ARCHITECTURE
URBAN DESIGN
HERITAGE
INTERIORS
GRAPHICS

PRINCIPALS
& NOMINATED
ARCHITECTS (NSW)
Michael Heenan 5264
Peter Ireland 6661

CEO
Michael Heenan

HEAD OFFICE – SYDNEY
79 Myrtle Street
Chippendale NSW 2008
AUSTRALIA
tel +61 2 9311 8222
fax +61 2 9311 8200

www.architectsajc.com

ALLEN JACK+COTTIER
Architects Pty Ltd
ABN 53 003 782 250

BEIJING
SYDNEY

MH/BM

15 March 2019

Liverpool City Council
Shop R1, 33 Moore Street
Liverpool, NSW 2170

Attn: Boris Santana, Senior Development Planner

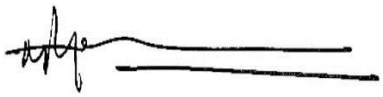
Dear Boris,

RE: 86 CASTLEREAGH STREET LIVERPOOL (18/005)
APPLICATION NUMBER PL-66/2018

Pursuant to Clause 50 (1A) of the Environmental Planning and Assessment Regulation 2000, I hereby declare that I am a qualified designer, which means a person registered as an architect in accordance with the Architects Act 2003 as defined by Clause 3 of the Environmental Planning and Assessment Regulation 2000.

I directed the design of the apartment development stated above and I confirm that the design achieves the design quality principles set out in Schedule 1 Design quality principles of the State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development.

Yours faithfully
ALLEN JACK+COTTIER



Michael Heenan
CEO, Principal, Design
Architect 5264 (NSW)

MEMORIAL AVENUE
LIVERPOOL
ARCHITECTURAL DESIGN REPORT

AJ+C Allen Jack+Cottier

URBIS

LANDSCAPE ARCHITECT
OCULUS
landscape architecture | urban design

01, MARCH 2019

MEMORIAL AVENUE LIVERPOOL

ARCHITECTURAL DESIGN REPORT

AJ+C
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Michael Heenan 5264
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Sydney Office
79 Myrtle Street Chippendale
NSW 2008 AUSTRALIA
tel +61 2 9311 8222
fax +61 2 9311 8200

architectsajc.com

Date	Revision	Status	By	Checked
01/03/19	A	ISSUE FOR DA SUBMISSION	SG	BM

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01 VISION

Deliver a landmark project that is creative, sustainable and innovative in conceptual, technical and economic terms.

AJ+C has prepared this design report to accompany a Development Application for Lots 7-11 Castlereagh St and 77-79 Bathurst St, Liverpool for Il Capitano Investments Pty. Ltd.

We envisage this to be a high quality and attractive precinct to revitalise the surrounding area, and propose an active and human scaled street presence along all street frontages that enhance and complement the existing context and public domain.

The proposed street wall at the lower levels relates to the immediate context and aims to unify the city block bounded by Memorial Avenue, Castlereagh, Bathurst and Norfolk Streets into a coherent whole. Building entries activate each frontage, with awnings and overhangs to ensure a comfortable and safe public domain.

Above the street, two distinctive residential towers are proposed; the western tower marks the corner of Memorial Avenue and Castlereagh Street, framing vistas along these streets, and the eastern tower marks the corner of Bathurst and Norfolk Streets, marking the entry point to the suburb from the south west.

Key objectives:

High quality urban, architectural and public domain design

Ensure minimal impacts on solar access to neighbouring sites

Provide an economic yield with the best economic mix of residential and retail uses

Enable neighbouring sites to be feasibly developed

INTRODUCTION

The project site comprises Lots 7-11 Castlereagh St and 77-79 Bathurst St, Liverpool, is bound to the north by Memorial Avenue, east by Bathurst Street and west by Castlereagh Street, and is approximately 45-89m long, east to west, and 36-60m wide, north to south with a land area of 4,333m2.

There are currently several buildings on the site; a two-storey restaurant fronting Bathurst Street, a two-storey service station with boarding rooms above on the corner of Memorial Avenue and Castlereagh Street and on grade car parking covering the remainder of the site. It is proposed these existing buildings will be demolished.

Memorial Avenue is an entry point to the area from the west, and is recognized as a local heritage item. To the north of the site, across Memorial Avenue, are a one, two and three-storey commercial and residential buildings.

A pedestrian bridge is planned to cross the Hume Highway to the Whitlam Centre and parklands beyond. This is proposed on the southern side of Memorial Avenue at the corner of the Hume Highway. This will lead to increased pedestrian flows along the Memorial Avenue frontage of the site.

Bathurst Street is a major entry point to the area from the south and east and connects to Westfield shopping centre to the north. To the east of the site across Bathurst Street are two-storey commercial buildings.

Castlereagh Street is a quiet tree lined residential street. To the west of the site across Castlereagh Street are two, three and four-storey residential flat buildings.

To the south of the site is a three-storey residential flat building fronting Castlereagh Street, built to within 3m of the site boundary, and a two-storey commercial building fronting Norfolk Street, which is built to the boundary. New residential flat buildings of circa 25 storeys are either approved or under construction further to the south.

DESIGN STATEMENT

We envisage this to be a high quality and attractive precinct to revitalize the surrounding area, and propose an active and human scaled street presence along all street frontages that enhance and complement the existing context and public domain.

The proposed street wall at the lower levels relates to the immediate context and aims to unify the city block bounded by Memorial Avenue, Castlereagh, Bathurst and Norfolk Streets into a coherent whole. Building entries activate each frontage, with awnings and overhangs to ensure a comfortable and safe public domain.

Above the street, two distinctive residential towers are proposed; the western tower marks the corner of Memorial Avenue and Castlereagh Street, framing vistas along these streets, and the eastern tower marks the corner of Bathurst and Norfolk Streets, marking the entry point to the suburb from the south west.

The two towers have distinct forms and expressions which reflect the unique site influences acting on each building and together create a dynamic and mixed precinct, avoiding the monotonous appearance of some recent development in the area. They have been shaped by sun and view angles to and from neighboring properties, which ensures that existing amenity is respected and at the same time creating distinctive forms.

The western tower benefits from views to the west over parklands to the Blue Mountains beyond; the design aesthetic is generated by the need to provide outlook and solar protection to the west, with broad balconies covering the majority of the western elevation. These have been subtly angled and inflected to create a visually interesting and dynamic aesthetic.

The eastern tower has been shaped to incorporate a more commercial aesthetic with a smaller residential floor plate above, with further stepping and angling on the upper levels to respect sun and view angles to and from neighboring properties. The design aesthetic reflects the commercial nature of Bathurst Street with the residential uses combined into a coherent whole using a language of vertical sun-shading blades and a stepped and angled form to read as a series of stacked volumes with subtle shifts creating visual tension in the elevation.

Resident outdoor areas and amenities have been placed between the two towers on the roof of the retail spaces, creating a private, protected space with good solar access for the residents. The landscaped courtyard recognizes the likelihood of family demographic with a kid-friendly 'urban backyard' quality.

The design recognizes the status of Memorial Avenue as a shopping street by locating retail spaces on the Memorial Avenue frontage. The proposed plaza extends the public domain into the site and addresses a lack of public spa¬¬ces in this part of Liverpool. The plaza offers planting and street furniture, creating a comfortable and inviting place to sit and gather with potential for outdoor seating for future restaurants or cafes.

The plaza is sheltered from prevailing westerlies by extending the lower levels of the building out to the Memorial Avenue and Castlereagh Street corner. The western tower extends over the western part of the plaza to offer shade in the prevailing hot and dry microclimate and potential for all weather use of the outdoor space.

02 DEVELOPMENT SUMMARY

SUMMARY

SITE AREA	4,333m2	
RESIDENTIAL GFA	23,819	91.6%
COMMERCIAL GFA	111	0.4%
RETAIL GFA	1,853	7.2%
GARBAGE	214	0.8%
TOTAL GFA	25,998	100%
FSR	6.00	
EAST TOWER APTS	92	
WEST TOWER APTS	172	
TOTAL APARTMENTS	264	

ADG COMPLIANCE OF 266 APARTMENTS

SOLAR	226	85%
CROSS-VENT	194	73.5%
CROSS-VENT TO L10	89	68%
ADAPTABLE	24	9%

RESIDENTIAL MIX SUMMARY

1 BEDROOM	10.6%
2 BEDROOM	78%
3 BEDROOM	11.4%

PARKINGSUMMARY

BASEMENT 3	116
BASEMENT 2	112
BASEMENT 1	90
PROPOSED TOTAL PARKING	318
COUNCIL LEP/ DCP RATES	318

A NEW PUBLIC DESTINATION ON MEMORIAL AVE. NORTH-FACING, SURROUNDED BY RETAIL, WITH SHADY TREES

MIXED USE REDEVELOPMENT, CONCORD - ALLEN JACK+COTTIER & BVN

PUBLIC PLAZA WITH FOUNTAINS, SHADY TREES AND SURROUNDED

ROUSE HILL TOWN CENTRE, ROUSE HILL - ALLEN JACK+COTTIER & OCULUS

03 SEPP 65 DESIGN QUALITY PRINCIPLES

01. CONTEXT & NEIGHBOURHOOD 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.

+ The proposal responds and contributes to its context in a number of ways:

+ The proposed public plaza on Memorial Avenue addresses the lack of public spaces in the area; combined with the proposed retail spaces this will reinforce the 'high street' retail character of Memorial Avenue.

+ Building uses and their entries are located appropriately on each of the surrounding streets; retail on Memorial Avenue, which is a primarily commercial and retail street; retail spaces and residential entry on Bathurst Street, which is a mixed use street and residential entry on Castlereagh Street, which is primarily a residential street.

+ The proposed setbacks to Memorial Avenue and Castlereagh Street allow for wider footpaths, tree planting and landscaping to build upon and enhance the character of each street.

+ The location and forms of the proposed buildings have been planned to maintain outlook from and solar access to the southern and western neighbours, respecting their right to sun and outlook.

+ The proposed building material choices have been made to acknowledge the character of the surrounding area; for example brick cladding to the street wall to reflect where brick has traditionally been widely used in the local area.

02. BUILT FORM & SCALE

Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings.

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.

+ The proposed scale, bulk and height relates to surrounding buildings; both existing and DA approved; and makes a positive contribution to the desired future character of the street.

+ By establishing a street wall of 4-5 storeys to each frontage, the proposal relates to the built form of the approved development at 7-11 Norfolk Street, the 3-4 storey + roof scale of the existing residential flat buildings on either side of Castlereagh Street and the anticipated scale of future developments of neighbouring sites at 60 Memorial Avenue and 3-5 Norfolk Street.

+ Above the street wall, the western tower is located on the corner of Memorial Avenue and Castlereagh Street to mark the corner and frame the vista along Memorial Avenue. The height and bulk of this tower is consistent with those currently under construction at 100 Castlereagh Street and DA approved at 7-11 Norfolk Street.

+ The eastern tower is located on the eastern boundary to strengthen the street line, act as a visual marker on the curve of Bathurst Street, to maximise building separation between the two towers and maximise solar access to the central common open space and to the neighbouring buildings to the south.

03. 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.

+ The proposed density is appropriate to the site and its context and achieves a high level of amenity for residents and each apartment.

+ The mixed use nature of the proposal and proximity to public transport, jobs, amenities and services supports the proposed density by providing places to live close to where people want to be, as well as providing new amenities, shops and jobs close to where they live.

+ The arrangement of the buildings on the site and large separation between the towers ensures that outlook from and solar access to the apartments is maximised and overlooking, both between the proposed buildings and also of existing neighbouring buildings, is minimised.

04. 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.

+ The proposed apartment layouts achieve high levels of natural cross ventilation and solar access. The arrangement of the buildings on the site ensures that solar access to the public and common open spaces and also to existing neighbouring buildings is maximised.

+ The proposed facade design is generated by each orientation and provides passive and active shading elements, appropriate glazing and operability to allow natural cross flow ventilation.

+ A BCA section J and BASIX strategy will be submitted with the DA submission.

+ The proposal includes potential for solar panels to be located on the roof of each tower.

05. 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 useability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity and provides for practical establishment and long term management.

+ The proposed public plaza on Memorial Avenue addresses the lack of public spaces in the area; and will offer a place for people to meet, pause or pass through in a comfortable, stimulating and attractive environment. Proposed shade structures and planting, including green walls and a larger feature tree will help to soften the sometimes hot and dry local microclimate.

+ The established line of tree planting along Memorial Avenue will be bolstered by the insertion of new street trees where two existing driveway crossings are to be removed.

+ The proposed central common open space will feature shade structures and planting, to create an attractive and stimulating environment, mitigate wind effects from the tall buildings both on and around the site and help soften the sometimes hot and dry local microclimate

06. 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, efficient layouts and service areas and ease of access for all age groups and degrees of mobility.

+ The proposal provides high levels of amenity through provision of a mix of uses on the site, high quality public domain , private realm and common open space.

+ The form and arrangement of the buildings on the site ensures that solar access to the public and common open spaces, and also to existing neighbouring buildings, is maximised. The proposed apartment layouts are well planned internally and achieve high levels of separation, natural cross ventilation and solar access.

+ Proposed landscaping will be developed to enhance the public domain to meet design excellence and public benefit criteria. The proposed public plaza fronting Memorial Avenue recognizes its status as a shopping street, and provides outdoor dining areas for ground floor retail areas and allows for the projected increase in pedestrian flows associated with the proposed pedestrian bridge across the Hume Highway.

07. 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.

+ The site currently contains a petrol station, a restaurant and large on-grade car park.

+ The proposal will enhance safety of the surrounding area by activating each of the street frontages, with different uses and building entries located appropriately facing each of the surrounding streets; the various uses will provide eyes on the street throughout the day and night to provide passive surveillance and thus higher levels of security.

+ The interface with the public realm is well designed to provide clear lines of sight and access control to building entries and minimise hidden corners. Appropriate lighting will be designed to further enhance security.

08. HOUSING DIVERSITY AND SOCIAL INTERRACTION

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 and providing opportunities for social interaction among residents.

+ The proposed mix of uses, enhanced public realm and provision of residential common areas on the site will provide a range of places for people; both residents and visitors; to meet and interact.

+ The proposed apartment mix responds to demonstrated demand in the area and provides additional residential accommodation appropriate for families.

09. 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 a well designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.

+ The proposed scale, bulk and height relates to surrounding buildings; both existing and DA approved; and makes a positive contribution to the desired future character of the street.

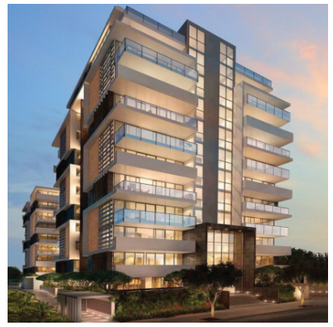
+ The proposed street wall form relates to the scale of surrounding existing and future built form and is designed to provide a fine grained, visually rich and engaging environment within the view cone of pedestrians and drivers using the surrounding streets. The proposed building material choices have been made to acknowledge the character of the surrounding area, where brick has traditionally been widely used.

+ The towers above are located to frame vistas along the surrounding streets and are designed to be seen from afar, with larger scale elements and patterns that read at a distance. Architectural roof features are proposed which will add a distinctive crowning element to each tower, making them recognisable and distinctive. Materials have been chosen generally with regard to being durable and low maintenance. Operable elements such as sunshading have been added in key areas for function and aesthetic emphasis.

04 SITE ANALYSIS

04 SITE ANALYSIS

RECENTLY DA APPROVED DEVELOPMENT ANALYSIS



FSR 6.5 : 1

FSR 9.89 : 1

FSR 6.65 : 1

SIMILAR DEVELOPMENT IN THE LOCAL AREA EITHER RECENTLY DA APPROVED, COMPLETED OR UNDER CONSTRUCTION

FUTURE DESIRED CHARACTER

Liverpool City Centre is growing city with many new residential developments occurring on the periphery of the centre, particularly towards the south-western gateway precinct. A number of key sites have been identified within the City Centre for specific attention.

Table 1 has summarised DAs that the council recently received and approved immediate surround the site.

A draft LEP has modified B3 Commercial Core to B4 Mixed Use to encourage multiple uses in the city centre.

Key Findings:

- Recent mixed-use developments on 7-13 Norfolk Street and 100 Castlereagh Street illustrates that a tower typology can be easily delivered on large sites under single ownership.
- Surrounding sites and adjacent neighbours are limited in the ability to redevelop or amalgamate given its ownership constraints (strata) and the size of these blocks such as:
- Sites on the western side of Castlereagh Street are predominantly strata-titled and older style residential buildings.
- Sites to the south are emerging taller tower developments
- The subject site is under single ownership with a large under-utilised parcel comprising 4,333m².

	DEVELOPMENT SITES	ZONING	LLEP 2008 HOB (M)	APPROVED / PROPOSED HEIGHT (M)	ADDITIONAL HEIGHT (M)	LLEP 2008 FSR (N:1)	APPROVED / PROPOSED FSR
DA APPROVED							
①	420 Macquarie St	B4	80	100	**20**	6	6.645
②	21 Atkinson Street	R4	24	30.2	**6.2**	1-1.5	
③	7-13 Norfolk Street	B4	80	80	-	6	6.5
④	387 Macquarie Street	B4	80	79.8	-	5.74	5.74
⑤	25-33 Scott Street	B4	100	43.5	-	5.41	8.41
⑥	311 Hume Highway	B4	100	99		6	5.77
⑦	100 Castlereagh Street	B4	80	104.9	**24.9**	6	8.19
DA UNDER ASSESSMENT							
⑧	52 Scott Street	B4	100	104.4	**4.4**	10	10
⑨	203-209 Northumberland Street & 64 Bathurst Street	B4	100	87	-	8	6.8
⑩	149-151 Terminus Street	B4	80	96.4	**16.4**	6	9.89
⑪	1-5 Speed Street	B4	80	98.9	**18.9**	4.58	10
⑫	277 Bigge Street & 11-23 Scott Street	B4	100	97	-	10	9.94

Table 1 Recent development summary

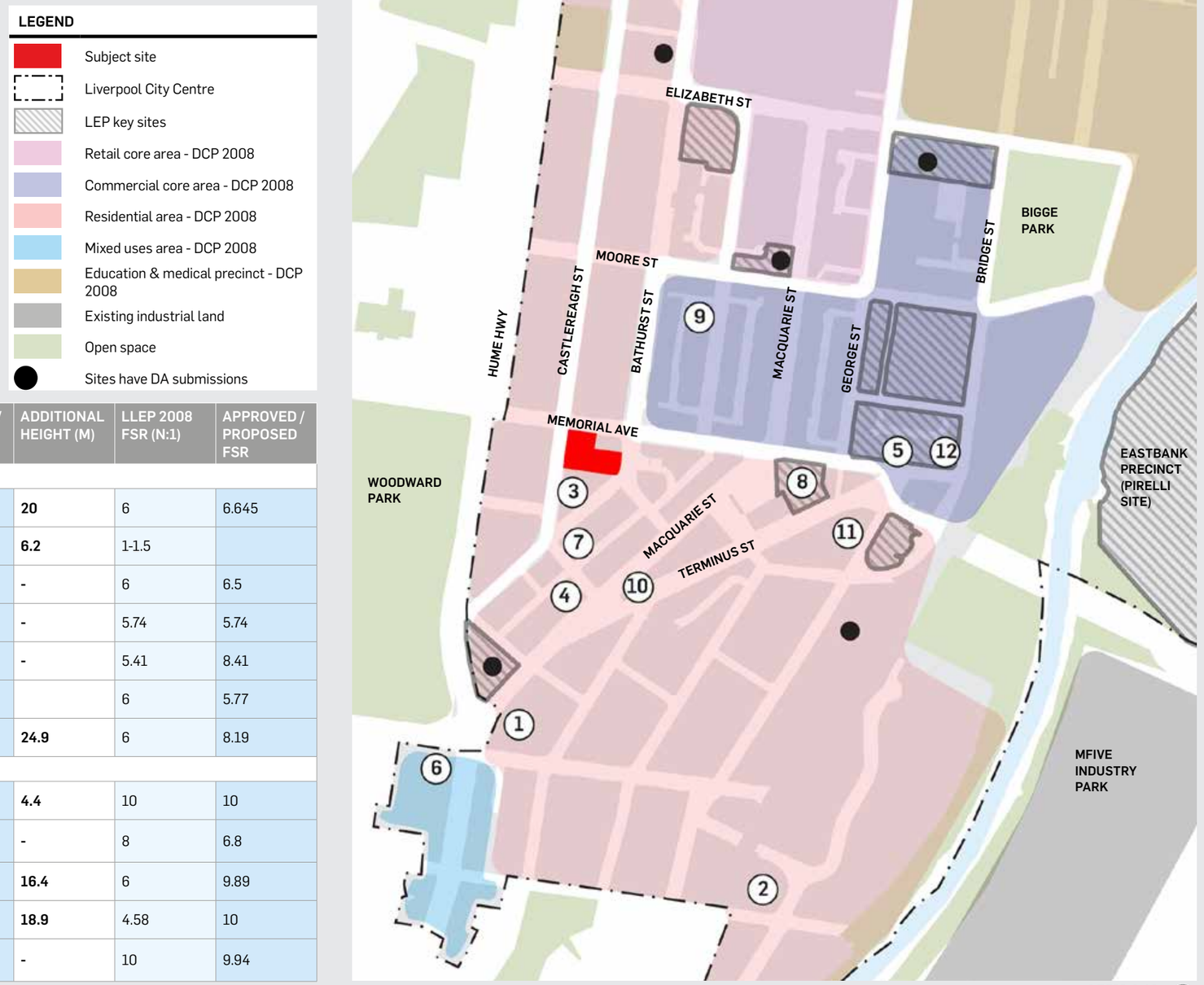


Figure 10 Future design character

MEMORIAL AVENUE, LIVERPOOL

Key Findings:

- The site is generally flat with minimal level change;
- The site has good northern orientation and frontage to Memorial Avenue and is well positioned to optimise solar access and cooling breezes.
- Vehicle access to the subject site could be facilitated on the southern boundary from Castlereagh Street providing further building separation from existing residential building;

- Some soil contamination is present at the service station site however the soil contamination does not appear widespread.
- Key interfaces immediately adjacent to the site:
  - an older style single-storey shop building with surface parking fronting the corner of Memorial Avenue and Bathurst Street;
  - a two storey commercial building with zero front and side setbacks to the south-east of the site on 3-5 Norfolk Street.
  - A three storey residential flat building (RFB) with habitable windows facing to the site on the south-western boundary on 96-98 Castlereagh Street. It should be noted that this building is not consistent with the Apartment Design Guide (ADG) separation requirements.
  - An 80m residential development on 7-13 Norfolk Street has been approved and proposes a 6m driveway from their northern boundary.
- Memorial Avenue is identified as "high pedestrian priority route" in Liverpool City Centre DCP.
- A bus stop is 50m to the west of the site on Memorial Avenue, connecting residents to Liverpool Station, Parramatta and Casula.
- Driveways front Memorial Avenue at the service station and shops along Memorial Avenue and Bathurst Street
- Liverpool City Centre DCP has identified no additional vehicular entries permitted along the streets identified in Figure 2. Vehicle access for future development on the site should be compatible with pedestrian movements and reduce the impact on the public domain.

The site is zoned as B4 mixed-use with an 80m maximum height of building limit and an FSR of 2.5:1. In accordance with the LEP Clause 4.4, the maximum FSR for the site is 6:1 given the above controls and the following criteria: a large amalgated site within the city-centre with an area greater than 2500m².

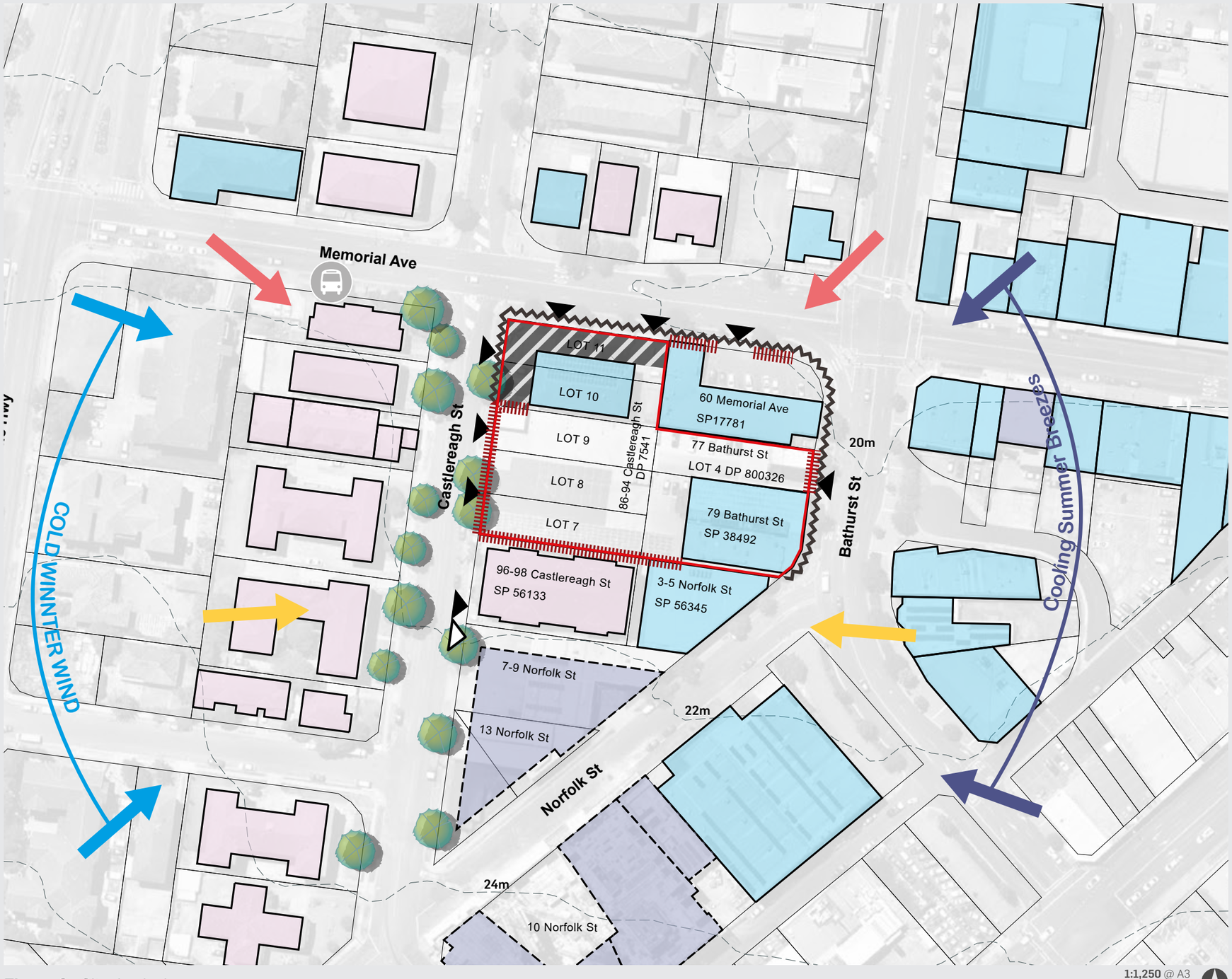


Figure 3 Site Analysis

SITE PHOTOS

Approach from Bathurst Street

- Bathurst Street is a busy, vehicular oriented street and is a primary route out of and into the city centre from:
  - the Hume Highway via Macquarie Street; and
  - Moorebank industrial and employment area via Newbridge Road and Terminus Street.
- The site is viewed prominently at the round on Bathurst Street and Norfolk Street which defines the zero perimeter of the urban block;
- Bathurst Street is typically commercial in its streetscape character. Given the busy nature of this portion of the street, vehicular access from at the this location would be better served on Castlereagh Street.
- A future tower on podium along this perimeter edge along Bathurst Street on the site can further demarcate this 'round' and approach to Memorial Avenue and the city centre beyond

Approach via Bathurst Street looking at the site 'Gemelle'

Bathurst Street approach, south-western side looking north and to the site

Eastern frontage on Bathurst Street and adjacent interface at 3-5 Norfolk Avenue

Norfolk Street looking south-west towards newly constructed mixed-use residential tower on 10 Norfolk Street

MEMORIAL AVENUE, LIVERPOOL

Castlereagh Street

- Predominantly older-style, brick residential flats buildings.
- A characteristically medium-high density residential street that transitions from the mixed-use precinct to the east.
- Given its minimal traffic issues, access and servicing from Castlereagh Street would be more suitable for the proposal in comparison with Memorial Avenue and Bathurst Street.
- Opportunity to build on existing mature canopy of street trees.
- Future character is identified to become a R4 high-density neighbourhood on the western side of Castlereagh Street.

Castlereagh Street looking south-west towards older-style RFBs

Castlereagh Street street trees looking north-west along western boundary of site

Memorial Avenue

- An important east-west spine connecting the site to the Liverpool Train Station and Georges Rive to the east, and, Woodward Park, the Whitlam Leisure Centre and Brickmakers Creek to the west.
- Extensive sun exposure and minimal street planting and shade along the south side of this avenue with the exception of recently planted street trees fronting the block.
- Opportunity to provide additional line of trees and deep soil planting within the site to provide pedestrian comfort, amenity and minimise heat island effect.
- Currently the frontage of Memorial Avenue along the site and 60-76 Memorial Avenue is dominated by vehicles for access and car-parking.
- The streetscape character of Memorial Avenue transitions from the east's commercially focused centre up to Bathurst Street to the mixed-use residential blocks from Bathurst westwards lowering to medium density residential and parklands towards Woodward Park.

View of the site and 60-76 Memorial Avenue in the foreground from the north-east intersection of Bathurst Street and Memorial Avenue

Memorial Avenue (north side) looking at the site on 86 Castlereagh Street and looking west beyond.

MEMORIAL AVENUE LIVERPOOL

Key Findings:

- Teh site is set within a legible mixed-use precinct
- Emerging mixed-use and high density developments comrise tower forms to the south on Norfolk Street.
- An approved DA comprising a 19 storey tower(Tower A) & a 31 storey tower (Tower B) is proposed on 10 Norfolk Street.

The emerging character of the south-western gateway to Liverpool CBD

10 Norfolk Street was under construction (DA 454/06) during the site visit in April 2018. Demolition was completed June 2016 with Section 96 modifications for an additional 41 residential apartments, 10 apartments over 2 storeys within Tower A & 31 apartments over 6 storeys within Tower B, reconfiguration of the basement car park to provide additional car parking spaces, amendments to the ground floor access arrangements including provision of new access ramps, internal modifications to approved apartments & common areas within Towers A and B & modifications to the façades of Towers A & B including straightening of walls & adjustment to balconies.

- Construction of a mixed use development comprising a 19 storey tower, Tower A & a 31 storey tower, Tower B, with 297 residential units & retail/commercial areas including a reception lounge & a child care centre of 355sq m.;
- Basement Carparking & Landscaping
- Site Area: 3,487m²
- Proposed Floor Area: 37,480 m²

(Source: Cordell)

Terminus Street approach, with 436-446 Macquarie Street to the left

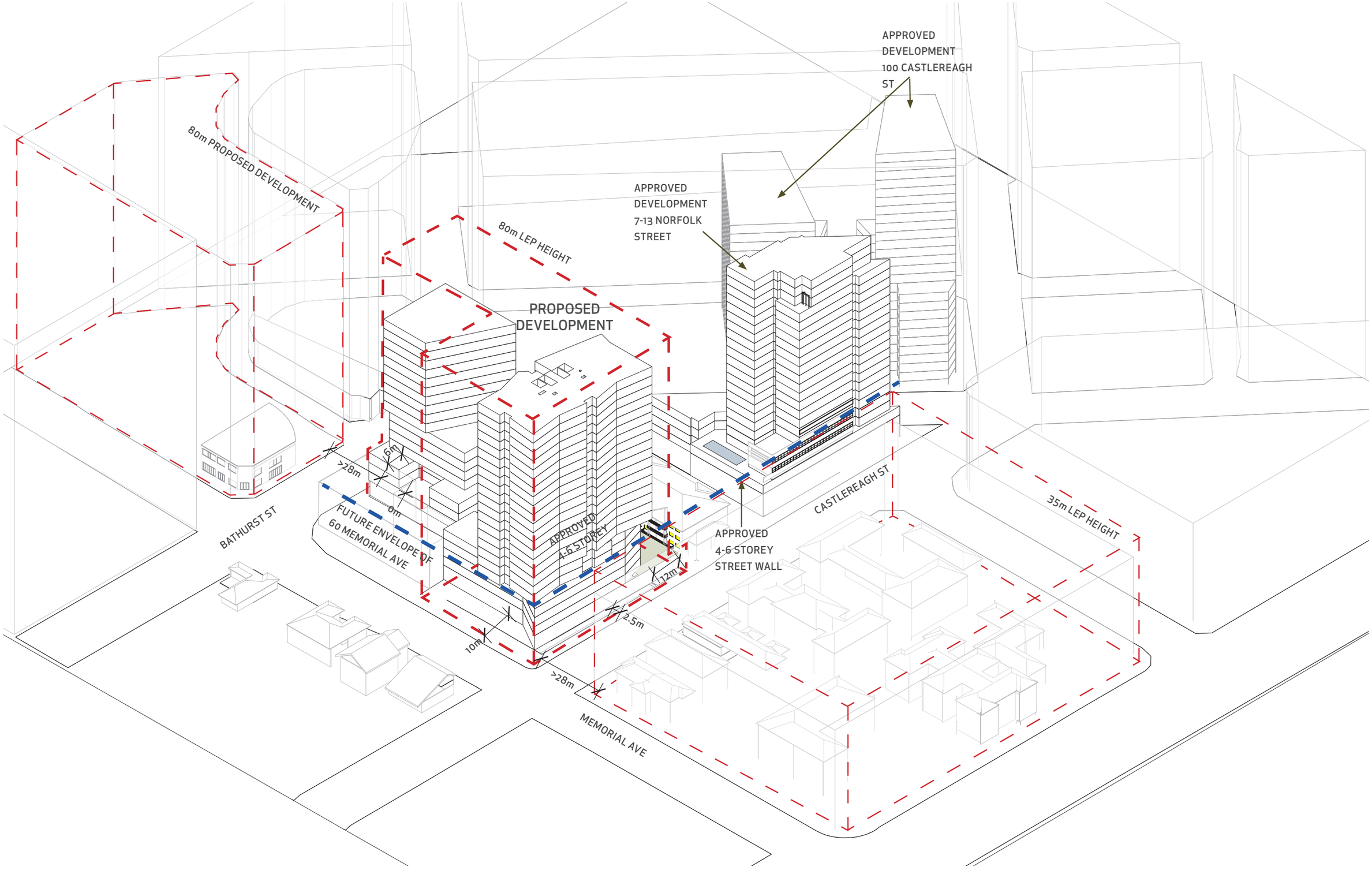
10 Norfolk Street

Junction of Memorial Avenue and Bathurst Street looking south to the site and the 10 Norfolk Street under construction in the background

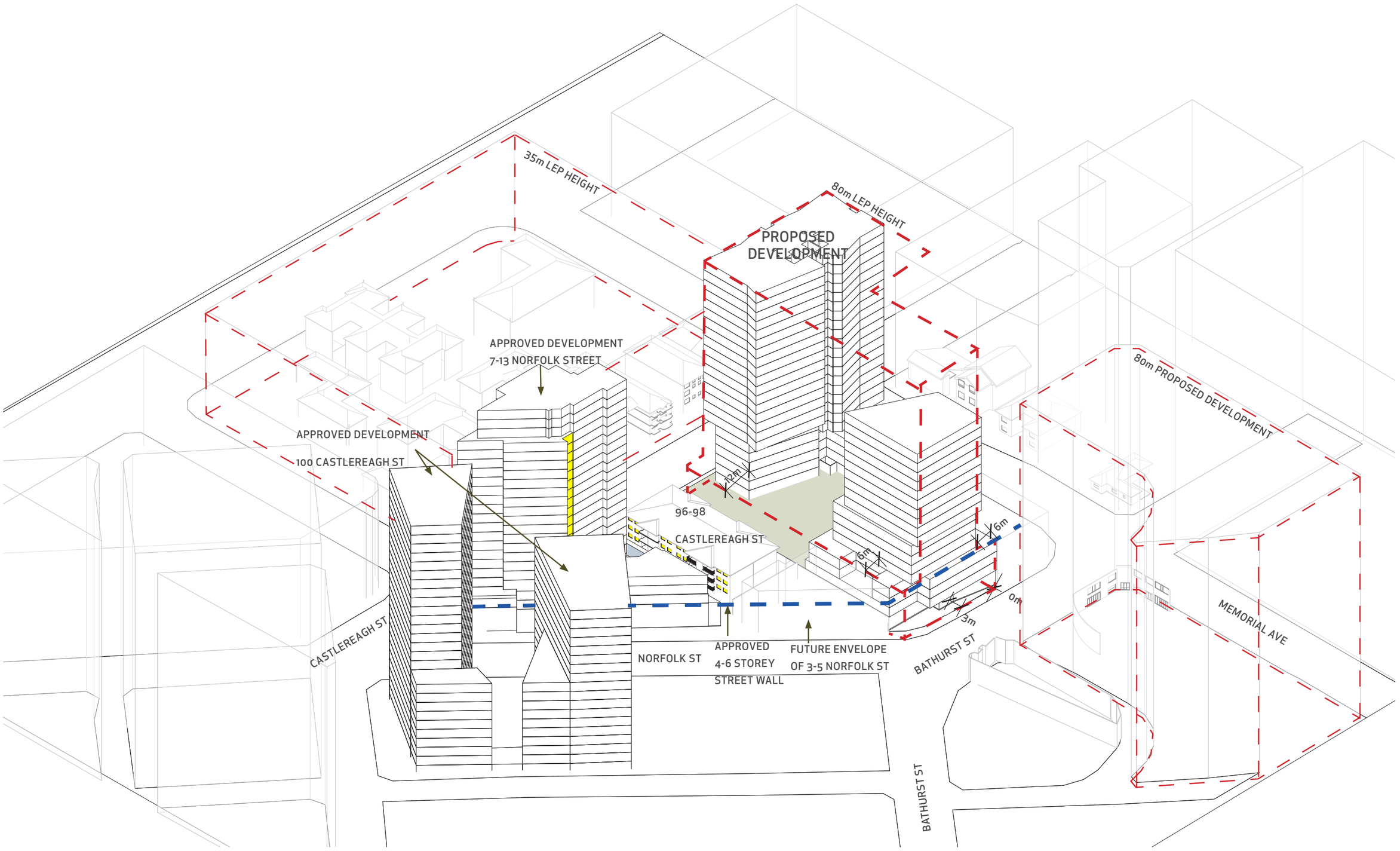
Junction of Norfold Street and Castlereagh Street south to 436-446 Macquarie Street in the background

Junction of Memorial Avenue and Bathurst Street looking south with 10 Norfolk Street under construction to the left

SITE SETBACKS: NORTH-WEST VIEW



SIT E SETBACKS: SOUTH-EAST VIEW



05 MASSING STUDY

05 MASSING STUDY

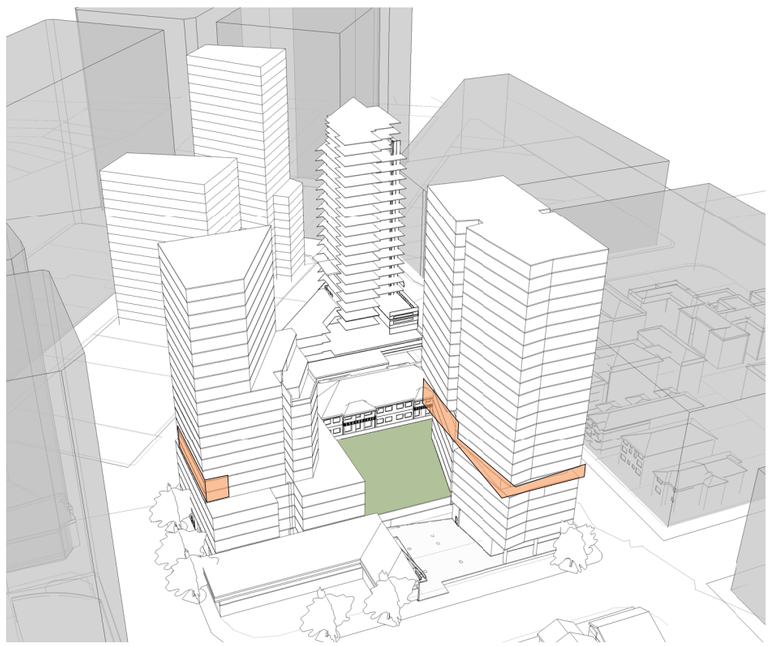
DESIGN STRATEGY TO ENSURE SUN ACCESS TO NEIGHBOURS

To the south of the site is a three-storey residential flat building fronting Castlereagh Street, built to within 3m of the subject site's southern boundary, and a two-storey commercial building fronting Norfolk Street, which is built to the subject site's southern boundary. New residential flat buildings of circa 25 storeys are either approved or under construction further to the south.

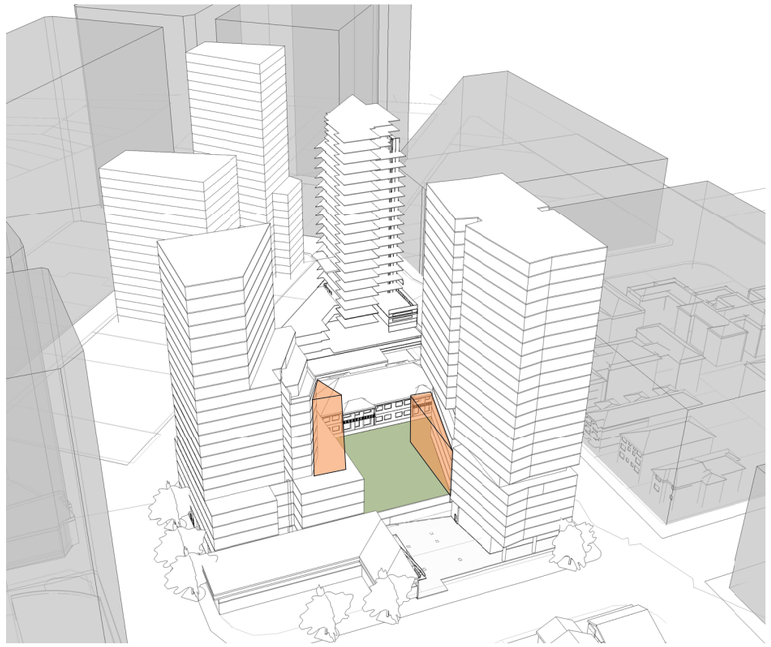
Our design principle was to retain at least 2 hours of solar access in mid-winter to apartments and major common open space areas in the neighbouring sites, both existing at 96-98 Castlereagh Street and DA approved at 7-13 Norfolk Street.

To achieve this, we modelled the maximum envelope allowed for the two towers once building heights, setbacks and internal separations had been considered. This maximum envelope was then modified to allow solar access to the neighbouring apartments and the resulting mass was adopted as the feasible building envelope. The proposed buildings fall within this envelope.

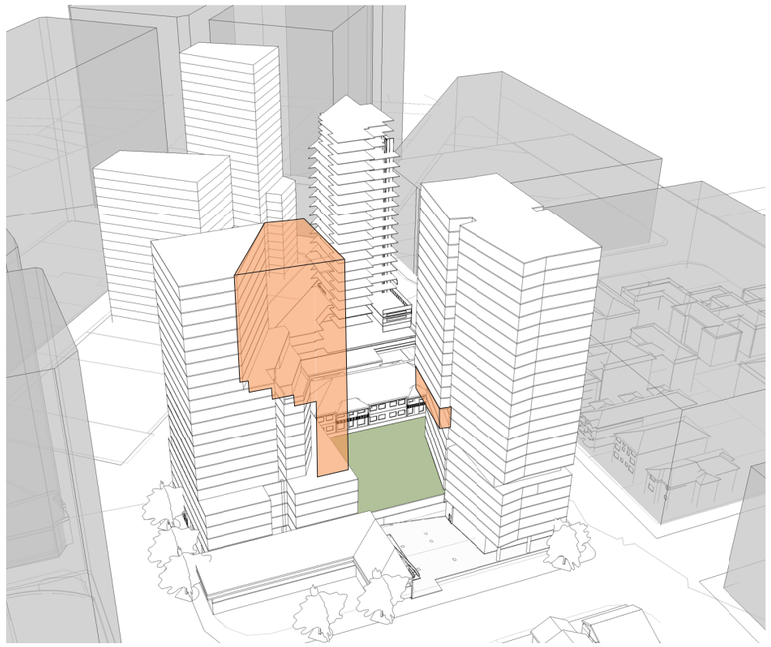
The sun's eye studies (views from the sun) on the following pages illustrate how solar access to the neighbours has been achieved.



SEPARATION OF TOWER AND PODIUM TO CREATE STREET WALL

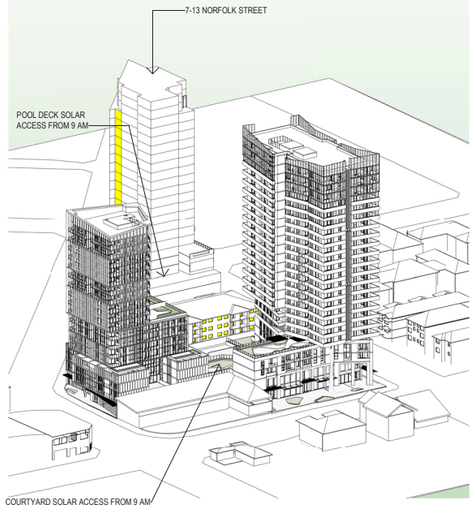


REDUCTION OF PODIUM ENVELOPES TO ENSURE
SOLAR ACCESS TO 96-98 CASTLEREAGH ST

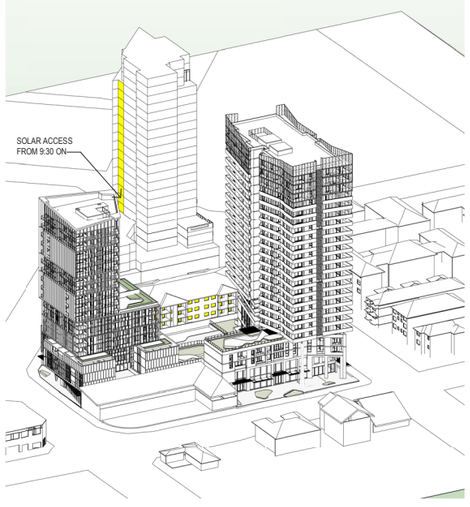


REDUCTION IN TOWER ENVELOPES TO ENSURE SOLAR ACCESS
TO 7-13 NORFOLK ST AND 96-98 CASTLEREAGH ST

RESULTANT MASSING SUN EYE DIAGRAM



1 21 JUNE 0900 AM - SUN EYE VIEW DA



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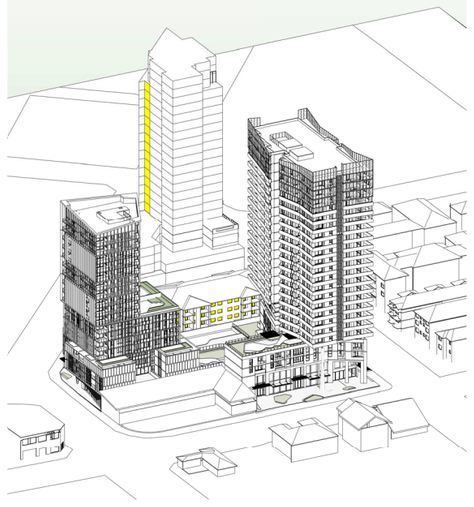
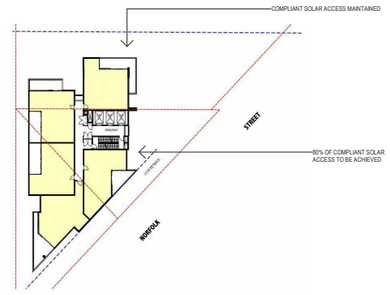
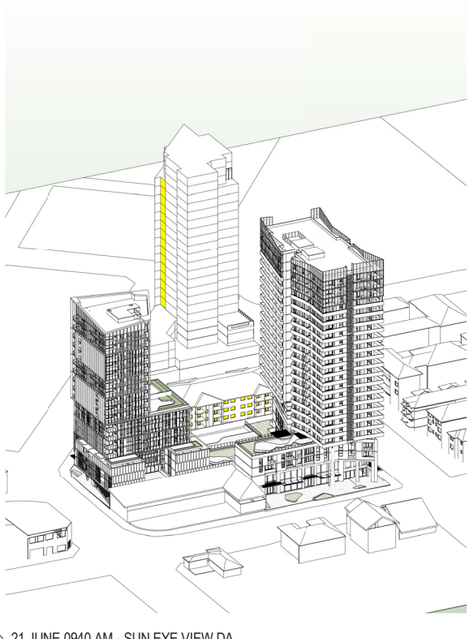


3 21 JUNE 0935 AM - SUN EYE VIEW DA

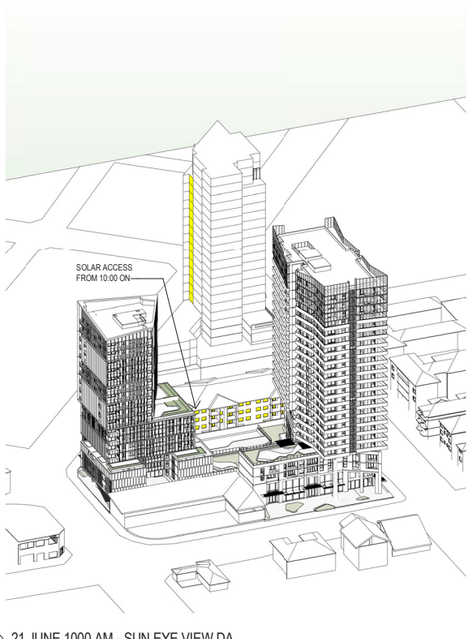


SEPP65 - TYPICAL SOLAR ACCESS (LEVEL 9-21)

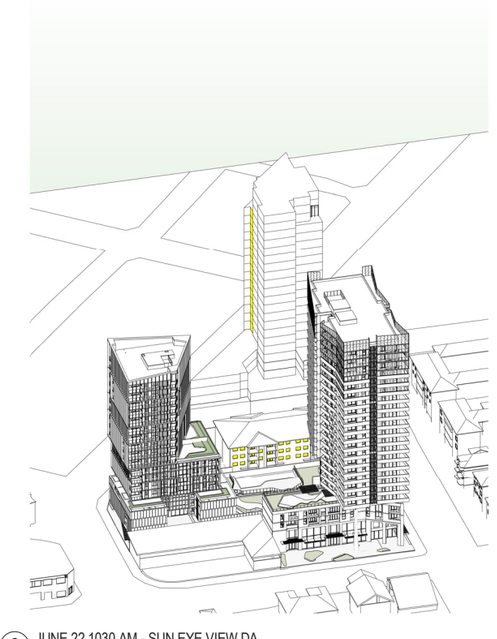
7-13 NORFOLK STREET SEPP65 SOLAR ACCESS



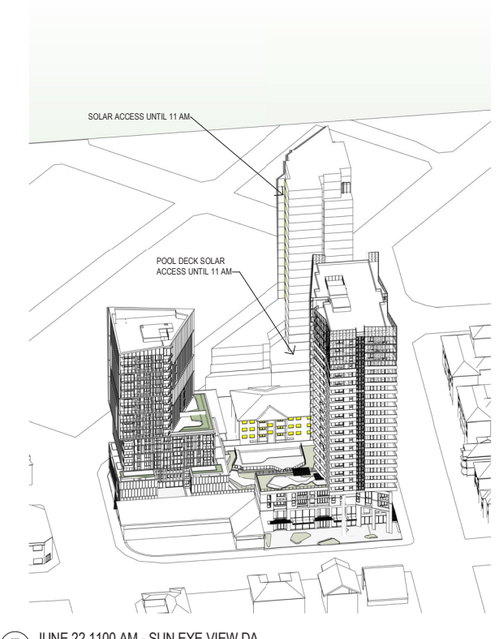
4 21 JUNE 0940 AM - SUN EYE VIEW DA



5 21 JUNE 1000 AM - SUN EYE VIEW DA



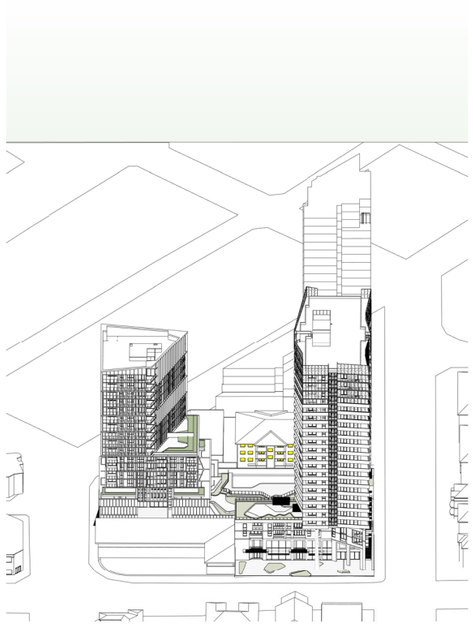
6 JUNE 22 1030 AM - SUN EYE VIEW DA



7 JUNE 22 1100 AM - SUN EYE VIEW DA

05 MASSING STUDY

RESULTANT MASSING SUN EYE DIAGRAM

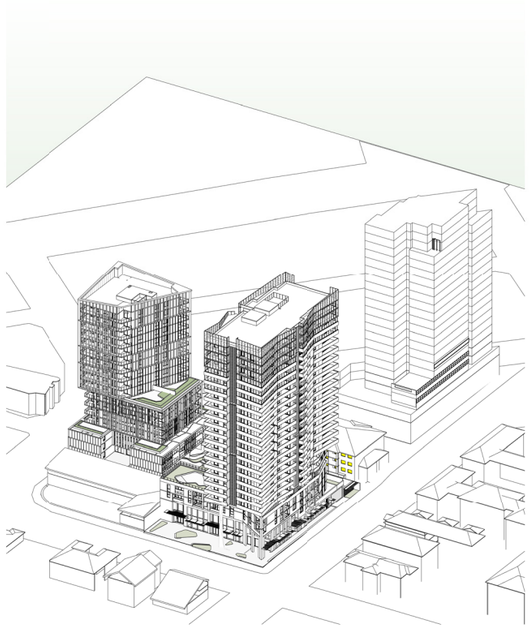


1 JUNE 22 1130 AM - SUN EYE VIEW DA

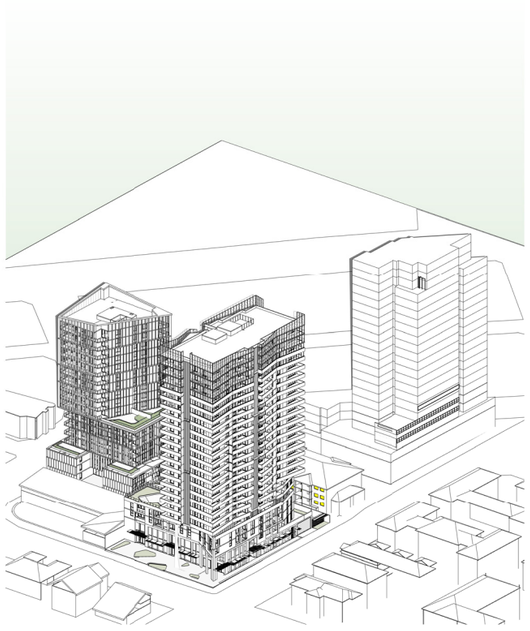
2 JUNE 22 1200 PM - SUN EYE VIEW DA

3 JUNE 22 1230 AM - SUN EYE VIEW DA

4 JUNE 22 1300 PM - SUN EYE VIEW DA



5 JUNE 22 1330 PM - SUN EYE VIEW DA



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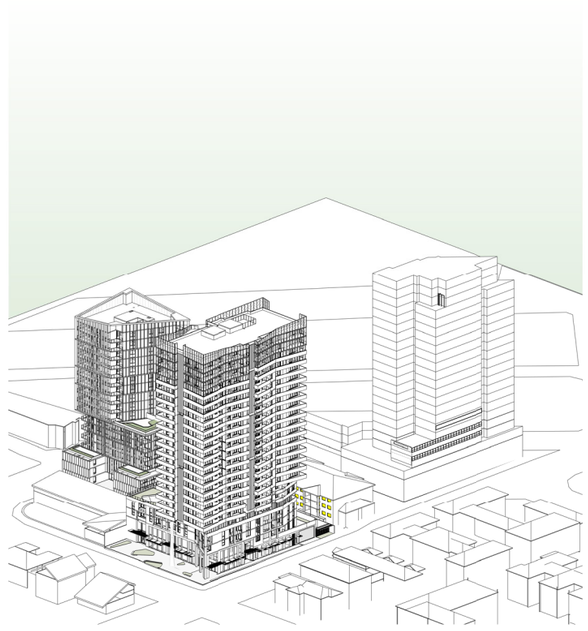
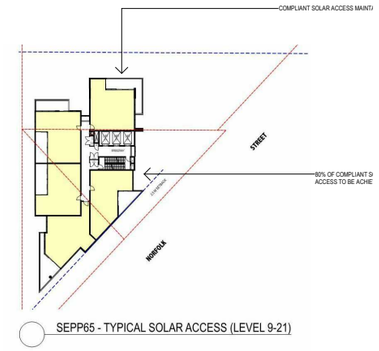


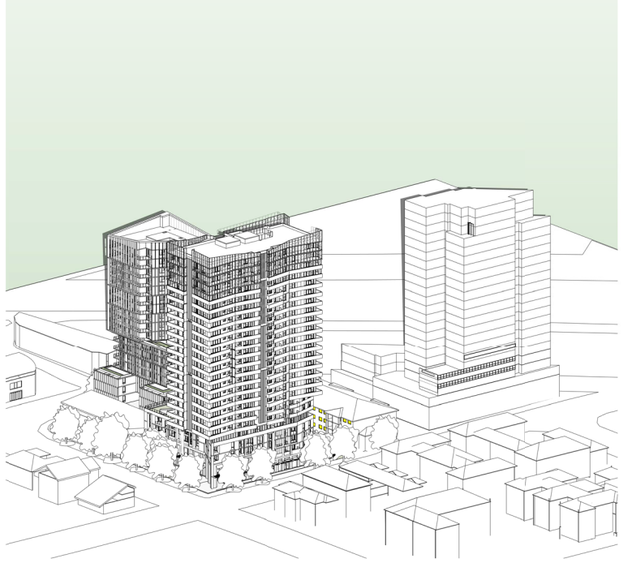
7 JUNE 22 1430 PM - SUN EYE VIEW DA

RESULTANT MASSING SUN EYE DIAGRAM

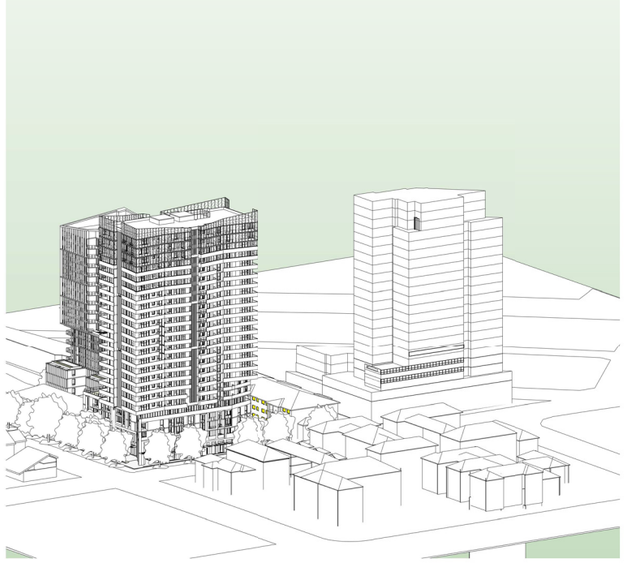


SEPP65 - TYPICAL SOLAR ACCESS (LEVEL 9-21)

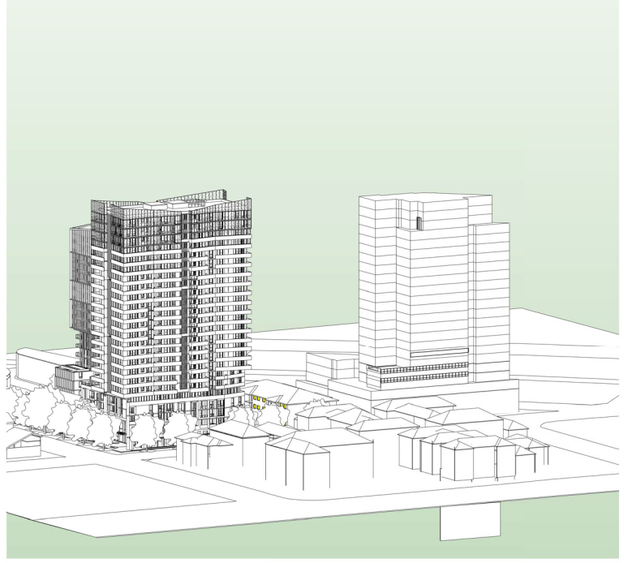
7-13 NORFOLK STREET SEPP65 SOLAR ACCESS



1 21 JUNE 1500 PM - SUN EYE VIEW DA



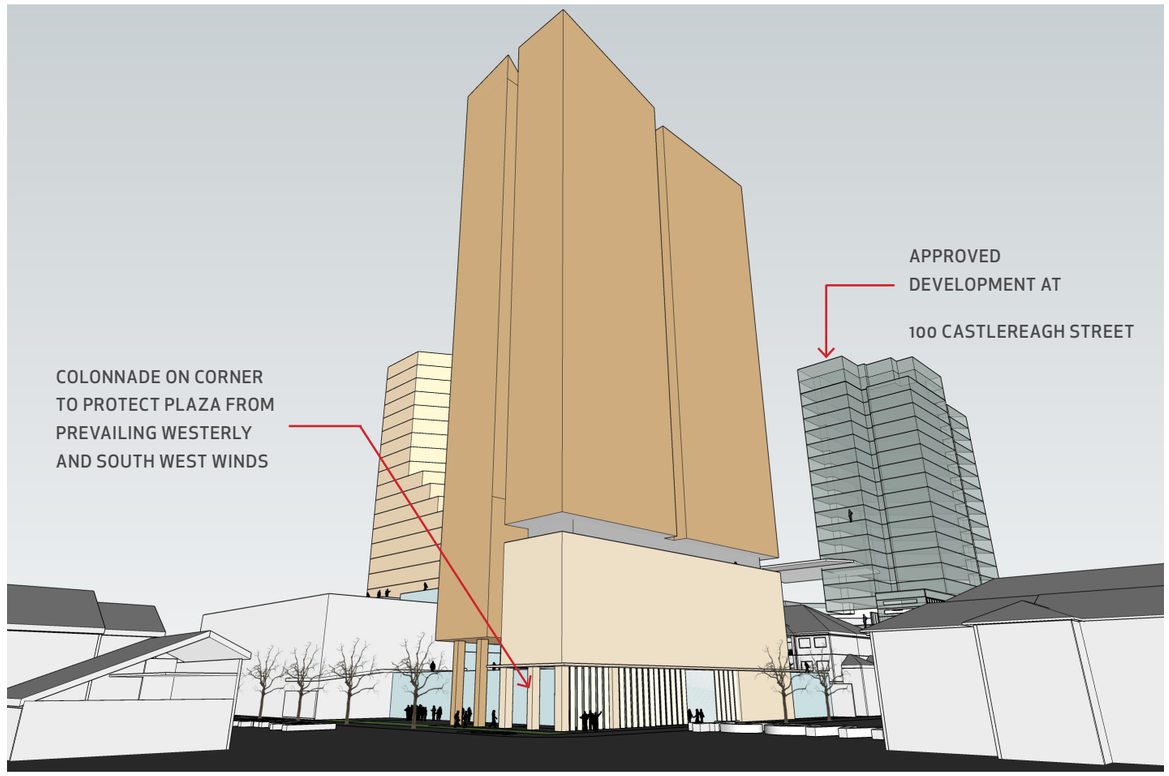
2 21 JUNE 1530 PM - SUN EYE VIEW DA

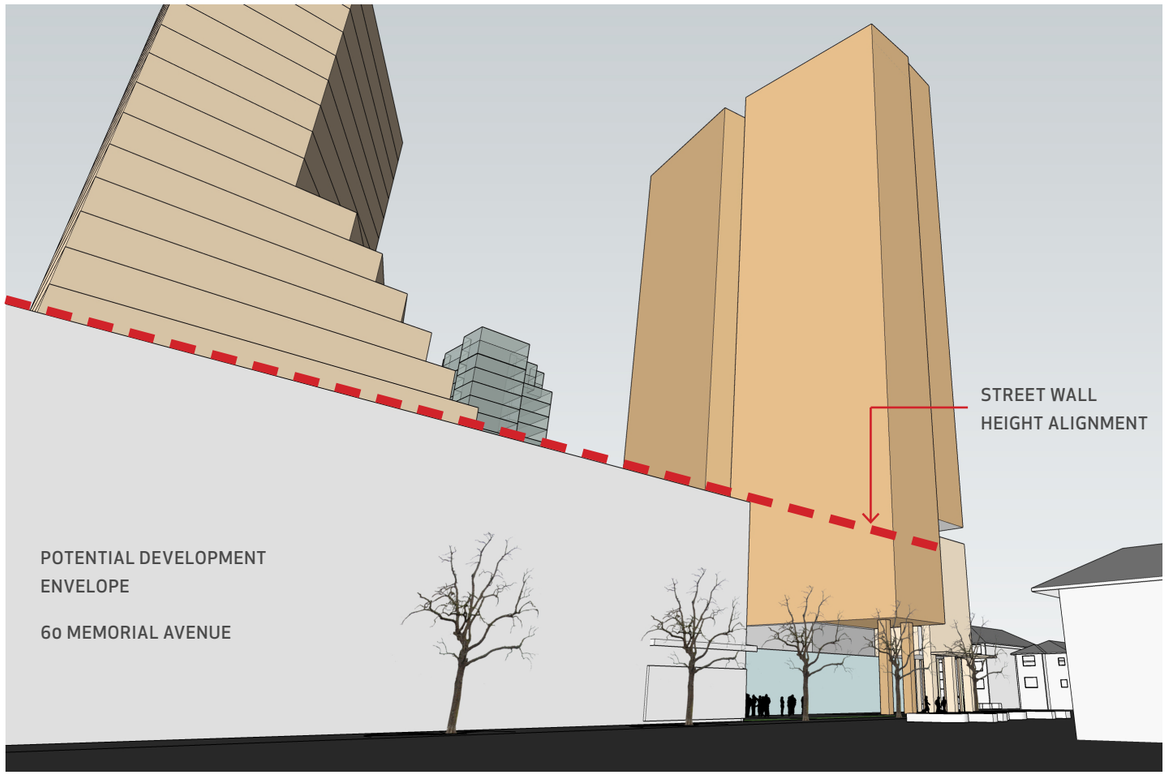


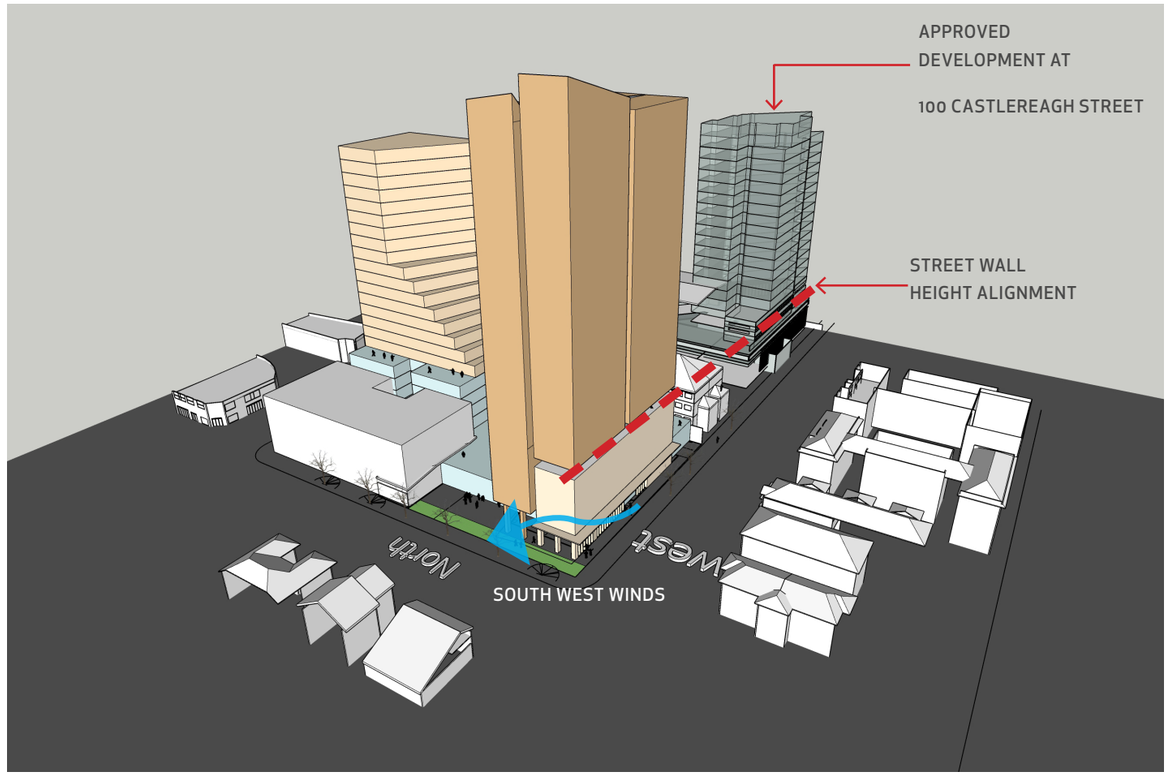
3 21 JUNE 1600 PM - SUN EYE VIEW DA

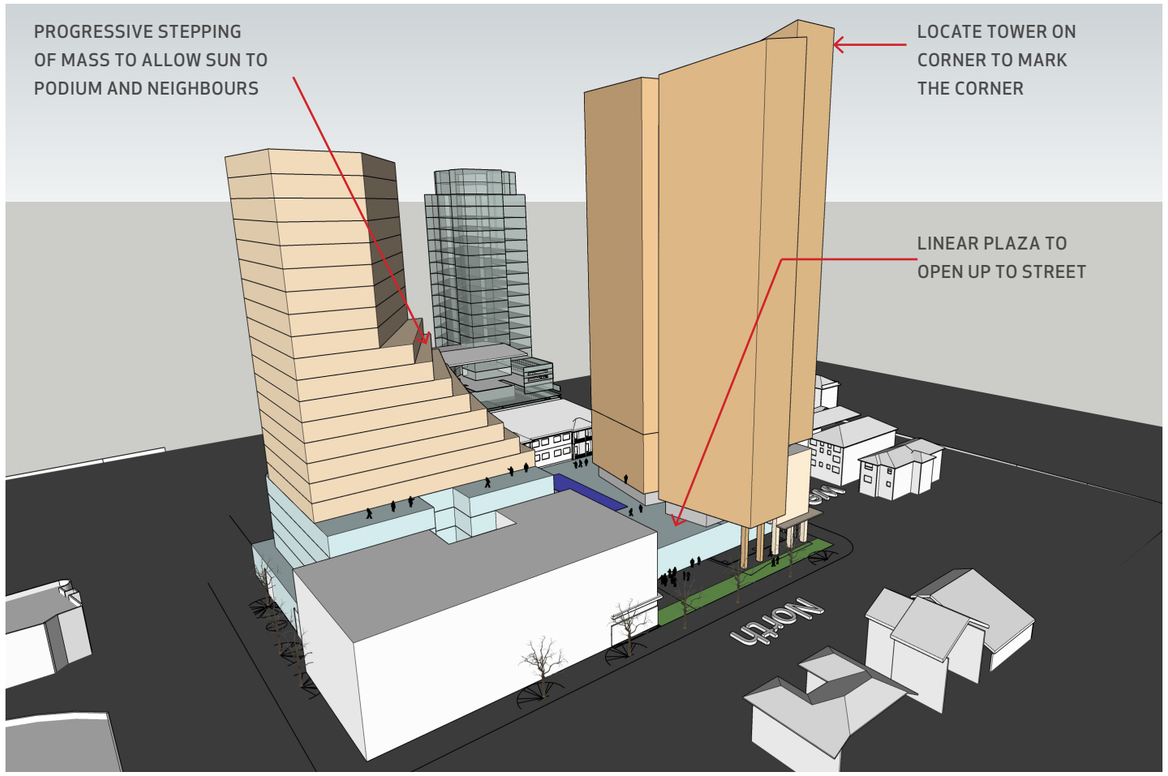
06 URBAN DESIGN STUDIES

OPTION 1: 4-6 STOREY STREET WALL TO MEMORIAL AVENUE

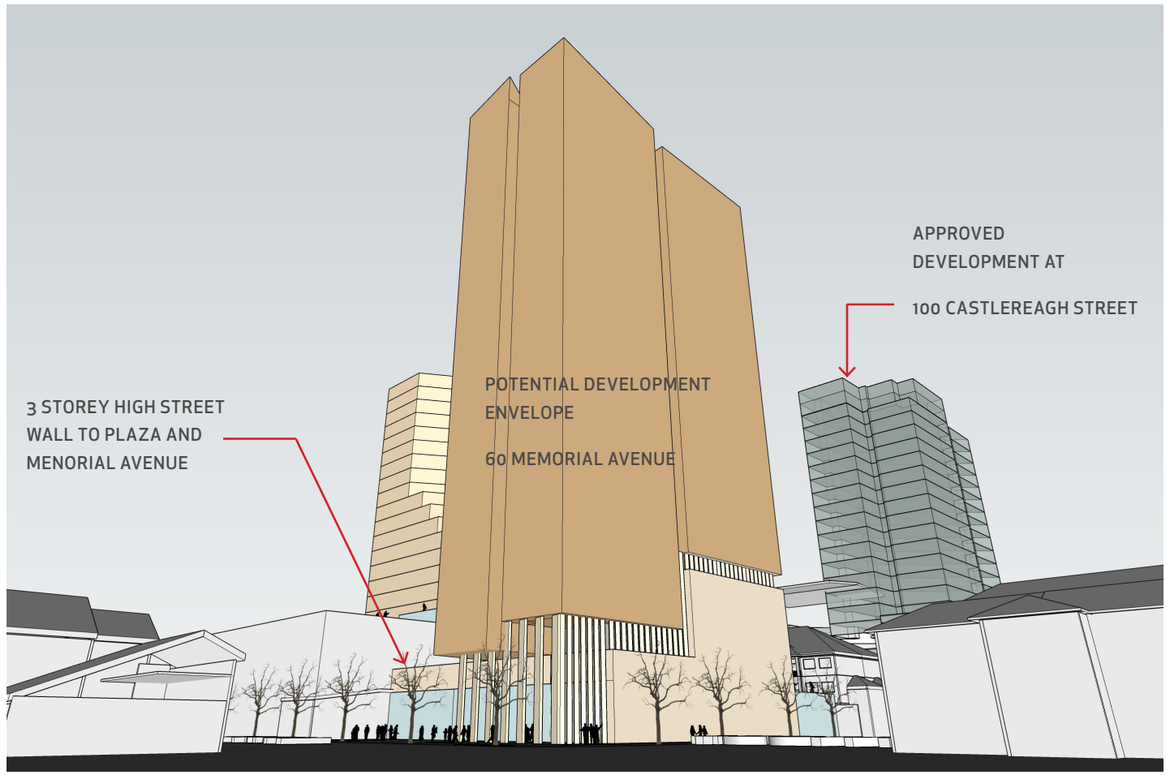


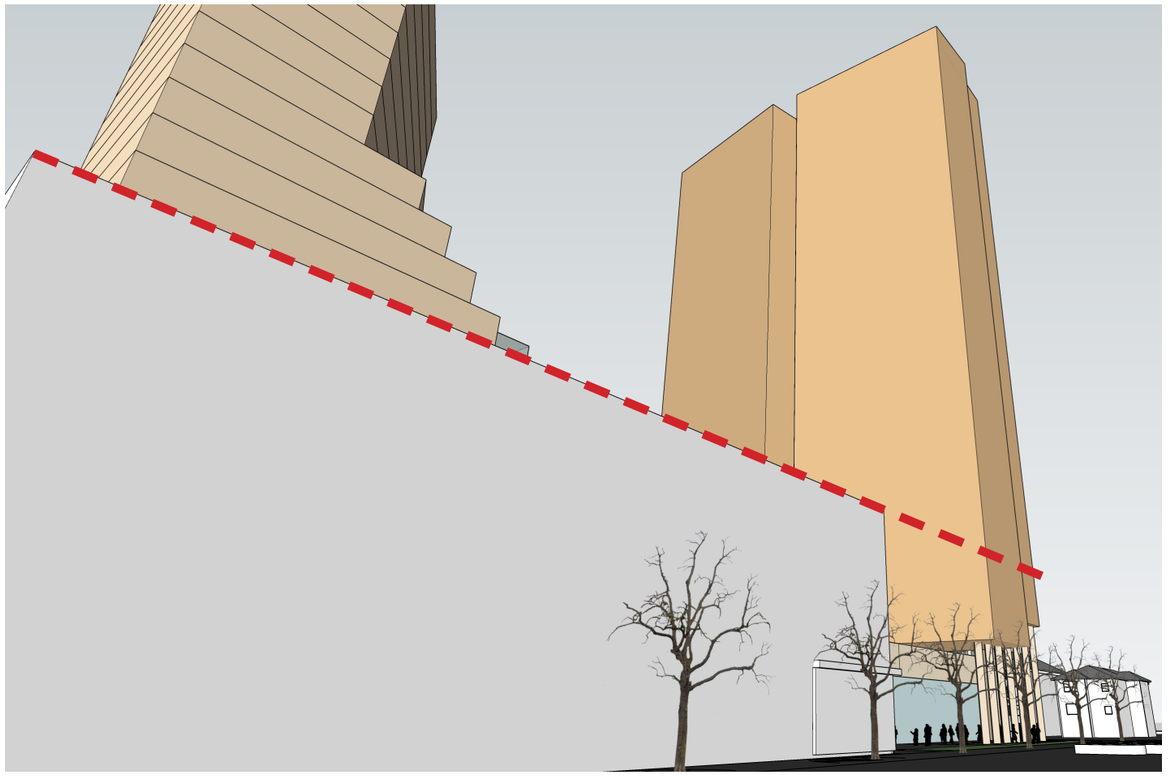


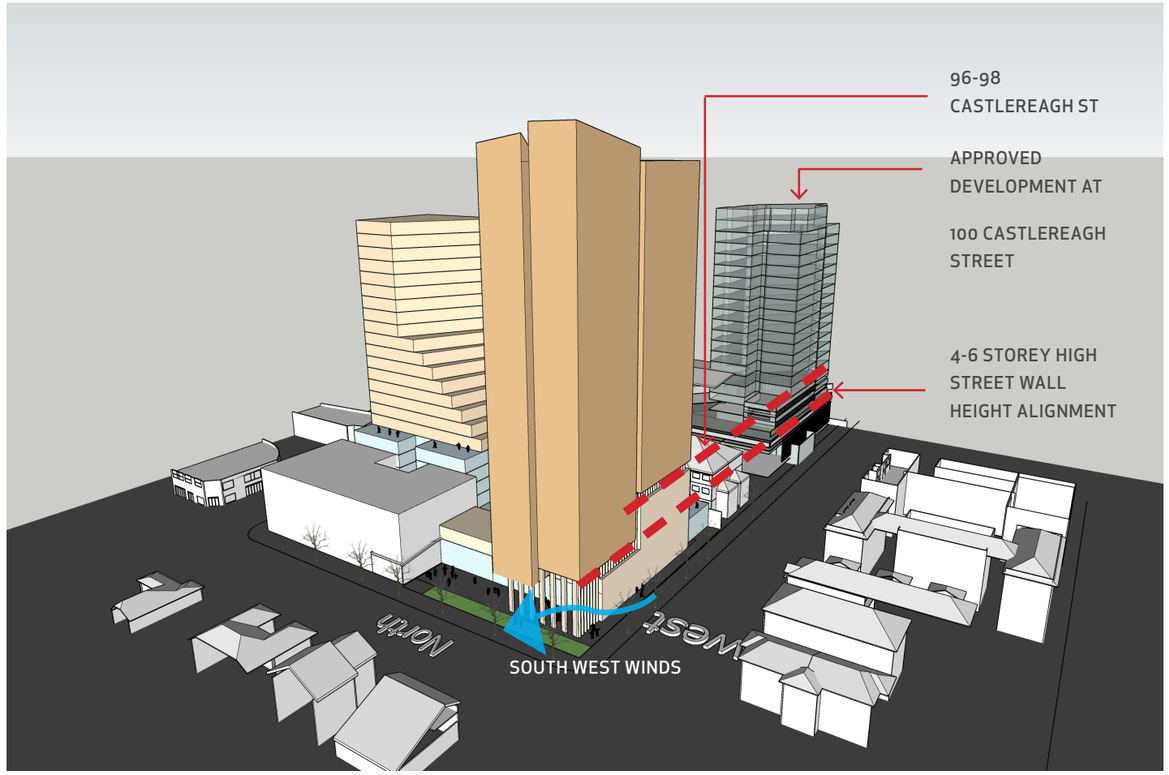


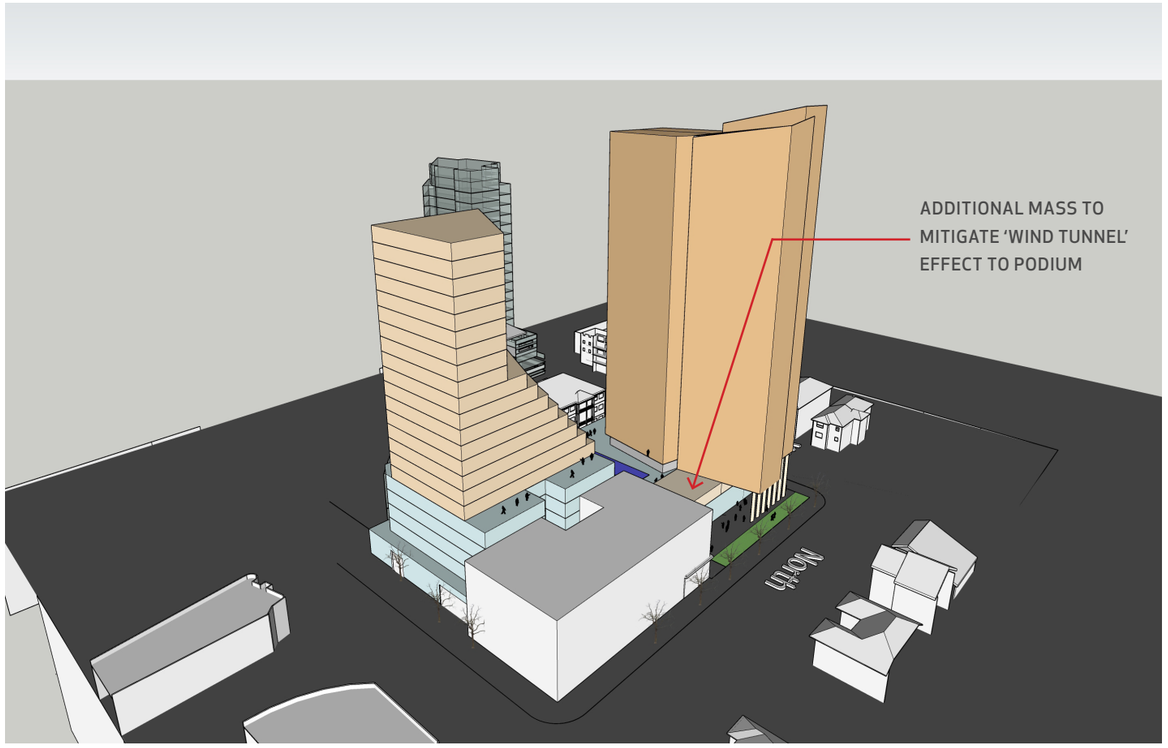


OPTION 2: 4-6 STOREY STREET WALL TO CASTLEREAGH STREET

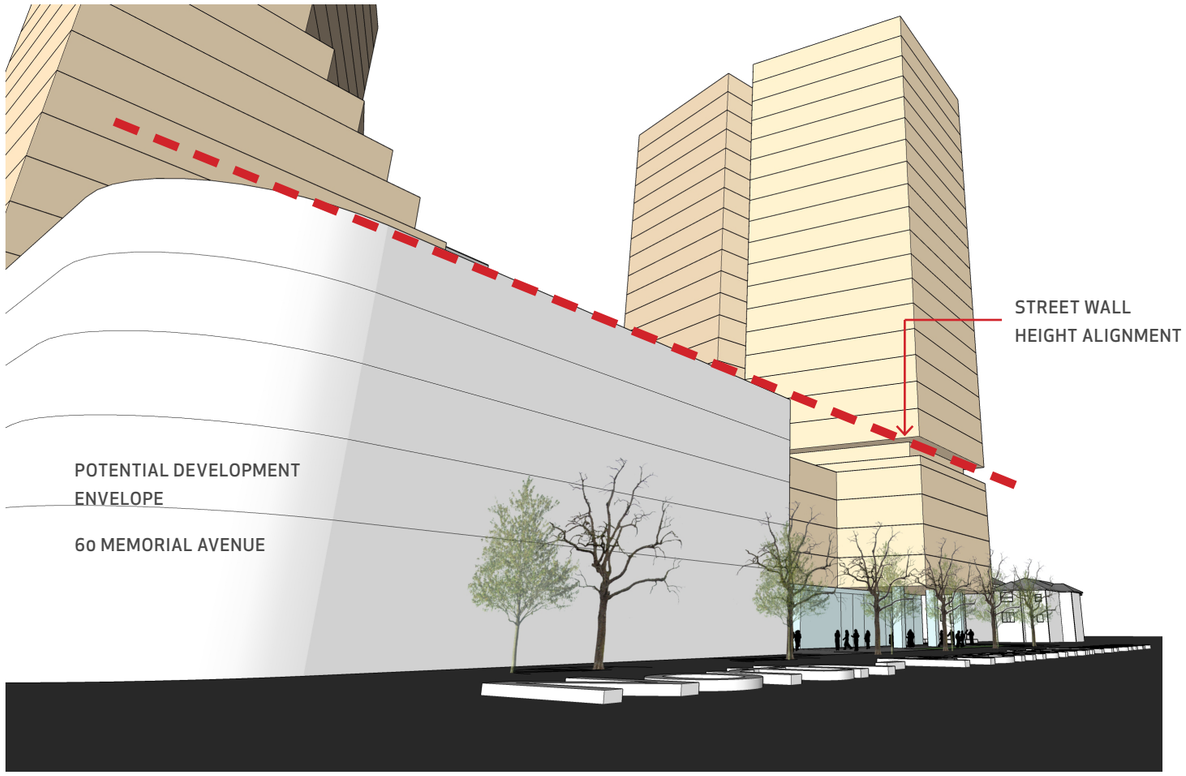


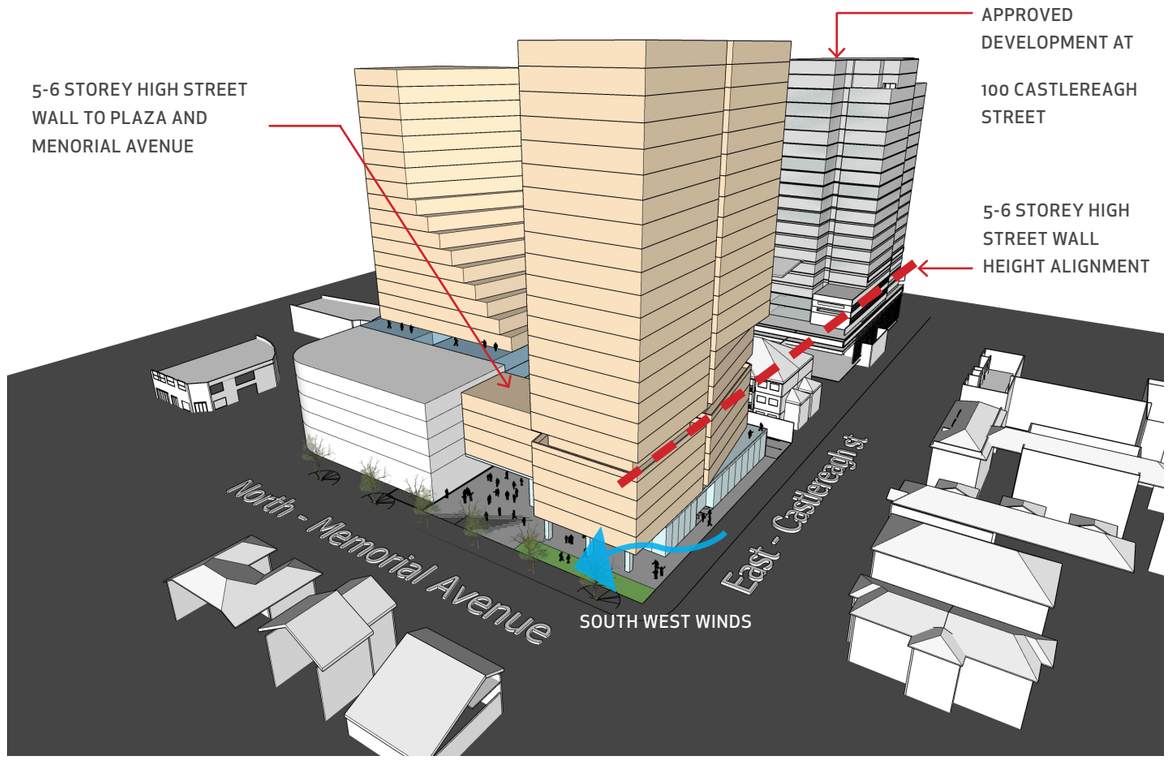


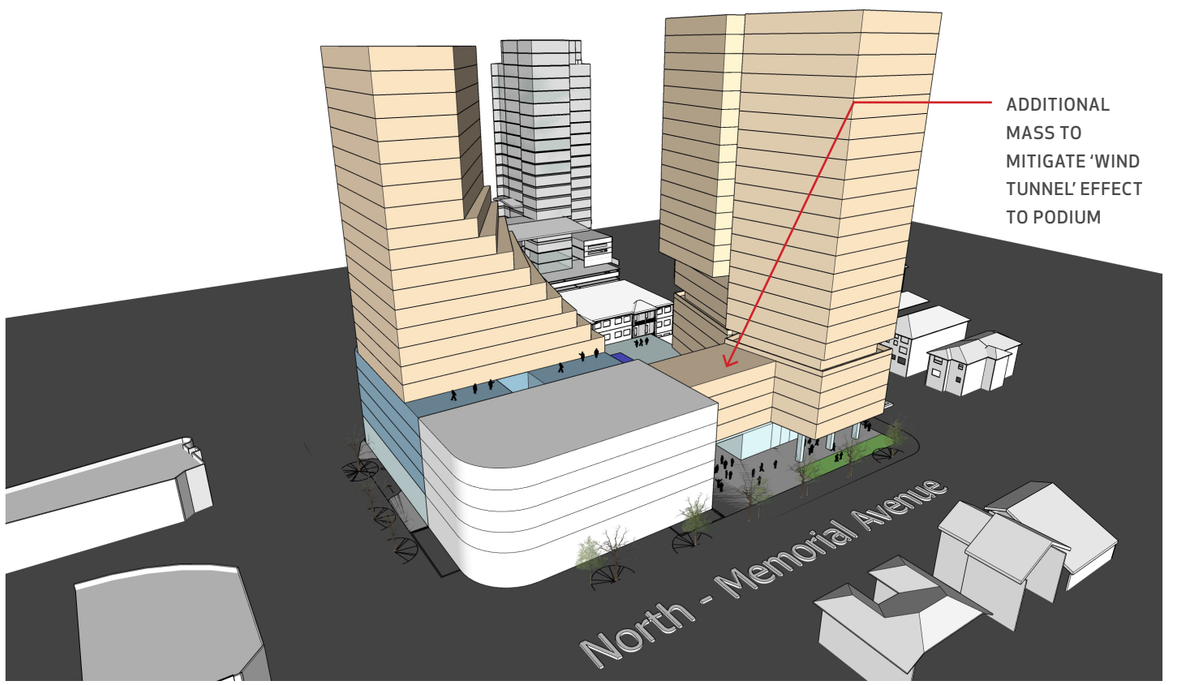




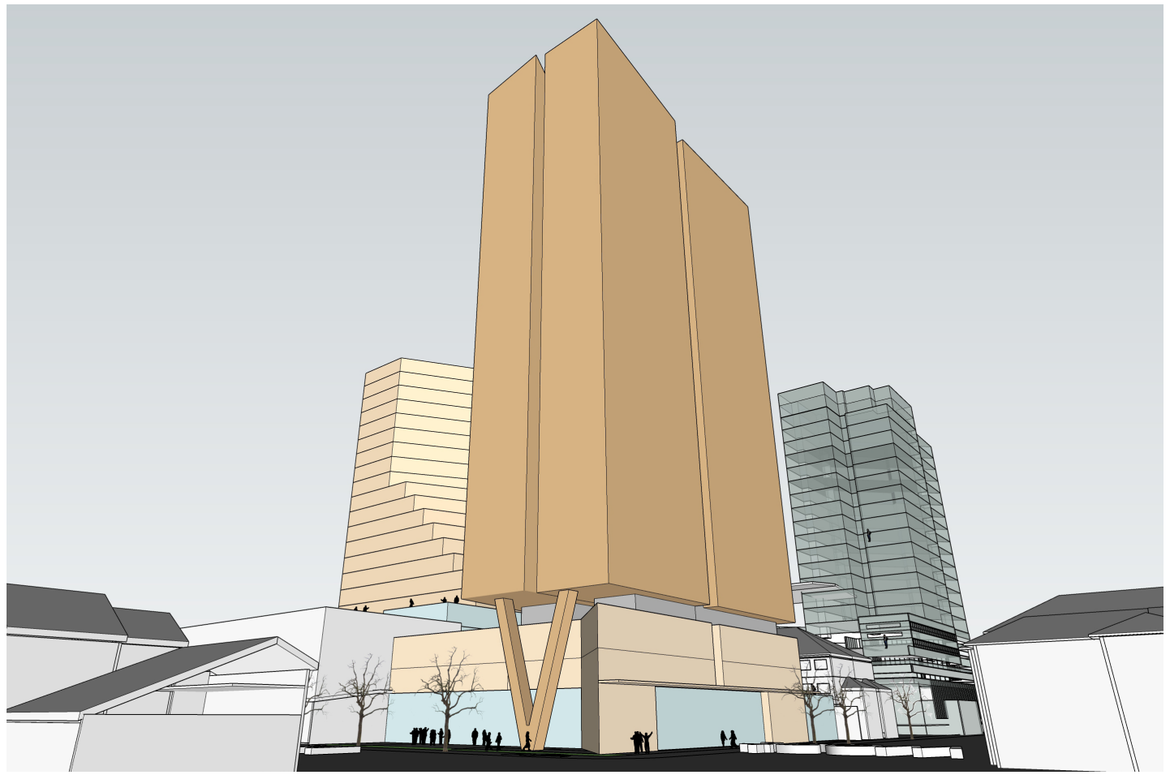
OPTION 3: 5 - 6 STOREY STREET WALL TO MEMORIAL AVENUE

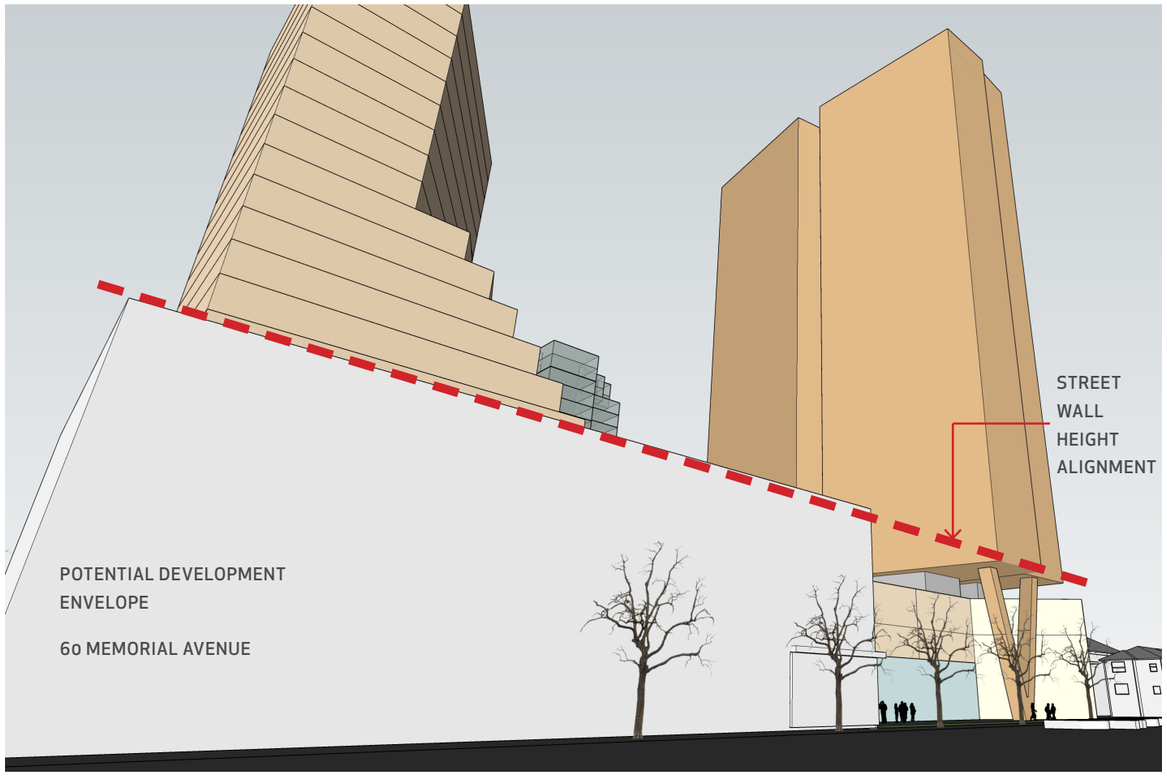


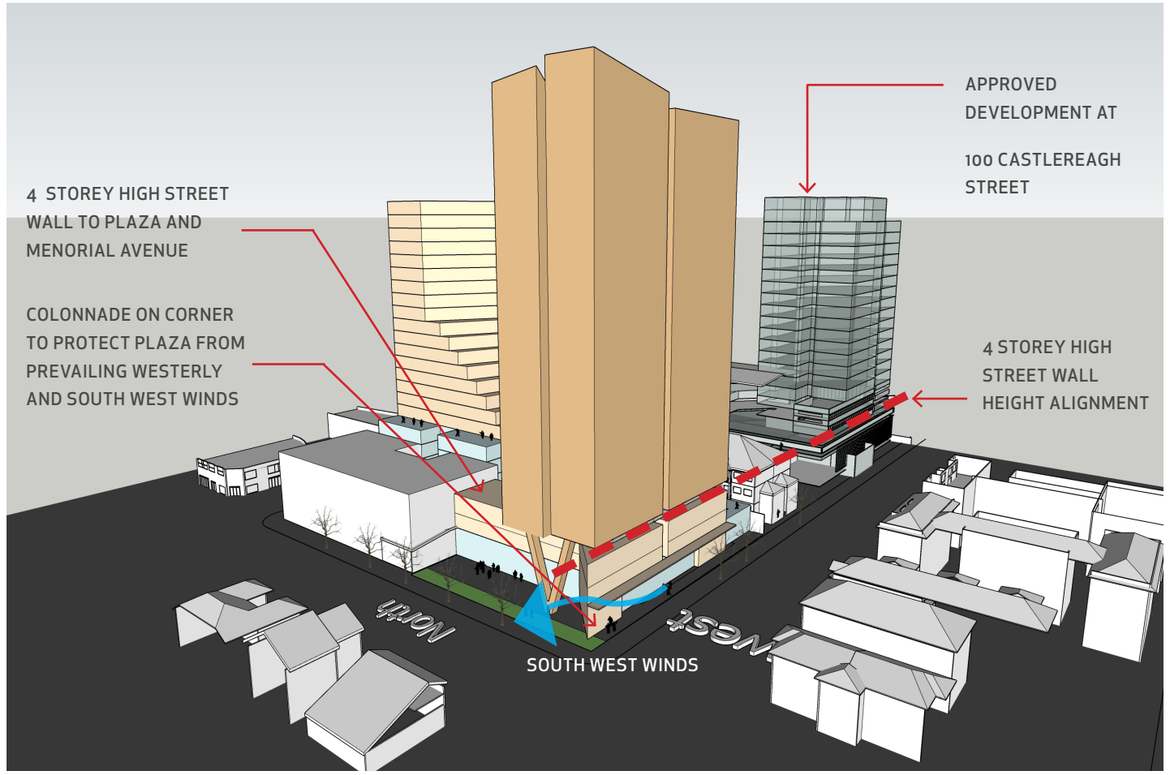


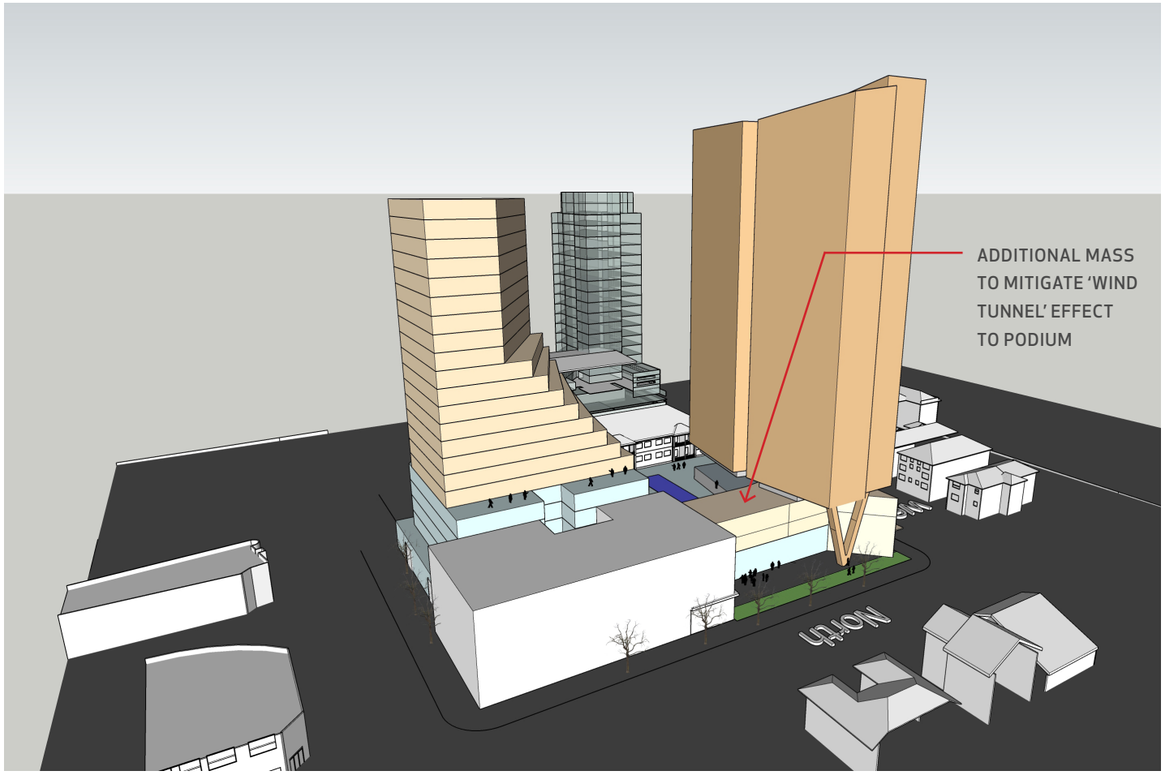


OPTION 4: 4 STOREY STREET WALL TO MEMORIAL AVENUE










Christiano's

07 ARCHITECTURAL RESOLUTION

07 ARCHITECTURAL RESOLUTION

MATERIAL SELECTION

DULUX MILTON MOON
- EXTERIOR WALL
PC1

GLASS BALUSTRADE
BAL

DULUX DURALLOY
CLASSIC PEARL WHITE
- ALUMINIUM WHITE FINS
AL1

PRECAST CONCRETE PANEL WITH
SHADOW LINE PAINTED PC3
PC

DULUX GOLD TREASURE
-LOUVRE SCREENS
LS

DULUX DURALLOY MONUMENT
- WINDOW AND DOOR FRAMES
AL2

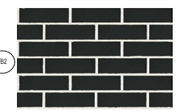
DULUX TUSCAN SUNSET
- BLADE WALLS TO BALCONIES
PC2

DULUX SNOWY MOUNTAINS
QUARTER
- BALCONY WALLS
PC3

DULUX SILVER SLIDE
- EXTERIOR WALLS
PC3

DULUX DURALLOY SHOJI WHITE
- BALCONY FRAMES
AL3

BOWRAL DRY PRESSED
BOWRAL BLUE
FB1



BURLESQUE

LEVEL 1 COURTYARD

Resident outdoor areas and amenities have been placed between the two towers on the roof of the retail spaces, creating a private, protected space with good solar access for the residents. The landscaped courtyard recognizes the likelihood of family demographic with a kid-friendly 'urban backyard' quality.

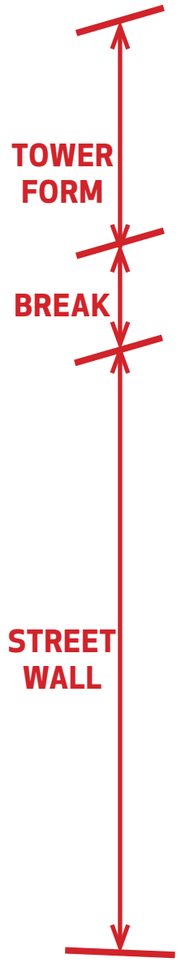
The proposed central common open space will feature shade structures and planting, to create an attractive and stimulating environment, mitigate wind effects from the tall buildings both on and around the site and help soften the sometimes hot and dry local microclimate


N
EC

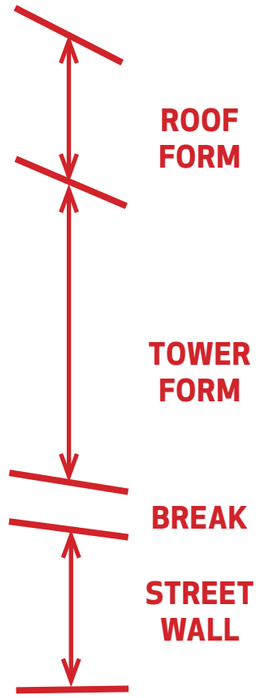
08 FACADE PRECEDENT STUDY

08 FACADE PRECEDENT STUDY

CASE STUDY
WENTWORTH PARK
CHROFI ARCHITECTS
SYDNEY



BULLECOURT
ALLEN JACK+COTTIER
SYDNEY



The proposed podium street wall form relates to the scale of surrounding existing and future built form and is designed to provide a fine grained, visually rich and engaging environment within the view cone of pedestrians and drivers using the surrounding streets. The proposed building material choices have been made to acknowledge the character of the surrounding area, where brick has traditionally been widely used.

The towers above are visually separated from the podium by a horizontal break and are designed to be seen from afar, with larger scale elements and patterns that read at a distance.

ELY COURT,
ALISON BROOKS ARCHITECTS
LONDON

EY CENTRE
FJMT
SYDNEY

CASE STUDY

FORTY FIVE TEN
ELKUS MANFREDI ARCHITECTS
DALLAS

The design recognizes the status of Memorial Avenue as a shopping street by locating retail spaces on the Memorial Avenue frontage. The proposed plaza extends the public domain into the site and addresses a lack of public spaces in this part of Liverpool. The plaza offers planting and street furniture, creating a comfortable and inviting place to sit and gather with potential for outdoor seating for future restaurants or cafes.

The plaza is sheltered from prevailing westerlies by extending the lower levels of the building out to the Memorial Avenue and Castlereagh Street corner. The western tower extends over the western part of the plaza to offer shade in the prevailing hot and dry microclimate and potential for all weather use of the outdoor space. A feature column supoorts the overhang and adds a sculptural element and visual interest to the space. The overhang offers opportunities for public art to enliven the streetscape.

08 FACADE PRECEDENT STUDY

FACADE PRECEDENT STUDY WEST TOWER
SERRATA APARTMENTS
HAYBALL
MELBOURNE

WEST TOWER FACADE STUDY
FROM MEMORIAL AVENUE AND CASTLEREAGH STREET
SYDNEY

The two towers have distinct forms and expressions which reflect the unique site influences acting on each building and together create a dynamic and mixed precinct, avoiding the monotonous appearance of some recent development in the area. They have been shaped by sun and view angles to and from neighboring properties, which ensures that existing amenity is respected and at the same time creating distinctive forms.

The western tower benefits from views to the west over parklands to the Blue Mountains beyond; the design aesthetic is generated by the need to provide outlook and solar protection to the west, with broad balconies covering the majority of the western elevation. These have been subtly angled and inflected to create a visually interesting and dynamic aesthetic.

THE NEW MUSEUM OF CONTEMPORARY ART
KAZUYO SEJIMA
NEW YORK

URBANO MODULO
AEDES STUDIO
SOFIA

FACADE PRECEDENT STUDY EAST TOWER
WORLD TRADE CENTRE
BIG ARCHITECT
NEW YORK

The eastern tower has been shaped to incorporate a more commercial aesthetic with a smaller residential floor plate above, with further stepping and angling on the upper levels to respect sun and view angles to and from neighboring properties. The design aesthetic reflects the commercial nature of Bathurst Street with the residential uses combined into a coherent whole using a language of vertical sun-shading blades and a stepped and angled form to read as a series of stacked volumes with subtle shifts creating visual tension in the elevation.

Architectural roof features are proposed to both towers which add a distinctive crowning element, making them recognisable and distinctive. Materials have been chosen generally with regard to being durable and low maintenance. Operable elements such as sun-shading have been added in key areas for function and aesthetic emphasis.

09 SEPP65 APARTMENT DESIGN GUIDE COMPLIANCE CHECKLIST

AJ+C
ALLEN JACK+COTTIER

SEPP 65 APARTMENT DESIGN GUIDE COMPLIANCE CHECKLIST

MEMORIAL AVENUE, LIVERPOOL

86-94 CASTLEREAGH ST, 77-79 BATHURST ST AND 64 MEMORIAL AV, LIVERPOOL NSW 2170

ISSUES

Issue	Date	Reason for Issue	Comment	Checked	Approved
Draft	24.07.18	Draft Issue – For DEP pre-DA		SG	BM
Final	07.12.18	Issued for D.A. Submission		RP	RP
Final	22.02.19	Issued for D.A. Submission with amendments		SG	RP

INTRODUCTION

The project site comprises Lots 7-11 Castlereagh St and 77-79 Bathurst St, Liverpool, is bound to the north by Memorial Avenue, east by Bathurst Street and west by Castlereagh Street, and is approximately 45-89m long, east to west, and 36-60m wide, north to south with a land area of 4,333m^2.

There are currently several buildings on the site; a two-storey restaurant fronting Bathurst Street, a two-storey service station with boarding rooms above on the corner of Memorial Avenue and Castlereagh Street and on grade car parking covering the remainder of the site. It is proposed these existing buildings will be demolished.

Memorial Avenue is an entry point to the area from the west, and is recognized as a local heritage item. To the north of the site, across Memorial Avenue, are a one, two and three-storey commercial and residential buildings.

A pedestrian bridge is planned to cross the Hume Highway to the Whitlam Centre and parklands beyond. This is proposed on the southern side of Memorial Avenue at the corner of the Hume Highway. This will lead to increased pedestrian flows along the Memorial Avenue frontage of the site.

Bathurst Street is a major entry point to the area from the south and east and connects to Westfield shopping centre to the north. To the east of the site across Bathurst Street are two-storey commercial buildings.

Castlereagh Street is a quiet tree lined residential street. To the west of the site across Castlereagh Street are two, three and four-storey residential flat buildings.

To the south of the site is a three-storey residential flat building fronting Castlereagh Street, built to within 3m of the site boundary, and a two-storey commercial building fronting Norfolk Street, which is built to the boundary. New residential flat buildings of circa 25 storeys are either approved or under construction further to the south.

	DESIGN STATEMENT
	We envisage this to be a high quality and attractive precinct to revitalize the surrounding area, and propose an active and human scaled street presence along all street frontages that enhance and complement the existing context and public domain. The proposed street wall at the lower levels relates to the immediate context and aims to unify the city block bounded by Memorial Avenue, Castlereagh, Bathurst and Norfolk Streets into a coherent whole. Building entries activate each frontage, with awnings and overhangs to ensure a comfortable and safe public domain. Above the street, two distinctive residential towers are proposed; the western tower marks the corner of Memorial Avenue and Castlereagh Street, framing vistas along these streets, and the eastern tower marks the corner of Bathurst and Norfolk Streets, marking the entry point to the suburb from the south west. The two towers have distinct forms and expressions which reflect the unique site influences acting on each building and together create a dynamic and mixed precinct, avoiding the monotonous appearance of some recent development in the area. They have been shaped by sun and view angles to and from neighboring properties, which ensures that existing amenity is respected and at the same time creating distinctive forms. The western tower benefits from views to the west over parklands to the Blue Mountains beyond; the design aesthetic is generated by the need to provide outlook and solar protection to the west, with broad balconies covering the majority of the western elevation. These have been subtly angled and inflected to create a visually interesting and dynamic aesthetic. The eastern tower has been shaped to incorporate a more commercial aesthetic with a smaller residential floor plate above, with further stepping and angling on the upper levels to respect sun and view angles to and from neighboring properties. The design aesthetic reflects the commercial nature of Bathurst Street with the residential uses combined into a coherent whole using a language of vertical sun-shading blades and a stepped and angled form to read as a series of stacked volumes with subtle shifts creating visual tension in the elevation. Resident outdoor areas and amenities have been placed between the two towers on the roof of the retail spaces, creating a private, protected space with good solar access for the residents. The landscaped courtyard recognizes the likelihood of family demographic with a kid-friendly 'urban backyard' quality. The design recognizes the status of Memorial Avenue as a shopping street by locating retail spaces on the Memorial Avenue frontage. The proposed plaza extends the public domain into the site and addresses a lack of public spaces in this part of Liverpool. The plaza offers planting and street furniture, creating a comfortable and inviting place to sit and gather with potential for outdoor seating for future restaurants or cafes. The plaza is sheltered from prevailing westerlies by extending the lower levels of the building out to the Memorial Avenue and Castlereagh Street corner. The western tower extends over the western part of the plaza to offer shade in the prevailing hot and dry microclimate and potential for all weather use of the outdoor space.

SCHEDULE 1	DESIGN QUALITY PRINCIPLES
PRINCIPLE 1	CONTEXT AND NEIGHBOURHOOD 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.
	The proposal responds and contributes to its context in a number of ways: The proposed public plaza on Memorial Avenue addresses the lack of public spaces in the area; combined with the proposed retail spaces this will reinforce the 'high street' retail and commercial character of Memorial Avenue. Building uses and their entries are located appropriately on each of the surrounding streets; retail on Memorial Avenue, which is a primarily commercial and retail street; retail spaces and residential entry on Bathurst Street, which is a mixed-use street and residential entry on Castlereagh Street, which is primarily a residential street. The proposed setbacks to Memorial Avenue and Castlereagh Street allow for wider footpaths, tree planting and landscaping to build upon and enhance the character of each street. The location and forms of the proposed buildings have been planned to maintain outlook from and solar access to the southern and western neighbours, respecting their right to sun and outlook. The proposed building material choices have been made to acknowledge the character of the surrounding area; for example brick cladding to the street wall to reflect where brick has traditionally been widely used in the local area.
PRINCIPLE 2	BUILT FORM AND SCALE
	Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings. 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.
	The proposed scale, bulk and height relates to surrounding buildings; both existing and DA approved; and makes a positive contribution to the desired future character of the street. By establishing a street wall of 4-5 storeys to each frontage, the proposal relates to the built form of the approved development at 7-11 Norfolk Street, the 3-4 storey + roof scale of the existing residential flat buildings on either side of Castlereagh Street and the anticipated scale of future developments of neighbouring sites at 60 Memorial Avenue and 3-5 Norfolk Street. Above the street wall, the western tower is located on the corner of Memorial Avenue and Castlereagh Street to mark the corner and frame the vista along Memorial Avenue. The height and bulk of this tower is consistent with those currently under construction at 100 Castlereagh Street and DA approved at 7-11 Norfolk Street. The eastern tower is located on the eastern boundary to strengthen the street line, act as a visual marker on the curve of Bathurst Street, to maximise building separation between the two towers and maximise solar access to the central common open space and to the neighbouring buildings to the south.

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.
	The proposed density is appropriate to the site and its context and achieves a high level of amenity for residents and each apartment. The mixed use nature of the proposal and proximity to public transport, jobs, amenities and services supports the proposed density by providing places to live close to where people want to be, as well as providing new amenities, shops and jobs close to where they live. The arrangement of the buildings on the site and large separation between the towers ensures that outlook from and solar access to the apartments is maximised and overlooking, both between the proposed buildings and also of existing neighbouring buildings, is minimised.
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.
	The proposed apartment layouts achieve high levels of natural cross ventilation and solar access. The arrangement of the buildings on the site ensures that solar access to the public and common open spaces and also to existing neighbouring buildings is maximised. The proposed facade design is generated by each orientation and provides passive and active shading elements, appropriate glazing and operability to allow natural cross flow ventilation. A BCA section J and BASIX strategy will be submitted with the DA submission. The proposal includes potential for solar panels to be located on the roof of each tower.
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 useability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity and provides for practical establishment and long-term management.
	The proposed public plaza on Memorial Avenue addresses the lack of public spaces in the area and will offer a place for people to meet, pause or pass through in a comfortable, stimulating and attractive environment. Proposed shade structures and planting and a larger feature tree will help to soften the sometimes hot and dry local microclimate. The established line of tree planting along Memorial Avenue will be bolstered by the insertion of new street trees where two existing driveway crossings are to be removed. The proposed central common open space will feature shade structures and planting, to create an attractive and stimulating environment, mitigate wind effects from the tall buildings both on and around the site and help soften the sometimes hot and dry local microclimate

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, efficient layouts and service areas and ease of access for all age groups and degrees of mobility.
	The proposal provides high levels of amenity through provision of a mix of uses on the site, high quality private realm, public domain and common open space. The form and arrangement of the buildings on the site ensures that solar access to the public and common open spaces, and also to existing neighbouring buildings, is maximised. The proposed apartment layouts are well planned internally and achieve high levels of separation, natural cross ventilation and solar access. Proposed landscaping will be developed to enhance the public domain to meet design excellence and public benefit criteria. The proposed public plaza fronting Memorial Avenue recognizes its status as a shopping street, and provides outdoor dining areas for ground floor retail areas and allows for the projected increase in pedestrian flows associated with the proposed pedestrian bridge across the Hume Highway.
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.
	The site currently contains a petrol station, a restaurant and large on-grade car park. The proposal will enhance safety of the surrounding area by activating each of the street frontages, with different uses and building entries located appropriately facing each of the surrounding streets; the various uses will provide eyes on the street throughout the day and night to provide passive surveillance and thus higher levels of security. The interface with the public realm is well designed to provide clear lines of sight and access control to building entries and minimise hidden corners. Appropriate lighting will be designed to further enhance security.
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 and providing opportunities for social interaction among residents.
	The proposed mix of uses, enhanced public realm and provision of residential common areas on the site will provide a range of places for people; both residents and visitors; to meet and interact. The proposed apartment mix responds to demonstrated demand in the area and provides additional residential accommodation appropriate for families.

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 a well-designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.
	The proposed scale, bulk and height relates to surrounding buildings; both existing and DA approved; and makes a positive contribution to the desired future character of the street. The proposed street wall form relates to the scale of surrounding existing and future built form and is designed to provide a fine grained, visually rich and engaging environment within the view cone of pedestrians and drivers using the surrounding streets. The proposed building material choices have been made to acknowledge the character of the surrounding area, where brick has traditionally been widely used. The towers above are located to frame vistas along the surrounding streets and are designed to be seen from afar, with larger scale elements and patterns that read at a distance. Architectural roof features are proposed which will add a distinctive crowning element to each tower, making them recognisable and distinctive. Materials have been chosen generally with regard to being durable and low maintenance. Operable elements such as sun-shading have been added in key areas for function and aesthetic emphasis.

Ref	Item Description	Design Criteria	Design Guidance	Notes	Objective Achieved ✓/✗
PART 2	**DEVELOPING THE CONTROLS**				
2F	**BUILDING SEPARATION**				
2F	Minimum separation for buildings are: Nine Storeys and above (over 25m): • 24m between habitable rooms • 12m between habitable and non-habitable • 9m between non-habitable rooms		•	Minimum separation between habitable rooms of buildings on the site is 29.7m. Minimum separation of the West Tower to southern boundary is 12.0m. Minimum separation of East Tower to southern and northern boundaries is 6.1m and 5.6mm to screened balconies.	✓
PART 3	**SITING THE DEVELOPMENT**				
3A	**SITE ANALYSIS**				
Objective 3A-1	Site analysis illustrates that design decisions have been based on opportunities and constraints of the site conditions and their relationship to the surrounding context				
3A-1.1	Each element in the Site Analysis Checklist should be addressed (see Appendix 1 in ADG)		•	This appendix has been referred to in the preparation of all site analyses	✓
3B	**ORIENTATION**				
Objective 3B-1	Building types and layouts respond to the streetscape and site while optimising solar access within the development				
3B-1.1	Buildings along the street frontage define the street, by facing it and incorporating direct access from the street (see figure 3B.1 in ADG)		•	The proposed development has multiple street frontages. A retail podium is proposed up to each street boundary to define the street edge. Access is provided to each frontage to activate the street; a public plaza and retail entry to the north, residential and retail entries to the east and residential entry to the west. At upper levels, the buildings are orientated to align with the street pattern and to maximise solar access to the proposed apartments, public and common open space and to neighbouring properties. Refer to architectural drawing DA2000	✓
3B-1.2	Where the street frontage is to the east or west, rear buildings are orientated to the north		•	The proposed development has multiple street frontages; each building faces a street. Refer to architectural drawing DA2000	✓
3B-1.3	Where the street frontage is to the north or south, overshadowing to the south should be minimised and buildings behind the street frontage should be orientated to the east and west (see figure 3B.2 in ADG)		•	The proposed development has multiple street frontages; each building faces a street and is aligned to maximise solar access to the proposed apartments, public and common open space and to neighbouring properties. Refer to architectural drawing DA2000	✓

Objective 3B-2	Overshadowing of neighbouring properties is minimised during mid-winter				
3B-2.1	Living areas, private open space and communal open space should receive solar access in accordance with sections 3D Communal and public open space and 4A Solar and daylight access		•	Objectives set out in 3D and 4A are met. Refer to these sections for detail.	✓
3B-2.2	Solar access to living rooms, balconies and private open spaces of neighbours should be considered		•	DCP envelopes are complied with which consider overshadowing of neighbours. Appropriate building separation distances and building form have been provided to the existing building to the south of this development. Refer architectural drawings DA2101-2118 and DA8521	✓
3B-2.3	Where an adjoining property does not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%		•	Complies. Apartments in the south-eastern corner of the DA approved apartment building at 11 Norfolk Street achieves solar access from 9:30 AM to 11:00 AM in mid-winter. Apartments in the existing building at 96-98 Castlereagh St achieve 120 minutes of solar access in mid-winter. Refer architectural drawings DA8511-8513 and DA8521	✓
3B-2.4	If the proposal will reduce the solar access of neighbours, building separation should be increased beyond minimums contained in section 3F Visual privacy		•	Complies; as above	✓
3B-2.5	Overshadowing is minimised to the south or downhill by increased upper level setbacks		•	Complies. The east tower steps back to avoid overshadowing to the existing and proposed buildings to the south of this development. Greater than minimum separation provided between the two towers also maximises the amount of solar access to the neighbouring properties.	✓
3B-2.6	It is optimal to orientate buildings at 90 degrees to the boundary with neighbouring properties to minimise overshadowing and privacy impacts, particularly where minimum setbacks are used and where buildings are higher than the adjoining development		•	Complies. Towers have been oriented parallel to the side boundaries; overshadowing and privacy impacts have been mitigated by setbacks and other strategies.	✓
3B-2.7	A minimum of 4 hours of solar access should be retained to solar collectors on neighbouring buildings		•	N/A none existing	N/A

3C	PUBLIC DOMAIN INTERFACE				
Objective 3C-1	Transition between private and public domain is achieved without compromising safety and security				
3C-1.1	Terraces, balconies and courtyard apartments should have direct street entry, where appropriate		•	N/A – no terrace or courtyard apartments on street level.	✓
3C-1.2	Changes in level between private terraces, front gardens and dwelling entries above the street level provide surveillance and improve visual privacy for ground level dwellings (see figure 3C.1 in ADG)		•	N/A – no terrace or courtyard apartments on street level.	✓
3C-1.3	Upper level balconies and windows should overlook the public domain		•	Balconies and windows are oriented toward public domain and overlook the surrounding streets and plaza spaces.	✓
3C-1.4	Front fences and walls along street frontages should use visually permeable materials and treatments. The height of solid fences or walls is limited to 1m		•	N/A – no terrace or courtyard apartments on street level.	✓
3C-1.5	Length of solid walls should be limited along street frontages		•	Complies. Street frontages typically have glazed retail or residential lobbies facing the public domain.	✓
3C-1.6	Opportunities should be provided for casual interaction between residents & the public domain. Design solutions may include seating at building entries, near letter boxes and in private courtyards adjacent to streets.		•	Complies. Opportunity for outdoor café seating in front of the retail entry provided interaction between residents and the public domain. Residential tower lobbies incorporate seating for interaction. Letter boxes are located in the front entry area. Landscape elements are proposed along the main building entries to soften the entry sequence.	✓
3C-1.7	In developments with multiple buildings and/or entries, pedestrian entries and spaces associated with individual buildings/entries should be differentiated to improve legibility for residents, using a number of the following design solutions: • Architectural detailing • Changes in materials • Plant species • Colours		•	Complies. Lobbies are visible from the street and/or pedestrian plaza. Double height spaces, high quality materials and articulation are proposed to differentiate entrances and provide legibility.	✓
3C-1.8	Opportunities for people to be concealed should be minimised		•	Complies. This is achieved through a combination of factors including: clear sight lines with minimal obstructions, no hidden or recessed spaces, passive surveillance and secure entries	✓

Objective 3C-2	Amenity of the public domain is retained and enhanced				
3C-2.1	Planting softens the edges of any raised terraces to the street, for example above sub-basement car parking		•	Complies. There are no terrace or courtyard apartments proposed on street level. The proposed landscaped podium roof over the car park entry will soften the edge condition facing neighbouring property to the south.	✓
3C-2.2	Mail boxes are located in lobbies, perpendicular to the street alignment or integrated into front fences where individual street entries are provided		•	Complies. Letter boxes are located in residential lobbies.	✓
3C-2.3	The visual prominence of underground car park vents should be minimised and located at a low level where possible		•	Complies. Visual prominence of car park vents is minimised by taking these to roof level and providing screening	✓
3C-2.4	Substations, pump rooms, garbage storage areas and other service requirements should be located in basement car parks or out of view		•	Complies; plant and maintenance areas are restricted wherever possible to basement areas. Some service uses are provided at ground level but visual impact is minimised.	✓
3C-2.5	Ramping for accessibility should be minimised by building entry location and setting ground floor levels in relation to footpath levels		•	Complies; The site is relatively flat, residential and retail lobbies are located at the level of surrounding streets. Refer to architectural drawing DA2000.	✓
3C-2.6	Durable, graffiti resistant and easily cleanable materials should be used		•	Can comply	✓
3C-2.7	Where development adjoins public parks, open space or bushland, the design positively addresses this interface and uses a number of the following design solutions: • street access, pedestrian paths and building entries which are clearly defined • paths, low fences and planting that clearly delineate between communal/private open space and the adjoining public open space • minimal use of blank walls, fences and ground level parking		•	Complies, see 3C-1.7 and 3C-1.5 above.	✓
3C-2.8	On sloping sites protrusion of car parking above ground level should be minimised by using split levels to step underground car parking		•	N/A	N/A

3D	COMMUNAL AND PUBLIC OPEN SPACE				
Objective 3D-1	An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping				
3D-1.1	Communal open space has a minimum area equal to 25% of the site (see figure 3D.3 in ADG)	•		4,333m^2 (site area) x 25%=1,083m^2 required. Communal space provided on ground floor, levels 1 and 4 rooftops: 450+1,052+303 =1,805m^2 The communal open space provided for residents exceeds minimum requirement. These include: • A substantial proportion of the site (min. 450m^2) dedicated to the plaza, which provides amenity for residents as well as the community. • Levels 1&4 landscaped rooftop Refer to architectural drawing DA8533	✓
3D-1.2	Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9am and 3pm on 21 June (mid-winter).	•		Complies; over 2 hours of solar access is achieved to both public open space and communal open space in mid-winter. Sun is available to 50% of the communal open space from 9:00 AM to 12:30 AM.	✓
3D-1.3	Communal open space should be consolidated into a well-designed, easily identified and usable area		•	Complies. Refer 3D-1.1	✓
3D-1.4	Communal open space should have a minimum dimension of 3m, and larger developments should consider greater dimensions		•	Complies.	✓
3D-1.5	Communal open space should be co-located with deep soil areas		•	Ground level communal area (plaza) is co-located with deep soil areas. Rooftop communal open space is provided throughout with generous planting areas and landscape features incorporated into the design.	✓
3D-1.6	Direct, equitable access should be provided to communal open space areas from common circulation areas, entries and lobbies		•	Complies. Direct level access from Level 1 lift lobbies.	✓
3D-1.7	Where communal open space cannot be provided at ground level, it should be provided on a podium or roof		•	Complies; Provided both on ground level, levels 1 and 4 rooftops.	✓
3D-1.8	Where developments are unable to achieve the design criteria, such as on small lots, sites within business zones, or in a dense urban area, they should: • provide communal spaces elsewhere such as a landscaped roof top terrace or a common room • provide larger balconies or increased private open space for apartments • demonstrate good proximity to public open space and facilities and/or provide contributions to public open space		•	Complies. • 1,805m^2 of communal open space is provided in the form of landscaped ground floor plaza, rooftop terraces. • Plaza on ground level is publicly accessible and provide amenity for residents and the local community. • Common indoor space (gym) is provided on level 1with a separate external exercise courtyard. • Balconies are provided for each apartment for private open space. • Nearby parks; Bulldog Park and Whitlam Leisure Centre is 200m to the west, Light Horse park on the river is 800m to the east.	✓

Objective 3D-2	Communal open space is designed to allow for a range of activities, respond to site conditions and be attractive and inviting				
3D-2.1	Facilities are provided within communal open spaces and common spaces for a range of age groups (see also 4F Common circulation and spaces), incorporating some of the following elements: • seating for individuals or groups • barbecue areas • play equipment or play areas • swimming pools, gyms, tennis courts or common rooms		•	Complies. The proposal includes facilities suitable to a variety of individuals. Communal open space is designed to accommodate a variety of uses in all weathers, including open, covered and shaded areas, children's play and barbecue areas, a rooftop swimming pool and indoor gym are proposed to provide fitness and recreation activities for residents.	✓
3D-2.2	The location of facilities responds to microclimate and site conditions with access to sun in winter, shade in summer and shelter from strong winds and down drafts		•	Complies. These issues are dealt with through landscaping and architectural detailing. Screens, pergolas and canopies have been included to mitigate wind effects. A wind consultant has been engaged to advise on the design and will prepare a report for DA submission.	✓
3D-2.3	Visual impacts of services should be minimised, including location of ventilation duct outlets from basement car parks, electrical substations and detention tanks		•	Visual impact of services is minimised through screening and careful location in basements or rooftop plant zones.	✓
Objective 3D-3	Communal open space is designed to maximise safety				
3D-3.1	Communal open space and the public domain should be readily visible from habitable rooms and private open space areas while maintaining visual privacy. Design solutions may include: • bay windows • corner windows • balconies		•	Balconies are provided for each apartment. Corner windows also enable visual connection with public domain. A combination of screening, shading, fixed blades and other techniques ensure that privacy is balanced with surveillance. Balconies from lower level apartments overlook the podium courtyard for passive surveillance.	✓
3D-3.2	Communal open space should be well lit		•	Can comply	✓
3D-3.3	Where communal open space/facilities are provided for children and young people they are safe and contained		•	Complies. The proposed children's play area on Level 1 rooftop is fenced.	✓
Objective 3D-4	Public open space, where provided, is responsive to the existing pattern and uses of the neighbourhood				
3D-4.1	The public open space should be well connected with public streets along at least one edge		•	Public open space is accessible and visible from all street frontages	✓
3D-4.2	The public open space should be connected with nearby parks and other landscape elements		•	N/A There are no parks immediately adjoining the site.	✓
3D-4.3	Public open space should be linked through view lines, pedestrian desire paths, termination points and the wider street grid		•	The public plaza space is located on the north side of the site to connect with most of the street frontages and connect with the existing tree planting on Memorial Ave.	✓
3D-4.4	Solar access should be provided year round along with protection from strong winds		•	Orientation and scale of buildings enables solar access to communal/public spaces Awnings on buildings and colonnades assist to minimise ground level wind impacts within the site. The western podium is built out to the Memorial Avenue boundary to shelter the plaza from prevailing westerly and south westerly winds. See the wind tunnel report.	✓
3D-4.5	Opportunities for a range of recreational activities should be provided for people of all ages		•	Complies; see notes at 3D-2.1 above.	✓
3D-4.6	A positive address and active frontages should be provided adjacent to public open space		•	Non-residential uses at ground level, adjacent to public open space provide diurnal activation including: shops during day time hours; restaurants and residential lobbies in the evening	✓
3D-4.7	Boundaries should be clearly defined between public open space and private areas		•	Complies; private and communal residential areas are defined through vertical separation from the public domain.	✓
3E	DEEP SOIL ZONES				
Objective 3E-1	Deep soil zones provide areas on the site that allow for and support healthy plant and tree growth. They improve residential amenity and promote management of water and air quality				
3E-1.1	Deep soil zones are to meet the following minimum requirements: Site area: < 650m² — Minimum dimensions: - — Deep soil zone (% of site area): 7% Site area: 650m²-1,500m² — Minimum dimensions: 3m Site area: > 1,500m² — Minimum dimensions: 6m Site area: > 1,500m² with significant existing tree cover — Minimum dimensions: 6m	•		Residential Site Area: 4,333m²x7%=303m² (Min) Deep soil area proposed = 142m² This site does not provide 7% deep soil zones, however the proposal includes landscaped rooftop on Level 1 communal open space. (refer to 3E-1.4 below)	ALT.
3E-1.2	On some sites it may be possible to provide larger deep soil zones, depending on the site area and context: • 10% of the site as deep soil on sites with an area of 650m²-1,500m² • 15% of the site as deep soil on sites greater than 1,500m2		•	Due to the dense, built up inner city location, this site cannot provide additional deep soil zones, however the proposed design includes a number of landscaped rooftops. (refer to 3D-1.1 above and 3E-1.4 below)	ALT.
3E-1.3	Deep soil zones should be located to retain existing significant trees and to allow for the development of healthy root systems, providing anchorage and stability for mature trees.		•	N/A. No significant existing trees exist along street frontages or side boundaries. Existing street trees outside the site boundaries will be retained and protected.	N/A

3E-1.4	Achieving the design criteria may not be possible on some sites including where: • the location and building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres) • there is 100% site coverage or non-residential uses at ground floor level Where a proposal does not achieve deep soil requirements, acceptable stormwater management should be achieved and alternative forms of planting provided such as on structure		•	The site is mixed use, occupied by non-residential uses at ground level providing amenity to the community. Landscaping and planting is managed through consideration of planting on structure. Stormwater is managed through on site detention	ALT.
3F	VISUAL PRIVACY				
Objective 3F-1	Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy				
3F-1.1	Separation between windows and balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows: Building height / Habitable rooms and balconies / Non-habitable rooms Up to 12m (4 storeys) / 6m / 3m Up to 25m (5-8 storeys) / 9m / 4.5m Over 25m (9+ storeys) / 12m / 6m Note: Separation distances between buildings on the same site should combine required building separations depending on the type of room (see figure 3F.2 in ADG) Gallery access circulation should be treated as habitable space when measuring privacy separation distances between neighbouring properties		•	Complies. Building separation complies with DCP Control Envelopes set in the site specific DCP. These achieve minimum guides. Minimum separation between habitable rooms of buildings on the site is 29.7m. Minimum separation of the West Tower to southern boundary is 12.0m. Minimum separation of East Tower to southern and northern boundaries is 6.1m and 5.6mm to screened balconies.	✓
3F-1.2	Generally one step in the built form as the height increases due to building separations is desirable. Additional steps should be careful not to cause a 'ziggurat' appearance		•	Complies. Manipulation of the building mass has enabled the creation of discrete built elements which achieve required setbacks and minimised the overshowing to the adjacent properties.	✓
3F-1.3	For residential buildings next to commercial buildings, separation distances should be measured as follows: • for retail, office spaces and commercial balconies use the habitable room distances • for service and plant areas use the non-habitable room distances		•	Complies	✓
3F-1.4	New development should be located and oriented to maximise visual privacy between buildings on site and for neighbouring buildings. Design solutions include: • site layout and building orientation to minimise privacy impacts (see also section 3B Orientation) • on sloping sites, apartments on different levels have appropriate visual separation distances (see figure 3F.4 in ADG)		•	Complies. Visual privacy is maximised between buildings on site through building orientation, site layout and separation. Issues of visual privacy are also mitigated through the implementation of a range of privacy devices.	✓
3F-1.5	Apartment buildings should have an increased separation distance of 3m (in addition to the requirements set out in design criteria 1) when adjacent to a different zone that permits lower density residential development to provide for a transition in scale and increased landscaping (figure 3F.5 in ADG)		•	Complies. Neighbouring sites are within the same zone. Refer to architectural drawing DA2000.	✓
3F-1.6	Direct lines of sight should be avoided for windows and balconies across corners		•	Complies.	✓
3F-1.7	No separation is required between blank walls		•	Considered	✓
Objective 3F-2	Site and building design elements increase privacy without compromising access to light and air and balance outlook and views from habitable rooms and private open space				
3F-2.1	Communal open space, common areas and access paths should be separated from private open space and windows to apartments, particularly habitable room windows. Design solutions may include: • setbacks • solid or partially solid balustrades to balconies at lower levels • fencing and/or trees and vegetation to separate spaces • screening devices • bay windows or pop out windows to provide privacy in one direction and outlook in another • raising apartments/private open space above the public domain or communal open space • planter boxes incorporated into walls and balustrades to increase visual separation • pergolas or shading devices to limit overlooking of lower apartments or private open space • on constrained sites where it can be demonstrated that building layout opportunities are limited, fixed louvres or screen panels to windows and/or balconies		•	Complies; design of communal open space has been considered to minimise impact on privacy of neighbouring dwellings. A range of strategies have been used including: vegetation and planting providing a buffer zone and screening devices.	✓
3F-2.2	Bedrooms, living spaces and other habitable rooms should be separated from gallery access and other open circulation space by the apartment's service areas		•	Complies	✓

3F-2.3	Balconies and private terraces should be located in front of living rooms to increase internal privacy		•	Most of the apartment complies; In some cases, the living rooms in the majority of apartments extend to the façade line to achieve solar access and balconies are located in front of bedrooms.	ALT
3F-2.4	Windows should be offset from the windows of adjacent buildings		•	Complies	✓
3F-2.5	Recessed balconies and/or vertical fins should be used between adjacent balconies		•	Complies	✓
3G	**PEDESTRIAN ACCESS AND ENTRIES**				
Objective 3G-1	Building entries and pedestrian access connects to and addresses the public domain				
3G-1.1	Multiple entries (including communal building entries and individual ground floor entries) should be provided to activate the street edge		•	There are multiple entry points to the site.	✓
3G-1.2	Entry locations relate to the street and subdivision pattern and the existing pedestrian network		•	There are 3 street frontages along the site therefore multiple site entries are provided. For west tower, consideration has been given to access from the Castlereagh St where this is a quiet residential street. For east tower, consideration for retail entry and residential lobby has been given to access from Bathurst St which is the second busiest street. The main entry to ground floor retail through the public plaza has been given to Memorial Ave which is a primary east-west spine connecting the site to the Station and Georges River, to the east and Woodward Park/Leisure precinct to the west.	✓
3G-1.3	Building entries should be clearly identifiable and communal entries should be clearly distinguishable from private entries		•	Complies; signage for non-residential uses to be placed at street frontage. Separate residential lobbies have been considered to maximise visibility from street frontage.	✓
3G-1.4	Where street frontage is limited and multiple buildings are located on the site, a primary street address should be provided with clear sight lines and pathways to secondary building entries		•	Multiple site entries are provided. Primary lobby entrances are created for each tower building. These have been carefully located to maximise visibility from the surrounding streets.	✓
Objective 3G-2	Access, entries and pathways are accessible and easy to identify				
3G-2.1	Building access areas including lift lobbies, stairwells and hallways should be clearly visible from the public domain and communal spaces		•	Complies	✓
3G-2.2	The design of ground floors and underground car parks minimise level changes along pathways and entries		•	N/A; car parks are underground	N/A
3G-2.3	Steps and ramps should be integrated into the overall building and landscape design		•	Necessary access is integrated into landscape design wherever possible.	✓
3G-2.4	For large developments 'way finding' maps should be provided to assist visitors and residents (see figure 4T.3 in ADG)		•	Can comply	✓
3G-2.5	For large developments electronic access and audio/video intercom should be provided to manage access		•	Can comply. Allowance has been made in the design for the provision of these systems in the building lobbies.	✓
Objective 3G-3	Large sites provide pedestrian links for access to streets and connection to destinations				
3G-3.1	Pedestrian links through sites facilitate direct connections to open space, main streets, centres and public transport		•	Complies. Pedestrian links have been considered in the provision of public open space which allow permeable connections through the site.	✓
3G-3.2	Pedestrian links should be direct, have clear sight lines, be overlooked by habitable rooms or private open spaces of dwellings, be well lit and contain active uses, where appropriate		•	Complies. Pedestrian links are overlooked by residential and retail spaces.	✓
3H	**VEHICLE ACCESS**				
Objective 3H-1	Vehicle access points are designed and located to achieve safety, minimise conflicts between pedestrians and vehicles and create high quality streetscapes				
3H-1.1	Car park access should be integrated with the building's overall facade. Design solutions may include: • the materials and colour palette to minimise visibility from the street • security doors or gates at entries that minimise voids in the façade • where doors are not provided, the visible interior reflects the facade design and the building services, pipes and ducts are concealed		•	Complies. Design of car park gate has been recessed and located away from the street frontage to reduce the appearance of voids in the façade and conceal services.	✓
3H-1.2	Car park entries should be located behind the building line		•	Complies	✓
3H-1.3	Vehicle entries should be located at the lowest point of the site minimising ramp lengths, excavation and impacts on the building form and layout		•	Complies; the site is relatively flat	✓
3H-1.4	Car park entry and access should be located on secondary streets or lanes where available		•	Complies. Car park entry is located on Castlereagh Street.	✓
3H-1.5	Vehicle standing areas that increase driveway width and encroach into setbacks should be avoided		•	Complies	✓
3H-1.6	Access point locations should avoid headlight glare to habitable rooms		•	Complies; car park entry / exit has been recessed from the street frontage and oriented away from the habitable rooms and has a landscaped rooftop over it. The landscaped roof has been designed as buffer zone to minimise visual impact for both proposed development and neighbouring property to the south.	✓
3H-1.7	Adequate separation distances should be provided between vehicle entries and street intersections		•	Complies. A traffic engineer has been engaged to advise on the design and prepare a report for DA submission.	✓

3H-1.8	The width and number of vehicle access points should be limited to the minimum		•	Complies. There is only one vehicle access point proposed for this development. A traffic engineering report will be prepared for DA submission	✓
3H-1.9	Visual impact of long driveways should be minimised through changing alignments and screen planting		•	Complies; landscaped roof on top of ramp to basement has been designed to minimise visual impact.	✓
3H-1.10	The need for large vehicles to enter or turn around within the site should be avoided		•	Proposal complies with DCP2011 requirement C.24: 'Loading/manoeuvring areas are to be located within buildings'	✓
3H-1.11	Garbage collection, loading and servicing areas are screened		•	Complies; garbage collection is within ground floor back of house area and is enclosed by a roller shutter door.	✓
3H-1.12	Clear sight lines should be provided at pedestrian and vehicle crossings		•	Complies	✓
3H-1.13	Traffic calming devices such as changes in paving material or textures should be used where appropriate		•	Complies. Refer to landscape and public domain report.	✓
3H-1.14	Pedestrian and vehicle access should be separated and distinguishable. Design solutions may include: • changes in surface materials • level changes • the use of landscaping for separation		•	Complies. Refer to landscape and public domain report	✓
3J	**BICYCLE AND CAR PARKING**				
Objective 3J-1	Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas				
3J-1.1	For development in the following locations: • on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or • on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre The minimum car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less The car parking needs for a development must be provided off street	•		Complies Refer traffic report table 4.1 on page 24 for proposed car parking summary.	✓
3J-1.2	Where a car share scheme operates locally, provide car share parking spaces within the development. Car share spaces, when provided, should be on site		•	N/A, no car share scheme is on operation in Liverpool. No car share spaces are proposed within the development.	N/A
3J-1.3	Where less car parking is provided in a development, council should not provide on street resident parking permits		•	N/A	N/A
Objective 3J-2	Parking and facilities are provided for other modes of transport				
3J-2.1	Conveniently located and sufficient numbers of parking spaces should be provided for motorbikes and scooters		•	Complies; allowance for motorbike/scooter parking	✓
3J-2.2	Secure undercover bicycle parking should be provided that is easily accessible from both the public domain and common areas		•	Complies	✓
3J-2.3	Conveniently located charging stations are provided for electric vehicles, where desirable		•	Complies	✓
Objective 3J-3	Car park design and access is safe and secure				
3J-3.1	Supporting facilities within car parks, including garbage, plant and switch rooms, storage areas and car wash bays can be accessed without crossing car parking spaces		•	Complies.	✓
3J-3.2	Direct, clearly visible and well-lit access should be provided into common circulation areas		•	Complies. Lighting design can comply.	✓
3J-3.3	A clearly defined and visible lobby or waiting area should be provided to lifts and stairs		•	Complies	✓
3J-3.4	For larger car parks, safe pedestrian access should be clearly defined and circulation areas have good lighting, colour, line marking and/or bollards		•	N/A; residential, smaller retail car park only, no public facilities or major retail envisaged that warrants this additional requirement.	N/A
Objective 3J-4	Visual and environmental impacts of underground car parking are minimised				
3J-4.1	Excavation should be minimised through efficient car park layouts and ramp design		•	Complies	✓
3J-4.2	Car parking layout should be well organised, using a logical, efficient structural grid and double loaded aisles		•	Complies	✓
3J-4.3	Protrusion of car parks should not exceed 1m above ground level. Design solutions may include stepping car park levels or using split levels on sloping sites		•	N/A. Car parking is below ground.	N/A
3J-4.4	Natural ventilation should be provided to basement and sub-basement car parking areas		•	Car parks are mechanically ventilated	✗
3J-4.5	Ventilation grills or screening devices for car parking openings should be integrated into the facade and landscape design		•	Complies	✓

Objective 3J-5	Visual and environmental impacts of on-grade car parking are minimised				
3J-5.1	On-grade car parking should be avoided		•	Complies. Car parking is below ground.	✓
3J-5.2	Where on-grade car parking is unavoidable, the following design solutions are used: • parking is located on the side or rear of the lot away from the primary street frontage • cars are screened from view of streets, buildings, communal and private open space areas • safe and direct access to building entry points is provided • parking is incorporated into the landscape design of the site, by extending planting and materials into the car park space • stormwater run-off is managed appropriately from car parking surfaces • bio-swales, rain gardens or on site detention tanks are provided, where appropriate • light coloured paving materials or permeable paving systems are used and shade trees are planted between every 4-5 parking spaces to reduce increased surface temperatures from large areas of paving		•	N/A	N/A

Objective 3J-6	Visual and environmental impacts of above ground enclosed car parking are minimised				
3J-6.1	Exposed parking should not be located along primary street frontages		•	N/A	N/A
3J-6.2	Screening, landscaping and other design elements including public art should be used to integrate the above ground car parking with the facade. Design solutions may include: • car parking that is concealed behind the facade, with windows integrated into the overall facade design (approach should be limited to developments where a larger floor plate podium is suitable at lower levels) • car parking that is 'wrapped' with other uses, such as retail, commercial or two storey Small Office/Home Office (SOHO) units along the street frontage (see figure 3J.9 in ADG)		•	N/A	N/A
3J-6.3	Positive street address and active frontages should be provided at ground level		•	Complies	✓

PART 4	**DESIGNING THE BUILDING**				
4A	**SOLAR AND DAYLIGHT ACCESS**				
Objective 4A-1	To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space				
4A-1.1	Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid-winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas	•		Complies; more than 70% of apartments receive a minimum of 2 hours of direct sunlight in mid-winter between 9am and 3pm. The proposed development has a total number of 226 apartments meet this requirement.	✓
4A-1.2	In all other areas, living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 3 hours direct sunlight between 9 am and 3 pm at mid-winter	•		N/A	N/A
4A-1.3	A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid-winter	•		Complies. Less than 10% single aspect south facing apartments are proposed.	✓
4A-1.4	The design maximises north aspect and the number of single aspect south facing apartments is minimised		•	Complies. Less than 10% single aspect south facing apartments are proposed.	✓
4A-1.5	Single aspect, single storey apartments should have a northerly or easterly aspect		•	Majority complies	✓
4A-1.6	Living areas are best located to the north and service areas to the south and west of apartments		•	Complies; living is placed to the front and exterior of the apartment, service uses are placed to the rear adjacent to the corridors.	✓
4A-1.7	To optimise the direct sunlight to habitable rooms and balconies a number of the following design features are used: • dual aspect apartments • shallow apartment layouts • two storey and mezzanine level apartments • bay windows		•	Complies; a range of features are incorporated including dual aspect apartments and shallow apartment layouts.	✓
4A-1.8	To maximise the benefit to residents of direct sunlight within living rooms and private open spaces, a minimum of 1m2 of direct sunlight, measured at 1m above floor level, is achieved for at least 15 minutes		•	Complies.	✓
4A-1.9	Achieving the design criteria may not be possible on some sites. This includes: • where greater residential amenity can be achieved along a busy road or rail line by orientating the living rooms away from the noise source • on south facing sloping sites • where significant views are oriented away from the desired aspect for direct sunlight Design drawings need to demonstrate how site constraints and orientation preclude meeting the design criteria.		•	Generally complies. Views to Woodward Park/Leisure precinct to the west as there is no other park views near the site.	✓

Objective 4A-2	Daylight access is maximised where sunlight is limited				
4A-2.1	Courtyards, skylights and high level windows (with sills of 1,500mm or greater) are used only as a secondary light source in habitable rooms		•	N/A	N/A
4A-2.2	Where courtyards are used: • use is restricted to kitchens, bathrooms and service areas • building services are concealed with appropriate detailing and materials to visible walls • courtyards are fully open to the sky • access is provided to the light well from a communal area for cleaning and maintenance • acoustic privacy, fire safety and minimum privacy separation distances (see section 3F Visual privacy) are achieved		•	N/A	N/A
4A-2.3	Opportunities for reflected light into apartments are optimised through: • reflective exterior surfaces on buildings opposite south facing windows • positioning windows to face other buildings or surfaces (on neighbouring sites or within the site) that will reflect light • integrating light shelves into the design • light coloured internal finishes		•	Opportunities for reflected light have been optimised through the provision of light coloured internal finishes as well as maximising glazing.	✓
Objective 4A-3	Design incorporates shading and glare control, particularly for warmer months				
4A-3.1	A number of the following design features are used: • balconies or sun shading that extend far enough to shade summer sun, but allow winter sun to penetrate living areas • shading devices such as eaves, awnings, balconies, pergolas, external louvres and planting • horizontal shading to north facing windows • vertical shading to east and particularly west facing windows • operable shading to allow adjustment and choice • high performance glass that minimises external glare off windows, with consideration given to reduced tint glass or glass with a reflectance level below 20% (reflective films are avoided)		•	Complies. A combination of strategies is implemented to reduce glare: balconies shade some levels, shading devices, horizontal shading to the north and high performance glass are proposed.	✓

4B	**NATURAL VENTILATION**				
Objective 4B-1	All habitable rooms are naturally ventilated				
4B-1.1	The building's orientation maximises capture and use of prevailing breezes for natural ventilation in habitable rooms		•	Complies; corner apartments have been provided to maximise opportunities to take advantage of prevailing winds	✓
4B-1.2	Depths of habitable rooms support natural ventilation		•	Generally complies; depth of habitable rooms is limited.	✓
4B-1.3	The area of unobstructed window openings should be equal to at least 5% of the floor area served		•	Complies	✓
4B-1.4	Light wells are not the primary air source for habitable rooms		•	Complies. No light wells proposed.	✓
4B-1.5	Doors and openable windows maximise natural ventilation opportunities by using the following design solutions: • adjustable windows with large effective openable areas • a variety of window types that provide safety and flexibility such as awnings and louvres • windows which the occupants can reconfigure to funnel breezes into the apartment such as vertical louvres, casement windows and externally opening doors		•	Complies. A combination of strategies has been implemented including the use of adjustable windows with large openable areas and a variety of window types that provide safety and flexibility.	✓
Objective 4B-2	The layout and design of single aspect apartments maximises natural ventilation				
4B-2.1	Apartment depths are limited to maximise ventilation and airflow (see also figure 4D.3 in ADG)		•	Generally complies	✓
4B-2.2	Natural ventilation to single aspect apartments is achieved with the following design solutions: • primary windows are augmented with plenums and light wells (generally not suitable for cross ventilation) • stack effect ventilation / solar chimneys or similar to naturally ventilate internal building areas or rooms such as bathrooms and laundries • courtyards or building indentations have a width to depth ratio of 2:1 or 3:1 to ensure effective air circulation and avoid trapped smells		•	Complies. Selected single aspect apartments achieve natural cross ventilation via windows facing building indentations that are <2:1 or <3:1.	✓
Objective 4B-3	The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents				
4B-3.1	At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed	•		Complies; a total of 79 apartments are naturally ventilated apartments in the first nine storeys exceeds 60%;	✓

4B-3.2	Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line	•		Complies	✓
4B-3.3	The building should include dual aspect apartments, cross through apartments and corner apartments and limit apartment depths		•	Apartment depths have been minimised and corner apartments have been used to maximise opportunity for natural ventilation.	✓
4B-3.4	In cross-through apartments external window and door opening sizes/areas on one side of an apartment (inlet side) are approximately equal to the external window and door opening sizes/areas on the other side of the apartment (outlet side) (see figure 4B.4 in ADG)		•	N/A	N/A
4B-3.5	Apartments are designed to minimise the number of corners, doors and rooms that might obstruct airflow		•	Air flow has been maximised with internal planning wherever practicable	✓
4B-3.6	Apartment depths, combined with appropriate ceiling heights, maximise cross ventilation and airflow		•	Complies; appropriate ceiling heights are used in combination with reduced apartment depths	✓
4C	CEILING HEIGHTS				
Objective 4C-1	Ceiling height achieves sufficient natural ventilation and daylight access				
4C-1.1	Measured from finished floor level to finished ceiling level, minimum ceiling heights are: Min. ceiling heights for apartment and mixed use buildings Habitable rooms: 2.7m Non-habitable: 2.4m 2 storey apartments: 2.7 for main living area floor; 2.4 for second floor, where its area does not exceed 50% of the apartment area Attic spaces: 1.8m at edge of room with a 30 degree minimum slope If located in mixed use areas: 3.3m for ground and first floor to promote future flexibility of use These minimums do not preclude higher ceilings if desired	•		Complies; ceiling heights comply with the minimums set out in the Apartment Design Guide.	✓
4C-1.2	Ceiling height can accommodate use of ceiling fans for cooling and heat distribution		•	Can comply	✓
Objective 4C-2	Ceiling height increases the sense of space in apartments and provides for well-proportioned rooms				
4C-2.1	A number of the following design solutions can be used: • the hierarchy of rooms in an apartment is defined using changes in ceiling heights and alternatives such as raked or curved ceilings, or double height spaces • well-proportioned rooms are provided, for example, smaller rooms feel larger and more • Ceiling heights are maximised in habitable rooms by ensuring that bulkheads do not intrude. The stacking of service rooms from floor to floor and coordination of bulkhead location above non-habitable areas, such as robes or storage, can assist		•	Complies. Non habitable areas are consolidated vertically to minimise bulkheads in habitable areas.	✓
Objective 4C-3	Ceiling heights contribute to the flexibility of building use over the life of the building				
4C-3.1	Ceiling heights of lower level apartments in centres should be greater than the minimum required by the design criteria allowing flexibility and conversion to non-residential uses (see figure 4C.1 in ADG)		•	Generally complies; the design has allowed sufficient flexibility at lower levels for future conversion.	✓
4D	APARTMENT SIZE AND LAYOUT				
Objective 4D-1	The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity				
4D-1.1	Apartments are required to have the following minimum internal areas: Studio: 35m² 1 bedroom: 50m² 2 bedroom: 70m² 3 bedroom: 90m² The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5m² each A fourth bedroom and further additional bedrooms increase the minimum internal area by 12m² each	•		Complies 1 bedroom (include 1B+1S): 51m²-58m² 2 bedroom: 72.5m²-87.5m² 3 bedroom: 94.5m²-102.5m²	✓
4D-1.2	Every habitable room must have a window in an external wall with a total minimum glass area of not less than 10% of the floor area of the room. Daylight and air may not be borrowed from other rooms	•		Complies	✓
4D-1.3	Kitchens should not be located as part of the main circulation space in larger apartments (such as hallway or entry space)		•	Complies	✓
4D-1.4	A window should be visible from any point in a habitable room		•	Complies	✓
4D-1.5	Where minimum areas or room dimensions are not met apartments need to demonstrate that they are well designed and demonstrate the usability and functionality of the space with realistically scaled furniture layouts and circulation areas. These circumstances would be assessed on their merits		•	N/A	N/A
Objective 4D-2	Environmental performance of the apartment is maximised				
4D-2.1	Habitable room depths are limited to a maximum of 2.5 x the ceiling height	•		Generally complies; some open plan living/dining/kitchen areas exceed this depth.	✓

4D-2.2	In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window	•		Generally complies; where this does occur, depth does not exceed 8.4m	✓
4D-2.3	Greater than minimum ceiling heights can allow for proportional increases in room depth up to the permitted maximum depths		•	N/A	N/A
4D-2.4	All living areas and bedrooms should be located on the external face of the building		•	Complies	✓
4D-2.5	Where possible: • bathrooms and laundries should have an external openable window • main living spaces should be oriented toward the primary outlook and aspect and away from noise sources		•	Due to restrictions in building envelope it is not possible to provide an operable window to laundries and bathrooms. Assisted ventilation is provided. Main living areas are orientated away from noise sources wherever possible, but are oriented toward park views and Blue Mountains skyline to the west, and internal courtyard to the east.	ALT.
Objective 4D-3	Apartment layouts are designed to accommodate a variety of household activities and needs				
4D-3.1	Master bedrooms have a minimum area of 10m2 and other bedrooms 9m2 (excluding wardrobe space)	•		Complies	✓
4D-3.2	Bedrooms have a minimum dimension of 3m (excluding wardrobe space)	•		Complies	✓
4D-3.3	Living rooms or combined living/dining rooms have a minimum width of: • 3.6m for studio and 1 bedroom apartments • 4m for 2 and 3 bedroom apartments	•		Complies	✓
4D-3.4	The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts	•		N/A; no cross over or cross through apartments proposed.	N/A
4D-3.5	Access to bedrooms, bathrooms and laundries is separated from living areas minimising direct openings between living and service areas		•	Generally complies; direct access to bedrooms from living areas has been minimised.	✓
4D-3.6	All bedrooms allow a minimum length of 1.5m for robes		•	Complies.	✓
4D-3.7	The main bedroom of an apartment or a studio apartment should be provided with a wardrobe of a minimum 1.8m long, 0.6m deep and 2.1m high		•	Complies.	✓
4D-3.8	Apartment layouts allow flexibility over time, design solutions may include: • dimensions that facilitate a variety of furniture arrangements and removal • spaces for a range of activities and privacy levels between different spaces within the apartment • dual master apartments • dual key apartments *Note: dual key apartments which are separate but on the same title are regarded as two sole occupancy units for the purposes of the Building Code of Australia and for calculating the mix of apartments*		•	Generally complies. Considered design solutions have enabled various furniture arrangement options, room sizes and proportions have been considered to enable ease of furnishing, narrow or oddly shaped living areas and bedrooms have been avoided wherever possible. Wherever possible, efficient planning principles have been implemented particularly in relation to consolidation of circulation space in apartments to maximise usable space.	✓
	• room sizes and proportions or open plans (rectangular spaces (2:3) are more easily furnished than square spaces (1:1)) • efficient planning of circulation by stairs, corridors and through rooms to maximise the amount of usable floor space in rooms				

4E	PRIVATE OPEN SPACE AND BALCONIES				
Objective 4E-1	Apartments provide appropriately sized private open space and balconies to enhance residential amenity				
4E-1.1	All apartments are required to have primary balconies as follows: Dwelling type / Minimum area / Minimum depth Studio apartments / 4m² / - 1 bedroom apartments / 8m² / 2m 2 bedroom apartments / 10m² / 2m 3+ bedroom apartments / 12m² / 2.4m The minimum balcony depth to be counted as contributing to the balcony area is 1m	•		Complies Dwelling type / Proposed balconies area range / Minimum depth 1 bedroom apartments / 8m²-11m² / 2m 2 bedroom apartments / 10m²-29m² / 2m 3+ bedroom apartments / 12m²-51m² / 2.4m	✓
4E-1.2	For apartments at ground level or on a podium or similar structure, a private open space is provided instead of a balcony. It must have a minimum area of 15m2 and a minimum depth of 3m	•		Complies	N/A
4E-1.3	Increased communal open space should be provided where the number or size of balconies are reduced.		•	N/A	N/A
4E-1.4	Storage areas on balconies is additional to the minimum balcony size.		•	N/A	N/A
4E-1.5	Balcony use may be limited in some proposals by: • consistently high wind speeds at 10 storeys and above • close proximity to road, rail or other noise sources • exposure to significant levels of aircraft noise • heritage and adaptive reuse of existing buildings In these situations, Juliet balconies, operable walls, enclosed wintergardens or bay windows may be appropriate, and other amenity benefits for occupants should also be provided in the apartments or in the development or both. Natural ventilation also needs to be demonstrated		•	Balconies at upper levels have been designed with vertical shielding device and in some instances only have one open aspect in response to the wind study.	ALT.
Objective 4E-2	Primary private open space and balconies are appropriately located to enhance liveability for residents				
4E-2.1	Primary open space and balconies should be located adjacent to the living room, dining room or kitchen to extend the living space		•	Complies; primary private open space is accessible directly from the living / dining room.	✓
4E-2.2	Private open spaces and balconies predominantly face north, east or west		•	Complies.	✓
4E-2.3	Primary open space and balconies should be orientated with the longer side facing outwards or be open to the sky to optimise daylight access into adjacent rooms		•	Complies.	✓
Objective 4E-3	Private open space and balcony design is integrated into and contributes to the overall architectural form and detail of the building				
4E-3.1	Solid, partially solid or transparent fences and balustrades are selected to respond to the location. They are designed to allow views and passive surveillance of the street while maintaining visual privacy and allowing for a range of uses on the balcony. Solid and partially solid balustrades are preferred		•	Balcony and facade design has been considered attempting to balance protection for noise sources, with passive surveillance, privacy requirements and opportunities for desirable district views. (Refer elevations)	✓
4E-3.2	Full width full height glass balustrades alone are generally not desirable		•	Complies; solid balustrades are proposed to apartments.	✓
4E-3.3	Projecting balconies should be integrated into the building design and the design of soffits considered		•	Complies	✓
4E-3.4	Operable screens, shutters, hoods and pergolas are used to control sunlight and wind		•	Generally complies.	✓
4E-3.5	Balustrades are set back from the building or balcony edge where overlooking or safety is an issue		•	N/A	N/A
4E-3.6	Downpipes and balcony drainage are integrated with the overall facade and building design		•	Can comply	✓
4E-3.7	Air-conditioning units should be located on roofs, in basements, or fully integrated into the building design		•	Generally complies; AC units are integrated with balcony design and screened from view. Central plant is located on the roof.	✓
4E-3.8	Where clothes drying, storage or air conditioning units are located on balconies, they should be screened and integrated in the building design		•	Generally complies; AC units are integrated with balcony design and screened from view.	N/A
4E-3.9	Ceilings of apartments below terraces should be insulated to avoid heat loss		•	Can comply	✓
4E-3.10	Water and gas outlets should be provided for primary balconies and private open space		•	Can comply	✓
Objective 4E-4	Private open space and balcony design maximises safety				
4E-4.1	Changes in ground levels or landscaping are minimised		•	Complies; transition between levels has been considered and kept to a minimum	✓
4E-4.2	Design and detailing of balconies avoids opportunities for climbing and falls		•	Complies	✓

4F	COMMON CIRCULATION AND SPACE				
Objective 4F-1	Common circulation spaces achieve good amenity and properly service the number of apartments				
4F-1.1	The maximum number of apartments off a circulation core on a single level is eight	•		Complies The maximum number of apartments off a circulation core on a single level is eight	✓
4F-1.2	For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40	•		Complies	✓
4F-1.3	Greater than minimum requirements for corridor widths and/ or ceiling heights allow comfortable movement and access particularly in entry lobbies, outside lifts and at apartment entry doors.		•	Complies	✓
4F-1.4	Daylight and natural ventilation should be provided to all common circulation spaces that are above ground		•	Complies	✓
4F-1.5	Windows should be provided in common circulation spaces and should be adjacent to the stair or lift core or at the ends of corridors		•	Complies	✓
4F-1.6	Longer corridors greater than 12m in length from the lift core should be articulated. Design solutions may include: • a series of foyer areas with windows and spaces for seating • wider areas at apartment entry doors and varied ceiling heights		•	Complies. Corridor in West tower is 14.5m long either side of the lift lobby with wider areas at apartment entries.	✓
4F-1.7	Design common circulation spaces to maximise opportunities for dual aspect apartments, including multiple core apartment buildings and cross over apartments		•	It is not possible to place multiple cores for each residential tower due to the LEP tower footprint size restrictions. Therefore consolidated cores and thus longer corridors and have been preferred.	ALT.
4F-1.8	Achieving the design criteria for the number of apartments off a circulation core may not be possible. Where a development is unable to achieve the design criteria, a high level of amenity for common lobbies, corridors and apartments should be demonstrated, including: • sunlight and natural cross ventilation in apartments • access to ample daylight and natural ventilation in common circulation spaces • common areas for seating and gathering • generous corridors with greater than minimum ceiling heights • other innovative design solutions that provide high levels of amenity		•	To offset issues arising from the inability to achieve all design criteria for apartments off a circulation core a range of strategies has been implemented including: sunlight and natural cross ventilation in apartments, access to ample daylight and ventilation in common circulation spaces for residents.	✓
4F-1.9	Where design criteria 1 is not achieved, no more than 12 apartments should be provided off a circulation core on a single level		•	Complies	✓
4F-1.10	Primary living room or bedroom windows should not open directly onto common circulation spaces, whether open or enclosed. Visual and acoustic privacy from common circulation spaces to any other rooms should be carefully controlled		•	Complies	✓
Objective 4F-2	Common circulation spaces promote safety and provide for social interaction between residents				
4F-2.1	Direct and legible access should be provided between vertical circulation points and apartment entries by minimising corridor or gallery length to give short, straight, clear sight lines		•	Complies	✓
4F-2.2	Tight corners and spaces are avoided		•	Complies	✓
4F-2.3	Circulation spaces should be well lit at night		•	Can comply	✓
4F-2.4	Legible signage should be provided for apartment numbers, common areas and general way finding		•	Can comply	✓
4F-2.5	Incidental spaces, for example space for seating in a corridor, at a stair landing, or near a window are provided		•	Complies; provided in main entry lobbies.	✓
4F-2.6	In larger developments, community rooms for activities such as owners corporation meetings or resident use should be provided and are ideally co-located with communal open space		•	Complies. Gym can be used for meetings.	✓
4F-2.7	Where external galleries are provided, they are more open than closed above the balustrade along their length		•	Complies.	✓
4G	STORAGE				
Objective 4G-1	Adequate, well designed storage is provided in each apartment				
4G-1.1	In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided: Dwelling type / Storage size volume Studio apartments 4m³ 1 bedroom apartments 6m³ 2 bedroom apartments 8m³ 3+ bedroom apartments 10m³ At least 50% of the required storage is to be located within the apartment	•		Complies. Dwelling type / Minimum storage size volume 1 bedroom apartments 6m³ 2 bedroom apartments 8m³ 3+ bedroom apartments 10m³	✓
4G-1.2	Storage is accessible from either circulation or living areas		•	Complies	✓

4G-1.3	Storage provided on balconies (in addition to the minimum balcony size) is integrated into the balcony design, weather proof and screened from view from the street		•	N/A	N/A
4G-1.4	Left over space such as under stairs is used for storage		•	N/A. No internal stairs proposed.	N/A
Objective 4G-2	Additional storage is conveniently located, accessible and nominated for individual apartments				
4G-2.1	Storage not located in apartments is secure and clearly allocated to specific apartments		•	Can comply	✓
4G-2.2	Storage is provided for larger and less frequently accessed items		•	Can comply	✓
4G-2.3	Storage space in internal or basement car parks is provided at the rear or side of car spaces or in cages so that allocated car parking remains accessible		•	Can comply	✓
4G-2.4	If communal storage rooms are provided they should be accessible from common circulation areas of the building		•	N/A. No communal storage rooms proposed.	N/A
4G-2.5	Storage not located in an apartment is integrated into the overall building design and is not visible from the public domain		•	Complies. Storage not located in apartments is provided in residential basement parking level.	✓
4H	ACOUSTIC PRIVACY				
Objective 4H-1	Noise transfer is minimised through the siting of buildings and building layout				
4H-1.1	Adequate building separation is provided within the development and from neighbouring buildings/adjacent uses (see also section 2F Building separation and section 3F Visual privacy)		•	Complies; building separation is provided in excess of the minimums set out in the guide.	✓
4H-1.2	Window and door openings are generally orientated away from noise sources		•	Generally complies; Memorial Ave, which is the primary noise source, is also located to the north edge of the site. Therefore, it was necessary to balance solar access amenity with noise impacts	✓
4H-1.3	Noisy areas within buildings including building entries and corridors should be located next to or above each other and quieter areas next to or above quieter areas		•	Complies	✓
4H-1.4	Storage, circulation areas and non-habitable rooms should be located to buffer noise from external sources		•	Complies	✓
4H-1.5	The number of party walls (walls shared with other apartments) are limited and are appropriately insulated		•	Complies	✓
4H-1.6	Noise sources such as garage doors, driveways, service areas, plant rooms, building services, mechanical equipment, active communal open spaces and circulation areas should be located at least 3m away from bedrooms		•	Complies.	✓
Objective 4H-2	Noise impacts are mitigated within apartments through layout and acoustic treatments				
4H-2.1	Internal apartment layout separates noisy spaces from quiet spaces, using a number of the following design solutions: • rooms with similar noise requirements are grouped together • doors separate different use zones • wardrobes in bedrooms are co-located to act as sound buffers		•	Complies	✓
4H-2.2	Where physical separation cannot be achieved noise conflicts are resolved using the following design solutions: • double or acoustic glazing • acoustic seals • use of materials with low noise penetration properties • continuous walls to ground level courtyards where they do not conflict with streetscape or other amenity requirements		•	N/A.	N/A
4J	NOISE AND POLLUTION				
Objective 4J-1	In noisy or hostile environments the impacts of external noise and pollution are minimised through the careful siting and layout of buildings				
4J-1.1	To minimise impacts the following design solutions may be used: • physical separation between buildings and the noise or pollution source • residential uses are located perpendicular to the noise source and where possible buffered by other uses • non-residential buildings are sited to be parallel with the noise source to provide a continuous building that shields residential uses and communal open spaces • non-residential uses are located at lower levels vertically separating the residential component from the noise or pollution source. Setbacks to the underside of residential floor levels should increase relative to traffic volumes and other noise sources • buildings should respond to both solar access and noise. Where solar access is away from the noise source, non-habitable rooms can provide a buffer • where solar access is in the same direction as the noise source, dual aspect apartments with shallow		•	Complies; impacts are minimised where possible. Vertical and horizontal separation assists with reduction in noise, however it was necessary to balance these issues with needs for solar access, ventilation amenity and views	✓

	building depths are preferable (see figure 4J.4 in ADG) • landscape design reduces the perception of noise and acts as a filter for air pollution generated by traffic and industry				
4J-1.2	Achieving the design criteria in this Apartment Design Guide may not be possible in some situations due to noise and pollution. Where developments are unable to achieve the design criteria, alternatives may be considered in the following areas: • solar and daylight access • private open space and balconies • natural cross ventilation		•	N/A	N/A
Objective 4J-2	Appropriate noise shielding or attenuation techniques for the building design, construction and choice of materials are used to mitigate noise transmission				
4J-2.1	Design solutions to mitigate noise include: • limiting the number and size of openings facing noise sources • providing seals to prevent noise transfer through gaps • using double or acoustic glazing, acoustic louvres or enclosed balconies (wintergardens) • using materials with mass and/or sound insulation or absorption properties e.g. solid balcony balustrades, external screens and soffits		•	Noise impacts are mitigated by limiting apartments which face noise sources.	✓
4K	APARTMENT MIX				
Objective 4K-1	A range of apartment types and sizes is provided to cater for different household types now and into the future				
4K-1.1	A variety of apartment types is provided		•	Complies	✓
4K-1.2	The apartment mix is appropriate, taking into consideration: • the distance to public transport, employment and education centres • the current market demands and projected future demographic trends • the demand for social and affordable housing • different cultural and socioeconomic groups		•	Complies	✓
4K-1.3	Flexible apartment configurations are provided to support diverse household types and stages of life including single person households, families, multi-generational families and group households		•	Complies	✓
Objective 4K-2	The apartment mix is distributed to suitable locations within the building				
4K-2.1	Different apartment types are located to achieve successful facade composition and to optimise solar access (see figure 4K.3 in ADG)		•	Complies	✓
4K-2.2	Larger apartment types are located on the ground or roof level where there is potential for more open space and on corners where more building frontage is available		•	Complies	✓
4L	GROUND FLOOR APARTMENTS				
Objective 4L-1	Street frontage activity is maximised where ground floor apartments are located				
4L-1.1	Direct street access should be provided to ground floor apartments		•	N/A. No ground level apartments are proposed.	N/A
4L-1.2	Activity is achieved through front gardens, terraces and the facade of the building. Design solutions may include: • both street, foyer and other common internal circulation entrances to ground floor apartments • private open space is next to the street • doors and windows face the street		•	N/A. No ground level apartments are proposed.	N/A
4L-1.3	Retail or home office spaces should be located along street frontages		•	N/A	N/A
4L-1.4	Ground floor apartment layouts support small office home office (SOHO) use to provide future opportunities for conversion into commercial or retail areas. In these cases provide higher floor to ceiling heights and ground floor amenities for easy conversion		•	N/A. No ground level apartments are proposed.	N/A
Objective 4L-2	Design of ground floor apartments delivers amenity and safety for residents				
4L-2.1	Privacy and safety should be provided without obstructing casual surveillance. Design solutions may include: • elevation of private gardens and terraces above the street level by 1-1.5m (see figure 4L.4 in ADG) • landscaping and private courtyards • window sill heights that minimise sight lines into apartments • integrating balustrades, safety bars or screens with the exterior design		•	N/A. No ground level apartments are proposed.	N/A
4L-2.2	Solar access should be maximised through: • high ceilings and tall windows • trees and shrubs that allow solar access in winter and shade in summer		•	N/A. No ground level apartments are proposed.	N/A

4M	**FACADES**				
Objective 4M-1	Building facades provide visual interest along the street while respecting the character of the local area				
4M-1.1	Design solutions for front building facades may include: • a composition of varied building elements • a defined base, middle and top of buildings • revealing and concealing certain elements • changes in texture, material, detail and colour to modify the prominence of elements		•	Complies; Facades are modern in language & reflect contemporary building methods & include various techniques to create visual interest. including: • Textural contrast between articulated solid mass elements & smooth transparent planes. Roughness of brick surfaces are juxtaposed with the smooth surfaces define concrete. • Subtle changes in façade detail orientation to create interesting shadow effects & increase appearance of depth • Horizontal and vertical projections are used to assist in finer grain reading as well as sun control	✓
4M-1.2	Building services should be integrated within the overall facade		•	Complies	✓
4M-1.3	Building facades should be well resolved with an appropriate scale and proportion to the streetscape and human scale. Design solutions may include: • well composed horizontal and vertical elements • variation in floor heights to enhance the human scale • elements that are proportional and arranged in patterns • public artwork or treatments to exterior blank walls • grouping of floors or elements such as balconies and windows on taller buildings		•	An architectural rhythm is created through the use of consistent motifs in the built fabric – both through the building language & material proposed. Tower facades are conceived to create visual interest when viewed at a range of distances through various patterning devices described in 4M-1.1 above.	✓
4M-1.4	Building facades relate to key datum lines of adjacent buildings through upper level setbacks, parapets, cornices, awnings or colonnade heights		•	Street walls are defined and relate in scale to adjacent neighbouring developments for Castlereagh Street, Memorial Avenue and Bathurst Street frontages. Residential towers are defined as higher scale podium top elements which sit within a maximum prescribed DCP envelope	✓
4M-1.5	Shadow is created on the facade throughout the day with building articulation, balconies and deeper window reveals		•	Complies; as described above	✓
Objective 4M-2	Building functions are expressed by the facade				
4M-2.1	Building entries should be clearly defined		•	Building entries are expressed through the vertical articulation & breakup of mass in the façade	✓
4M-2.2	Important corners are given visual prominence through a change in articulation, materials or colour, roof expression or changes in height		•	Careful consideration was given to the shaping of the building mass to create a fine, vertically fluted façade edge condition to both Memorial Avenue and Castlereagh Street.	✓
4M-2.3	The apartment layout should be expressed externally through facade features such as party walls and floor slabs		•	Internal planning is expressed through the façade patterning & effort has been undertaken for this to occur in subtle ways & not in a simple vertical & horizontal grid	✓
4N	**ROOF DESIGN**				
Objective 4N-1	Roof treatments are integrated into the building design and positively respond to the street				
4N-1.1	Roof design relates to the street. Design solutions may include: • special roof features and strong corners • use of skillion or very low pitch hipped roofs • breaking down the massing of the roof by using smaller elements to avoid bulk • using materials or a pitched form complementary to adjacent buildings		•	Complies. Consideration has been given to concealing plant and its integration within the Architectural Roof Feature design.	✓
4N-1.2	Roof treatments should be integrated with the building design. Design solutions may include: • roof design proportionate to the overall building size, scale and form • roof materials complement the building • service elements are integrated		•	Complies; intended to be concealed by parapets and integrated into façade design	✓
Objective 4N-2	Opportunities to use roof space for residential accommodation and open space are maximised				
4N-2.1	Habitable roof space should be provided with good levels of amenity. Design solutions may include: • penthouse apartments • dormer or clerestory windows • openable skylights		•	N/A	N/A
4N-2.2	Open space is provided on roof tops subject to acceptable visual and acoustic privacy, comfort levels, safety and security considerations		•	Complies. Podium roof top space has been provided to increase amenity for residents.	✓
Objective 4N-3	Roof design incorporates sustainability features				
4N-3.1	Roof design maximises solar access to apartments during winter and provides shade during summer. Design solutions may include: • the roof lifts to the north • eaves and overhangs shade walls and windows from summer sun		•	N/A. Rooves are generally concealed behind parapets.	N/A
4N-3.2	Skylights and ventilation systems should be integrated into the roof design		•	N/A. No skylights proposed.	N/A

4O	**LANDSCAPE DESIGN**				
Objective 4O-1	Landscape design is viable and sustainable				
4O-1.1	Landscape design should be environmentally sustainable and can enhance environmental performance by incorporating: • diverse and appropriate planting • bio-filtration gardens • appropriately planted shading trees • areas for residents to plant vegetables and herbs • composting • green roofs or walls		•	Generally complies; green roofs are incorporated in the podium roof terrace. Composting can be provided.	✓
4O-1.2	Ongoing maintenance plans should be prepared		•	Can comply	✓
4O-1.3	Microclimate is enhanced by: • appropriately scaled trees near the eastern and western elevations for shade • a balance of evergreen and deciduous trees to provide shading in summer and sunlight access in winter • shade structures such as pergolas for balconies and courtyards		•	Refer landscape architect's indicative plant schedule	✓
4O-1.4	Tree and shrub selection considers size at maturity and the potential for roots to compete (see Table 4 in ADG)		•	Refer landscape architect's indicative plant schedule	✓
Objective 4O-2	Landscape design contributes to the streetscape and amenity				
4O-2.1	Landscape design responds to the existing site conditions including: • changes of levels • views • significant landscape features including trees and rock outcrops		•	Complies	✓
4O-2.2	Significant landscape features should be protected by: • tree protection zones (see figure 4O.5 in ADG) • appropriate signage and fencing during construction		•	N/A. No significant landscape features exist on site.	N/A
4O-2.3	Plants selected should be endemic to the region and reflect the local ecology		•	Refer landscape architect's indicative plant schedule	✓
4P	**PLANTING ON STRUCTURES**				
Objective 4P-1	Appropriate soil profiles are provided				
4P-1.1	Structures are reinforced for additional saturated soil weight		•	Can comply	✓
4P-1.2	Soil volume is appropriate for plant growth, considerations include: • modifying depths and widths according to the planting mix and irrigation frequency • free draining and long soil life span • tree anchorage		•	Can comply	✓
4P-1.3	Minimum soil standards for plant sizes should be provided in accordance with Table 5 (in ADG)		•	Can comply	✓
Objective 4P-2	Plant growth is optimised with appropriate selection and maintenance				
4P-2.1	Plants are suited to site conditions, considerations include: • drought and wind tolerance • seasonal changes in solar access • modified substrate depths for a diverse range of plants • plant longevity		•	Refer landscape architect's indicative plant schedule	✓
4P-2.2	A landscape maintenance plan is prepared		•	Can comply	✓
4P-2.3	Irrigation and drainage systems respond to: • changing site conditions • soil profile and the planting regime • whether rainwater, stormwater or recycled grey water is used		•	Can comply	✓
Objective 4P-3	Planting on structures contributes to the quality and amenity of communal and public open spaces				
4P-3.1	Building design incorporates opportunities for planting on structures. Design solutions may include: • green walls with specialised lighting for indoor green walls • wall design that incorporates planting • green roofs, particularly where roofs are visible from the public domain • planter boxes Note: structures designed to accommodate green walls should be integrated into the building facade and consider the ability of the facade to change over time		•	Generally complies; planting on structures is augmented by patterned gravel roof gardens to provide visual amenity to residents in towers	✓
4Q	**UNIVERSAL DESIGN**				
Objective 4Q-1	Universal design features are included in apartment design to promote flexible housing for all community members				
4Q-1.1	Developments achieve a benchmark of 20% of the total apartments incorporating the Liveable Housing Guideline's silver level universal design features		•	Complies	✓
Objective 4Q-2	A variety of apartments with adaptable designs are provided				
4Q-2.1	Adaptable housing should be provided in accordance with the relevant council policy		•	Complies	✓
4Q-2.2	Design solutions for adaptable apartments include: • convenient access to communal and public areas • high level of solar access • minimal structural change and residential amenity loss when adapted		•	Complies	✓

	• larger car parking spaces for accessibility • parking titled separately from apartments or shared car parking arrangements				
Objective 4Q-3	Apartment layouts are flexible and accommodate a range of lifestyle needs				
4Q-3.1	Apartment design incorporates flexible design solutions which may include: • rooms with multiple functions • dual master bedroom apartments with separate bathrooms • larger apartments with various living space options • open plan 'loft' style apartments with only a fixed kitchen, laundry and bathroom		•	Open plan living/dining/kitchen and generous bedrooms	✓
4R	ADAPTIVE REUSE				
Objective 4R-1	New additions to existing buildings are contemporary and complementary and enhance an area's identity and sense of place				
4R-1.1	Design solutions may include: • new elements to align with the existing building • additions that complement the existing character, siting, scale, proportion, pattern, form and detailing • use of contemporary and complementary materials, finishes, textures and colours		•	N/A	N/A
4R-1.2	Additions to heritage items should be clearly identifiable from the original building		•	N/A	N/A
4R-1.3	New additions allow for the interpretation and future evolution of the building		•	N/A	N/A
Objective 4R-2	Adapted buildings provide residential amenity while not precluding future adaptive reuse				
4R-2.1	Design features should be incorporated sensitively into adapted buildings to make up for any physical limitations, to ensure residential amenity is achieved. Design solutions may include: • generously sized voids in deeper buildings • alternative apartment types when orientation is poor • using additions to expand the existing building envelope		•	N/A	N/A
4R-2.2	Some proposals that adapt existing buildings may not be able to achieve all of the design criteria in this Apartment Design Guide. Where developments are unable to achieve the design criteria, alternatives could be considered in the following areas: • where there are existing higher ceilings, depths of habitable rooms could increase subject to demonstrating access to natural		•	N/A	N/A
	ventilation, cross ventilation (when applicable) and solar and daylight access (see also sections 4A Solar and daylight access and 4B Natural ventilation) • alternatives to providing deep soil where less than the minimum requirement is currently available on the site • building and visual separation – subject to demonstrating alternative design approaches to achieving privacy • common circulation • car parking • alternative approaches to private open space and balconies				
4S	MIXED USE				
Objective 4S-1	Mixed use developments are provided in appropriate locations and provide active street frontages that encourage pedestrian movement				
4S-1.1	Mixed use development should be concentrated around public transport and centres		•	Complies; the proposed development will actively contribute to amenity within the local centre with a range of uses on site.	✓
4S-1.2	Mixed use developments positively contribute to the public domain. Design solutions may include: • development addresses the street • active frontages are provided • diverse activities and uses • avoiding blank walls at the ground level • live/work apartments on the ground floor level, rather than commercial		•	Complies; street frontages are activated and engage directly with the street retails premises. The Plaza has connected both Memorial Avenue and Castlereagh Street to enhance public security, passive surveillance and improves the amenity of the public domain by encouraging pedestrian activity. It also acts as an entrance to the retail on ground floor.	✓
Objective 4S-2	Residential levels of the building are integrated within the development, and safety and amenity is maximised for residents				
4S-2.1	Residential circulation areas should be clearly defined. Design solutions may include: • residential entries are separated from commercial entries and directly accessible from the street • commercial service areas are separated from residential components • residential car parking and communal facilities are separated or secured • security at entries and safe pedestrian routes are provided • concealment opportunities are avoided		•	• Complies; lobbies for different uses are clearly defined; residential car parking and communal facilities are separated and secured; security at entries and safe pedestrian routes are provided	✓
4S-2.2	Landscaped communal open space should be provided at podium or roof levels		•	Complies; Landscaped communal open space is provided at level 1 rooftop.	✓

4T	AWNINGS AND SIGNAGE				
Objective 4T-1	Awnings are well located and complement and integrate with the building design				
4T-1.1	Awnings should be located along streets with high pedestrian activity and active frontages		•	Complies; awnings and colonnades are proposed to Plaza and street frontages.	✓
4T-1.2	A number of the following design solutions are used: • continuous awnings are maintained and provided in areas with an existing pattern • height, depth, material and form complements the existing street character • protection from the sun and rain is provided • awnings are wrapped around the secondary frontages of corner sites • awnings are retractable in areas without an established pattern		•	Complies. The proposed awnings are wrapped around all street frontages to provide protection from the sun and rain.	✓
4T-1.3	Awnings should be located over building entries for building address and public domain amenity		•	Complies; awning or colonnade provided	✓
4T-1.4	Awnings relate to residential windows, balconies, street tree planting, power poles and street infrastructure		•	Complies	✓
4T-1.5	Gutters and down pipes should be integrated and concealed		•	Complies	✓
4T-1.6	Lighting under awnings should be provided for pedestrian safety		•	Can comply	✓
Objective 4T-2	Signage responds to the context and desired streetscape character				
4T-2.1	Signage should be integrated into the building design and respond to the scale, proportion and detailing of the development		•	Can comply	✓
4T-2.2	Legible and discrete way finding should be provided for larger developments		•	Complies; sight lines are provided to key entries from the street frontage	✓
4T-2.3	Signage is limited to being on and below awnings and a single facade sign on the primary street frontage		•	Residential signage can comply. Retail/commercial signage N/A.	✓
4U	ENERGY EFFICIENCY				
Objective 4U-1	Development incorporates passive environmental design				
4U-1.1	Adequate natural light is provided to habitable rooms (see 4A Solar and daylight access)		•	Complies	✓
4U-1.2	Well located, screened outdoor areas should be provided for clothes drying		•	Apartments incorporate laundries with space for clothes dryers.	✗
Objective 4U-2	Development incorporates passive solar design to optimise heat storage in winter and reduce heat transfer in summer				
4U-2.1	A number of the following design solutions are used: • the use of smart glass or other technologies on north and west elevations • thermal mass in the floors and walls of north facing rooms is maximised • polished concrete floors, tiles or timber rather than carpet • insulated roofs, walls and floors and seals on window and door openings • overhangs and shading devices such as awnings, blinds and screens		•	A combination of solutions is used including performance glazing, thermal mass, facade insulation and shading devices.	✓
4U-2.2	Provision of consolidated heating and cooling infrastructure should be located in a centralised location (e.g. the basement)		•	Complies; apartments incorporate individual heating & cooling systems.	✓
Objective 4U-3	Adequate natural ventilation minimises the need for mechanical ventilation				
4U-3.1	A number of the following design solutions are used: • rooms with similar usage are grouped together • natural cross ventilation for apartments is optimised • natural ventilation is provided to all habitable rooms and as many non-habitable rooms, common areas and circulation spaces as possible		•	Generally complies; natural ventilation solutions have been sought wherever possible, mechanical ventilation will be incorporated into internalised spaces	✓
4V	WATER MANAGEMENT AND CONSERVATION				
Objective 4V-1	Potable water use is minimised				
4V-1.1	Water efficient fittings, appliances and wastewater reuse should be incorporated		•	Can comply	✓
4V-1.2	Apartments should be individually metered		•	Complies	✓
4V-1.3	Rainwater should be collected, stored and reused on site		•	Complies	✓
4V-1.4	Drought tolerant, low water use plants should be used within landscaped areas		•	Complies	✓
Objective 4V-2	Urban stormwater is treated on site before being discharged to receiving waters				
4V-2.1	Water sensitive urban design systems are designed by a suitably qualified professional		•	Can comply; on site detention provided	✓
4V-2.2	A number of the following design solutions are used: • runoff is collected from roofs and balconies in water tanks and plumbed into toilets, laundry and irrigation		•	Runoff is collected for reuse in irrigation and garden maintenance. Hard landscaped civic plaza means opportunities for bio-retention are limited.	✓

	• porous and open paving materials is maximised • on site stormwater and infiltration, including bio-retention systems such as rain gardens or street tree pits				
Objective 4V-3	Flood management systems are integrated into site design				
4V-3.1	Detention tanks should be located under paved areas, driveways or in basement car parks		•	Complies	✓
4V-3.2	On large sites parks or open spaces are designed to provide temporary on site detention basins		•	N/A	N/A
4W	**WASTE MANAGEMENT**				
Objective 4W-1	Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents				
4W-1.1	Adequately sized storage areas for rubbish bins should be located discreetly away from the front of the development or in the basement car park		•	Complies; located in ground floor back of house area.	✓
4W-1.2	Waste and recycling storage areas should be well ventilated		•	Complies; waste storage area to be mechanically ventilated.	✓
4W-1.3	Circulation design allows bins to be easily manoeuvred between storage and collection points		•	Complies	✓
4W-1.4	Temporary storage should be provided for large bulk items such as mattresses		•	Complies	✓
4W-1.5	A waste management plan should be prepared		•	Complies; Waste management plan has been prepared for DA submission.	✓
Objective 4W-2	Domestic waste is minimised by providing safe and convenient source separation and recycling				
4W-2.1	All dwellings should have a waste and recycling cupboard or temporary storage area of sufficient size to hold two days' worth of waste and recycling		•	Complies	✓
4W-2.2	Communal waste and recycling rooms are in convenient and accessible locations related to each vertical core		•	Complies	✓
4W-2.3	For mixed use developments, residential waste and recycling storage areas and access should be separate and secure from other uses		•	Complies	✓
4W-2.4	Alternative waste disposal methods such as composting should be provided		•	N/A	N/A

4X	**BUILDING MAINTENANCE**				
Objective 4X-1	Building design detail provides protection from weathering				
4X-1.1	A number of the following design solutions are used: • roof overhangs to protect walls • hoods over windows and doors to protect openings • detailing horizontal edges with drip lines to avoid staining of surfaces • methods to eliminate or reduce planter box leaching • appropriate design and material selection for hostile locations		•	Can comply	✓
Objective 4X-2	Systems and access enable ease of maintenance				
4X-2.1	Window design enables cleaning from the inside of the building		•	Complies. Windows are generally accessible from balcony areas.	✓
4X-2.2	Building maintenance systems should be incorporated and integrated into the design of the building form, roof and facade		•	Can comply	✓
4X-2.3	Design solutions do not require external scaffolding for maintenance access		•	Can comply	✓
4X-2.4	Manually operated systems such as blinds, sunshades and curtains are used in preference to mechanical systems		•	Can comply	✓
4X-2.5	Centralised maintenance, services and storage should be provided for communal open space areas within the building		•	Can comply	✓
Objective 4X-3	Material selection reduces ongoing maintenance costs				
4X-3.1	A number of the following design solutions are used: • sensors to control artificial lighting in common circulation and spaces • natural materials that weather well and improve with time such as face brickwork • easily cleaned surfaces that are graffiti resistant • robust and durable materials and finishes are used in locations which receive heavy wear and tear, such as common circulation areas and lift interiors		•	Can comply	✓