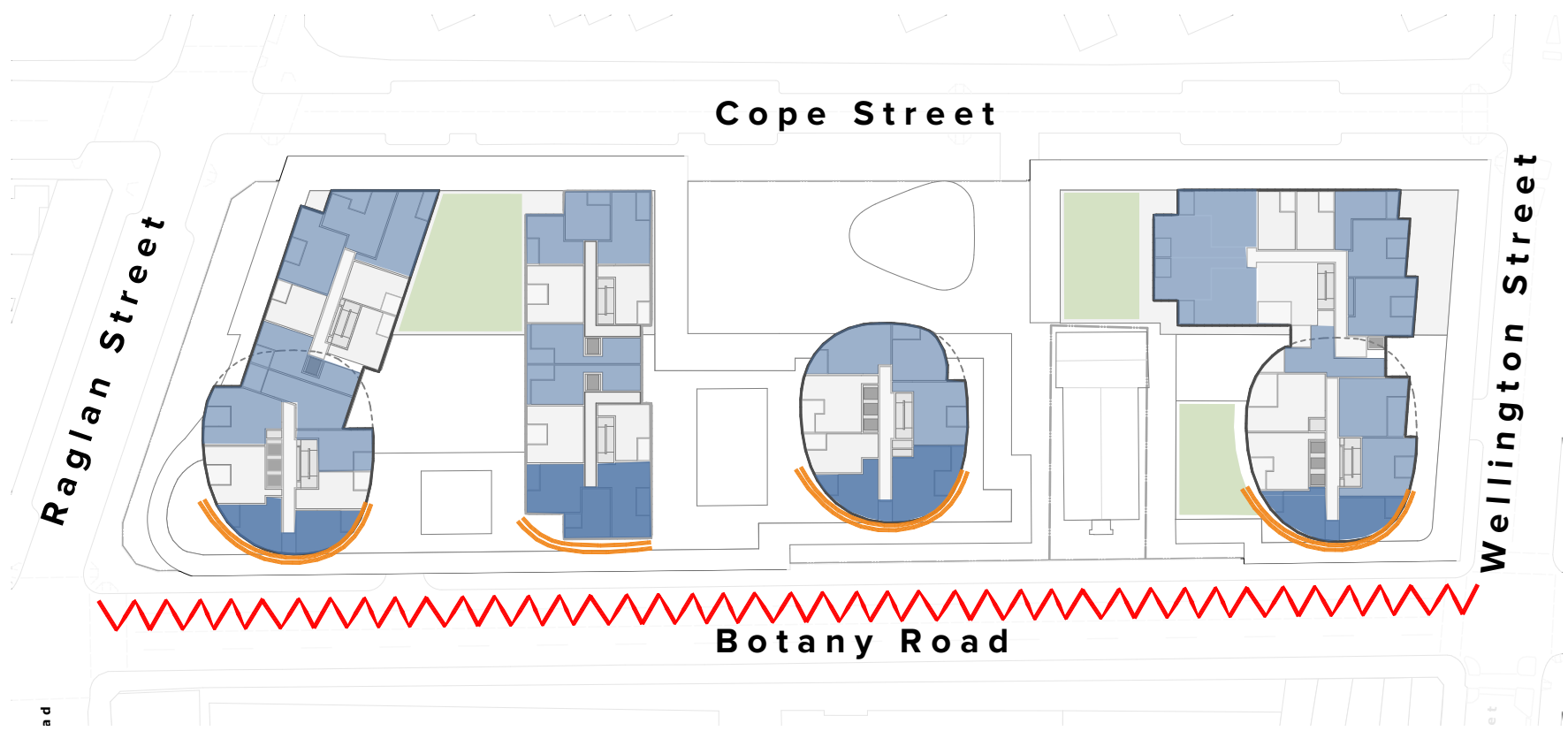


Fig. 8.2.1.2 Wind and ventilation_Mid Rise

Legend

- Cross Ventilated Apartments
- Main Wind Direction
- Facade affected by noise
- Apartments affected by noise
- ⚡ Botany Road noise source

Wind & Cross Ventilation

Podium north:
Building A&B: 244 apartments
Building C&D: 66 apartments
Building E: 154 apartments
Podium north total: 464

Podium south:
Building F&G: 207 apartments
Podium south total: 207

Apartment Amenity
(with reference to Apartment Design Guide)

Natural Ventilation (Objective 4B-3, Design Criteria 1)

Minimum % of apartments to be naturally ventilated: $\geq 60\%$ in the first nine storeys of the building.

Podium North
124 apartments = 67%

Podium South
43 apartments = 60%

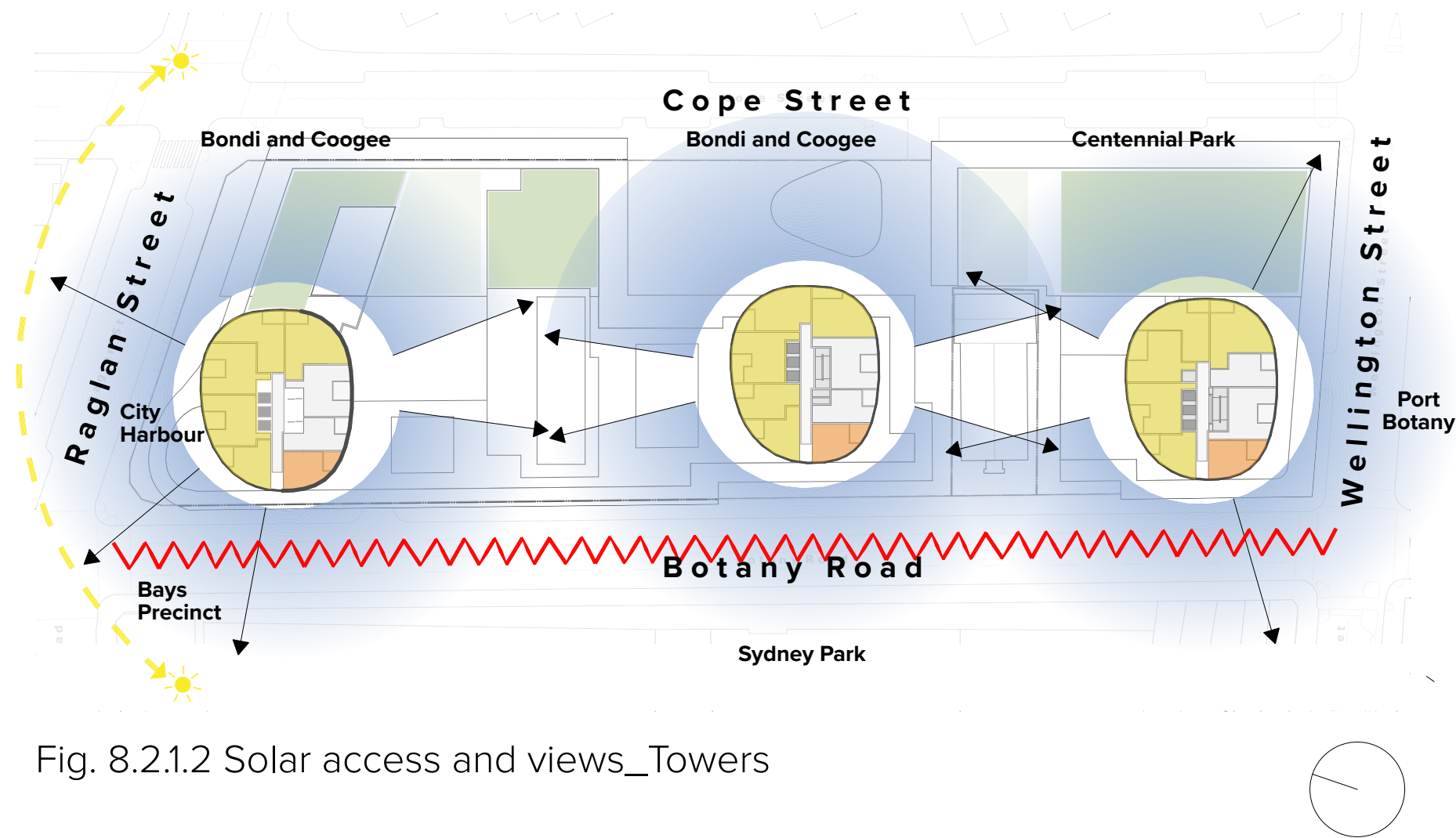


Fig. 8.2.1.2 Solar access and views_Towers

Solar Access & Views

Podium north:	Podium south:
Building A&B: 244 apartments	Building F&G: 207 apartments
Building C&D: 66 apartments	Podium south total: 207
Building E: 154 apartments	
Podium north total: 464	

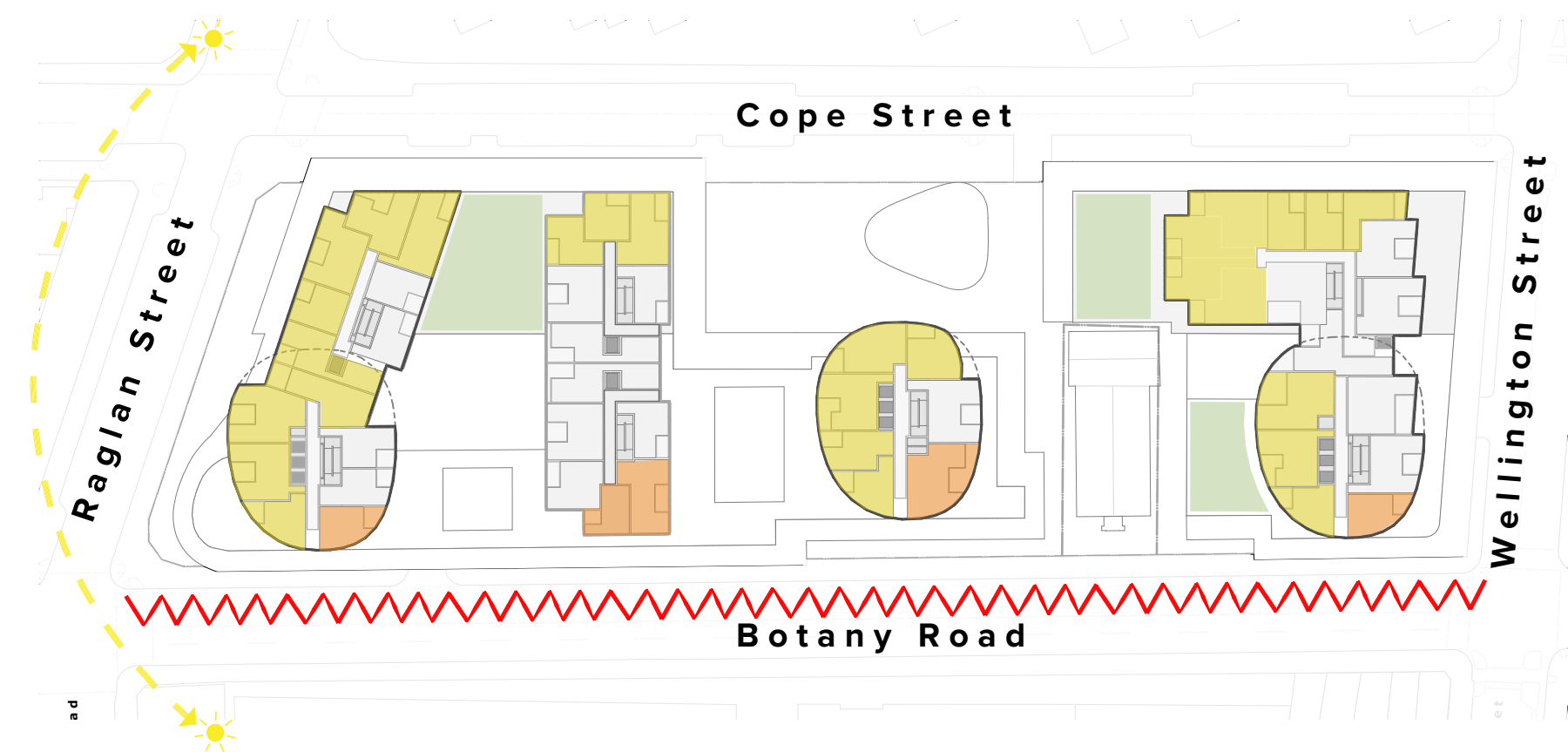


Fig. 8.2.1.4 Solar access and views_Mid Rise

Apartment Amenity
(with reference to Apartment Design Guide)

Solar Access (Objective 4A-1, Design Criteria 1)

Minimum % of apartments achieving
2 hours solar access: ≥ 70%.

No Direct Sunlight (Objective 4A-1, Design Criteria 3)
Maximum % of apartments receiving
no direct sunlight: ≤ 15%

Podium North	Podium South
Podium north total: 464	Podium south total: 207
354 apartments = 76%	149 apartments = 71%
70 apartments = 15%	32 apartments = 15%

Legend

- Apartment receiving 2 hours of solar access on the 21st of June
- Apartment affected by Botany Road where the balcony and/or living area has been relocated and no longer receives 2 hours of solar access
- Botany Road noise source
- Main Views

8.2.2 SOLAR ACCESS TO OPEN SPACE - WINTER SOLSTICE

The proposed open spaces receive a minimum of 2 hours solar access in midwinter

The concept proposal provides a series of communal and publicly accessible privately owned open spaces across the site.

The Raglan Street plaza and the public plaza to Cope Street deliver publicly accessible open space at the two arrival spaces to the station.

Communal open space is provided as podium and rooftop gardens, elevated above the active ground plane.

The publicly accessible and communal area provision across the site equates to 15 and 25 percent of the site area respectively, in line with the objectives of the Apartment Design Guide (ADG) and the requirements of the City of Sydney.

These spaces achieve a minimum of 50 percent direct sunlight to the principal usable part of the open space for a minimum of 2 hours between 9am and 3pm on 21 June (mid winter), in line with the objectives of the Apartment Design Guide (ADG).

Site Area (nett)	1.28 ha
Communal Open Space	3,200 m ² (25% of the site)
Publicly Accessible (Privately Owned) Open Space	1,920 m ² (15% of the site)

Legend

- Boundary
- Publicly Accessible (Privately Owned) Open Space
- Communal Open Space
- ✓ Achieves Solar Access requirements



Fig. 8.2.2.1 Solar Access to publicly accessible and communal open space - Winter Solstice

SOLAR ACCESS TO OPEN SPACE - EQUINOX

The proposed open spaces receive a minimum of 3 hours of solar access at the equinox in march and september

Site Area (nett)	1.28 ha
Communal Open Space	3,200 m ² (25% of the site)
Publicly Accessible (Privately Owned) Open Space	1,920 m ² (15% of the site)

Legend

- Boundary
- Publicly Accessible (Privately Owned) Open Space
- Communal Open Space
- ✓ Achieves Solar Access requirements

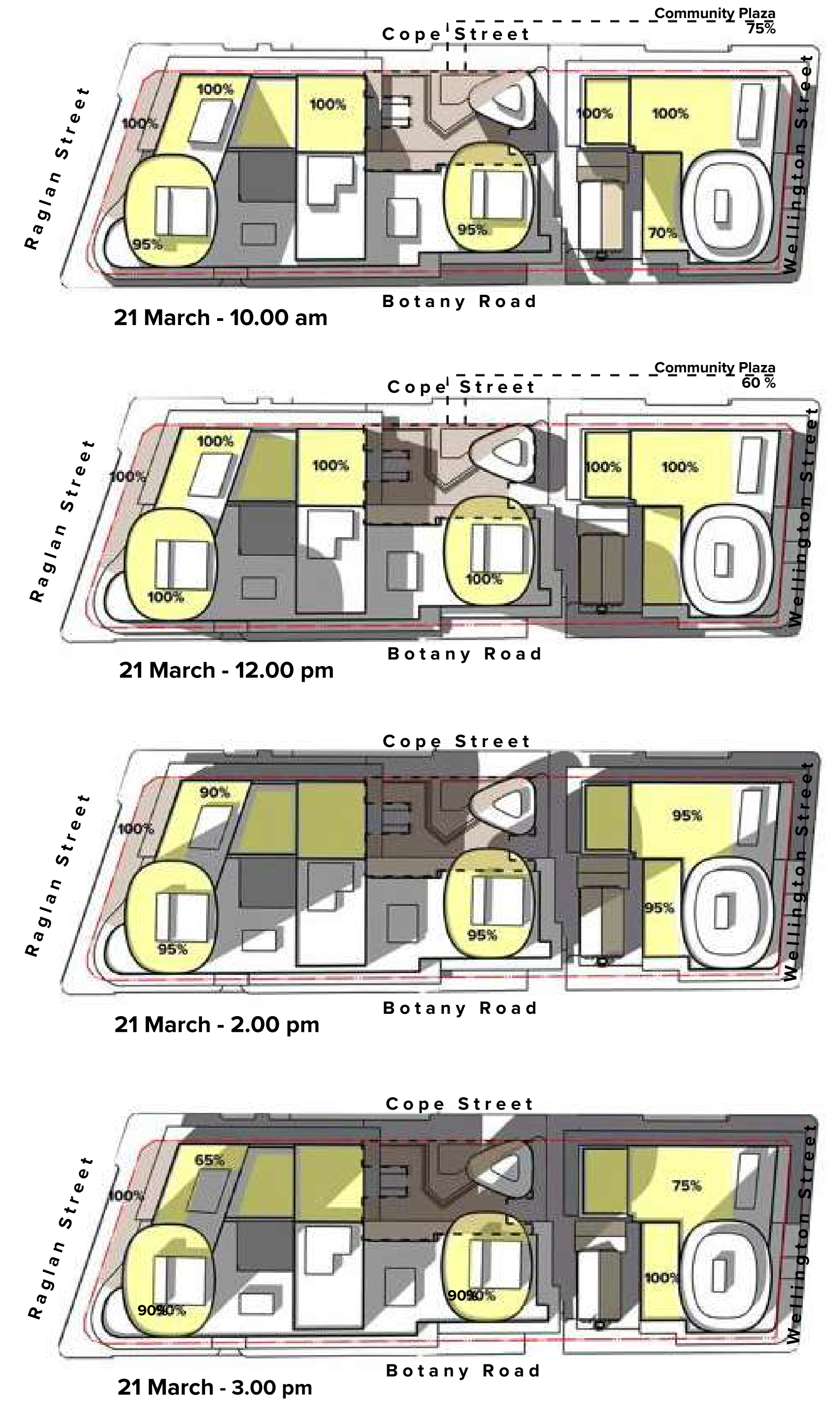
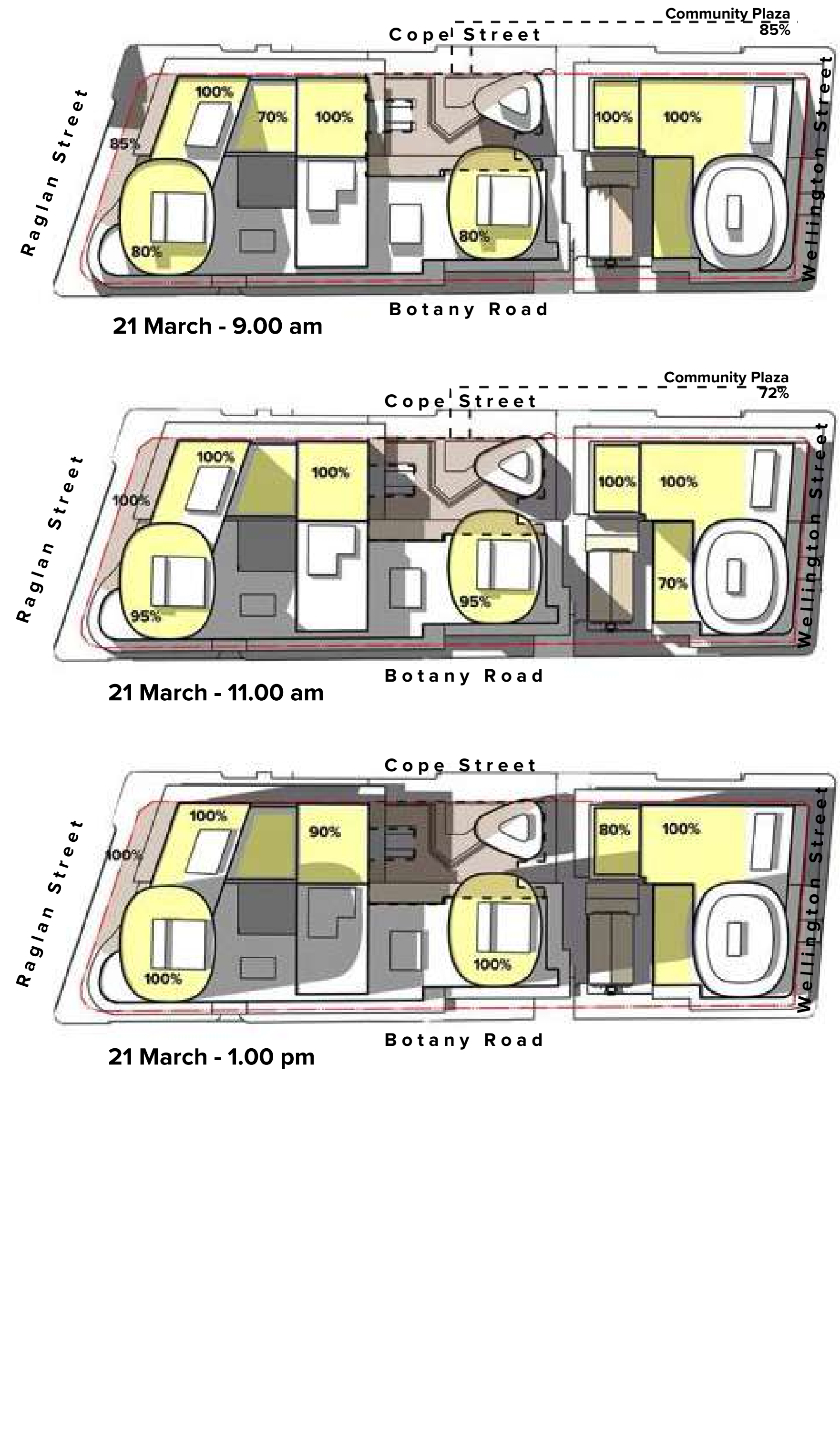


Fig. 8.2.2.2 Solar Access to publicly accessible and communal open space - Equinox

8.2.3 SOLAR ACCESS TO ADJACENT CONTEXT

To assess the potential solar impact of the proposal on the adjacent context, a detailed analysis of the following developments and open spaces has been undertaken:

- Alexandria Park
- Alexandria Park Heritage Conservation Area
- 62/72 Botany Road (existing neighbouring apartment development)
- 74/88 Botany Road (Planning Proposal in progress)
- 74 Wyndham Street
- 122-136 Wellington Street
- 133 & 149 Wellington Street (existing neighbouring apartment development)
- 125 Cope Street (existing neighbouring apartment development)

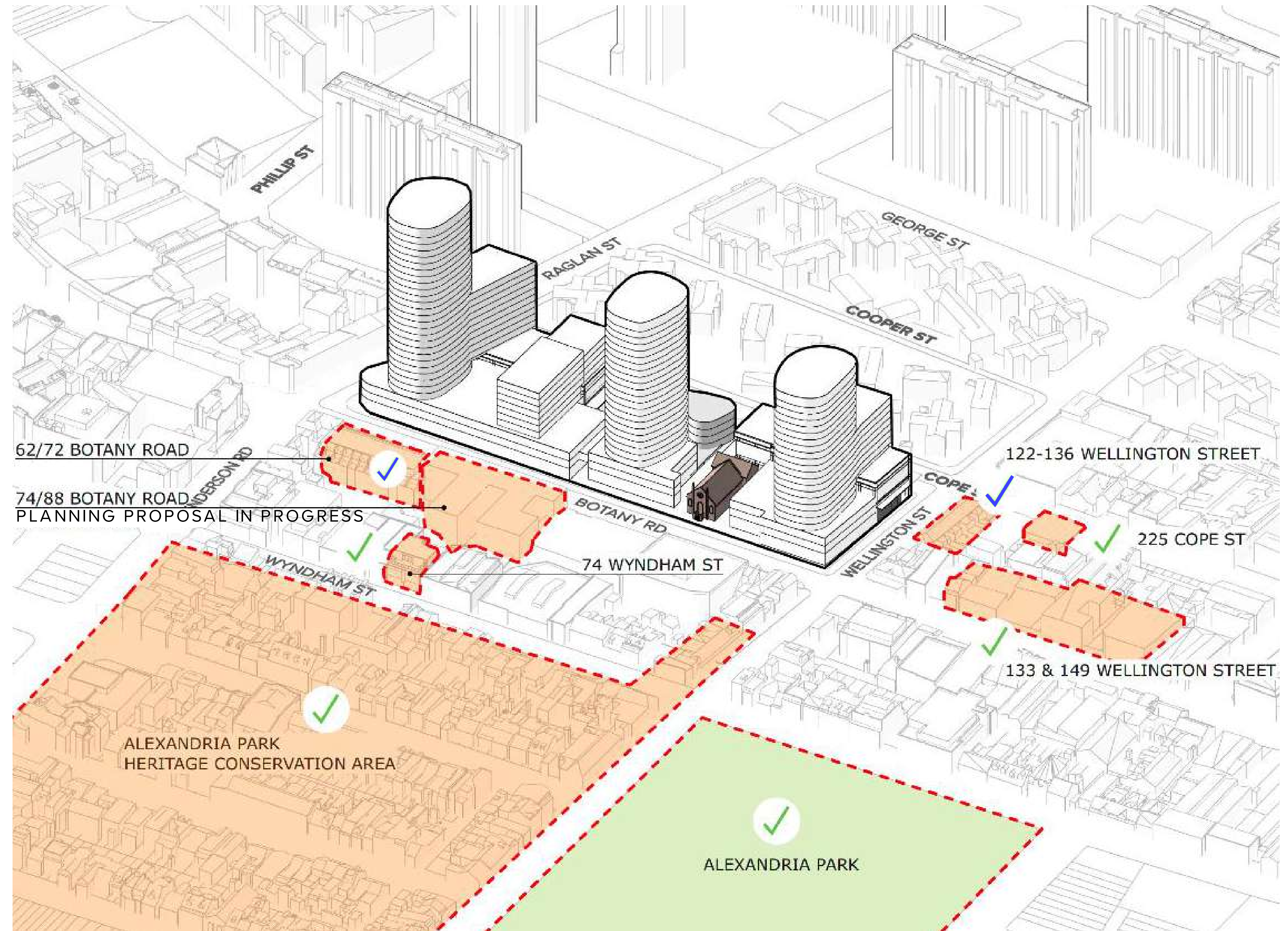


Fig. 8.2.3.1 Solar Access to adjacent context

Legend

- Adjacent context analysed for solar access impact
- Public open space analysed for solar access impact
- ✓ Achieves Solar Access requirements
- ✓ Existing dwellings currently do not achieve 2 hours solar access due to the orientation of living rooms and/or size of private open space

Neighbouring buildings receive a minimum of 2 hours of solar access in mid-winter

The concept proposal has been developed with consideration to the amenity of the surrounding context.

The solar access of surrounding residential dwellings has been analysed at the Winter Solstice to ensure compliance with the objectives of the Sydney Development Control Plan 2012 and the Apartment Design Guide.

The Apartment Design Guide (ADG) requirements are as follows:

Living rooms and private open space of at least 70 percent of apartments in a building to receive a minimum of 2 hours direct sunlight between 9am and 3pm at mid winter.

The proposal achieves solar access requirements for neighbouring apartment developments, as identified in the following analysis.


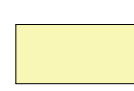



The City of Sydney DCP 2012 requirements are as follows:

Section 4_ Solar access requirement for residential buildings not covered under the ADG.

Development sites and neighbouring dwellings are to achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1 m² of living room window and a least 50 percent of the minimum required private open space.

The proposal achieves solar access requirements for neighbouring dwellings, as identified in the following diagrams.

Legend

-  Waterloo Estate - Buildings with shadow impacts from Metro Quarter
-  Living room windows
-  Windows to rooms other than living areas
-  Achieves Solar Access requirements
-  Existing dwellings currently do not achieve 2 hours solar access due to the orientation of living rooms and/or size of private open space

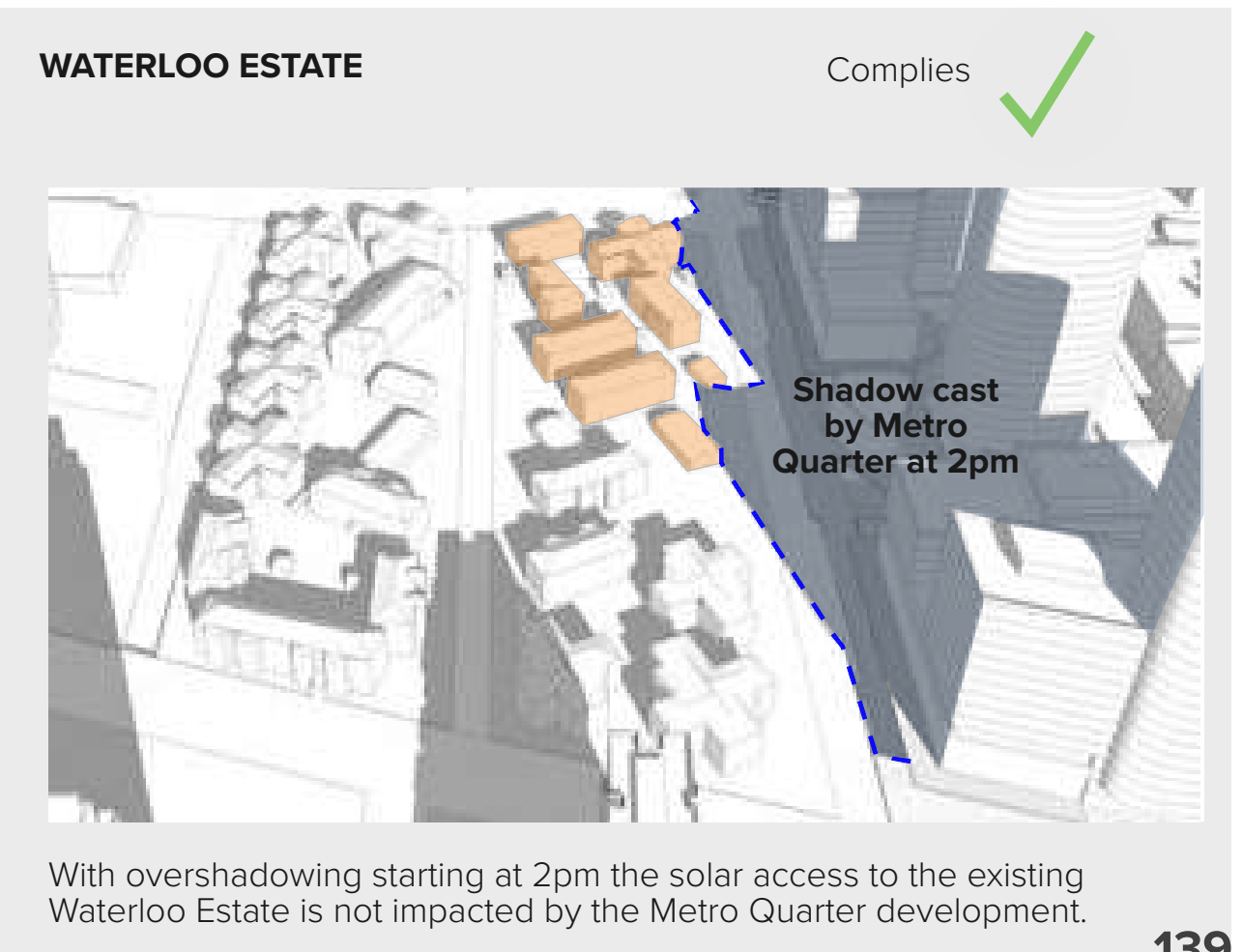
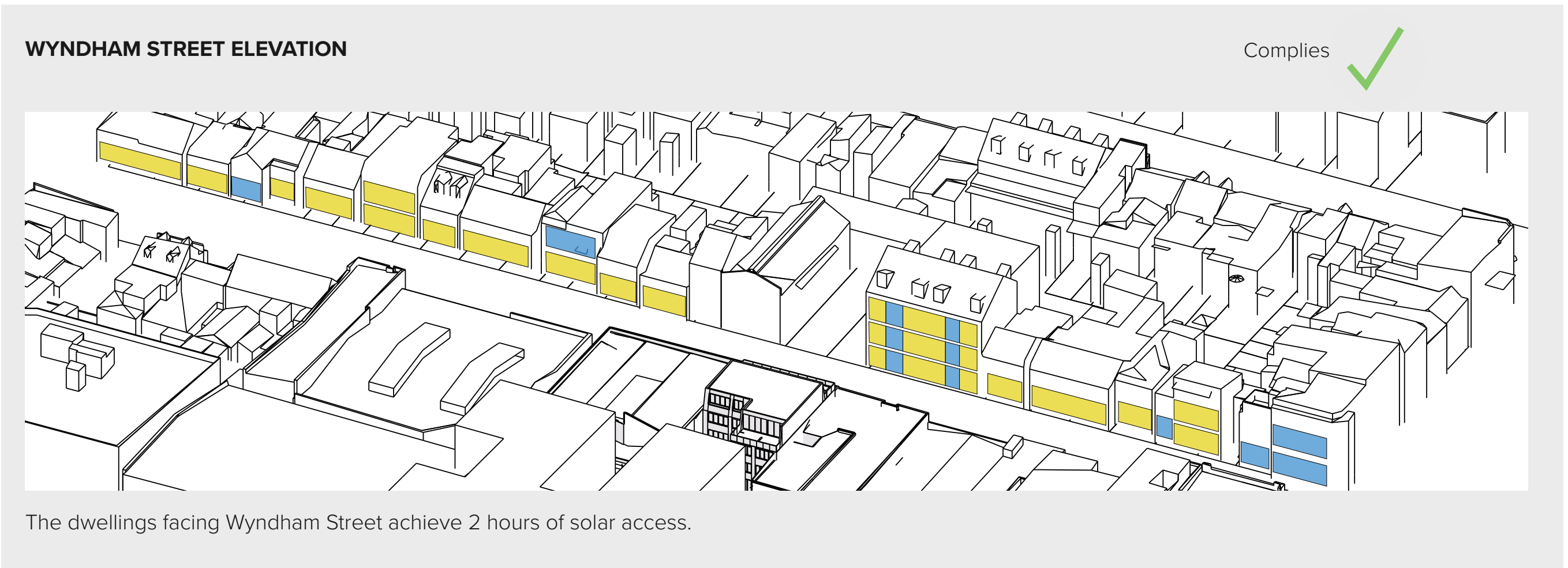
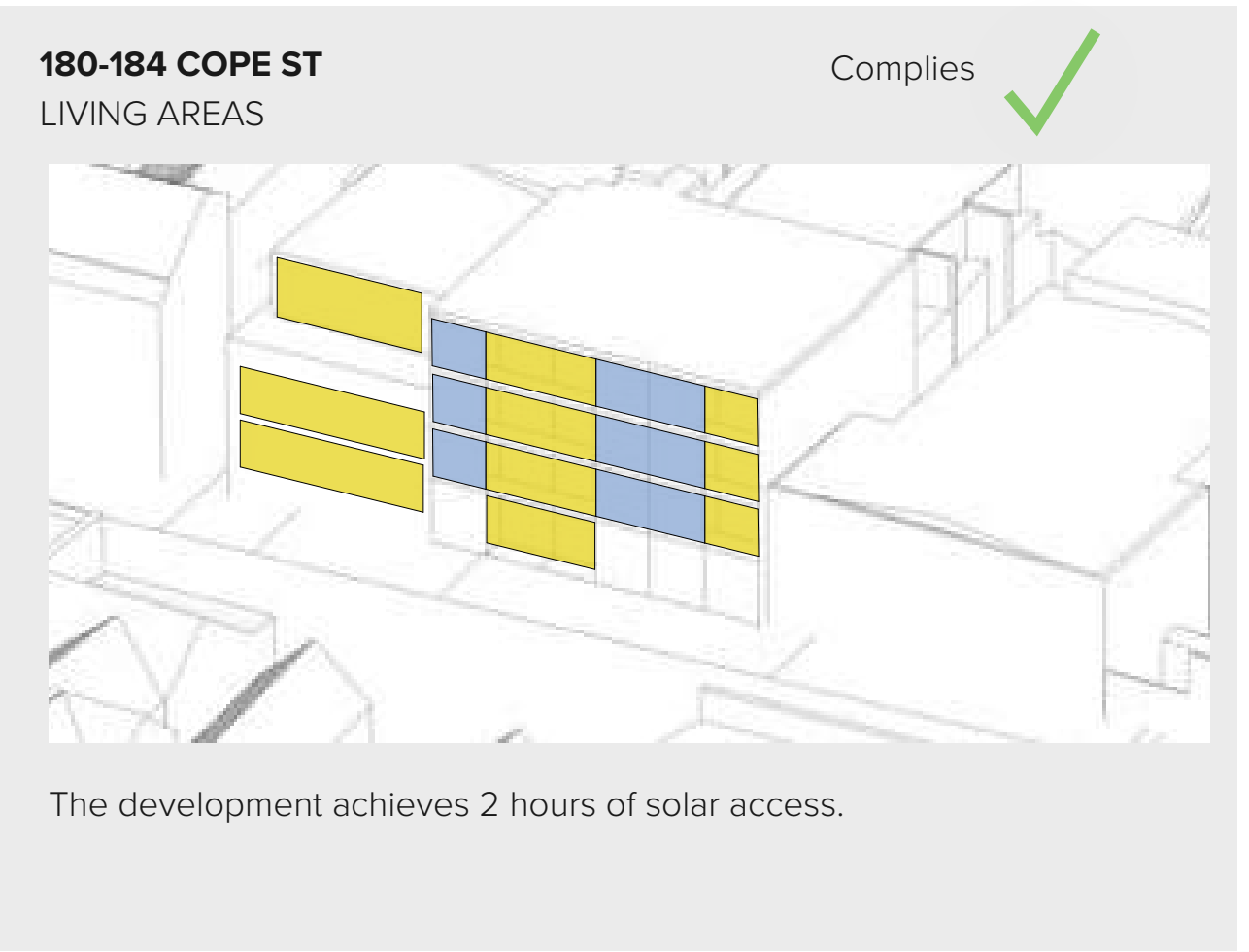
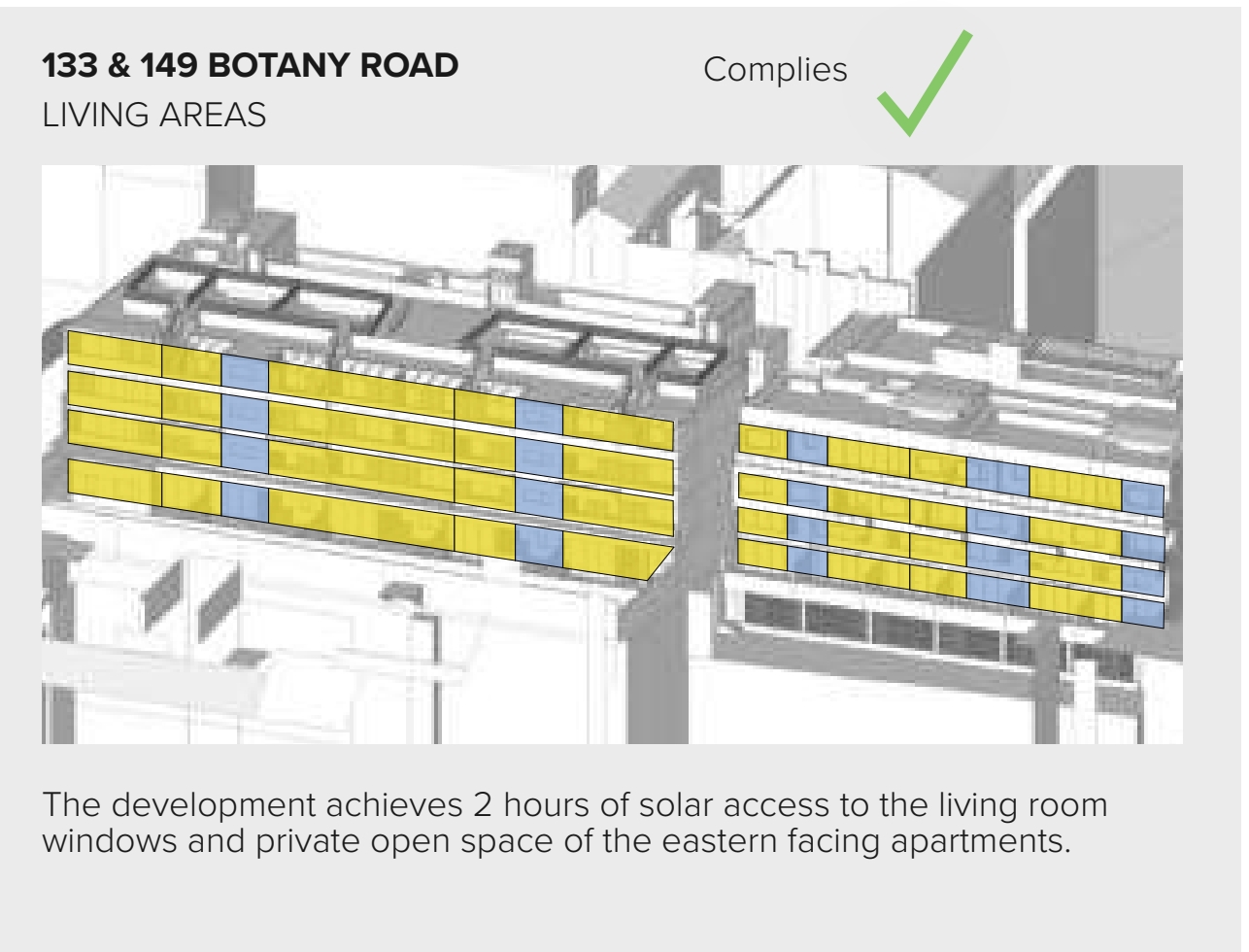
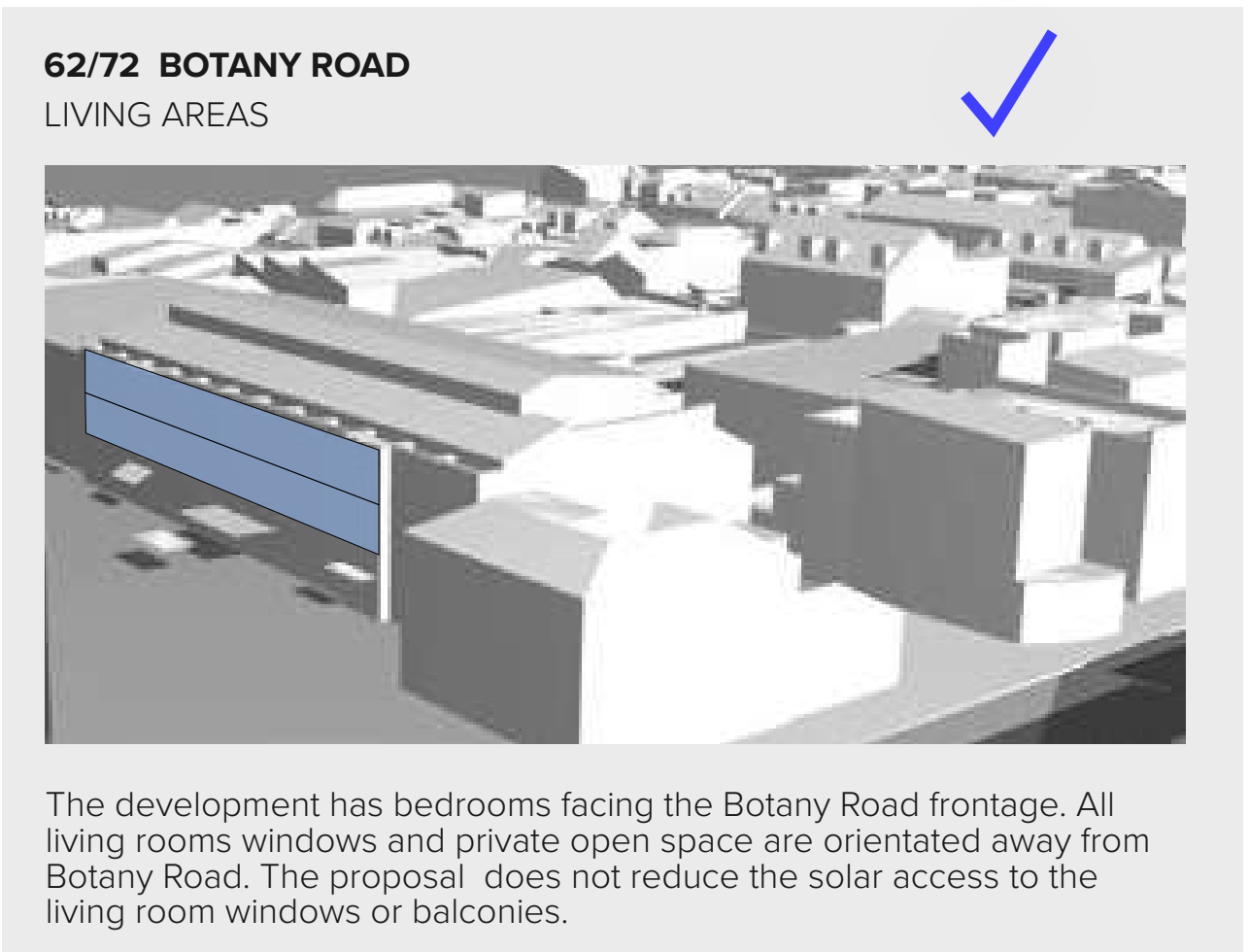
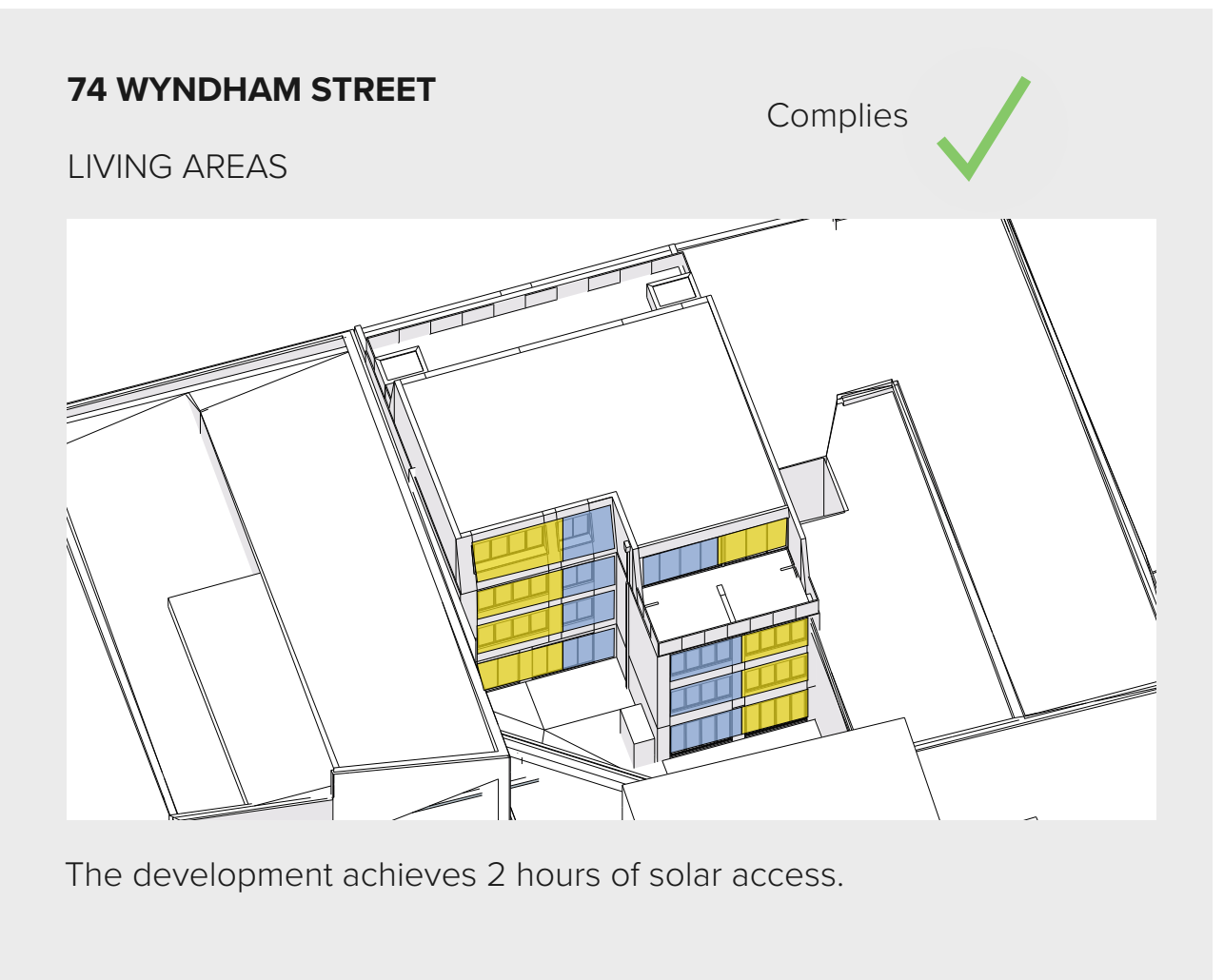
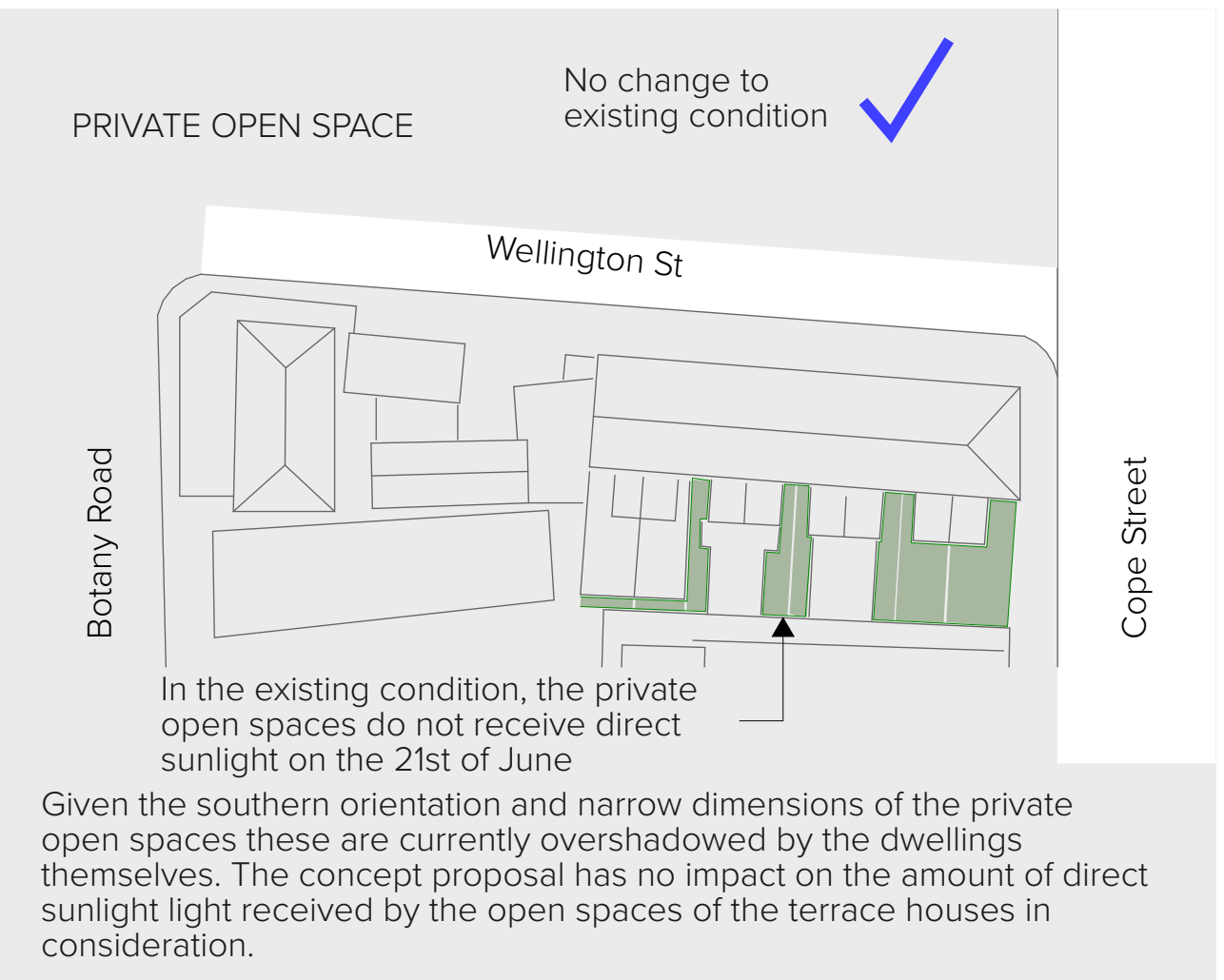
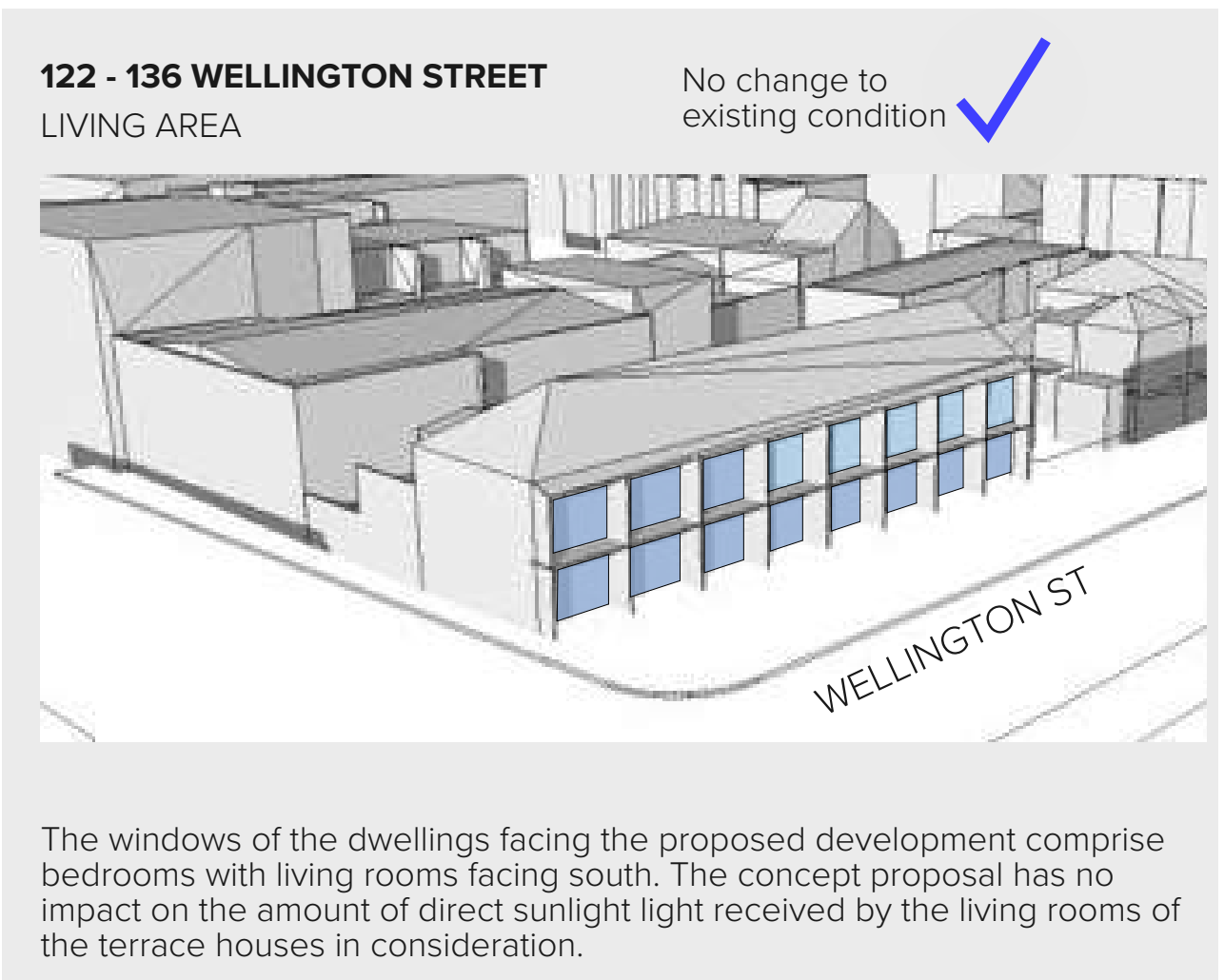


Fig. 8.2.3.2 Solar access to adjacent dwellings

SOLAR ACCESS TO ALEXANDRIA PARK - WINTER SOLSTICE

Neighbouring public open space receives 4 hours and private open space receives 2 hours solar access

The following analysis shows the solar access to the public open space and private open spaces in the Alexandria Park Heritage Conservation Area on the Winter Solstice.

The City of Sydney DCP 2012 requirements are as follows:

Section 4_ Solar access requirement for residential buildings not covered under the ADG.

Development sites and neighbouring dwellings are to achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1 m² of living room windows and a least 50 percent of the minimum required private open space.

The proposal achieves solar access requirements for the private open spaces of the dwellings located in the Alexandria Park Heritage Conservation Area, in excess of the required 50 percent area and 2hrs solar access between 9am-3pm.

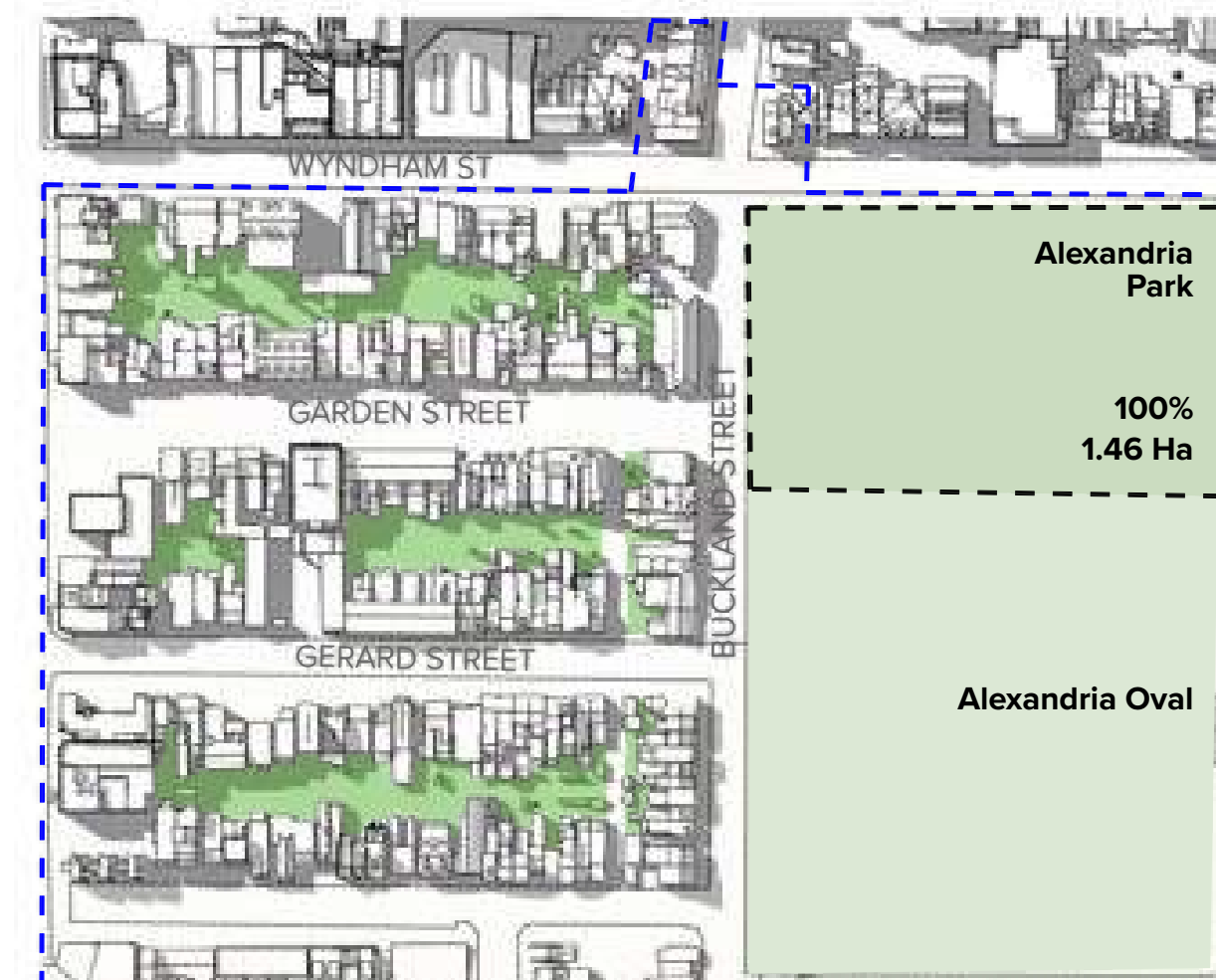
Section 3_ Solar access requirements for public open space

In relation to parks (i.e. non linear public open space) 50 percent of the total area is to receive sunlight for 4 hours between 9am and 3pm on 21 June.

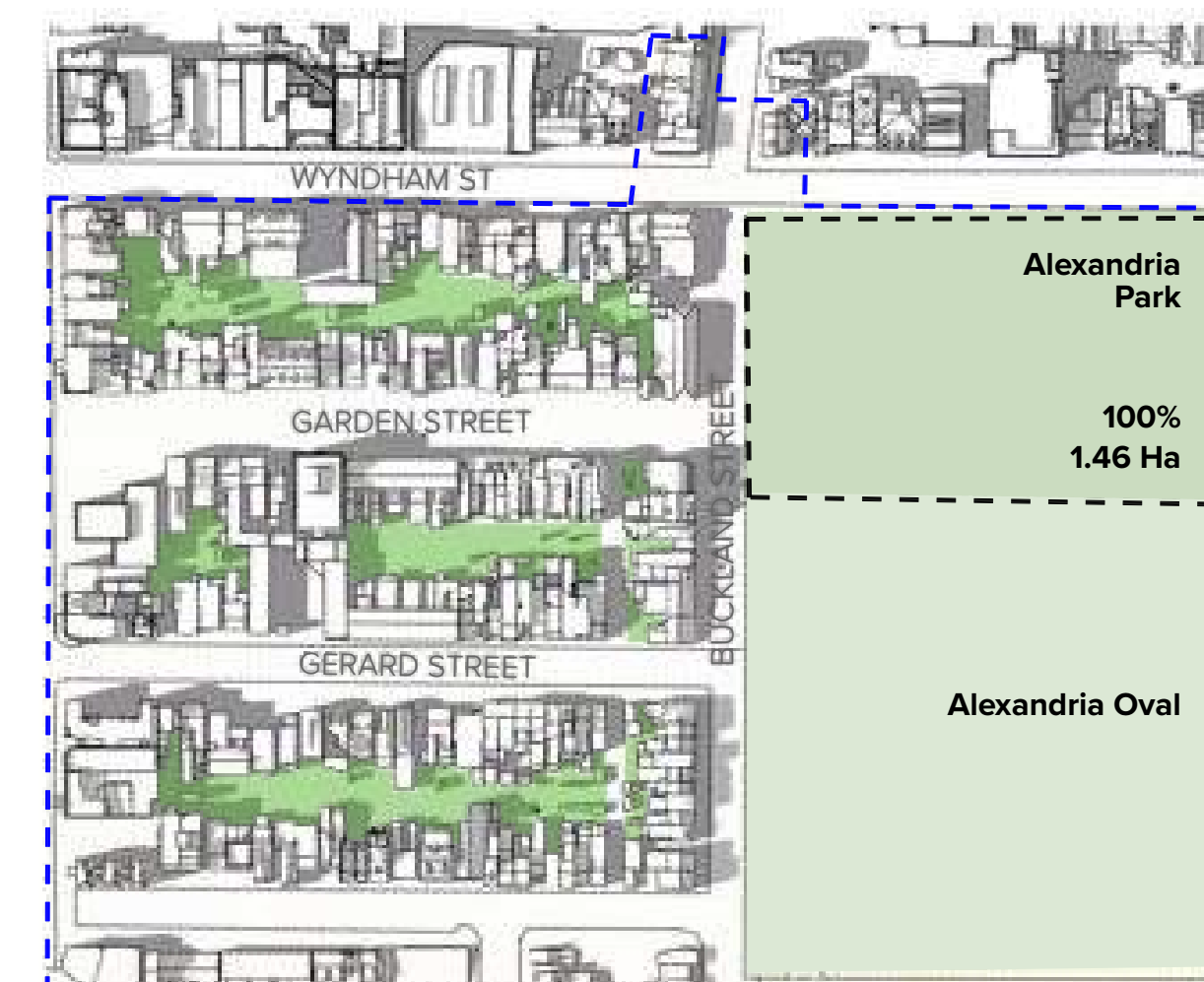
The proposal achieves solar access requirements for Alexandria Park well in excess of the required 50 percent 4hrs solar access between 9am-3pm.



KEY PLAN



✓ 21 June - 11.00 am



✓ 21 June - 2.00 pm



✓ 21 June - 9.00 am



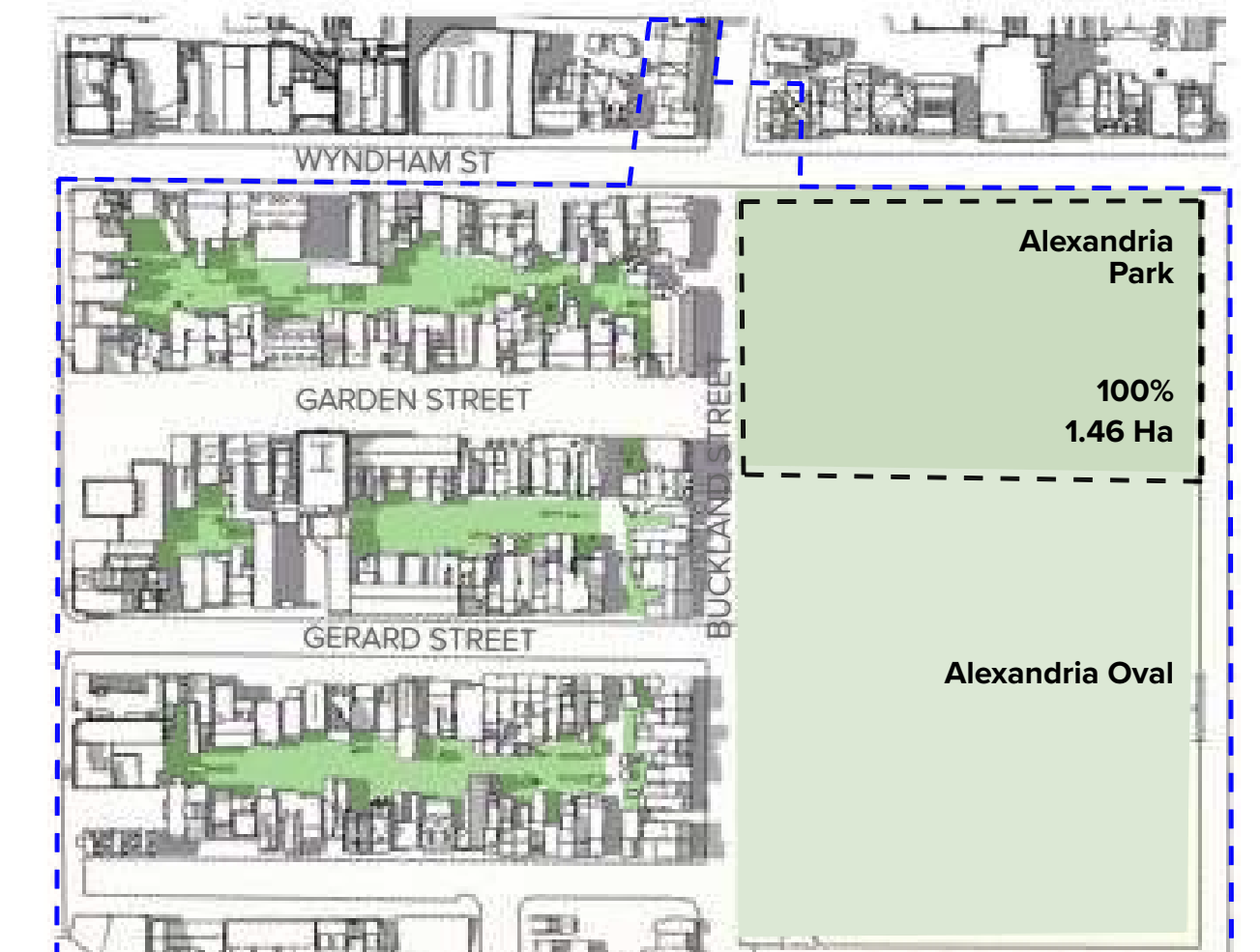
✓ 21 June - 12.00 pm



✓ 21 June - 3.00 pm



✓ 21 June - 10.00 am



✓ 21 June - 1.00 pm

Legend





-  Proposed shadows
-  Private Open Space
-  Heritage Conservation Area
-  Achieves Solar Access requirements

Fig. 8.2.3.3 Solar access to Alexandria Park and Alexandria Heritage Conservation Area - Winter Solstice

SOLAR ACCESS TO ALEXANDRIA PARK - EQUINOX

The Metro Quarter concept proposal does not reduce the sun access and amenity to the neighbouring public open space and private open space at the equinox.



Fig. 8.2.3.4 Solar access to Alexandria Park and Alexandria Heritage Conservation Area - Equinox

8.2.4 PEDESTRIAN ENVIRONMENT

The wind tunnel analysis has been prepared with the massing presented at the PRP meeting in February.

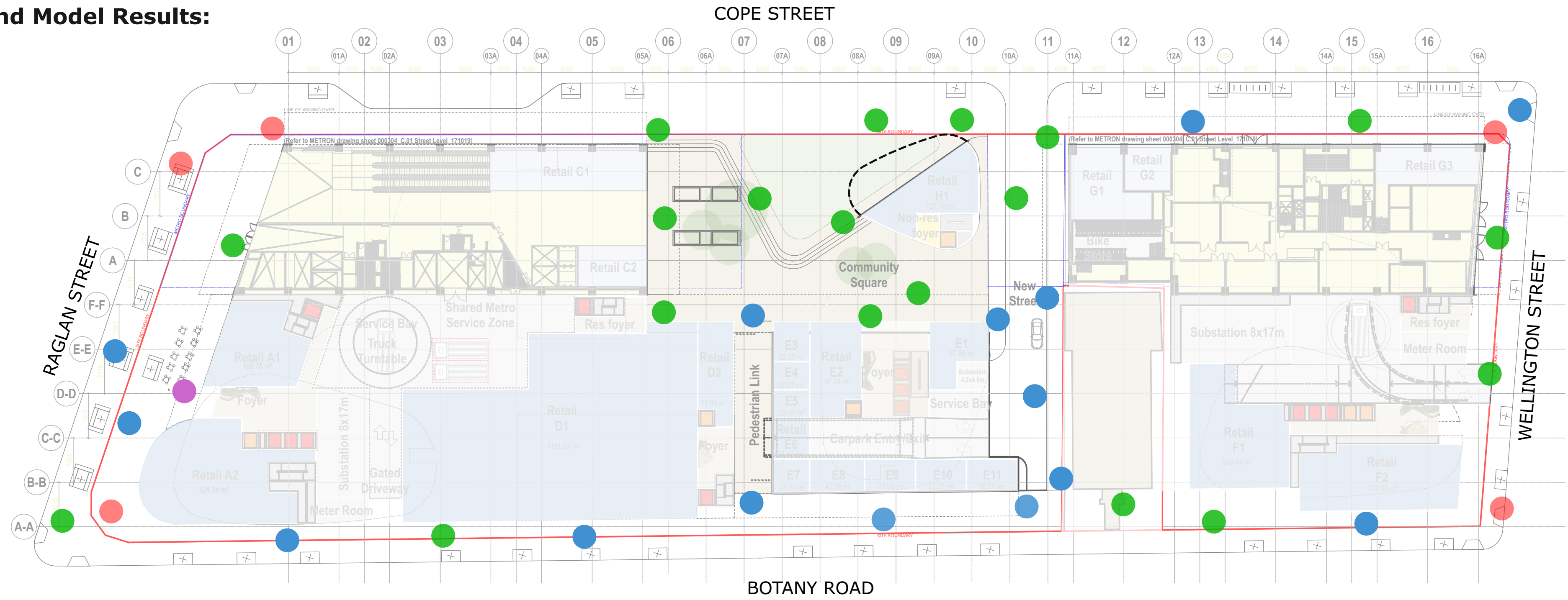
It does not include awnings as they are generally not included at this level of detail /stage of project.

Windtech advised that the introduced setback to Wellington Street and the continuous awning at ground level will mitigate the areas currently exceeding comfortable walking level.

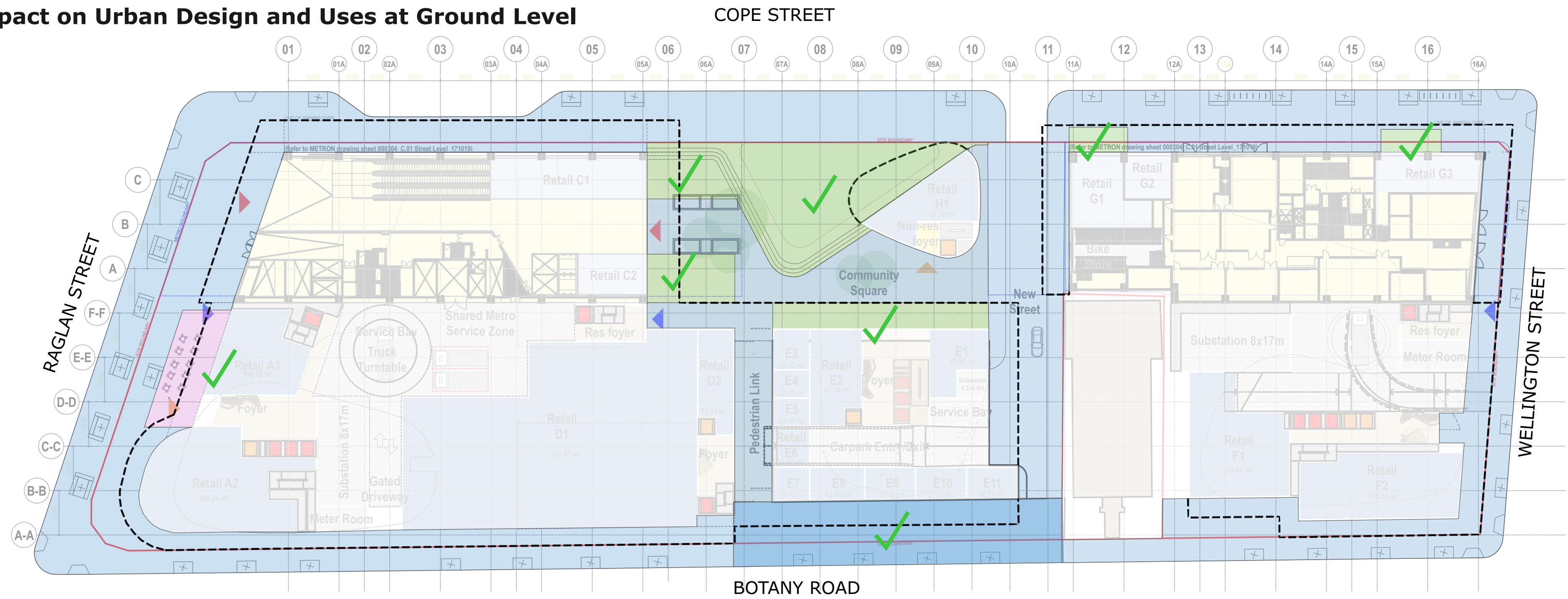
Windtech confirms the outcomes from the modelling done to date support the rezoning.

Detailed development applications will demonstrate ameliorative treatments comply with the relevant controls and standards.

Wind Model Results:



Impact on Urban Design and Uses at Ground Level



Legend

- Exceeds Comfortable Walking Criteria
- Meets Comfortable Walking Criteria
- Meets Shot Exposure Criteria (Cafe seating up to 30 min)
- Meets Long Exposure Criteria
- Walking
- Walking and Waiting
- Seating
- Line of Awning Over

Fig. 8.2.4.1 Pedestrian Environment

8.2.5 POTENTIAL STAGING

Delivery can be staged to maintain the use of the Metro and surrounds

The design has considered the opportunity for staged delivery while maintaining full access and functionality to the Metro station and surrounds.

The key public domain and community elements are intended to be delivered upfront, providing a lively, integrated community space at the opening of the station.

The residential buildings have the potential to be delivered separately to allow agility in response to market demands.

A potential staging strategy is shown in the following diagrams.

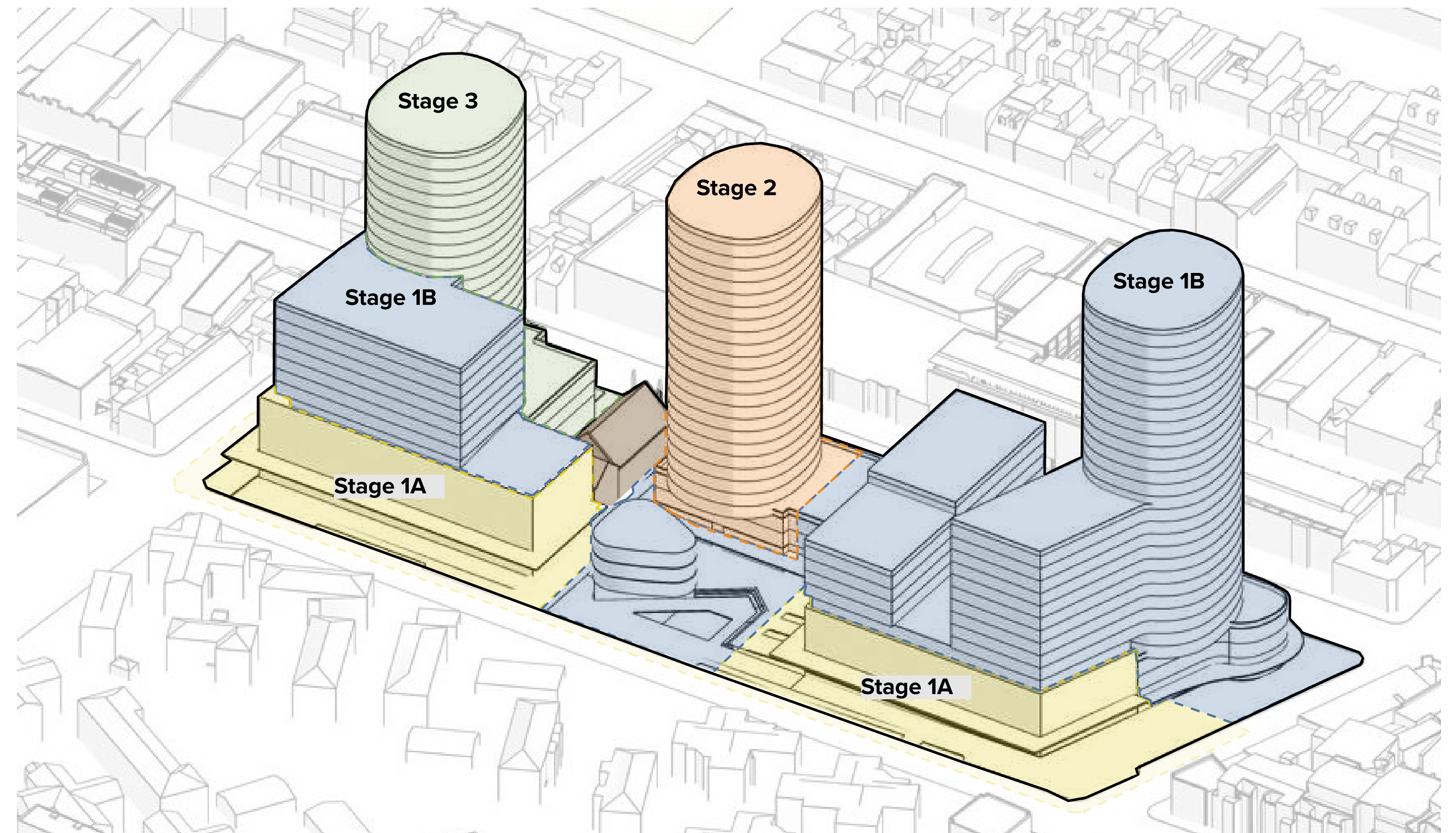


Fig. 8.2.5.1 Potential staging built form

Legend

- Stage 1A
- Stage 1B
- Stage 2
- Stage 3

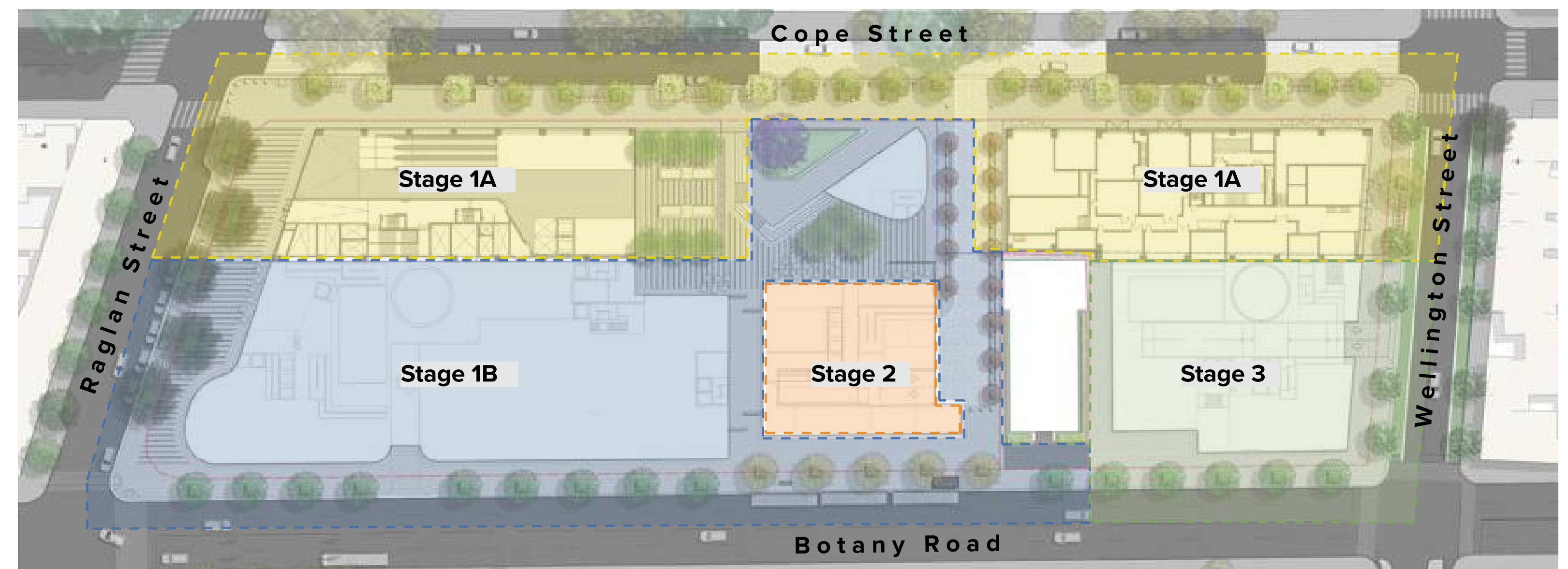


Fig. 8.2.5.2 Potential staging plan

8.2.6 BUILDING AREA ASSUMPTIONS

Building Area Assumption Diagram Notes:

This diagram illustrates Primary Controls, as described in "Part2" of the Apartment Design Guide.
Final figures may vary between building typologies.

Envelope efficiency

Where the building efficiency is 72,5% , the proposed BEA (Building Envelope Area) to GFA (Gross Floor Area) efficiency exceeds the ADG recommended metrics. Depending on the specific site, orientation and building typology a building envelope BEA to GFA efficiency of 70%, 72% or 75% may be used.
The more regular the site, the higher the efficiency may be achieved.

Building Articulation Zone (BAZ)

The building articulation zone is used to assist in architectural expression and modulation and typically does not contribute additional BEA, GFA or NSA.

Building Envelope Area (BEA)

A building envelope should be 25-30% greater than the achievable gross floor area to allow for building components that do not count as floor space but contribute to building design and articulation such as balconies, lifts, stairs, external wall construction and open circulation space. (ADG, p29)

Gross Floor Area (GFA) & Floor Space Ratio (FSR)

GFA is not a measure of the maximum capacity of the building envelope. The envelope provides an overall parameter for the design of the development. The allowable gross floor area should only 'fill' approximately 70% to 75% of the building envelope area. Gross Floor Area divided by the site area is the Floor Space Ratio.
In new urban areas or where an existing neighbourhood is undergoing change, building envelopes should be tested prior to setting FSR controls. (ADG, p32)

Nett Saleable Area (NSA)

Generally this is the internal area only of dwellings or tenancies and excludes unenclosed balconies or terraces unless noted.

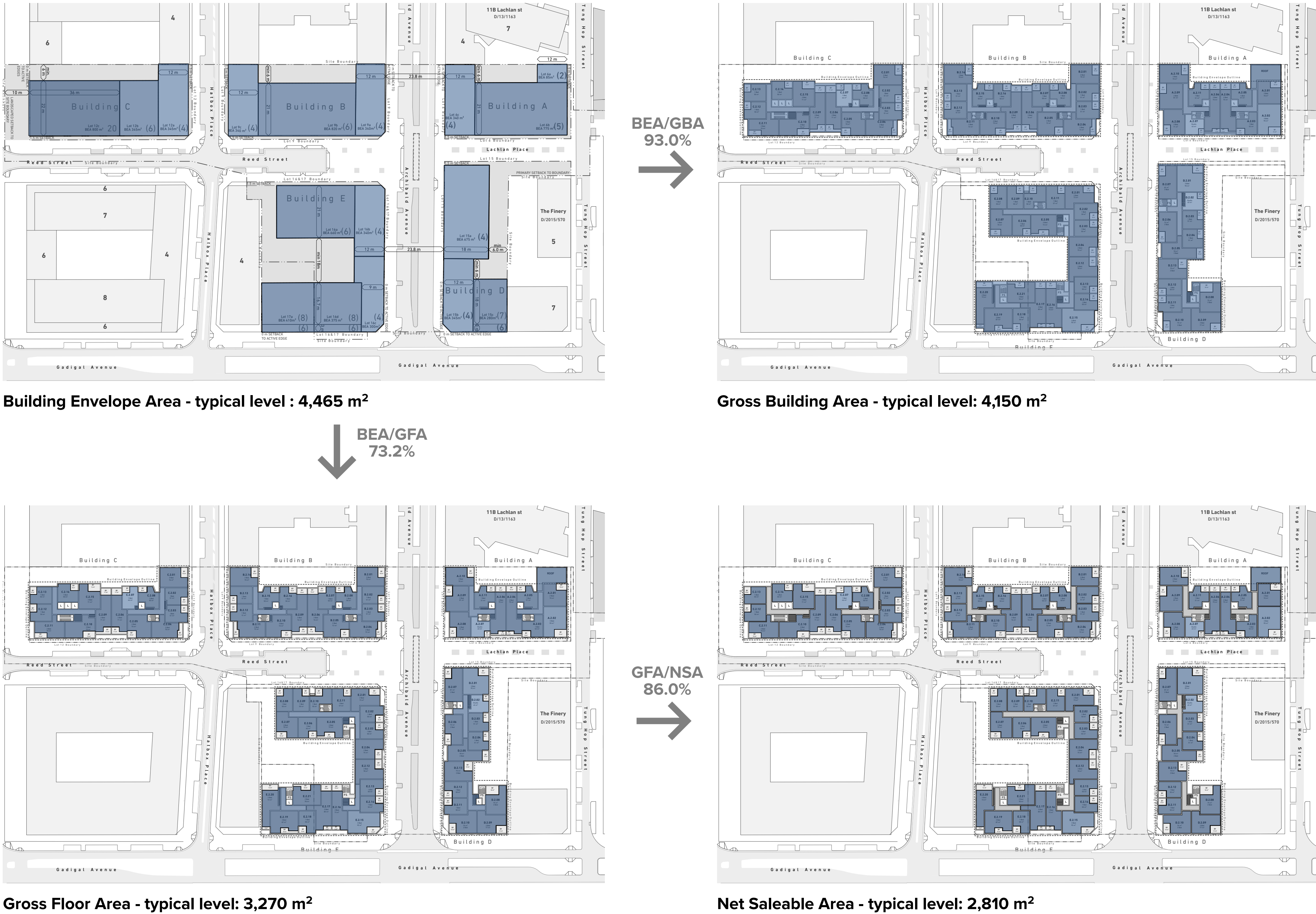


Fig. 8.2.6.1 O'Dea Masterplan Building Area Summary

The O'Dea Masterplan contains a range of building forms and sizes that are consistent with the Indicative Concept Proposal

BUILDING AREA SUMMARY

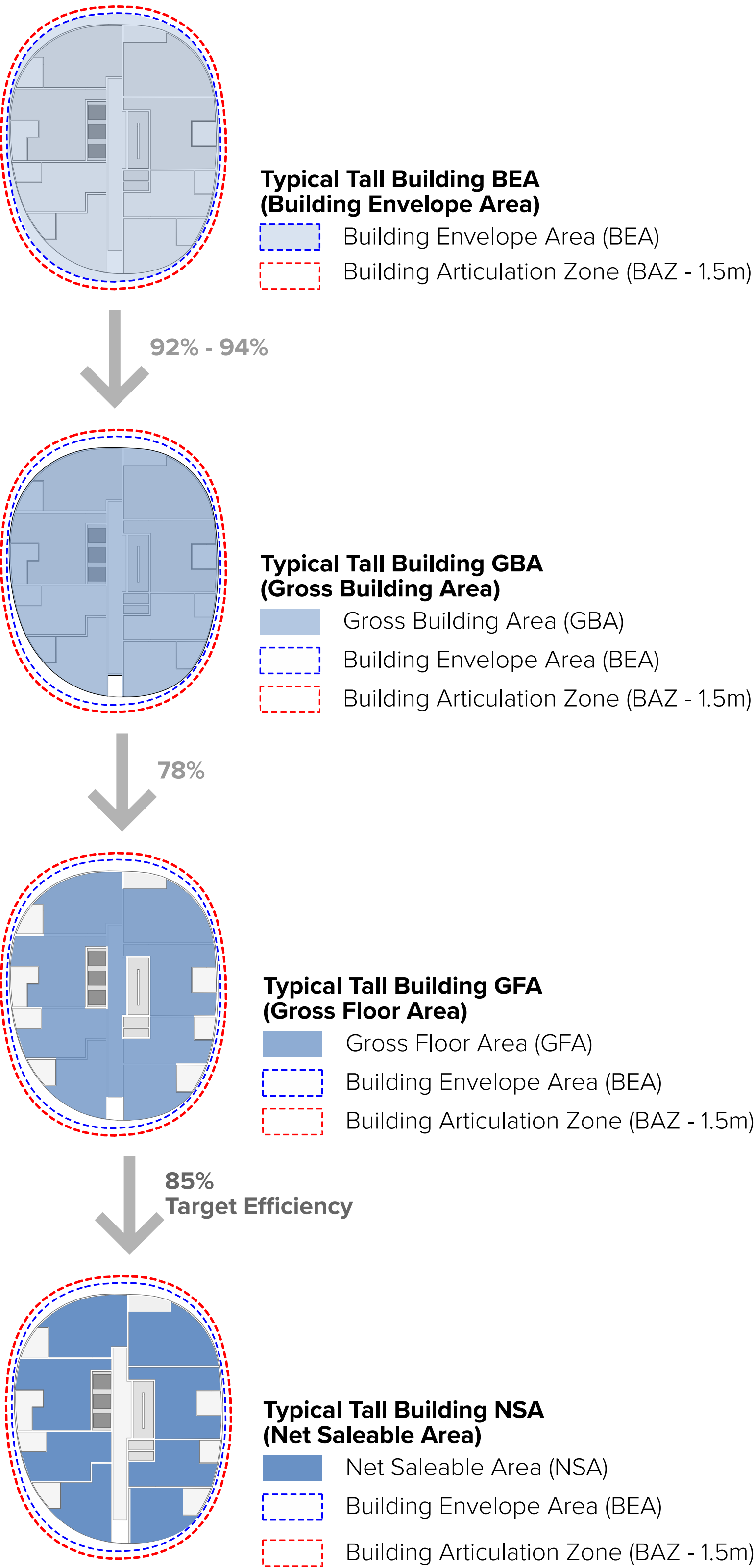


Fig. 8.2.6.2 Building area assumptions

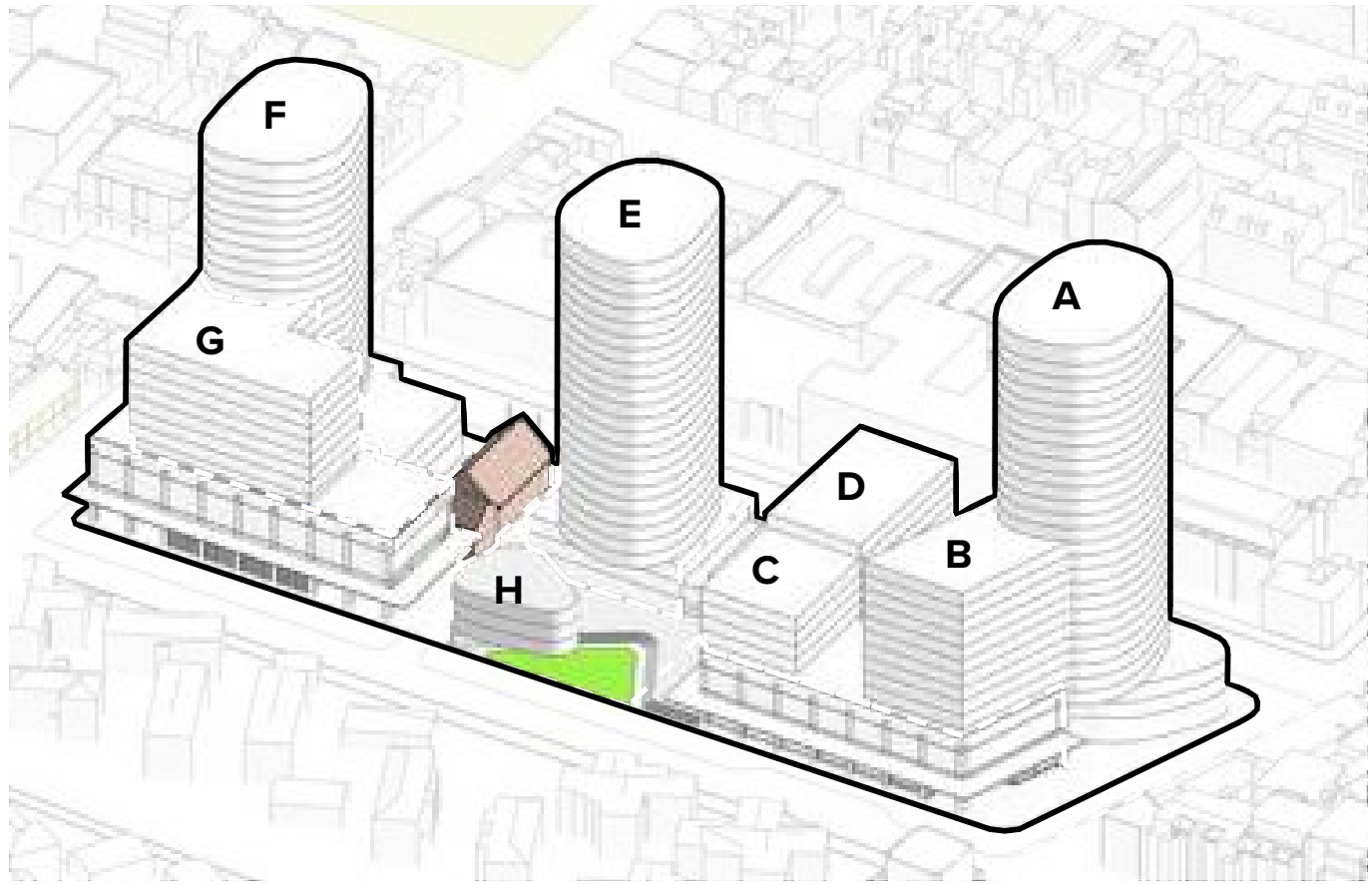
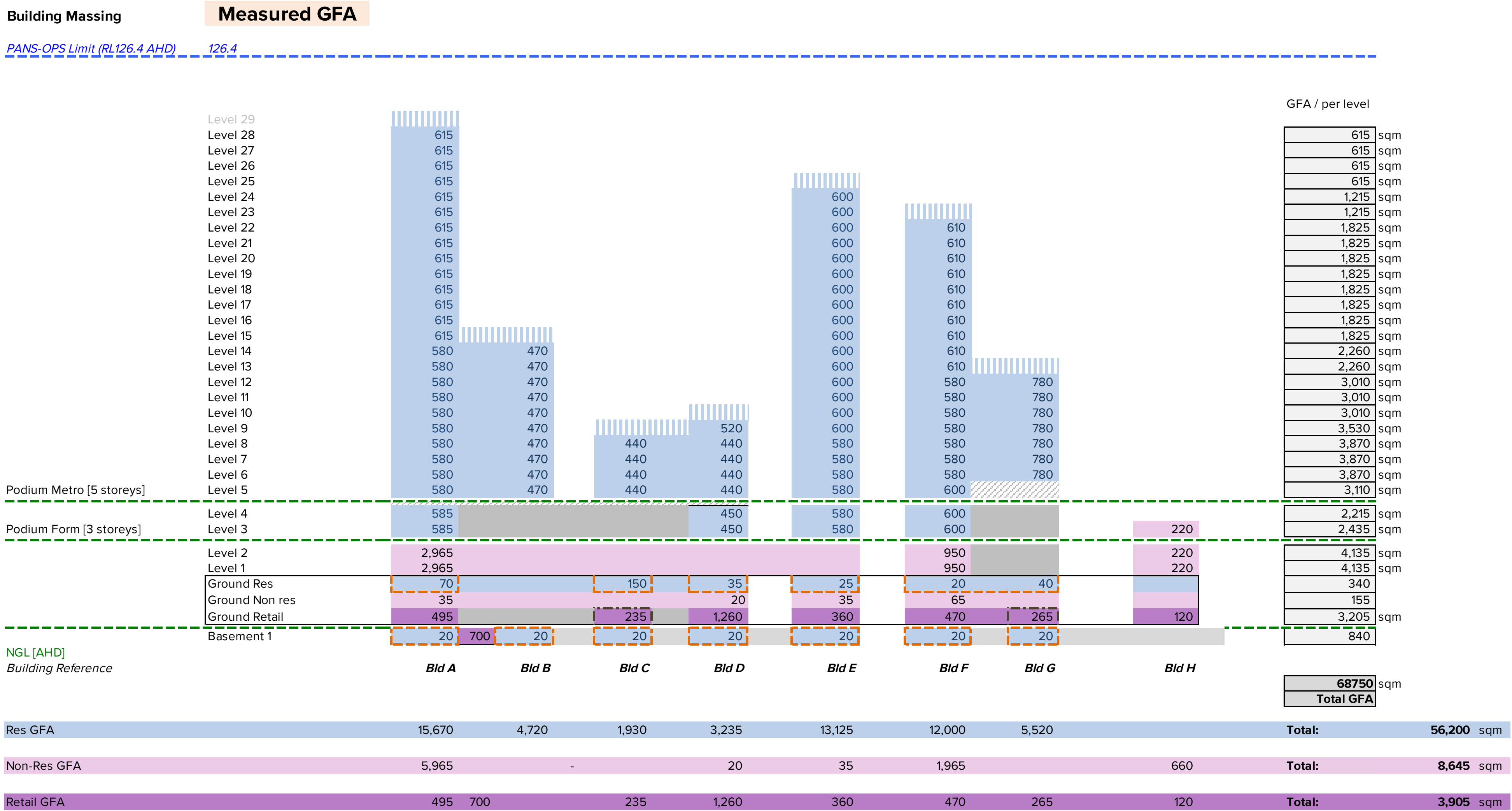


Fig. 8.2.6.3 Gross Floor Area summary for the Waterloo Metro Quarter

8.2.7 BETTER PLACED ASSESSMENT

Better Placed is a draft guideline by the Government Architect of NSW for a design-led planning strategy to create liveable, productive, sustainable and resilient communities.

The Metro Quarter is a catalyst for the positive evolution of the Waterloo Estate and surrounding areas. To achieve this successfully, a number of strategies have been developed based on the seven Better Placed objectives. These strategies will ensure the built environment will be healthy, responsive, integrated, equitable and resilient:



Better Fit
Contextual, local and of its place
Good design is place based and relevant to and resonant with local character, heritage and communal aspirations. It contributes to evolving and future character and setting.

The Metro Quarter response:

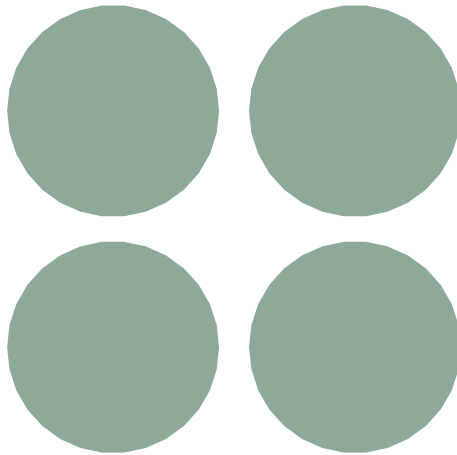
- Positively responds to the existing character and built environment of the area as well as the potential future character of the Waterloo Estate



Better Performance
Sustainable, adaptable and durable
Environmental sustainable and responsiveness is essential to achieve the highest performance standards and for functional, whole of life design.

The Metro Quarter response:

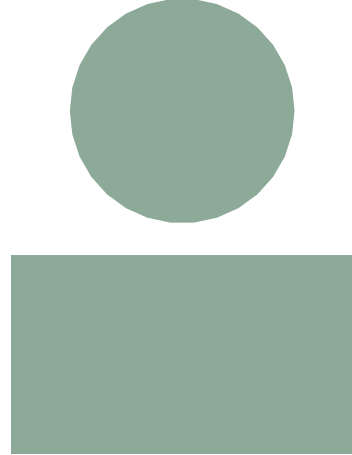
- The design of built form considers the environmental impact of the development onto the surrounding context and their inherent environmental amenities
- Detail design of the Metro Quarter and the choice of high quality and durable materials and finishes will tie into the existing character
- Innovative initiatives are integrated, e.g., WSUD



Better for Community
Inclusive, connected and diverse
Incorporating diverse uses, housing types and economic frameworks will support engaging places and resilient communities and create inclusive, welcoming and equitable environments.

The Metro Quarter response:

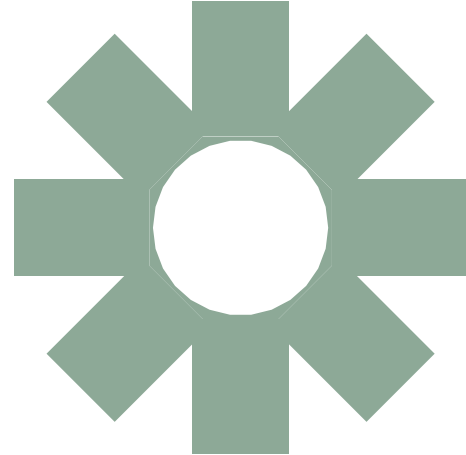
- Variety of land uses proposed to complement existing uses
- A range of public spaces and buildings
- Potential for the community to program the public space for events
- Social and affordable housing provided to support more choice and affordability for the community
- Delivery of public benefits upfront



Better for People
Safe, comfortable and liveable
Design should focus on safety, comfort and the functionality of place to support good and functional places for people.

The Metro Quarter response:

- All inclusive access
- Convenient and easy navigation through the space
- Passive surveillance promoted through siting and location of uses
- Public spaces provided with good amenity and quality of finishes



Better working
Functional, efficient and fit for purpose
Buildings and spaces that work well for their proposed use and have the ability to adapt to change will remain valuable and well-utilised.

The Metro Quarter response:

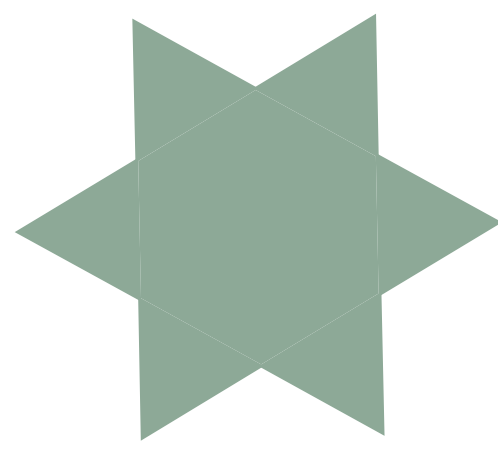
- Non residential uses provide services and facilities required for the future community
- Buildings and spaces are designed to accomodate future change and adapt by providing flexible floor plates and appropriate heights



Better Value
Creating and Adding Value
Good design generates on-going value for people and communities, minimises costs over time, raises standards and quality of life for users and provides return on investment for industry.

The Metro Quarter response:

- Use of high quality finishes that require less cost to maintain
- Buildings located to maximise amenity benefits for solar, wind and noise mitigation



Better Look & Feel
Engaging, inviting and attractive
The built environment should be welcoming, aesthetically pleasing and promote positive engagement by encouraging community use and enjoyment.

The Metro Quarter response:

- Design of safe and attractive public domain
- Spaces designed to encourage social interaction (both programmed and unprogrammed)



8.2.8 SEPP 65 ASSESSMENT

DESIGN QUALITY PRINCIPLE 1
CONTEXT AND NEIGHBORHOOD CHARACTER

Good design responds and contributes to its context. Context is the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions. Responding to context involves identifying the desirable elements of an area’s existing or future character. Well-designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood. Consideration of local context is important for all sites, including sites in established areas, those undergoing change or identified for change.

PROPOSAL

The proposal is compatible with the existing and desired context and neighbourhood character of the precinct.

The proposal seeks to respond to and contribute to the context of Waterloo both in its present state as well as the desired future character.

Waterloo's urban fabric has been shaped by a history of growth and renewal, with the resulting diverse mix of housing typologies reflecting evolving models for living. This narrative is reflected in the environment and comprises of a diverse mix of built form, fine grain and use adapted over time to meet changing housing demands.

The Metro Quarter straddles zones of differing density and height, with Alexandria Park and the Alexandria Heritage Conservation Area to the west and Waterloo Estate - future urban renewal - to the east. Future development along Botany Road provides a potential “transition zone” between Waterloo Estate to the east and the Alexandria Heritage Conservation Area to the west, beyond Wyndham Street.

The future vision for Waterloo anticipates an intensification of residential development around the future Waterloo Station

The ground plane is designed to produce an attractive vibrant streetscape. The Waterloo Metro Quarter will become a dynamic space where commuters, residents and visitors will experience a social cohesion that engages with the existing local character whilst providing an environment that welcomes the community to Waterloo

The materials and finishes for the development are of a high standard, and referential to the surrounding dwelling typologies, as well as it's historical and environmental context.

The Waterloo Metro Quarter has the opportunity to increase social sustainability and liveability by providing a more diverse mix that includes social, affordable and private dwellings. This will provide more equitable access to resources and better quality of life for all.

DESIGN QUALITY PRINCIPLE 2
BUILT FORM AND SCALE

Good design also achieves an appropriate built form for a site and the building’s purpose in terms of building alignments, proportions, building type, articulation and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.

PROPOSAL

The proposal is layered composition of typologies reflecting the surrounding context.

Most critical are the interfaces to Waterloo Congregational Church and the Raglan Street junction where three heritage items on the opposing corners mark a key interface with the existing context.

The grain and character of the podium shall reflect the identity and diversity of the locality.

The mid-rise buildings reference the scale of the medium density typologies of the urban renewal that has occurred along Botany Road, providing a transition between the podium and tall building forms. These buildings serve to mediate the building scale toward Cope Street and the public plaza along Cope Street.

The tall buildings provide a destination marker for Waterloo Station, the new activity centre, and the threshold into the Waterloo Estate. The curved tower articulation softens the building forms and reduces the floor plate size, in turn maximising outlook and daylight access within the buildings and between them to the public domain. The apartments will enjoy views in all directions, from Central Sydney to the eastern beaches and west to the mountains.

The proposed built form typologies responds to the layered and diverse mix of built form within the surrounding context, with a range of built form - low, mid and high rise - to respond to the complex nature of the site and create a new marker for Waterloo Station

DESIGN QUALITY PRINCIPLE 3

DENSITY

Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context.

Appropriate densities are consistent with the area's existing or projected population.

Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.

PROPOSAL

The proposal for the Waterloo Metro Quarter – a mixed-use development integrated with the new Waterloo Station, organised around a new public domain including a station entry plaza, community plaza and pedestrian and shared laneways has an overall GFA of 68,750 square metres, generating an FSR of 5.34:1.

The indicative GFA distribution is divided into 56,200 square metres of residential floor space and 12,550 sqm of retail, entertainment, community, recreational and local business and commercial uses is accommodated in a 3 storey podium and freestanding Community Hub building.

Approximately 700 apartments are provided, 5-10% affordable, 70 social housing dwellings and the remainder to be private market housing. The apartments are accommodated in a number of podium buildings up to 10 storeys above the approved metro station and three residential buildings of 23, 25 and 29 storeys.

DESIGN QUALITY PRINCIPLE 4

SUSTAINABILITY

Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs. Other elements include recycling and reuse of materials and waste, use of sustainable materials, and deep soil zones for groundwater recharge and vegetation.

PROPOSAL

The proposed development will be designed to be highly sustainable and to contribute positively to the environmental, social and economic aspects of the area.

The ESD principles have been considered thoroughly throughout the planning process. Furthermore, the project team has sought to align the design response against the Green Star Communities National Framework and commits to delivering a 4 Star Green Star Design & As Built rating for the buildings within the development.

Incorporation of water sensitive urban design (WSUD) features within the Metro Quarter will contribute to a green and resilient urban environment.

Bio-retention tree pits have been incorporated to assist with treating runoff through filtration and reduce stormwater runoff volumes along pedestrian pathways in rainfall events.

Widened footpaths along Cope Street, provides the opportunity to utilise the former kerb alignment as the new invert level therefore directing runoff into the tree pits through kerb inlets along adjacent pathways and roadsides

The development will include tanks for the retention and on-site detention of stormwater when designed as part of a future Stage 2 SSDA submission.

Energy efficient appliances and water efficient devices will be specified in line with BASIX requirements to minimise water consumption and resources.

The massing and orientation have been organised to maximise natural daylighting and solar access to the primary living spaces and external areas, while minimising wind and noise impacts.

The development achieves the deep soil and open space recommendations of the ADG and in doing so will provide a variety of open space and landscaped areas to enhance the overall amenity for the residents.



DESIGN QUALITY PRINCIPLE 5
LANDSCAPE

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well-designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood.

Good landscape design enhances the development’s environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values, and preserving green networks. Good landscape design optimises usability, privacy and opportunities for social interaction, equitable access, respect for neighbours’ amenity, provides for practical establishment and long-term management.

PROPOSAL

As a gateway to Waterloo and the surrounding neighbourhoods of Redfern, Alexandria and Eveleigh, the public domain will unite the metro station, retail and residential components whilst integrating the Metro Quarter into the existing urban fabric.

The public domain will establish a new public plaza, creating a place that is activated, vibrant, pedestrian and cycle focused.

Trees are the predominant elements that will define the public domain character and atmosphere. The tree palette for the Metro Quarter aims to augment local character and species diversity (both native and exotic), maintaining biodiversity and support local wildlife.

Selected species will support local native bee species and foraging wildlife whilst providing canopies that will create shade minimising urban heat island effect and cooling the public domain during summer months.

To appreciate Waterloo’s existing vegetation, species such as Banksia integrifolia have been included to help strengthen the threatened plant community.

Low growing, flood tolerant understorey species have been selected to further define the public domain, provide habitat and assist with WSUD, avoiding obstruction of sight lines across the site and streets creating a safe and healthy environment.

Tree and understorey species are of indigenous significance are selected and provide edible elements for cooking with flowers, fruits, roots and seeds all providing a source of food with the public domain.

Roof top terraces have been proposed to ensure outdoor spaces are both functional and visually interesting, including when viewed from above.

Furthermore tree planting assists in providing privacy to the amenity uses on ground. These areas receive good levels of solar access and a high level of amenity, enhancing the public domain along the street edge.

DESIGN QUALITY PRINCIPLE 6
AMENITY

Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well-being.

Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, and ease of access for all age groups and degree of mobility.

PROPOSAL

The building envelopes have been designed to maximise views and access to daylight while minimising wind and noise impacts. Apartment amenity is consistent with the objectives of the Apartment Design Guide (ADG).

Botany Road presents a significant noise source to the development (70dB background). The apartments directly fronting Botany Road are most affected, though those further into the site also require consideration. To achieve acoustic levels of 55dB to living rooms and 45dB to bedrooms the following planning strategies have been adopted:

- Building orientation reduces frontages facing Botany Road, with no single aspect apartments facing the street
- All balconies are provided as re-entrant to the building facade
- Operable windows are located off protected balconies instead of the external façade

- Bedroom openings typically face east, north or south to minimise potential noise impact from Botany Road to the west
 - All glazing/façade fronting Botany Road is not required to be operable to satisfy ventilation requirements.
- While Botany Road facing apartments would ordinarily achieve cross ventilation compliance through their corner location, the preclusion of operable openings to exclude noise removes this ability to be counted. Similarly the apartments affected by Botany Road where the balcony and/or living area has been relocated to mitigate noise infiltration removes the ability for these balconies and/or living areas to capture solar access. The resulting cross ventilation and solar access percentages in the illustrative 'noise responsive' scheme are lower than the 'base case' scheme and ADG.
- Natural ventilation and solar access complies with NCC requiremen

DESIGN QUALITY PRINCIPLE 7

SAFETY

Good design optimises safety and security, within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety. A positive relationship between public and private spaces is achieved through clearly defined secure access points and well-lit and visible areas that are easily maintained and appropriate to the location and purpose.

PROPOSAL

Throughout Waterloo Metro Quarter, buildings help define the public domain. Sightlines to and from the Cope Street metro entry, are strengthened through the triangulation of the plaza, and the location of the community building providing directional movement to the Waterloo Station from Cope Street and south Waterloo

With increased setbacks along Raglan and a new Cope Street plaza along Cope street, active retail edges develop a vibrant day to night economy aligning with the Sydney Metro operating hours and encouraging pedestrian movement and use of the public domain.

Throughsite links from Botany Road to Cope Street as well as within the Metro Station, enhance sight lines and porosity of the site, increasing visibility at ground level, whilst levels above maximise passive surveillance creating safe environment to live, work and play.

Passive surveillance of the buildings throughout day and night by providing safe access with clearly defined points of pedestrian entry to the buildings that are visible from the public domain.

- The entry lobbies are to be fully glazed and well-lit to accentuate the street address and appropriate lighting will be provided to all exterior areas, both public and communal;
- The building will utilise a security system at all entry points, and within the lifts. Two points of vehicular access will be secured by automatic panel lift doors.

DESIGN QUALITY PRINCIPLE 8

HOUSING DIVERSITY AND SOCIAL INTERACTION

Good design achieves a mix of apartment sizes, providing housing choice for different demographics, living needs and household budgets.

Well-designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people, providing opportunities for social interaction amongst residents.

PROPOSAL

Approximately 700 apartments are provided, 5-10% affordable, 70 social housing dwellings and the remainder to be private market housing.

The market housing contains a mix of studio, 1 bed, 2 bed and 3 bed apartments. Within this range there are multiple apartment types and sizes allowing a variety of options for differerent demographics and price points.

New social spaces such as the Raglan Street Plaza and the Public Plaza will draw in users to and from Waterloo Station, providing a social and retail experience in a new urban setting whilst creating moments to meet, pause and engage.

The public domain will become the ‘community door’. A place for the community, a home for residents, a destination for visitors and a workplace for commuters.

The external communal spaces will be designed to engender community spirit for residents within the development by offering north facing private and public open spaces including areas for groups to congregate and also for more private activities. All common areas are designed for equitable access.



DESIGN QUALITY PRINCIPLE 9

AESTHETICS

Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures.

The visual appearance of well-designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.

PROPOSAL

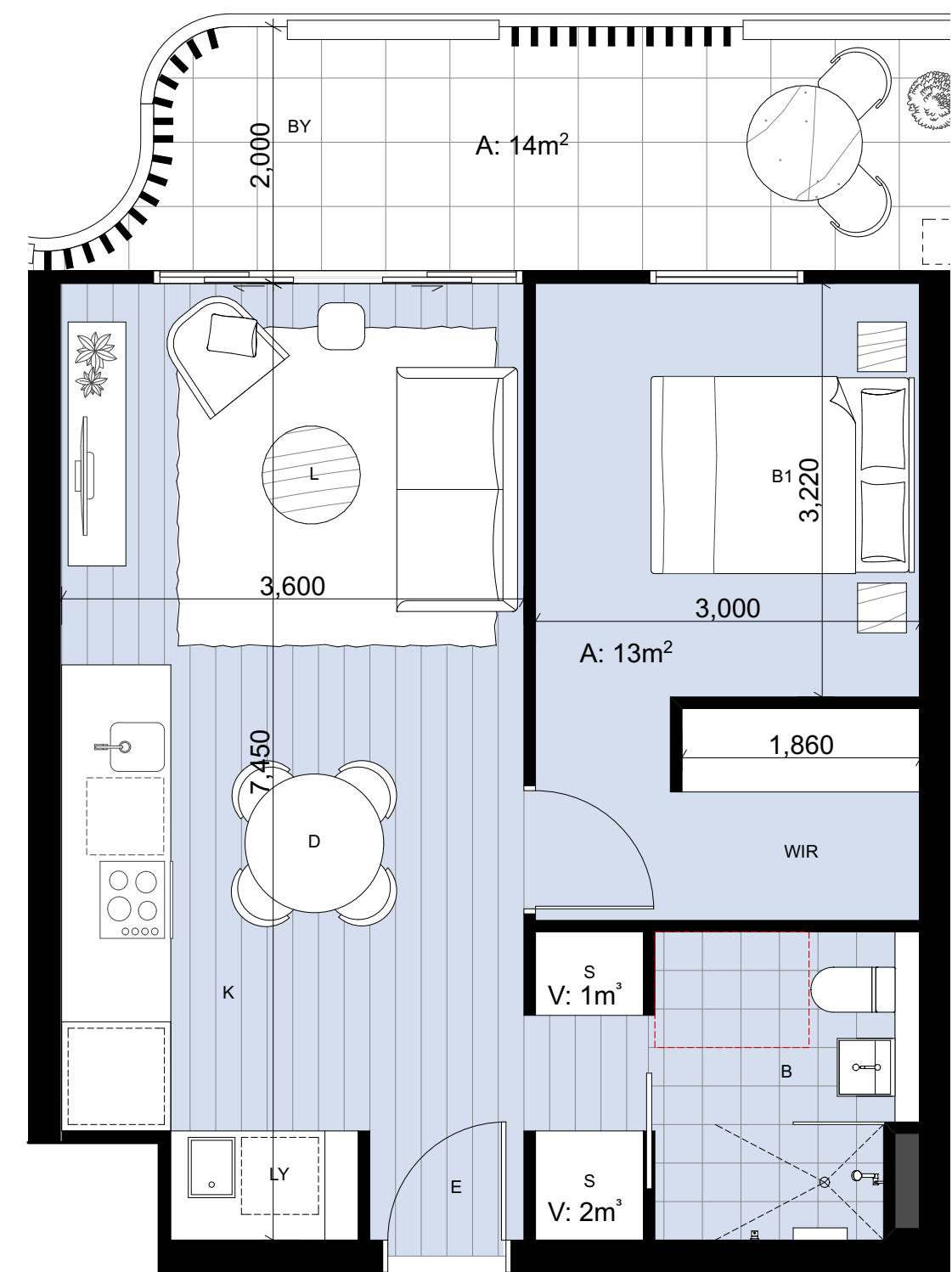
The proposed building envelopes have been developed to accommodate future design opportunities for differing facade expression for each stage to achieve a high level of visual interest and aesthetics, in response to the existing and future local context.

The aesthetics of the proposal do not form part of a SSDA submission. These will be addressed as part of the future design excellence process and asubsequent Stage 2 DA SSDA submission .

This submission, however, includes illustrative plans and photomontages to give an indication of the overall scale of the buildings relative to their context.

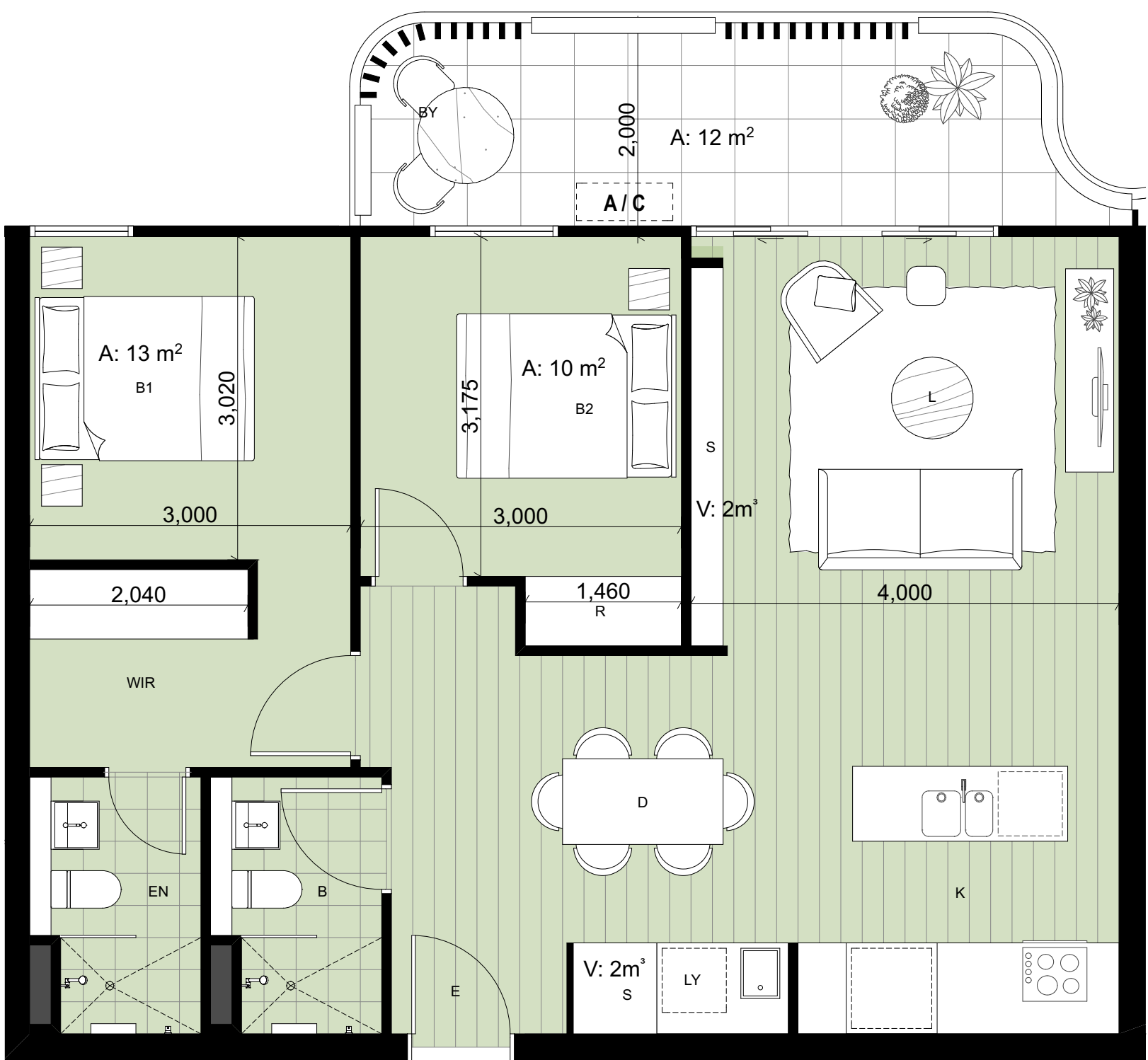
Furthermore the design, materials and colours shown are purely indicative at this stage.

ADG ASSESSMENT - APARTMENT AMENITY



Typical 1 Bed

Internal Area: Minimum 50 m²
External Area: Minimum 8 m²



Typical 2 Bed

Internal Area: Minimum 75 m² (for 2 bathrooms)
External Area: Minimum 10 m²



Typical 3 Bed

Internal Area: Minimum 95 m²
External Area: Minimum 12 m²

Fig. 8.2.8 Typical apartment layouts demonstrating compliance with ADG amenity requirements
Typical layouts have been used in projects including Canterbury Road Apartments, Roselands



8.3 APPENDIX C_STUDY REQUIREMENTS



STUDY REQUIREMENTS

URBAN DESIGN	CHAPTERS							
	1	2	3	4	5	6	7	8
1. Vision, Strategic Context and Justification								
1.2. Outline the strategic planning context for the proposal including an assessment of relevant State planning documents such as: <ul style="list-style-type: none">Better Placed – A Design led Approach: Developing an Architecture and Design policy for NSW draft version 2016								
1.5. Consideration of City of Sydney planning documents strategies and policies including, but not limited to: <ul style="list-style-type: none">Access Policy 2004								
2. Urban Design								
2.1. Prepare a detailed site and context analysis.								
2.2. Prepare comprehensive opportunities and constraints mapping overlays.								
2.3. Prepare a set of urban design principles that underpin the proposed development.								
2.4. Prepare a precinct plan that integrates the: public domain plan, precinct wide community facilities plan, infrastructure plan, and building types and massing for the site and demonstrate how this fits within the overall State Significant Precinct and surrounding context.								
2.6. Provide a sun access analysis at the Winter Solstice for the site and its surroundings, for: the new public park and square, and existing surrounding parks; and, new and existing private open space and dwellings, against standards in the Apartment Design Guide for residential development and the Sydney Development Control Plan 2012 for open space and residential buildings not subject to the Apartment Design Guide.								
2.7. Provide an analysis of proposed distribution of gross floor area, development yields, building typologies, building envelopes and heights.								
2.8. Provide sufficient detail of the building types, including precedents, to demonstrate future compliance with amenity standards and to support any calculations that convert building envelopes to gross floor area and development yields.								
2.9. Demonstrate how the urban design principles have informed the allocation and location of proposed land uses.								
2.11. Outline the proposed staging that integrates the delivery of the public domain with the progress of proposed public and private development.								
2.12. Demonstrate how the station entries, services and other requirements are fully integrated with development on the site.								
2.13. Demonstrate how the metro connects to the major active transport corridors (the City’s Liveable Green Network). Indicate how provision for interchange with bus stops, provision of bicycle parking, kerbside areas for ‘kiss and ride’ and taxis are located and provide customer comfort and a good customer experience including consideration of pedestrian desire lines, weather/wind protection and activation of building facades within interchange areas and along key pedestrian and bicycle routes.								

STUDY REQUIREMENTS

PUBLIC DOMAIN	CHAPTERS							
	1	2	3	4	5	6	7	8
1. Vision, Strategic Context and Justification								
1.2. Consideration of City of Sydney planning documents strategies and policies including, but not limited to: <ul style="list-style-type: none">• Open Space, Sports and Recreational Needs Study 2016• Public Domain Manual• Sydney Streets Code 2013• Sydney Streets Technical Specification 2016• Street Tree Master Plan 2015• Urban Forest Strategy 2013• Sydney Landscape Code• City of Sydney Digital Strategy 2017• Sydney Lights Code• Cycle Strategy and Action Plan 2007• Legible Sydney Way-finding Strategy 2012								
3. Public Domain: Public Open Space and Streets								
3.1 Consult closely with and obtain endorsement, for the extent that it relates to the approval of the planning framework, the city of Sydney for all aspects of the public domain as the ultimate owner and manager of the public domain.								
3.2 Provide a public domain plan identifying any changes to the surrounding streets and any areas of public open space: reference should be made to The Central to Eveleigh and Waterloo Land Use and Infrastructure Strategy (LUIS), when available and the green grid - Creating Sydney's Open Space Network.								
3.3 Provide a detailed study of the botany Road interface that addresses the existing poor amenity of this frontage. Consider the broader urban design context and transport function of the Botany Road corridor and identify opportunities to improve amenity through enabling landscaping and other improvements to this frontage.								



8.4 ABBREVIATIONS

This quick reference guide sets out frequently used abbreviations used in this report:

ABS	Australian Bureau of Statistics
ADG	Apartment Design Guide
ATP	Australian Technology Park
BASIX	Building Sustainability Index
CALD	Culturally and Linguistically Diverse
CCD	Census Collection District
CHPs	Community Housing Providers
CoS	City of Sydney
CPTED	Crime Prevention Through Environmental Design
DCP	Development Control Plan
DP&E	NSW Department of Planning and Environment
ESD	Ecologically Sustainable Development
FACS	Family and Community Services
FSR	Floor Space Ratio
GFA	Gross Floor Area
GSC	Greater Sydney Commission
Ha	Hectare
LAHC	NSW Land and Housing Corporation
LEP	Local Environmental Plan
LGA	Local Government Area
NGOs	Non-government organisations
OEH	NSW Office of Environment and Heritage
OGA	Office of Government Architect
PMF	Probable Maximum Flood
RMS	NSW Roads and Maritime Services
SDCP	Sydney Development Control Plan
SEIFA	Socio-economic Indexes for Areas
SEPP	State Environmental Planning Policy
SLEP	Sydney Local Environmental Plan
SOC	State Owned Organisation
SSP	State Significant Precinct
Sqm	Square metre
TfNSW	Transport for NSW
TIWG	Technical and innovation Working Groups
UGNSW	UrbanGrowth NSW Development Corporation
USYD	University of Sydney
UTS	University of Technology
WSUD	Water Sensitive Urban Design
1% AEP	Statistical flood event occurring once every 100 years

8.5 COMMONLY USED TERMS

QUICK REFERENCE TO TERMS FREQUENTLY USED IN THIS REPORT

This quick reference guide sets out terms frequently used in this report.

**Waterloo State
Significant Precinct**

The Waterloo State Significant Precinct study area is the area for which the Waterloo SSP Study is being rezoned for future re-developed, and comprises the Waterloo estate and the Waterloo metro quarter.

**State Significant
Precinct (SSP)**

State Significant Precincts (SSPs) are areas that the Minister for Planning considers to be matters of state or regional planning significance, because of their social, economic or environment characteristics.

These areas can play a particularly important role in achieving government policy objectives, including those relating to increasing the supply of housing and employment in key locations, and improving housing choice and affordability.

**Masterplan / Precinct
Plan**

A plan that shows an overall development concept that includes urban design, landscape, infrastructure, service provision, circulation, present and future land use and built form. It consists of three-dimensional images, texts, diagrams, statistics, reports, maps and aerial photos that describe how a specific location will be developed. It provides a structured approach and creates a clear framework for developing an area.

Waterloo estate

Waterloo estate is the 18.12 ha social housing estate, owned by the Land and Housing Corporation. Waterloo estate consists of 2,012 dwellings within a mix of low to medium rise walk-ups, three medium rise apartment buildings (4-7 storeys) and six high rise blocks (two 30 storey and four 16 storey).

Waterloo estate is primarily bound by Phillip Street to the North, Pitt Street to the East, McEvoy Street to the South and Cope Street to the East. The Waterloo estate also includes the parcel of land bound by Pitt Street, Wellington Street, Gibson Street and Kellick Street.

**Waterloo Metro
Quarter**

The Waterloo Metro Quarter is the land adjoining the Waterloo estate bound by Botany Road, Raglan Street, Cope Street and Wellington Streets within which the Waterloo metro station and the development above and around the station. The heritage-listed Waterloo Congregational Church at 103 Botany Road is excluded.

Community

Includes all the people who live, work, study, own property, conduct private or government business, visit or use the services, facilities and public spaces of the Waterloo SSP study area.

Stakeholders

Includes individuals, groups and organisations who have an interest, will be directly impacted or have an ability to influence outcomes of a project or process.

This also includes “government stakeholders” which are the local, state and federal government agencies responsible for policy making and service planning, as well as social housing residents/tenants, residents and businesses in the surrounding community, non-government organisations and local service providers.

**Aboriginal
peoples /
Indigenous
people/Aboriginal
community/
Indigenous
community**

Aboriginal people are from mainland Australia. Torres Strait Islanders are from the Torres Strait. Indigenous is a term that encompasses both Aboriginal and Torres Strait Islander people.

Redfern and Waterloo are significant sites for the Aboriginal peoples, and many Aboriginal residents and visitors to the area have connections to language and cultural groups around NSW and Australia.

The traditional owners of the land at Waterloo are the Gadigal People of the Eora Nation.

**Central to
Eveleigh Urban
Transformation
Strategy**

Central to Eveleigh Urban Transformation Program: renewal of the inner city rail corridor from Central to Eveleigh (extending to Macdonaldtown and Erskineville train stations), a 50-hectare site.

**Culturally and
Linguistically
Diverse**

The term “culturally and linguistically diverse” (CALD) is commonly used to describe people who have a cultural heritage different from that of people from the dominant Anglo-Australian culture. It replaces the previously used term of people from a “non-English speaking background” (NESB).

**Social housing/
Public housing/
Community
housing /
Aboriginal
housing**

Social housing is the term used for subsidised housing owned or managed by not-for-profit, non-government and government organisations to assist people who are unable to access suitable accommodation in the private rental market. Social housing is a term that covers public, Aboriginal and community housing.



Affordable housing

Housing that is appropriate for the needs of a range of very low to moderate income households and priced so that these households are also able to meet other basic living costs such as food, clothing, transport, medical care and education.

Land and Housing Corporation

The NSW Land and Housing Corporation (LAHC) is responsible for the management of the NSW Government's social housing portfolio. LAHC operates under the portfolio and direction of the Minister for Family and Community Services and Minister for Social Housing. LAHC and FACS work together to achieve a unified administration of the Act.

UrbanGrowth NSW Development Corporation

UrbanGrowth NSW Development Corporation is the NSW Government's urban transformation agency. It is a Government Agency in the Department of Premier and Cabinet.

Family and Community Services

The Family and Community Services (FACS) cluster works with children, adults, families and communities to improve lives and help people realise their potential.

Family and Community Services supports vulnerable people and families to participate in social and economic life and build stronger communities.

Sydney Metro

Sydney Metro is Australia's biggest public transport project. This new standalone railway will deliver 31 metro stations and more than 65 kilometres of new metro rail, revolutionising public transport in Sydney.

Waterloo Station will be delivered as part of the Chatswood to Sydenham component of the Sydney Metro City and Southwest project that involves the construction and operation of a 15.5 kilometre metro line from Chatswood, under Sydney Harbour and through Sydney's CBD out to Sydenham.

Department of Planning and Environment

The Department of Planning and Environment are responsible for determining the planning pathways, developer contributions framework and preparing a recommendation to the Minister for the rezoning of the Waterloo Precinct within the State Significant process.

City of Sydney

The City of Sydney is the Local Government Authority for the suburb of Waterloo. Working closely with DP&E, the City of Sydney will assist with the assessment of the SSP study.

Development Control Plan

A Development Control Plan (DCP) provides detailed planning and design guidelines to support the planning controls in the proposed SEPP amendment and will be adapted by the Minister for Planning. It provides additional detailed development controls to compliment the SEPP amendment.

Local Environmental Plans

Local Environmental Plans (LEPs) are an integral part of the NSW planning system. They are created by the Minister for individual councils to control the form and location of new development, along with protecting open space, heritage items and environmentally sensitive areas and the like.

LEPs guide planning decisions for local government areas. Through zoning and development controls, they allow councils and other consent authorities to manage the ways in which land is used. LEPs are the primary planning tool to shape the future of communities and also govern and direct the estimated \$29 billion worth of local development that is determined each year.

State Significant Precinct SEPP(SSP) Amendment

The proposed planning framework will be contained within a Precinct specific study in schedule 3 of SEPP SSP. This will set aside Sydney LEP 2012, which would otherwise provide the planning framework for the Precinct.

State Environmental Planning Policies

State Environmental Planning Policies (SEPPs) deal with matters of State or regional environmental planning significance. They are made by the Governor on the recommendation of the Minister for Planning and may be exhibited in draft form for public comment before being published as a legal document.

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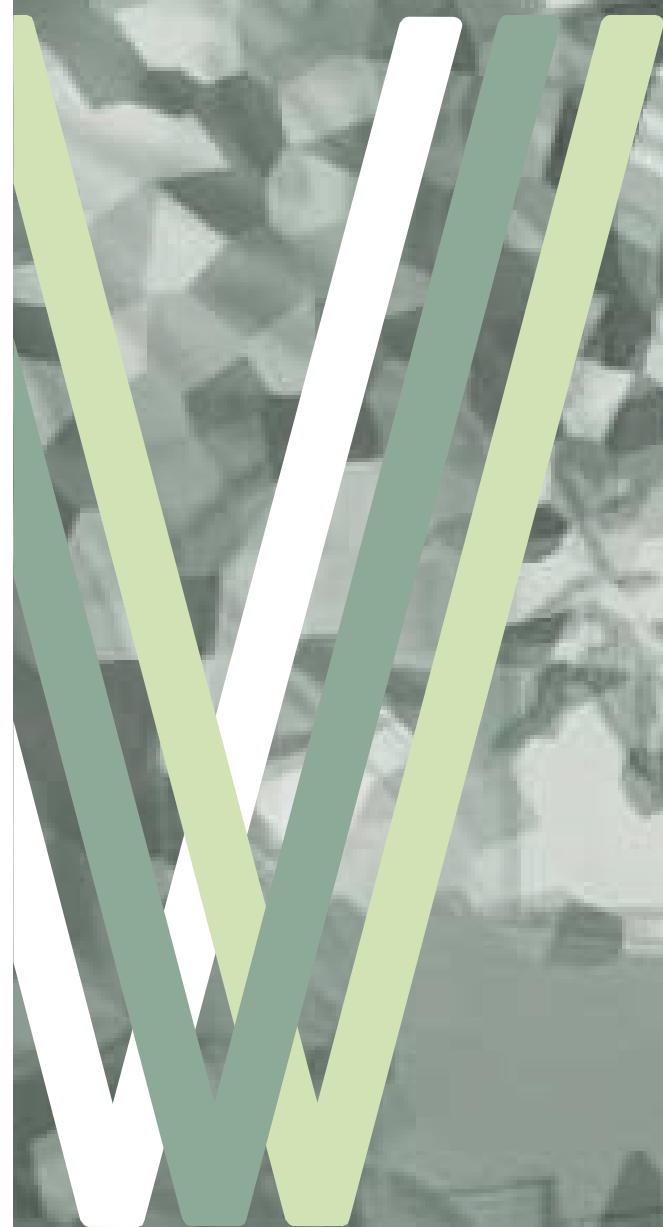
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