629-639 PACIFIC HIGHWAY, CHATSWOOD
MIXED USE DEVELOPMENT

URBAN DESIGN STUDY

August 2020
Project no. 4445-00

DEM (Aust) Pty Ltd
Suite 202, Level 2, Tower B, The Zenith
821 Pacific Highway Chatswood NSW 2067 Australia
PO Box 5036 West Chatswood NSW 1515 Australia

Tel: +61 2 8966 6000 www.dem.com.au

Issue Register

Date of Issue	Reason for Issue	Prepared by	Checked by	Signed
14.06.17	Preliminary	JH	JP	
22.06.17	Preliminary	JH ET	JP	
21.07.17	Preliminary	JH ET	JP	
31.07.17	Planning Proposal Pre-lodgement	JH ET	JP	
25.09.17	Planning Proposal Lodgement	JH ET	JP	
12.03.18	Revised Planning Proposal	JH ET	JP	
14.03.18	Revised Planning Proposal	JH ET	JP	
05.08.20	Amended Planning Proposal	JH ET	JP	

Any reports, drawings, advice or information included or referenced that is prepared and/or provided by any other party, including the Client/Principal, is the sole representation of the party who prepared the report, drawings, advice or information and does not constitute a representation by DEM (Aust) Pty Limited. DEM expressly takes no responsibility for any documents, advice or other material prepared by any other party.

Contents

1.0 Introduction

This report has been prepared by DEM (Aust) Pty Ltd on behalf of Develotek Property Group as part of a submission to Willoughby City Council in support of a proposed mixed use development at 629 – 639 Pacific Highway, Chatswood.

The site is located at the southern gateway to Chatswood CBD in a mixed commercial / residential zone located along the Pacific Highway corridor.

In *A Plan for Growing Sydney* prepared by the NSW Department of Planning and Environment, Chatswood is identified as a Strategic Centre for Sydney which will continue to grow in significance. The Plan makes the development of strategic locations – including Chatswood CBD – a priority for the city.

1.1 Location and Context

The subject site comprises Lots 9 to 14 DP 4138 and has a total site area of 1,185 m². It is located at the corner of the Pacific Highway and Gordon Avenue and is bounded to the east by Hammond Lane.

The site is located approximately 600m south of Chatswood Railway Station and approximately 800m from the central retail / civic precinct of Chatswood.

Two car service centres - 'Payless Tyres and Brakes' and 'Midas' - are currently located on the site.

Mixed-use commercial and residential developments front the Pacific Highway to the south of the site. North of Gordon Avenue, the Pacific Highway corridor is characterised by two – three storey apartment buildings.

Three storey apartment buildings are also located to the east of the site along Gordon Avenue.

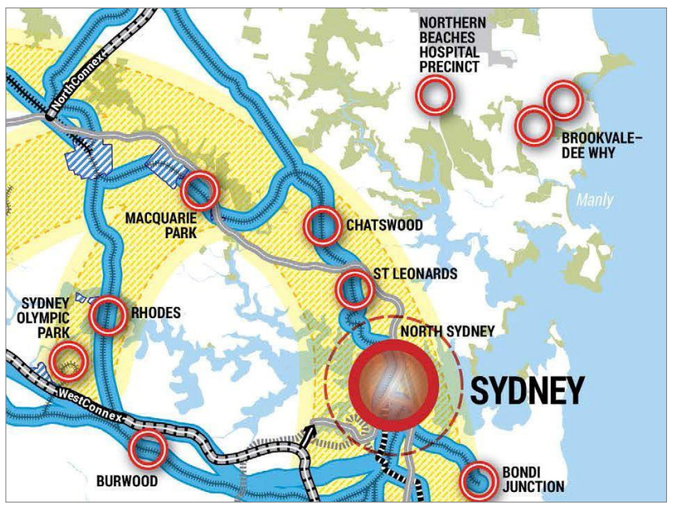


Figure 1.1: Regional Location
Source: A Plan for Growing Sydney (NSW Dept Planning and Environment)

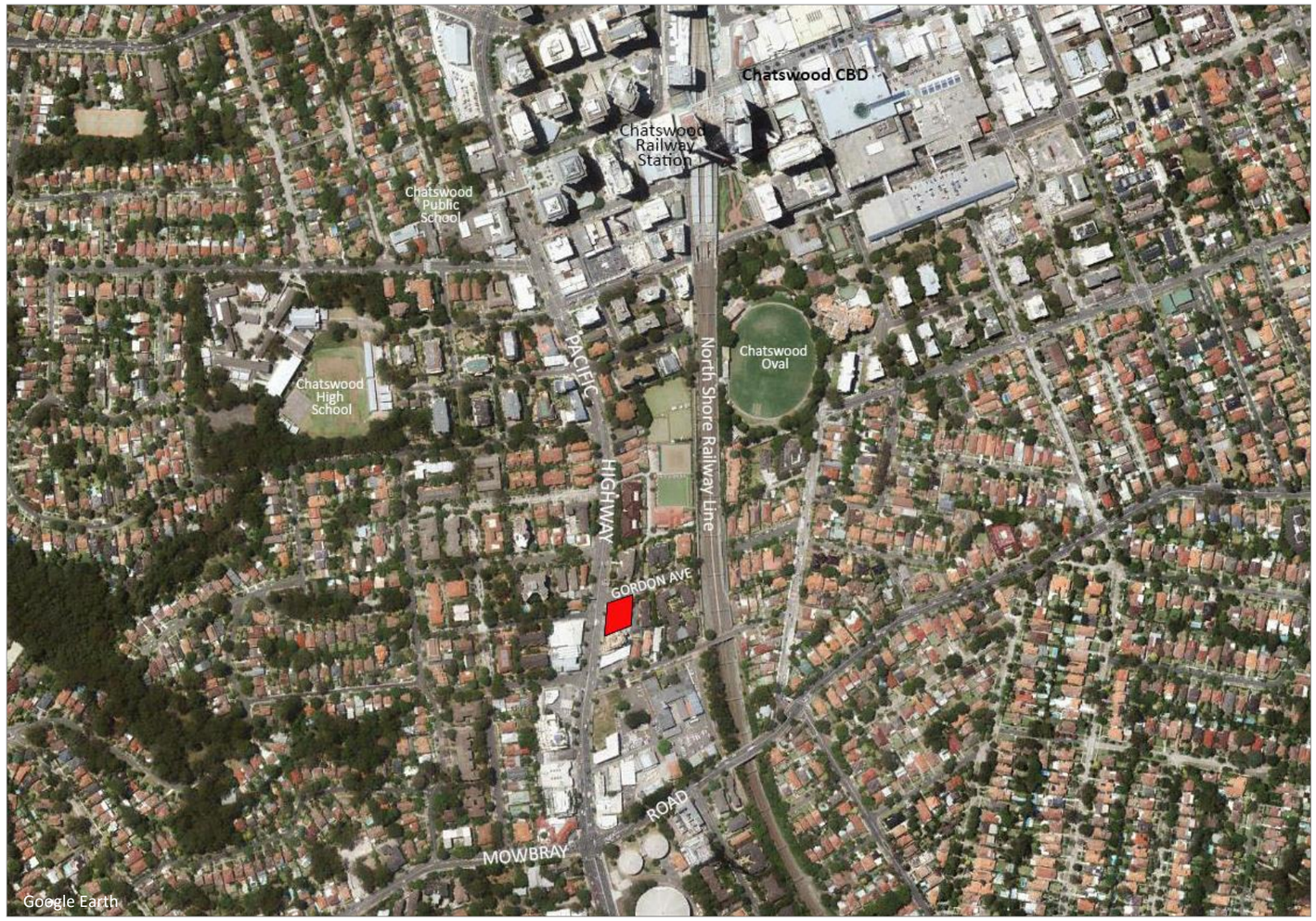


Figure 1.2: Context

2.0 Strategic Planning Context

2.1 A Plan for Growing Sydney

The NSW Government's metropolitan strategy for Sydney identifies Chatswood CBD as a Strategic Centre in the North Subregion.

The priority for future growth in Chatswood is identified as being growth in mixed-use development including offices, retail, services and housing.

2.2 Draft North District Plan

The *Draft North District Plan* highlights the important economic role that Strategic Centres such as Chatswood play in supporting the growth of Sydney as a global city.

In 2016 the NSW Government estimated the number of jobs in Chatswood to be 24,700 and set a target of between 31,000 and 33,000 for 2036.

In addition to being a significant commercial centre, Chatswood incorporates high density residential as well as high-profile retail and entertainment facilities and is an important civic and cultural centre.

In response to Chatswood's future role, the following policy directions have been identified:

- maximise the land use opportunities provided by the enhanced rail services of Sydney Metro;
- provide height and floor space ratio incentives as part of planning controls;
- promote the role of the centre as a location for high quality, commercial office buildings and a diverse retail offering;
- enhance the role of the centre as a destination for cultural and leisure activities;
- promote and encourage connectivity and upgrade and increase public open spaces.

In accordance with the District Plan, Willoughby City Council is required to support the delivery of 1,250 additional dwellings by 2021 and is required to address demand and diversity in and around local centres and infill areas.

2.3 Chatswood CBD Planning and Urban Design Strategy

A key principle for future residential growth in Chatswood, identified in the Strategy, is for residential uses to be focussed outside the Commercial Core.

To this end, it is proposed that the Chatswood CBD boundary be expanded to the north and south. As a result, the site would be located within the CBD and be subject to new building height and FSR controls – refer to section 3.

2.4 Willoughby Housing Position Statement – Willoughby City Council

In 2016 the population of Willoughby City was 75,231 and it is expected to grow to 89,271 by 2036. It is anticipated that the number of persons per household will fall from 2.59 to 2.47 and to meet the population growth between 6,000 and 6,700 dwellings will be required.

Key principles underpinning future housing growth in the *Position Statement* include:

- provision of a mix of housing types to suit various community needs including affordable housing; and
- focussing new housing growth in larger centres with access to public transport to protect lower density neighbourhoods.

2.5 Sydney Metro

The Chatswood Dive Site is to be used for construction works linking the Metro Northwest at Chatswood to the Sydney Metro City and Southwest line. It is delineated by Mowbray Road, the Pacific Highway, Nelson Street and the railway line and is located to the south of the site.

The Dive Site is subject to future redevelopment as the NSW Government has issued an Expression of Interest for the design of high rise towers on a series of sites across the Metro including the Chatswood Dive Site.

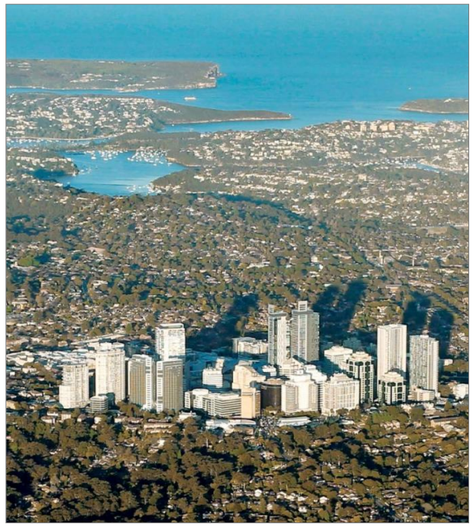


Figure 2.1: Aerial View of Chatswood
Source: A Plan for Growing Sydney (NSW Dept Planning and Environment)

Figure 2.2: Chatswood Dive Site
Source: TfNSW – Sydney Metro

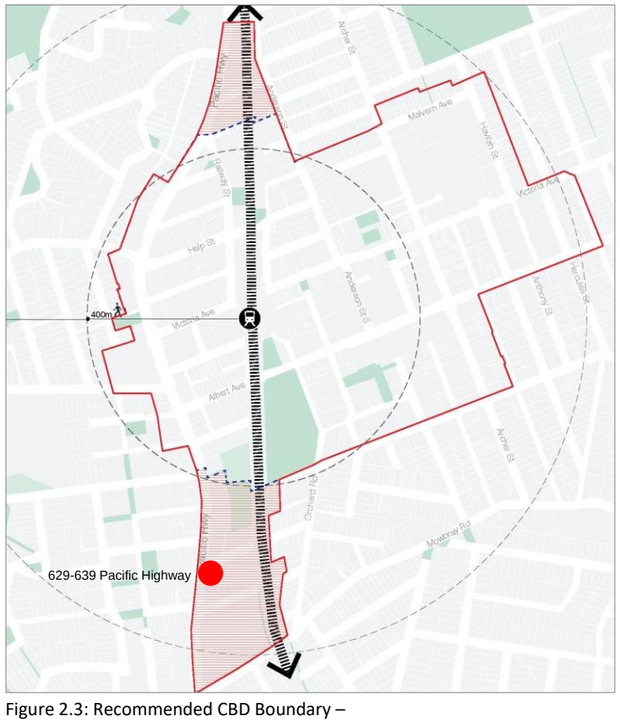


Figure 2.3: Recommended CBD Boundary –
Chatswood CBD Planning and Urban Design Strategy

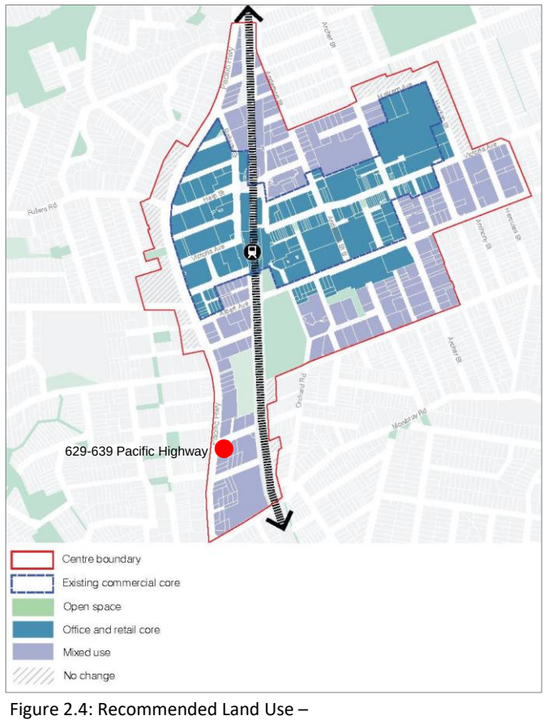
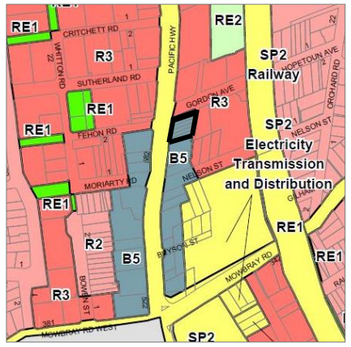


Figure 2.4: Recommended Land Use –
Chatswood CBD Planning and Urban Design Strategy

3.0 Planning Controls

WILLOUGHBY LEP 2012

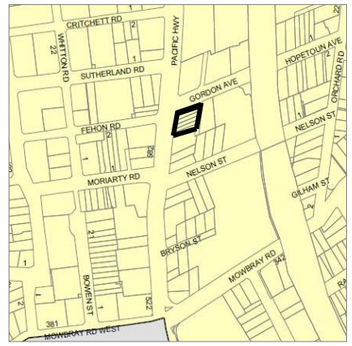
ZONING	B5 – Business Development
MAXIMUM FSR	U1 – 2.5:1
MAXIMUM BUILDING HEIGHT	Q - 20m
ACID SULPHATE SOILS	Class 5



ZONING

FLOOR SPACE RATIO

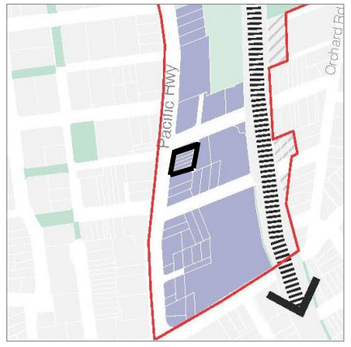
BUILDING HEIGHT



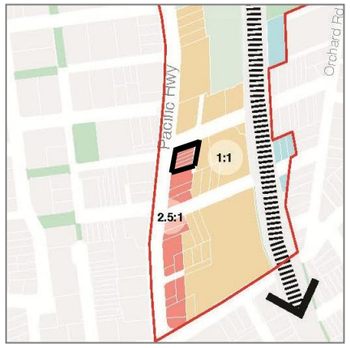
ACID SULPHATE SOILS

CHATSWOOD CBD PLANNING AND URBAN DESIGN STRATEGY 2016

RECOMMENDED LAND USE	Mixed Use
RECOMMENDED BASE FSR	2.5:1
RECOMMENDED MAXIMUM FSR	6:1 *Increased FSR would be linked to a contributions scheme to provide public and social infrastructure in the Chatswood CBD*
RECOMMENDED MAXIMUM BUILDING HEIGHT	90m
INDICATIVE AMALGAMATION PATTERN	a6 - comprising the subject site
STREET FRONTAGE HEIGHTS AND SETBACKS	**Pacific Highway frontage** - min. 4m setback at ground - max. 7m street wall; min. 6m setback above street wall **Gordon Avenue frontage** - mixed use frontage with commercial ground floor - 6-14m street wall; min 3m setback above street wall

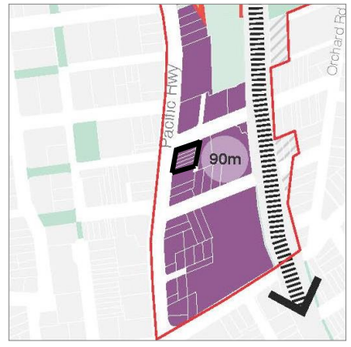


RECOMMENDED LAND USE



RECOMMENDED BASE FSR

RECOMMENDED MAXIMUM FSR



RECOMMENDED BUILDING HEIGHT

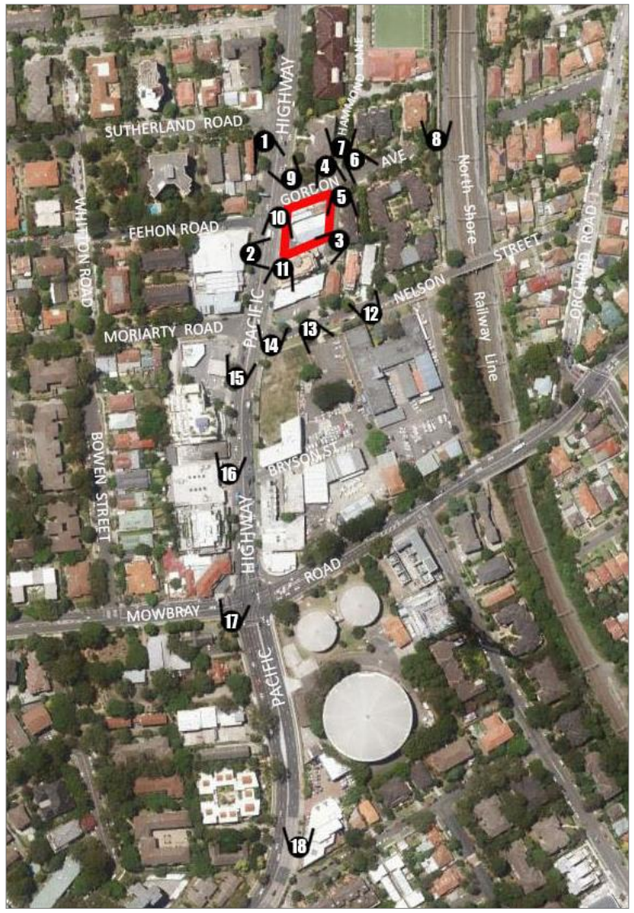
RECOMMENDED LAND USE

STREET FRONTAGE HEIGHTS

The Chatswood CBD Planning and Urban Design Strategy was fully endorsed by the Department of Planning, Industry and Environment by letter dated 9 July 2020.

4.0 Site Analysis

4.1 Existing Context



- Commercial and mixed use developments feature along the Pacific Highway corridor south of Gordon Avenue.
- North of Gordon Avenue, the Pacific Highway corridor is characterised by low scale apartment buildings that extend to the boundary of Chatswood CBD.
- Residential buildings, typically three storeys high, are also located to the north, east and south-east of the site.
- Buildings are of varying architectural style and materials.
- High rise buildings within Chatswood CBD are visually prominent and form an urban backdrop to views north along the Pacific Highway.
- Large scale commercial buildings, associated with the former Ausgrid depot, are located between Nelson Street and Mowbray Road.

1 View south-east across the Pacific Highway towards the site.
- existing 'Payless' tyre and brake centre located on the site highly visible at the corner of Gordon Avenue and the Pacific Highway

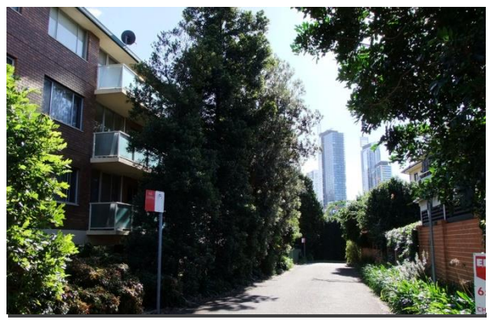
2 View across Pacific Highway to the existing 'Midas' car service centre and southern boundary of the site.
- mixed use building located at 621-627 Pacific Highway dominates views to the south; blank wall facing the site

3 621-627 Pacific Highway apartment balconies facing east and north-east

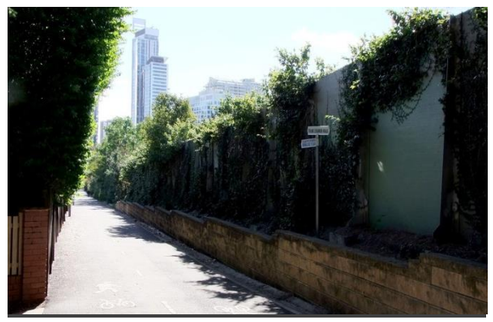
4 Three storey apartment building located east of the site at 10 Gordon Avenue

5 View south along Hammond Lane

6 Apartment buildings adjacent to the railway line and extending from Nelson Street to Gordon Avenue



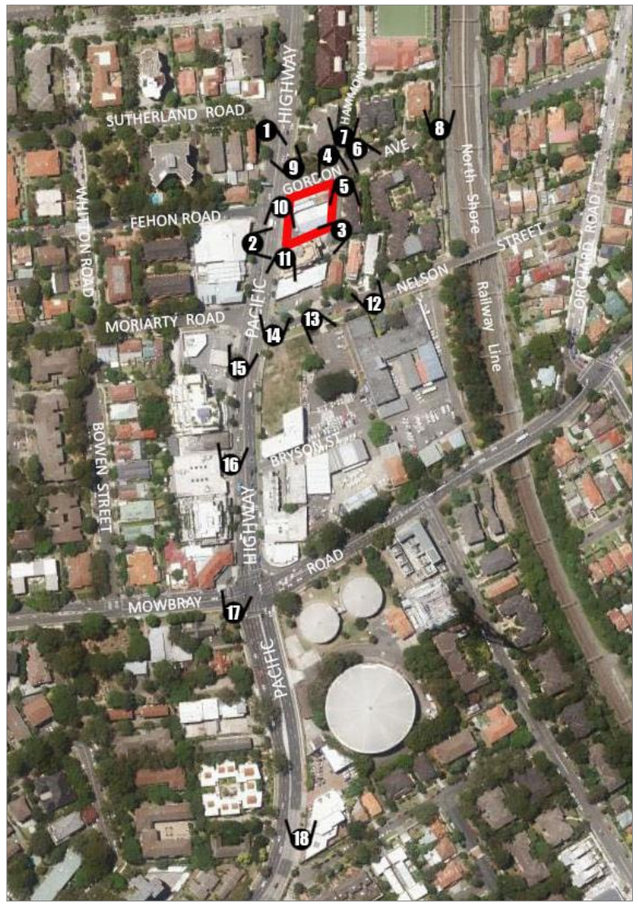
7 View north along Hammond Lane towards Chatswood CBD
- high-rise CBD buildings form prominent visual elements in the distance



8 Frank Channon Walk extending from Albert Avenue to Nelson Street
- the pathway is accessible from the eastern end of Gordon Avenue

9 Three storey apartment building located at the corner of the Pacific Highway and Sutherland Road

Site Analysis

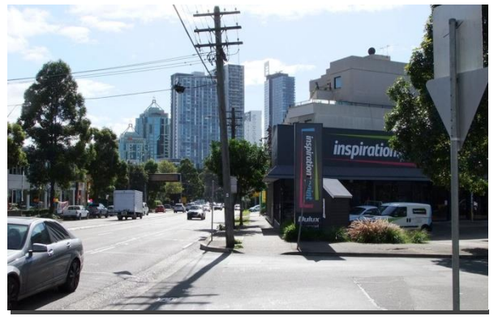


10 Pacific Highway frontage looking south towards commercial and mixed use buildings on the western side of the Highway

11 Mixed use buildings located between Mowbray Road and Moriarty Road

12 Apartment buildings located south-east of the site at 15 and 17 Nelson Street

13 Former Ausgrid depot located between Nelson Street and Mowbray Road – now forming part of the Sydney Metro Chatswood Dive Site



14 View north from the intersection of Nelson Street and the Pacific Highway towards the 'Inspirations' paint centre
- high-rise CBD buildings form prominent visual elements in the distance

15 View north along the Pacific Highway
- mixed use building adjoining the site at 621-627 Pacific Highway is visually prominent in the middle distance
- Chatswood CBD towers create an urban backdrop

16 View north along the Pacific Highway from mid-way between Mowbray Road and Moriarty Road
- mixed use building adjoining the site at 621-627 Pacific Highway is visible in the middle distance
- Chatswood CBD towers highly visible

17 View north from the intersection of the Pacific Highway and Mowbray Road
- Chatswood CBD towers form prominent visual elements and urban backdrop

18 View north along the Pacific Highway from viewing point south of Mowbray Road
- car yard visually dominates short distance views
- Chatswood CBD visible in distance but views screened by vegetation, landform and Chatswood Reservoir

4.2 Access to Public Transport

The site is located in close proximity to the following existing public transport services:

- Chatswood Railway Station and Transport Interchange located approximately 600m north of the site which equates to a 7 – 8 minute walk.
- A bus stop on the Pacific Highway near Gordon Avenue for the following bus routes:
  - 143 Chatswood to Manly
  - 144 Chatswood to Royal North Shore Hospital and Manly
  - 258 Chatswood to Lane Cove Industrial
  - 530 Chatswood to Burwood
  - 533 Chatswood to Sydney Olympic Park
  - 534 Chatswood to Ryde
  - 536 Chatswood to Gladesville
- A bus stop on the Pacific Highway approximately 250 metres south of the site near Mowbray Road for the following bus routes:
  - 143, 144, 530 and 536 as above
  - 200 Chatswood to Bondi Junction
  - 627 Chatswood to Castle Hill
  - 628 Chatswood to Norwest Business Park

Figure 4.2.1: Public Transport Services

4.3 Topography

There are slight falls across the site from a highpoint of RL 100.54 in the south-west corner of the site to a low point of RL 99.05 in the north-east corner of the site.

The site falls approximately 760mm from south to north along the Pacific Highway frontage and approximately 730mm from east to west along the Gordon Avenue frontage.

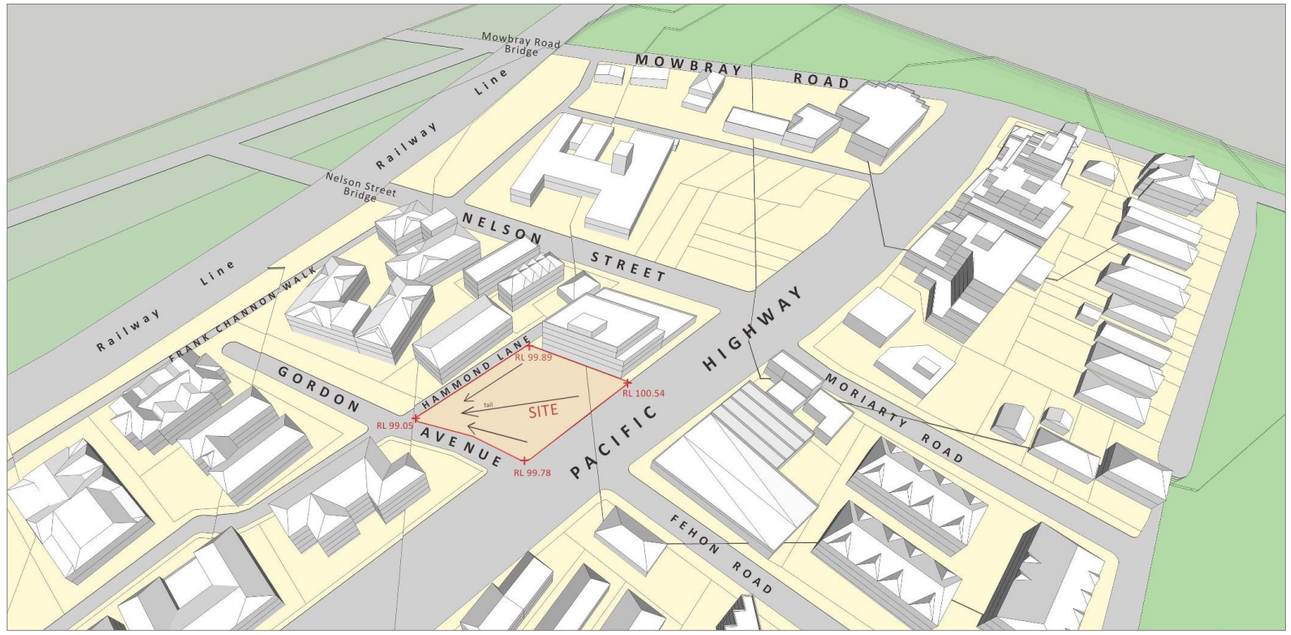


Figure 4.3.1: Topography

4.4 Solar Orientation

There is minimal overshadowing of the site and it is exposed to high levels of solar access from the north, east and west.

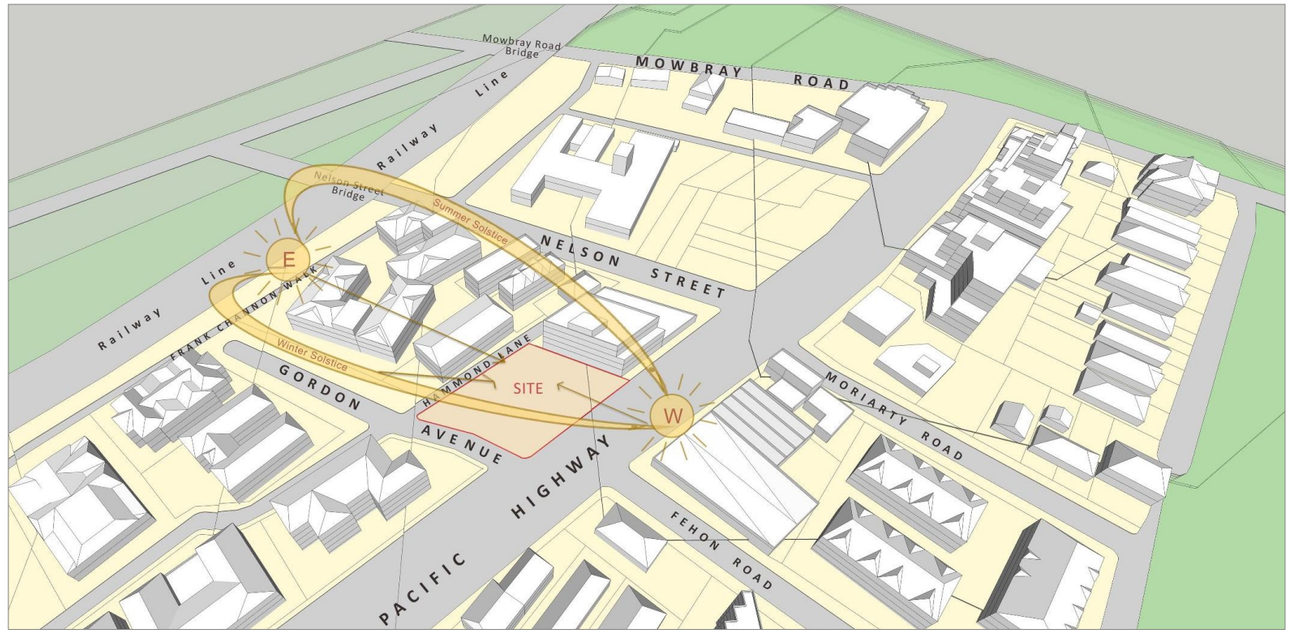


Figure 4.4.1: Solar Orientation

4.5 Existing Traffic

Primary access to the site is from the Pacific Highway for left turning traffic into Gordon Avenue.

Gordon Avenue forms a cul-de-sac at the railway line. Access across the railway line is via Nelson Street located one block south of the site.

Hammond Lane currently extends to the southern boundary of the site and does not extend to Nelson Street. The Chatswood CBD Planning and Urban Design Strategy recommend that Hammond Lane be extended to Nelson Street.

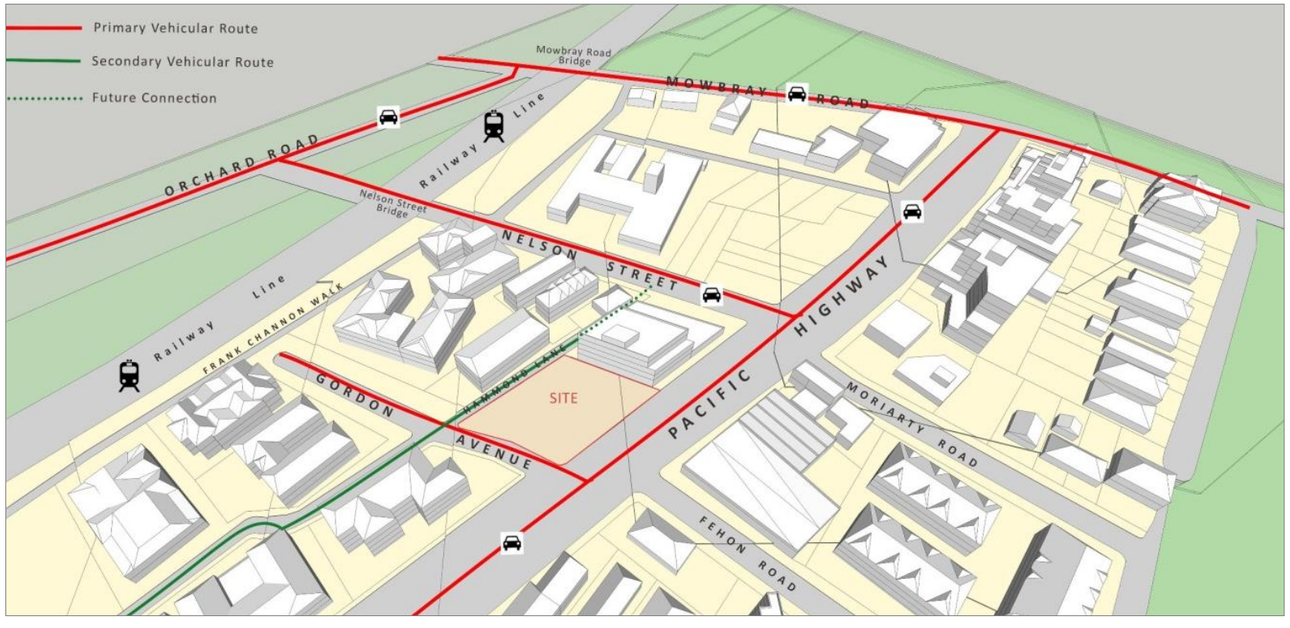


Figure 4.5.1: Existing Traffic

4.6 Existing Pedestrian Routes

Primary pedestrian routes are along the Pacific Highway and along Gordon Avenue.

Bus stops are located on the Pacific Highway approximately 35m north of the site and 250m south of the site – refer to Section 4.2.

Footpaths along Gordon Avenue connect to the Frank Channon Walk, located approximately 100m east of the site. The Walk extends along the railway line from Albert Avenue to Nelson Street and provides a direct, pedestrian friendly connection to Chatswood CBD.

Secondary pedestrian access is along Hammond Lane which adjoins the eastern boundary of the site and also extends north of Gordon Avenue. Hammond Lane also provides access to Chatswood Bowling Club.

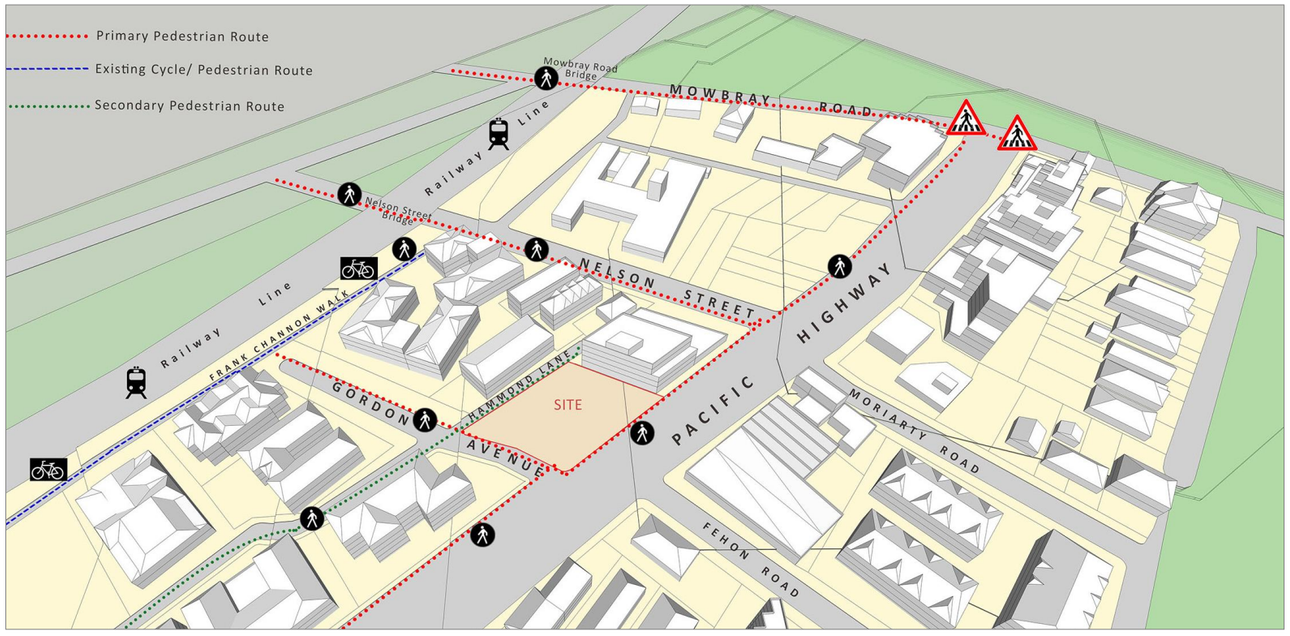


Figure 4.6.1: Existing Pedestrian Routes

4.7 View Opportunities

Existing ground level views are dominated by the Pacific Highway and apartment buildings to the north, east and south of the site. In particular, the blank wall of the mixed use building located at 621-627 Pacific Highway dominates views to the south.

There is the potential for elevated panoramic views of the City to the south, and bushland and Upper North Shore views to the north and north-west.

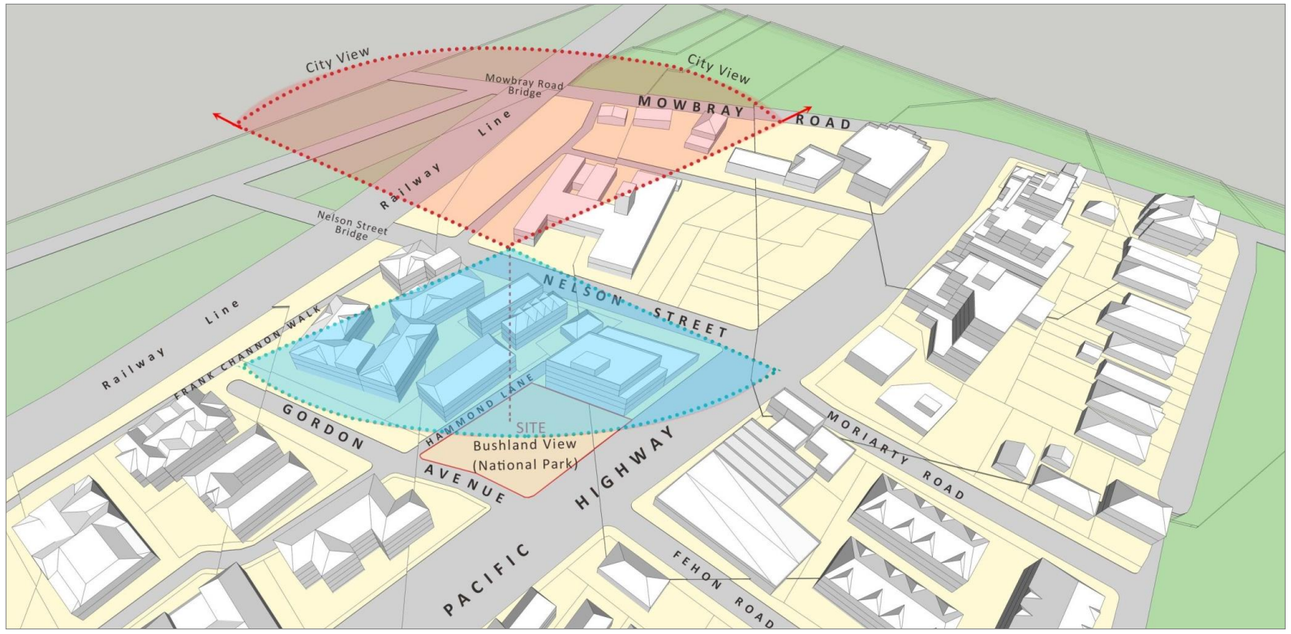


Figure 4.7.1: View Opportunities

4.8 Public Interest

The Sydney Metro Chatswood Dive Site is located south of the site between Mowbray Road, the Pacific Highway, Nelson Street and the railway line. It is to be used for construction works linking the Metro Northwest at Chatswood to the Sydney Metro City and Southwest line.

The Dive Site is subject to future redevelopment as the NSW Government has issued an Expression of Interest for the design of high rise towers on a series of sites across the Metro including the Chatswood Dive Site.

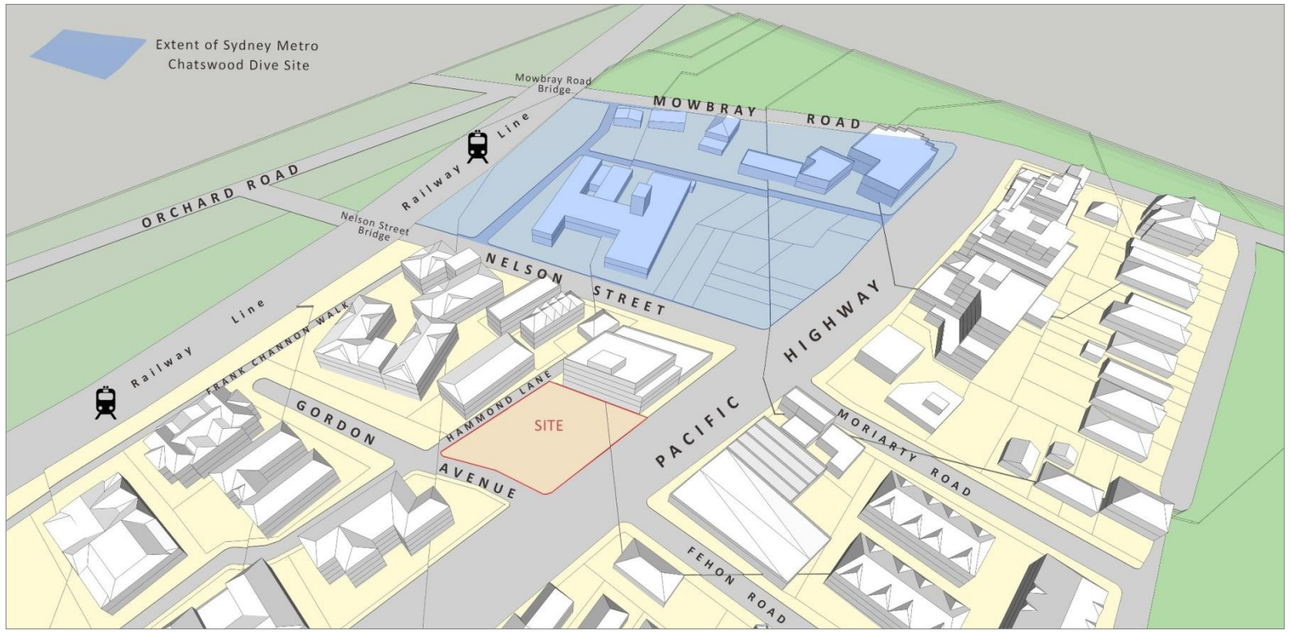


Figure 4.8.1: Location of Sydney Metro Chatswood Dive Site

5.0 Future Context

5.1 90 metre Building Height – Built Form 1

The Chatswood CBD Planning and Urban Design Strategy recommends that the site and surrounding area east of the Pacific High way, located in the southern section of the CBD, be subject to the following controls:

- Recommended maximum FSR: 6:1
- Recommended maximum building height: 90m

The following setbacks apply to the site:

- 4m setback to the podium and 6m to the building tower above along the Pacific Highway.
- 6-14m street wall and min. 3m setback above the street wall.

Built Form 1, shown in Figures 5.1.1 and 5.2.1, is a compliant building envelope under the Chatswood CBD Strategy 2016 and SEPP 65.

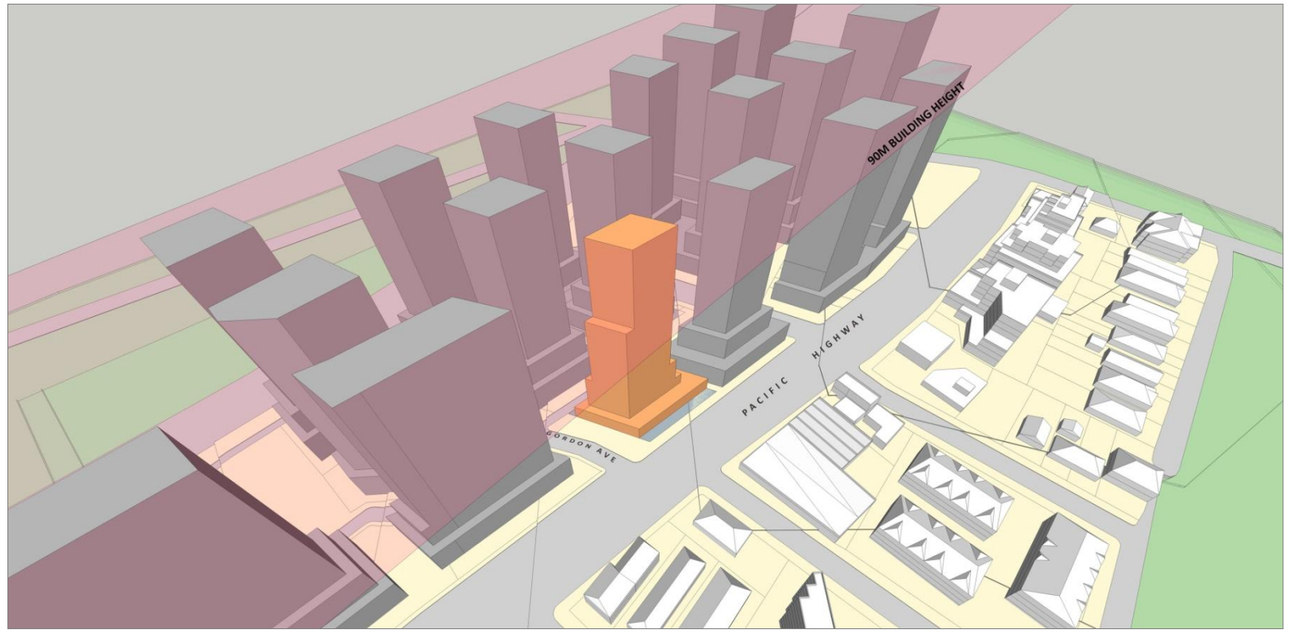


Figure 5.1.1: 90m Building Height – Pacific Highway East

5.2 90 metre Building Height and Transition West of the Pacific Highway

The Chatswood CBD Planning and Urban Design Strategy identifies the area west of the Pacific Highway, which is within 800m of the railway station, as a future growth area.

In order to provide a transition from the recommended building height of 90m east of the Pacific Highway to the medium and low density residential areas west of the Pacific Highway, it is proposed that the height control for buildings adjoining the western side of the Pacific Highway could be increased up to 45m.

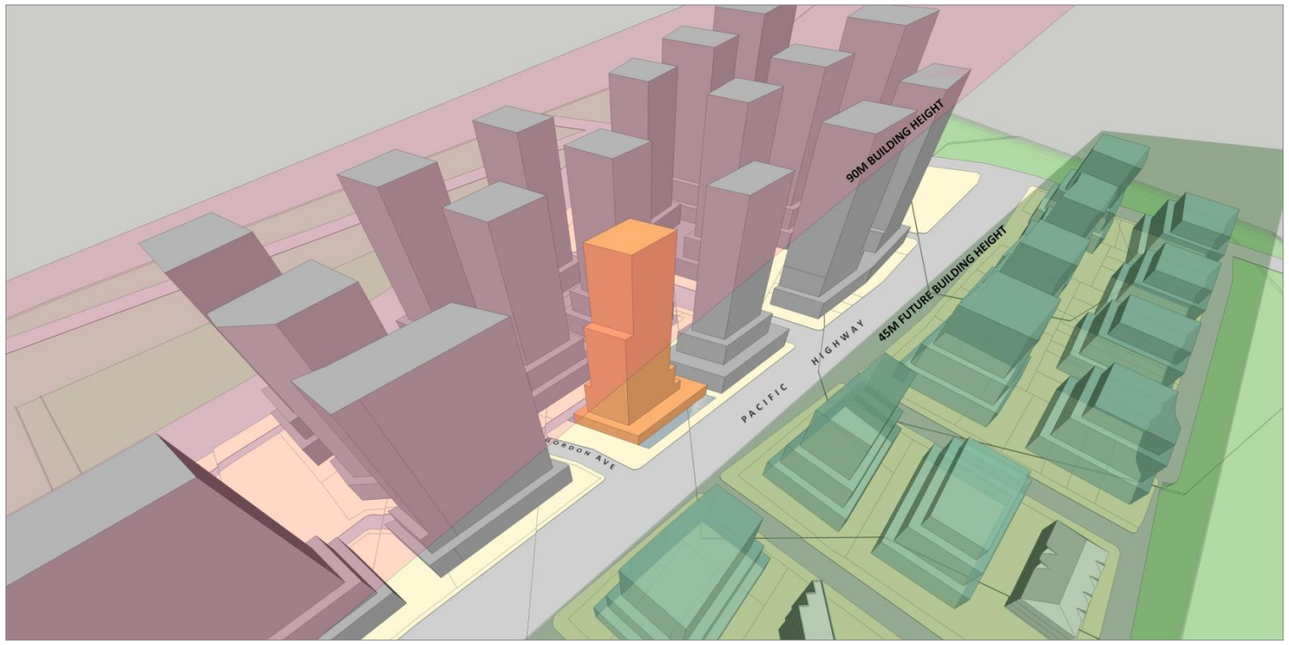


Figure 5.2.1: 90m Building Height – Pacific Highway East and Transition West

6.0 Tower Massing

6.1 Built Form Issues – Built Form 2

Adoption of a simplified built form, that minimises stepping of the building, would provide a contemporary and elegant building aesthetic. As the Chatswood CBD expands and accommodates new residential towers, simple elegant building forms will collectively contribute to a cohesive and distinctive centre for Chatswood.

However, proximity of the proposed building to neighbouring existing and future buildings presents issues in relation to solar access. Overshadowing impacts are exacerbated by the rectangular building form.

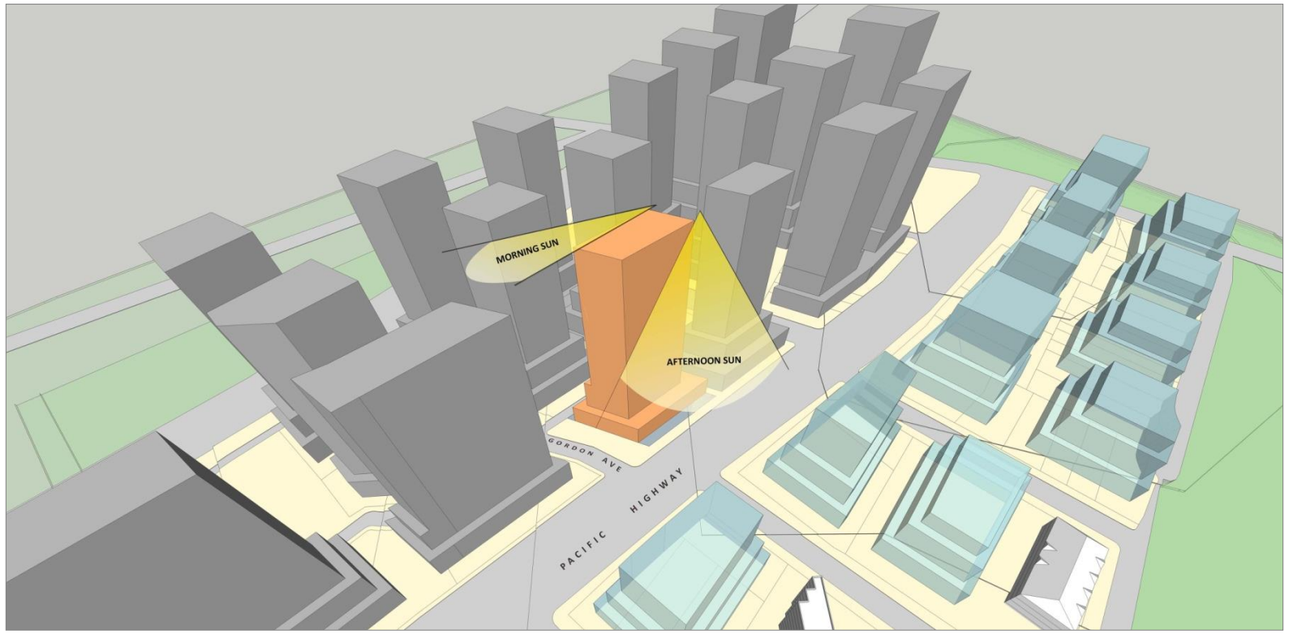


Figure 6.1.1: Built Form Issues

6.2 Reshaping the Built Form – Built Form 3

Through a massing study it was shown that reshaping the tower would result in improved solar access to neighbouring properties. However, the resultant built form presented a building with compromised unit layout and amenity.

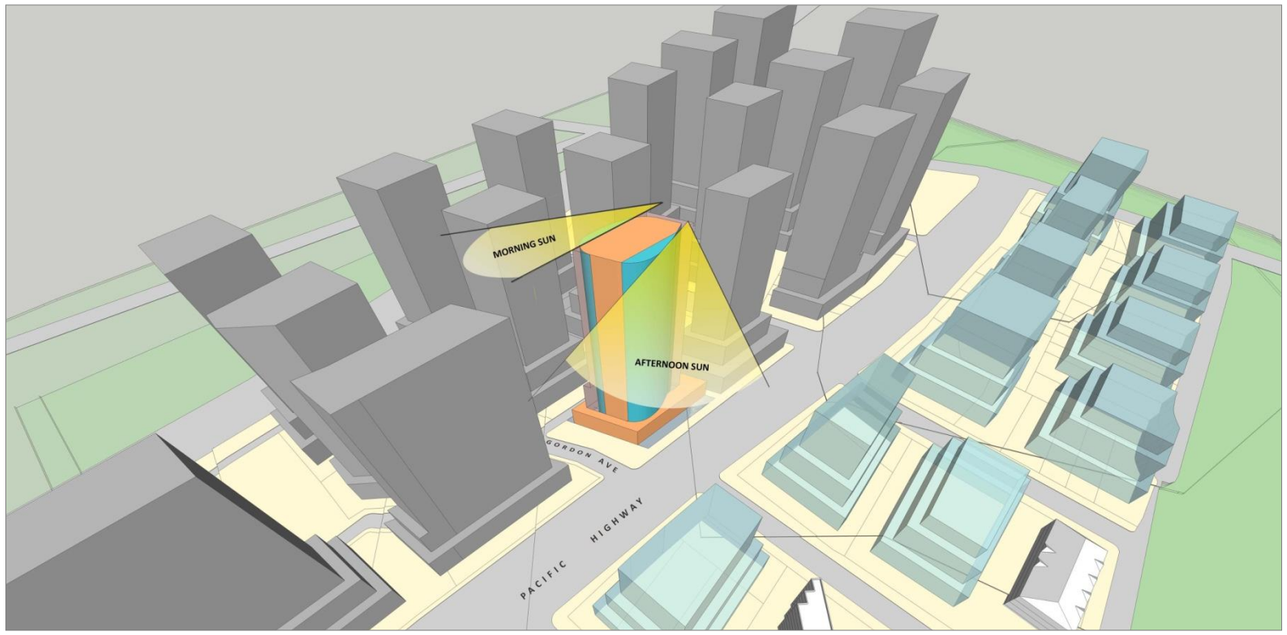


Figure 6.2.1: Curved Building Form

6.3 Curved Tower Form

Further articulation of the tower massing to address environmental issues resulted in an irregular, dynamic building form that would achieve the following:

- reduced overshadowing;
- a reduction in the wind tunnel effect;
- increased building separation;
- increased solar access to the building;
- maximisation of the typical floor plate size; and
- improved amenity of the units.

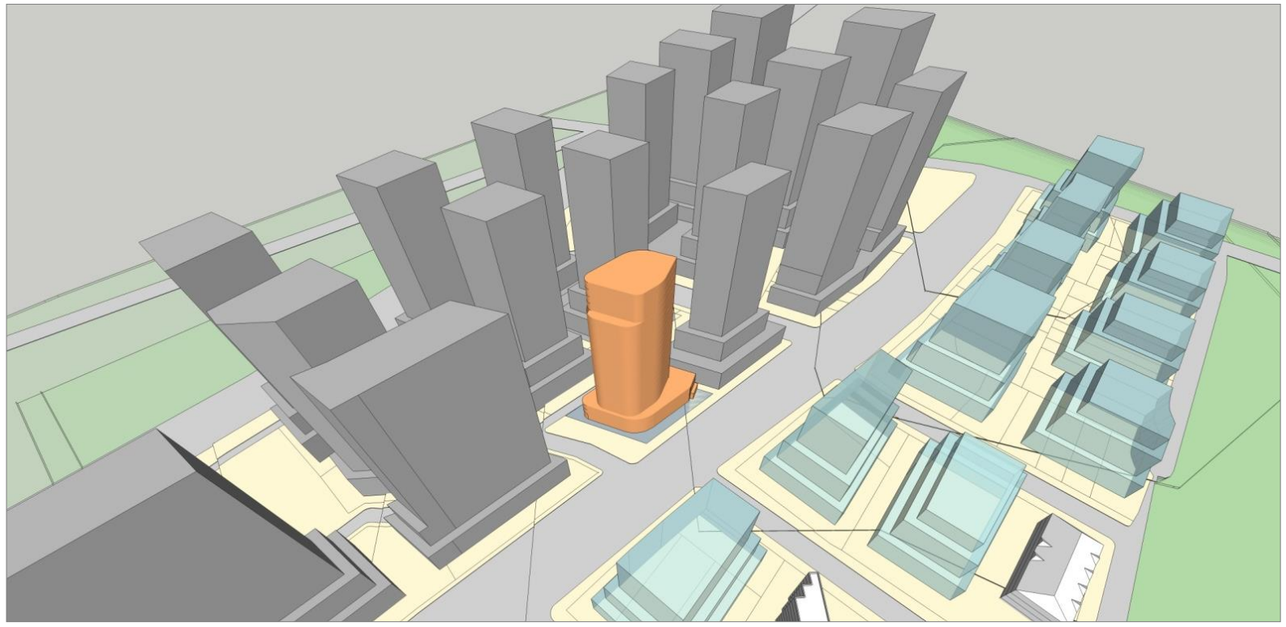


Figure 6.3.1: Curved Tower Form

6.4 Curved Tower and Podium – Built Form 4

A curved tower and podium provides an elegant, contemporary and iconic building form. Reallocation of the building volume simplifies the building form with a three level podium that marries in with the adjoining property wall built on the boundary.

The curved tower and podium shown in Figure 6.4.1 was submitted as part of the Planning Proposal for this site to Willoughby City Council.

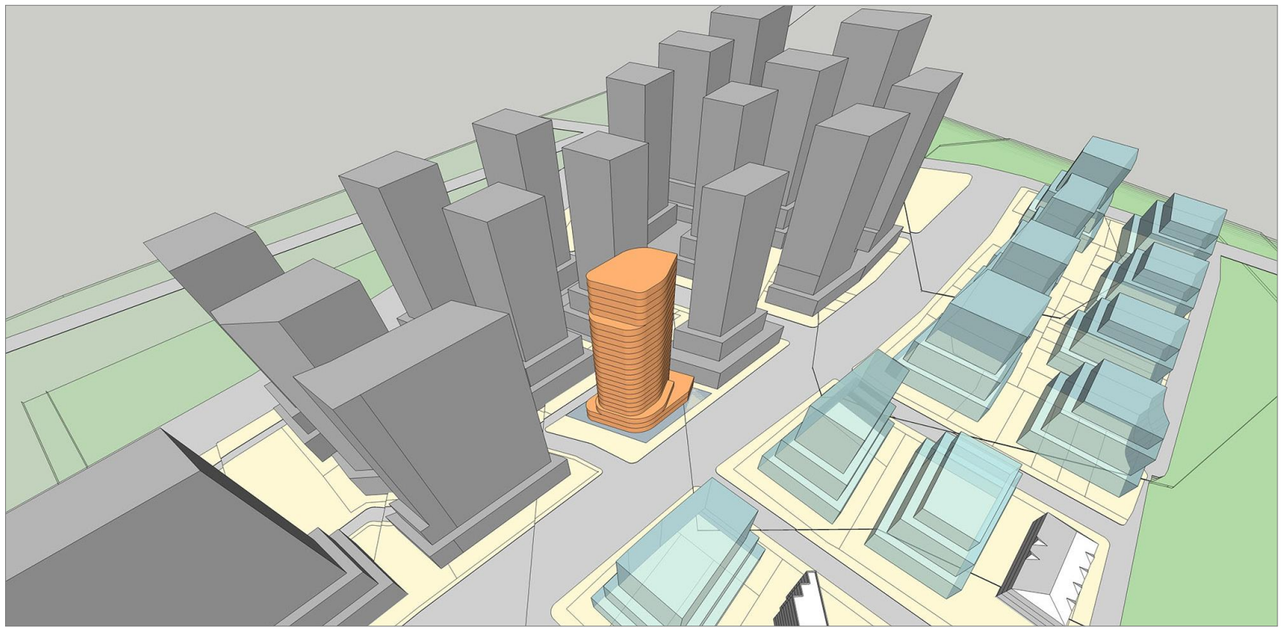


Figure 6.4.1: Curved Tower and Podium

6.5 Compliant Tower Setback and Two Storey Podium – Built Form 5 – Preferred Option

Following a review of the proposed built form by Willoughby City Council during assessment of the Planning Proposal, Council determined that the tower design needed to comply with the setbacks established in the Chatswood CBD Planning and Urban Design Strategy.

Consequently, the proposed built form was revised to provide a compliant tower setback to the Pacific Highway and a two level podium.

The resultant built form will provide a catalyst to rebrand the southern entry to Chatswood CBD and set a benchmark for the desired future character of the CBD skyline and streetscape.

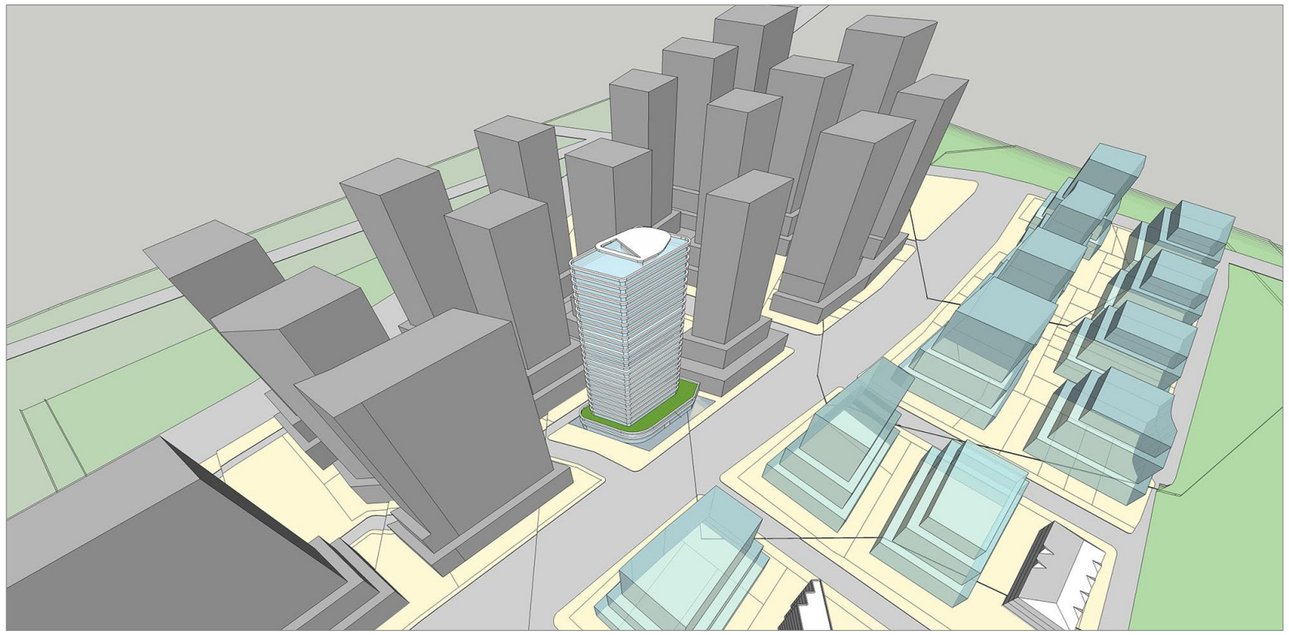
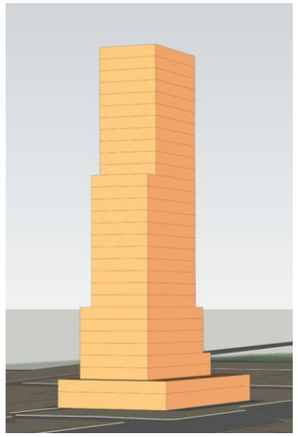


Figure 6.5.1: Compliant Tower Setback and Two Storey Podium

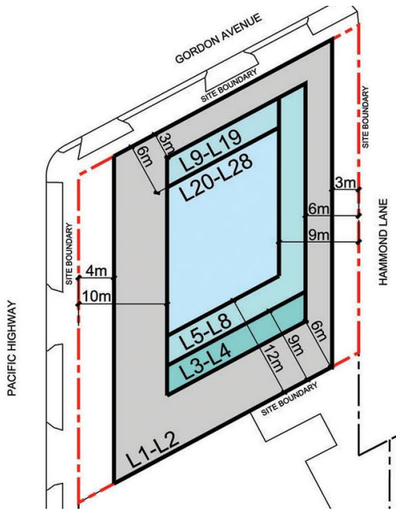
7.0 Built Form Concept

7.1 Built Form Concept Study

Built Form 1



28 storeys (90m)



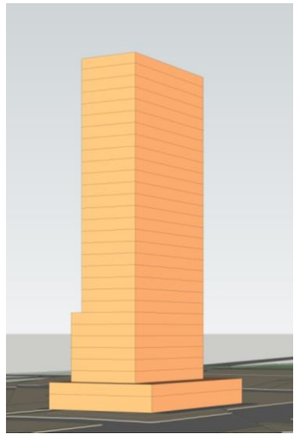
Pros:

- Compliant building envelope under Chatswood CBD Strategy 2016 and SEPP 65.

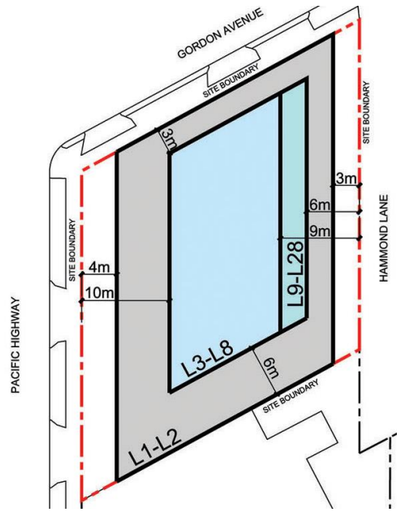
Cons:

- Stepping built form creates visual complexity.
- Stepping built form not consistent with contemporary building aesthetic.

Built Form 2



28 storeys (90m)



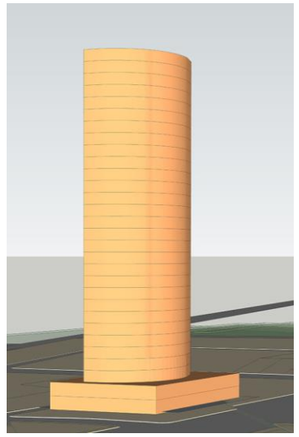
Pros:

- Simplified built form through elimination of stepping.
- Maximized typical floor plate size.

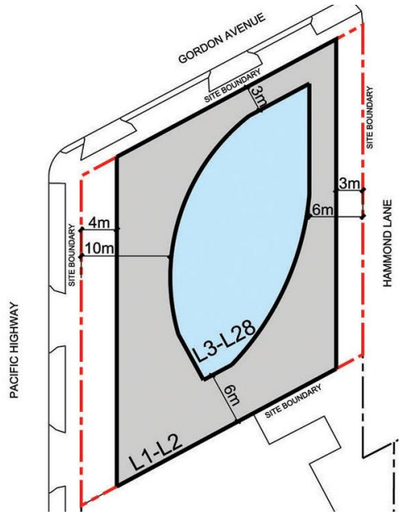
Cons:

- A blank wall design adopted on the southern facade.
- Rigid built form with reduced setback.

Built Form 3



28 storeys (90m)



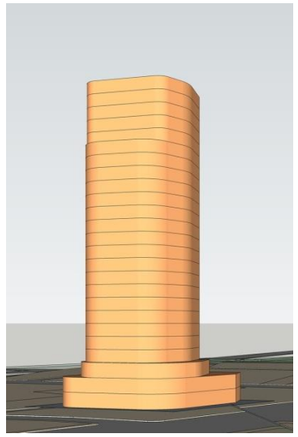
Pros:

- Simplified built form by curving the primary facade.
- Simple building form provides a contemporary and elegant building aesthetic.
- Improved view opportunities and daylight penetration.
- Reduced overshadowing impacts and wind tunnel effect.

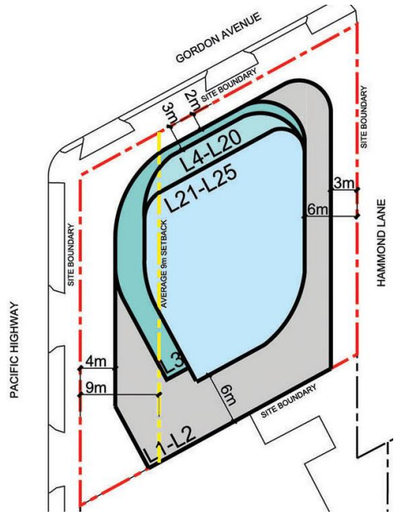
Cons:

- Unworkable floor plate (too small) and compromised unit layout / amenity.

Built Form 4



25 storeys (79m)



Pros:

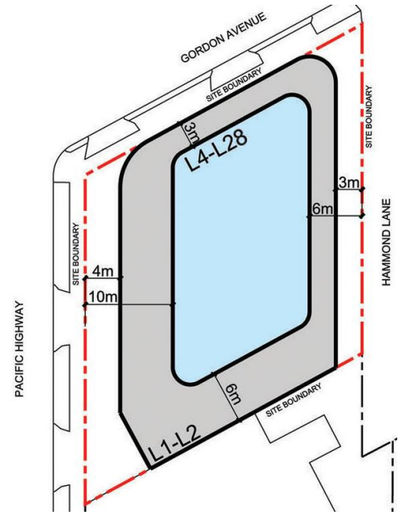
- Reshaped curved built form that maximises typical floor plate size without increasing overshadowing impacts.
- Building form provides a contemporary and elegant building aesthetic.
- Improved view opportunities and daylight penetration.
- Improved overshadowing impacts and wind tunnel effect.

Cons:

Slightly reduced average setback along Pacific Highway frontage.

Built Form 5 – Preferred Option

27 storeys (90m)



Pros:

- Building form complies with setbacks in the Chatwood CBD Strategy.
- Building form preferred by Council.
- Workable floor plate with view opportunities and daylight penetration.
- Simple building form provides a contemporary and elegant building aesthetic.

8.0 Shadow Analysis

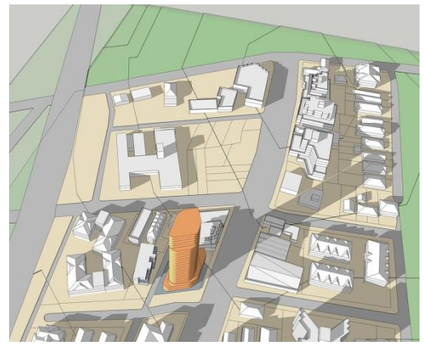
8.1 Solar Study with Existing Built Form – June 21 – 0900 - 1500

Built Form 1 – 28 Storey High Envelope – 0900

Built Form 2 – 28 Storey High Envelope – 0900

Built Form 3 – 28 Storey High Envelope – 0900

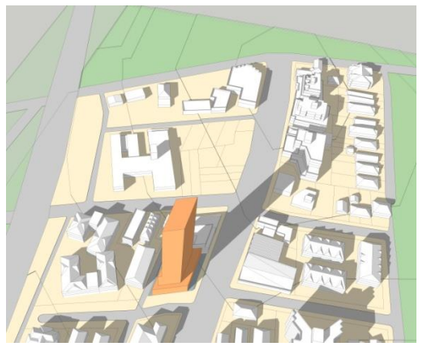
Built Form 4 – 25 Storey High Envelope – 0900



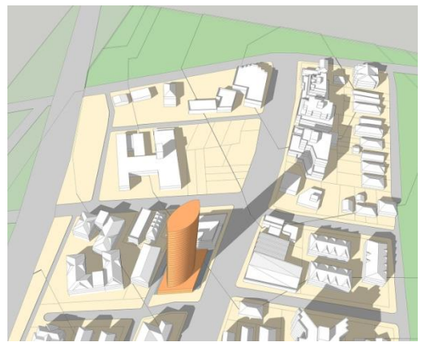
Built Form 5 – 27 Storey High Envelope – 0900

Built Form 1 – 28 Storey High Envelope – 1000

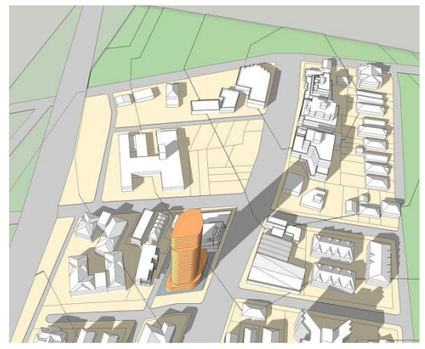
Built Form 2 – 28 Storey High Envelope – 1000



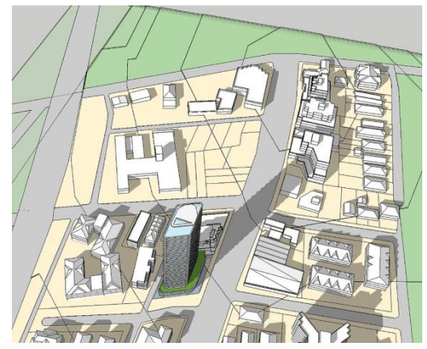
Built Form 3 – 28 Storey High Envelope – 1000



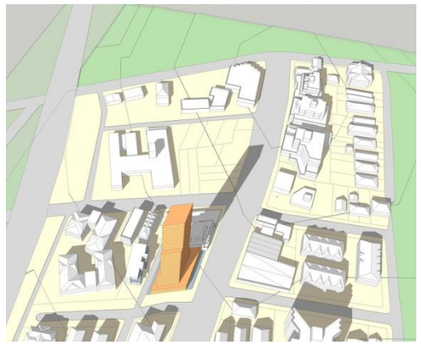
Built Form 4 – 25 Storey High Envelope – 1000



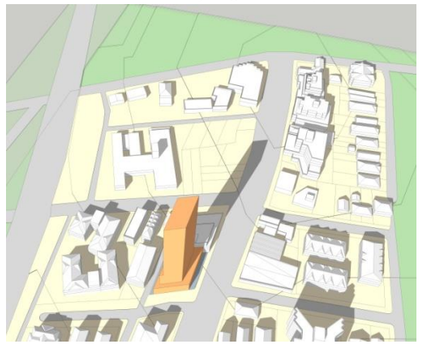
Built Form 5 – 27 Storey High Envelope – 1000



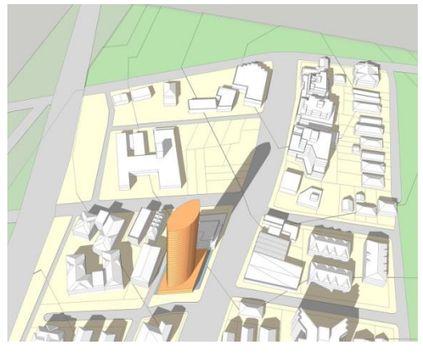
Built Form 1 – 28 Storey High Envelope – 1100



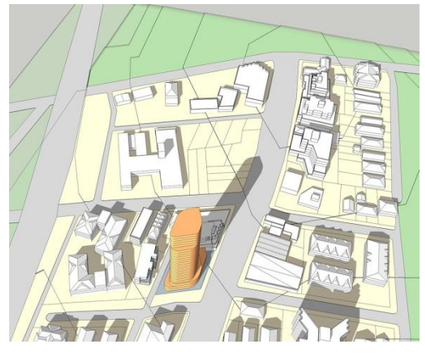
Built Form 2 – 28 Storey High Envelope – 1100



Built Form 3 – 28 Storey High Envelope – 1100



Built Form 4 – 25 Storey High Envelope – 1100

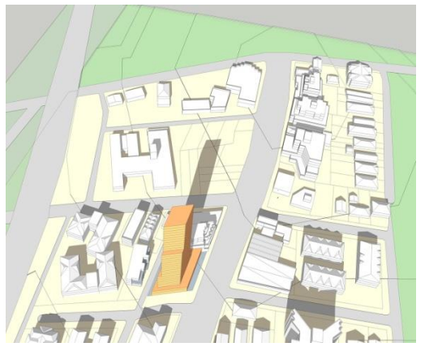


Built Form 5 – 27 Storey High Envelope – 1100

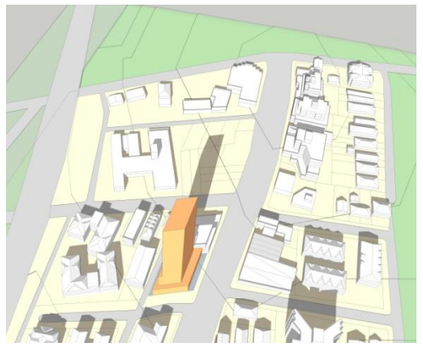
Shadow Analysis

Solar Study with Existing Built Form – June 21 – 0900 - 1500

Built Form 1 – 28 Storey High Envelope – 1200



Built Form 2 – 28 Storey High Envelope – 1200



Built Form 3 – 28 Storey High Envelope – 1200

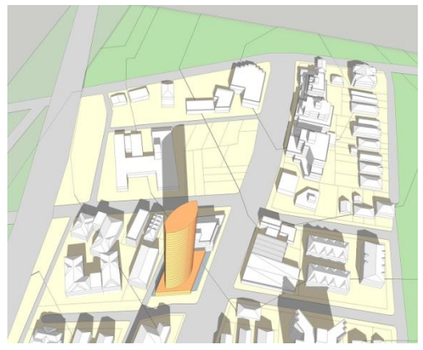
Built Form 4 – 25 Storey High Envelope – 1200

Built Form 5 – 27 Storey High Envelope – 1200

Built Form 1 – 28 Storey High Envelope – 1300

Built Form 2 – 28 Storey High Envelope – 1300

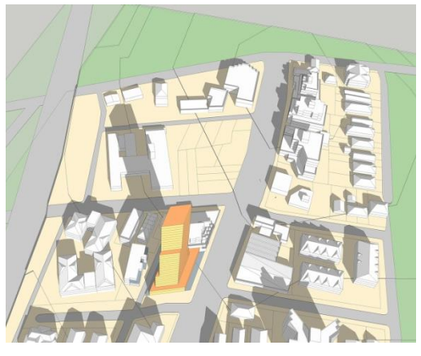
Built Form 3 – 28 Storey High Envelope – 1300



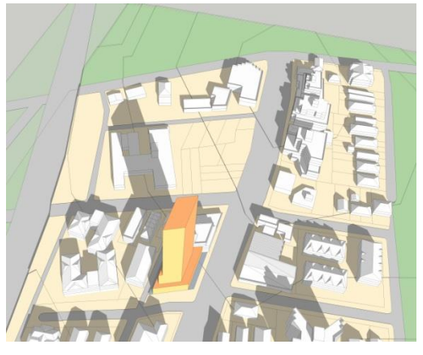
Built Form 4 – 25 Storey High Envelope – 1300

Built Form 5 – 27 Storey High Envelope – 1300

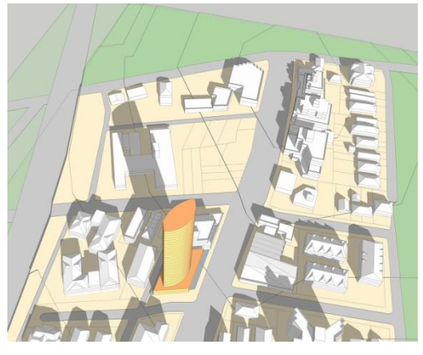
Built Form 1 – 28 Storey High Envelope – 1400



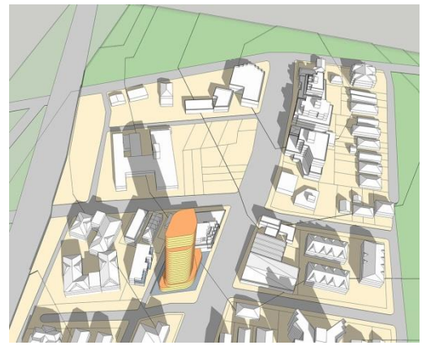
Built Form 2 – 28 Storey High Envelope – 1400



Built Form 3 – 28 Storey High Envelope – 1400



Built Form 4 – 25 Storey High Envelope – 1400

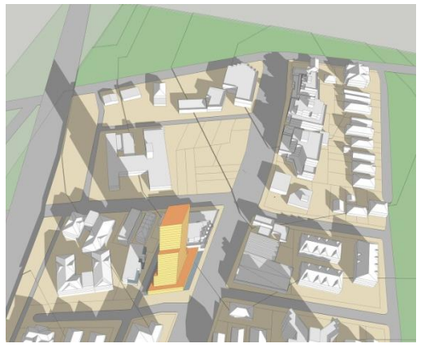


Built Form 5 – 27 Storey High Envelope – 1400

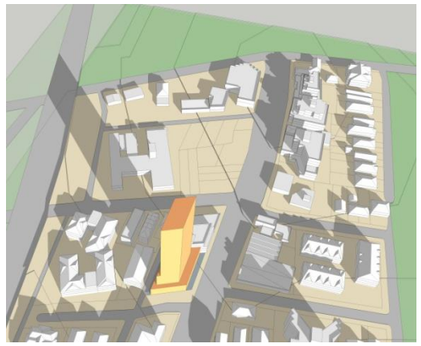
Shadow Analysis

Solar Study with Existing Built Form – June 21 – 0900 - 1500

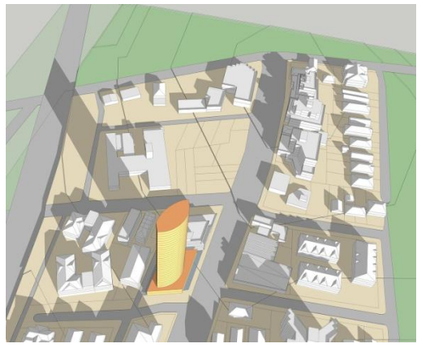
Built Form 1 – 28 Storey High Envelope – 1500



Built Form 2 – 28 Storey High Envelope – 1500

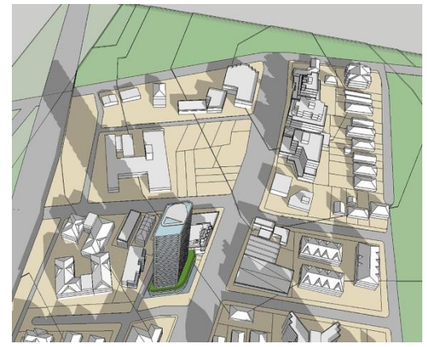


Built Form 3 – 28 Storey High Envelope – 1500



Built Form 4 – 25 Storey High Envelope – 1500

Built Form 5 – 27 Storey High Envelope – 1500



Conclusion

- The narrow tower form creates a shadow that moves rapidly throughout the day.
- Chamfered and curvilinear built forms provide improved solar access to properties to the south of the site compared to rectilinear building forms; however these built forms do not comply with the setbacks in the Chatswood CBD Planning and Urban Design Strategy.
- All units with a northern aspect will receive more than 2 hours sunlight in mid winter.
- Ground level public open space will receive a high level of sunlight in mid winter.
- Podium and roof terrace open spaces will receive more than 2 hours sunlight in mid winter.

Shadow Analysis

8.2 Solar Study with Existing Built Form – March/September 21 – 0900 - 1500

Built Form 1 – 28 Storey High Envelope – 0900

Built Form 2 – 28 Storey High Envelope – 0900

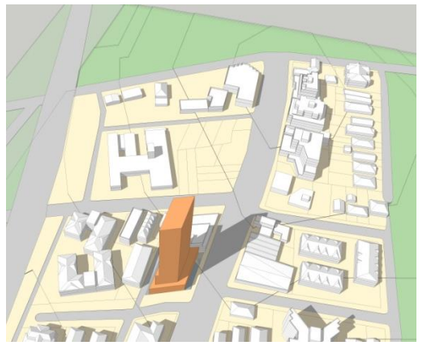
Built Form 3 – 28 Storey High Envelope – 0900

Built Form 4 – 25 Storey High Envelope – 0900

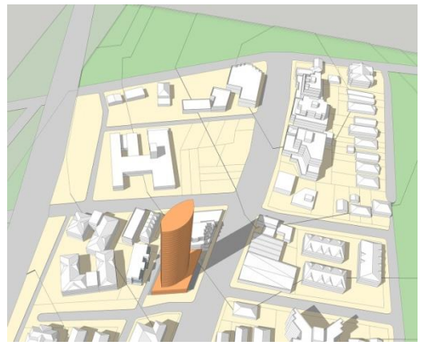
Built Form 5 – 27 Storey High Envelope – 0900

Built Form 1 – 28 Storey High Envelope – 1000

Built Form 2 – 28 Storey High Envelope – 1000



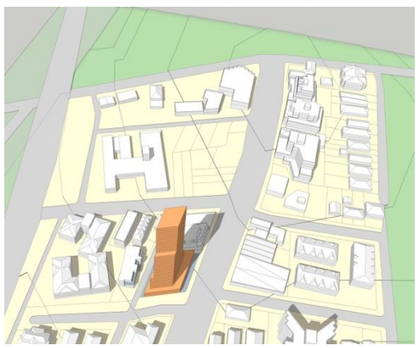
Built Form 3 – 28 Storey High Envelope – 1000



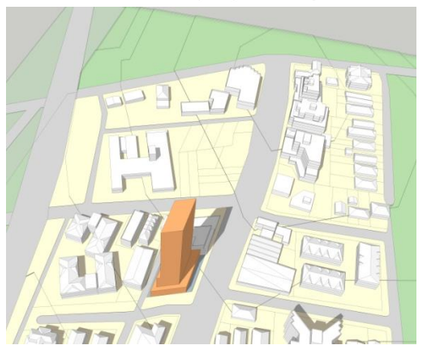
Built Form 4 – 25 Storey High Envelope – 1000

Built Form 5 – 27 Storey High Envelope – 1000

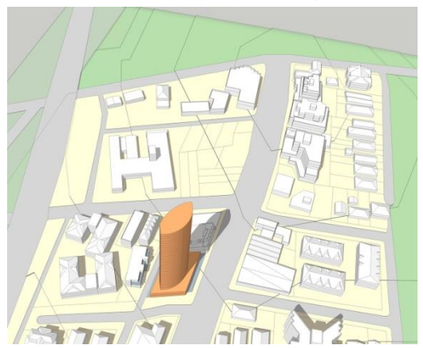
Built Form 1 – 28 Storey High Envelope – 1100



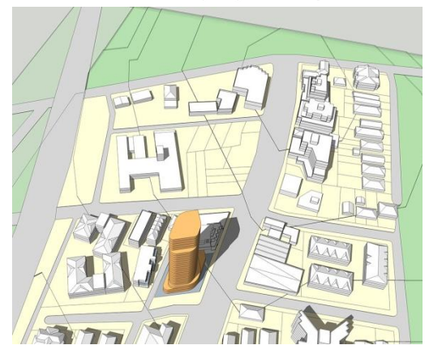
Built Form 2 – 28 Storey High Envelope – 1100



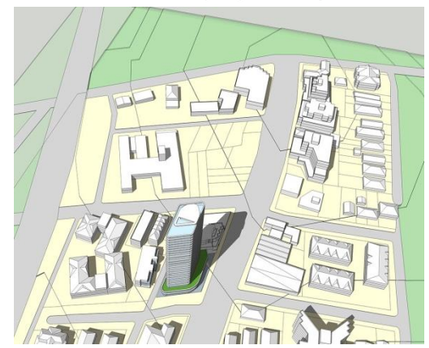
Built Form 3 – 28 Storey High Envelope – 1100



Built Form 4 – 25 Storey High Envelope – 1100



Built Form 5 – 27 Storey High Envelope – 1100



Shadow Analysis

Solar Study with Existing Built Form – March/September 21 – 0900 - 1500

Built Form 1 – 28 Storey High Envelope – 1200

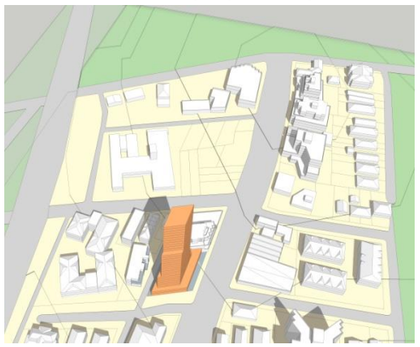
Built Form 2 – 28 Storey High Envelope – 1200

Built Form 3 – 28 Storey High Envelope – 1200

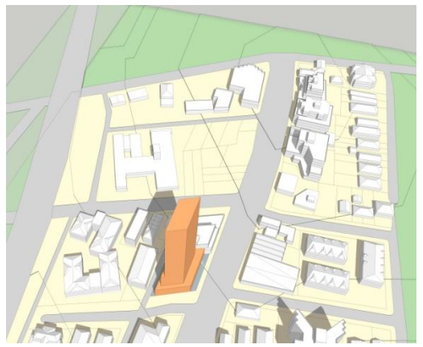
Built Form 4 – 25 Storey High Envelope – 1200

Built Form 5 – 27 Storey High Envelope – 1200

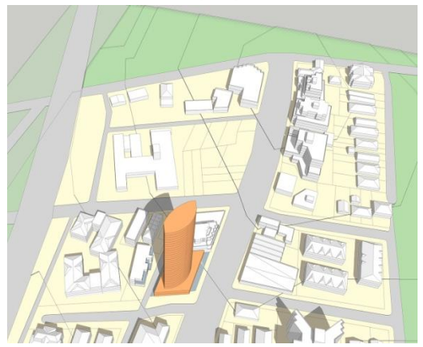
Built Form 1 – 28 Storey High Envelope – 1300



Built Form 2 – 28 Storey High Envelope – 1300



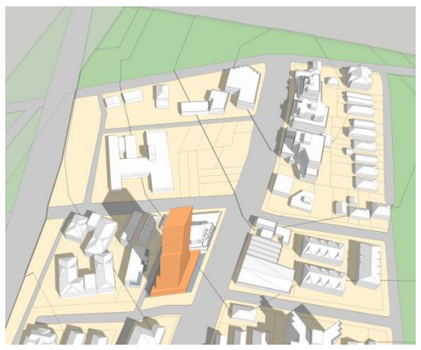
Built Form 3 – 28 Storey High Envelope – 1300



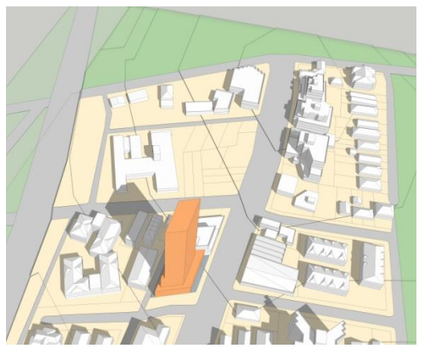
Built Form 4 – 25 Storey High Envelope – 1300

Built Form 5 – 27 Storey High Envelope – 1300

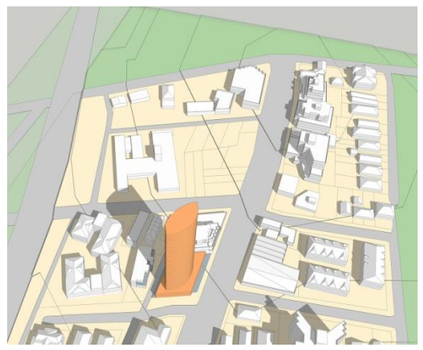
Built Form 1 – 28 Storey High Envelope – 1400



Built Form 2 – 28 Storey High Envelope – 1400



Built Form 3 – 28 Storey High Envelope – 1400



Built Form 4 – 25 Storey High Envelope – 1400

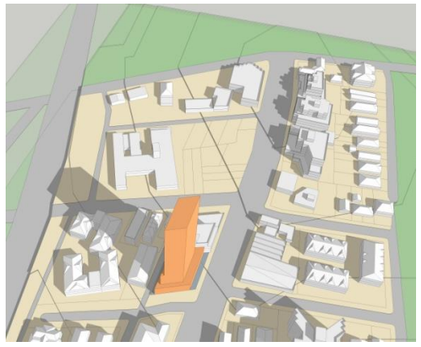
Built Form 5 – 27 Storey High Envelope – 1400

Shadow Analysis

Solar Study with Existing Built Form – March/September 21 – 0900 - 1500

Built Form 1 – 28 Storey High Envelope – 1500

Built Form 2 – 28 Storey High Envelope – 1500



Built Form 3 – 28 Storey High Envelope – 1500

Built Form 4 – 25 Storey High Envelope – 1500

Built Form 5 – 27 Storey High Envelope – 1500

Conclusion

- The narrow tower form creates a shadow that moves rapidly throughout the day.
- Chamfered and curvilinear built forms provide improved solar access to properties to the south of the site compared to rectilinear building forms; however these built forms do not comply with the setbacks in the Chatswood CBD Planning and Urban Design Strategy.
- All units with northern and western aspects will receive more than 2 hours sunlight in mid spring/autumn.
- Ground level public open space will receive a high level of sunlight in mid spring/autumn.
- Podium and roof terrace open spaces will receive more than 2 hours sunlight in mid spring/autumn.

9.0 Shadow Analysis for adjoining Buildings

9.1 Solar Study for building at 621 – 627 Pacific Highway - Western Elevation - June 21 – 0900 - 1500

Overshadowing impacts to adjoining buildings have been modelled for the following built forms:

1. The existing building.
2. A built form satisfying current permissible planning controls.
3. Built Form 4 - submitted in the Planning Proposal to Willoughby City Council.
4. Built Form 5 – the built form revised in accordance with Council comments.

Existing Building - 0900

Potential Building (Current Permissible) - 20m Height – 0900

Built Form 4 - 79m Height – 0900

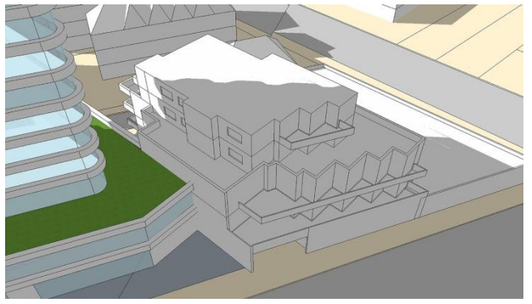
Built Form 5 - 90m Height – 0900

Existing Building - 1000

Potential Building (Current Permissible) - 20m Height – 1000

Built Form 4 - 79m Height – 1000

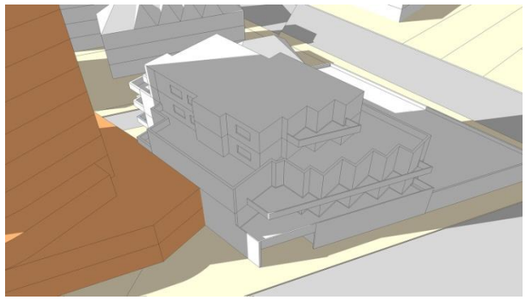
Built Form 5 - 90m Height – 1000



Existing Building - 1100

Potential Building (Current Permissible) - 20m Height – 1100

Built Form 4 - 79m Height – 1100

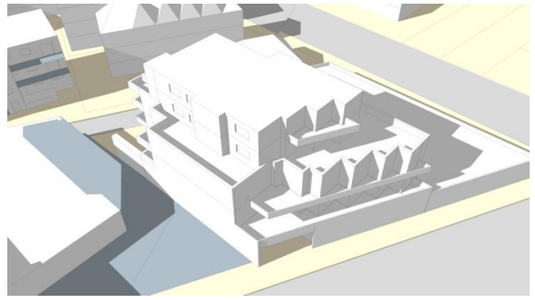


Built Form 5 - 90m Height – 1100

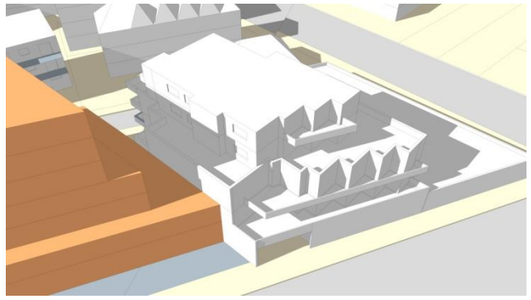
Shadow Analysis

Solar Study for building at 621 – 627 Pacific Highway - Western Elevation - June 21 – 0900 - 1500

Existing Building - 1200



Potential Building (Current Permissible) - 20m Height – 1200

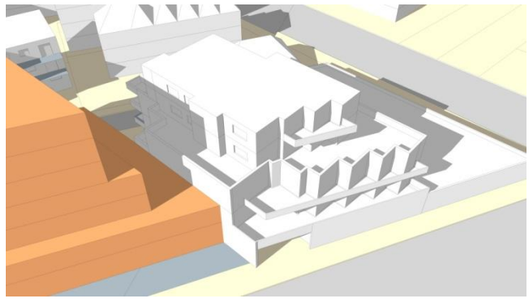


Built Form 4 - 79m Height – 1200

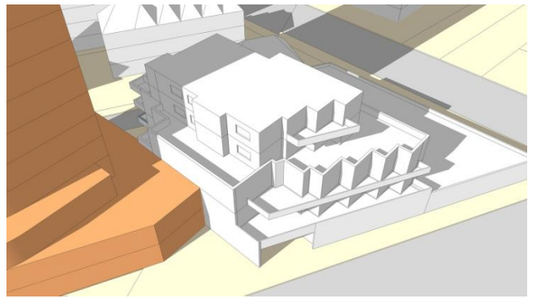
Built Form 5 - 90m Height – 1200

Existing Building - 1300

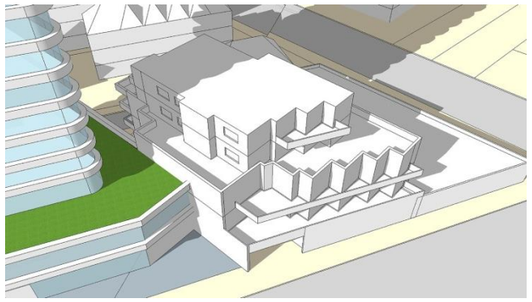
Potential Building (Current Permissible) - 20m Height – 1300



Built Form 4 - 79m Height – 1300

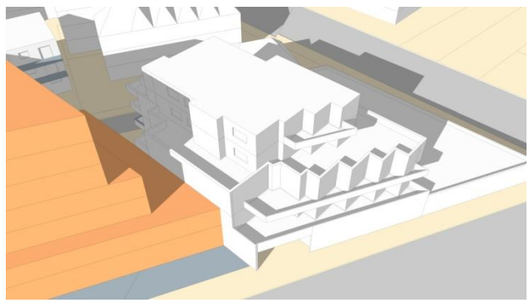


Built Form 5 - 90m Height – 1300

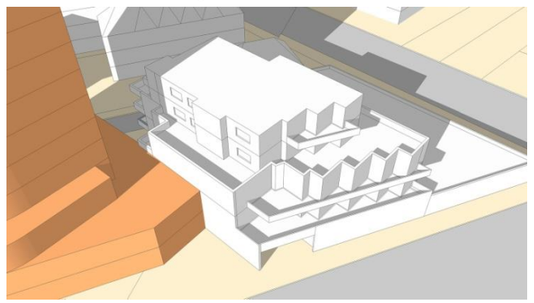


Existing Building - 1400

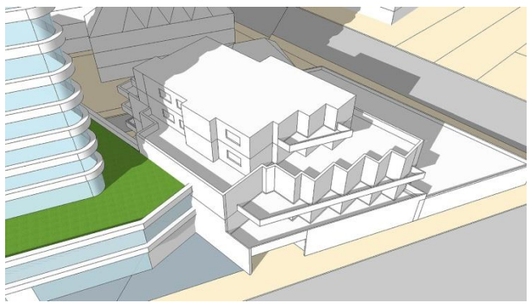
Potential Building (Current Permissible) - 20m Height – 1400



Built Form 4 - 79m Height – 1400



Built Form 5 - 90m Height – 1400

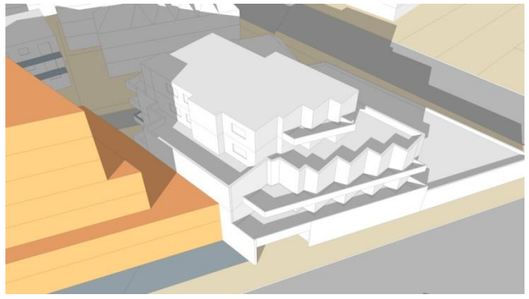


Shadow Analysis

Solar Study for building at 621 – 627 Pacific Highway - Western Elevation - June 21 – 0900 - 1500

Existing Building - 1500

Potential Building (Current Permissible) - 20m Height – 1500



Built Form 4 - 79m Height – 1500

Built Form 5 - 90m Height – 1500

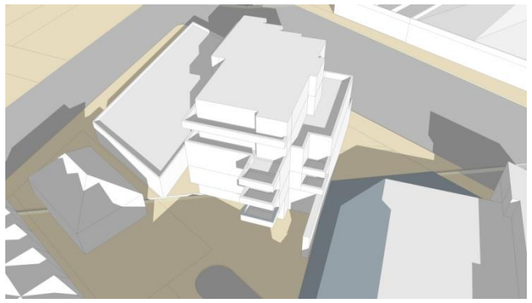
Conclusion

- There will be slightly increased overshadowing impacts to the existing private open space / balconies fronting the Pacific Highway of the 5-storey apartment building to the south between 10am to 11am.
- There will be no significant difference in overshadowing impact between the permissible built form envelope (20m) and the proposed Built Form 5 envelope (90m).
- All existing private open spaces/balconies and living rooms fronting the Pacific Highway will receive a minimum of 2 hours daylight as shown.

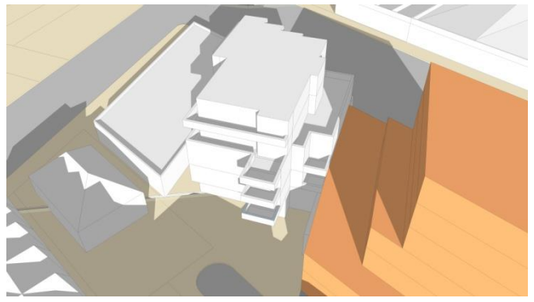
Shadow Analysis

9.2 Solar Study for building at 621 – 627 Pacific Highway - Eastern Elevation - June 21 – 0900 - 1500

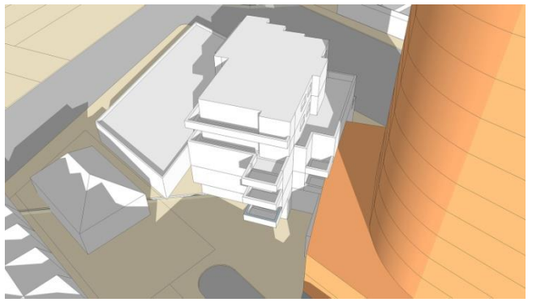
Existing Building - 0900



Potential Building (Current Permissible) - 20m Height – 0900

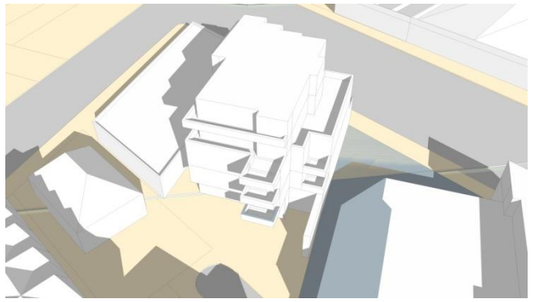


Built Form 4 - 79m Height – 0900

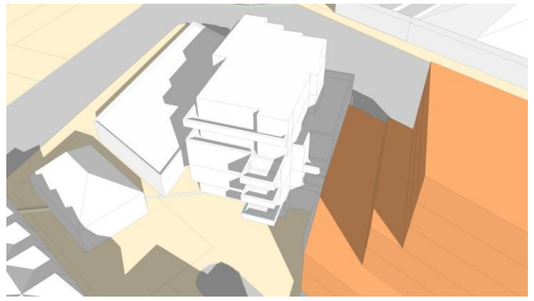


Built Form 5 - 90m Height – 0900

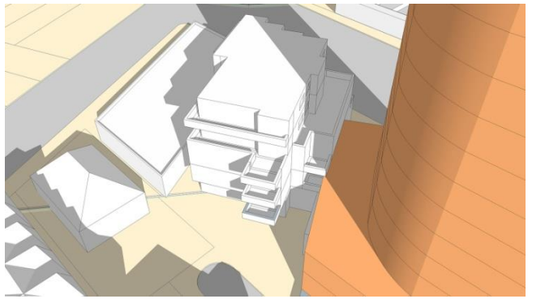
Existing Building - 1000



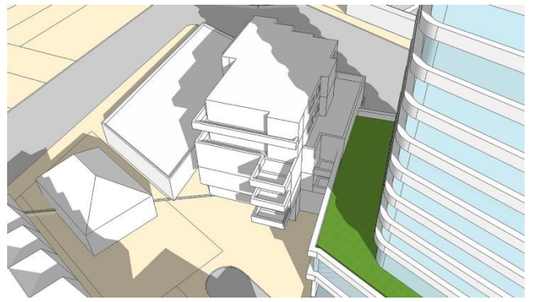
Potential Building (Current Permissible) - 20m Height – 1000



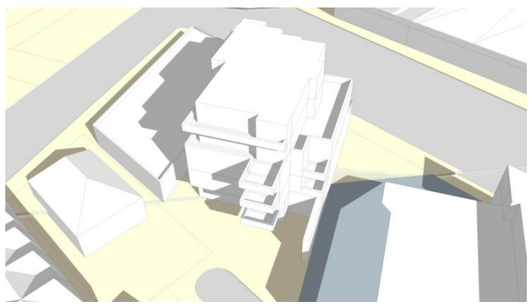
Built Form 4 - 79m Height – 1000



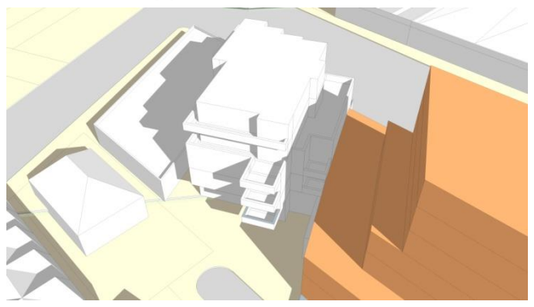
Built Form 5 - 90m Height – 1000



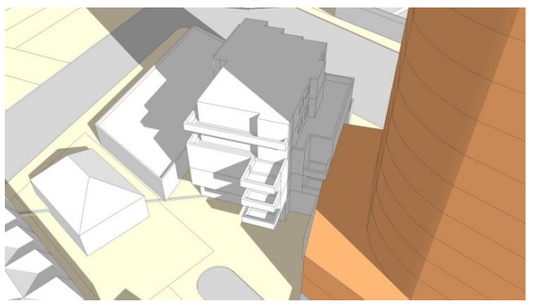
Existing Building - 1100



Potential Building (Current Permissible) - 20m Height – 1100



Built Form 4 - 79m Height – 1100

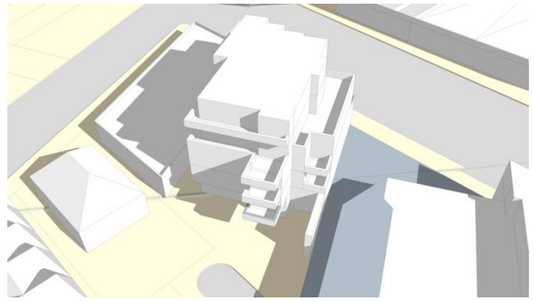


Built Form 5 - 90m Height – 1100

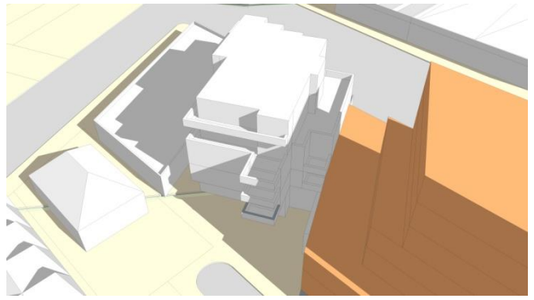
Shadow Analysis

Solar Study for building at 621 – 627 Pacific Highway - Eastern Elevation - June 21 – 0900 - 1500

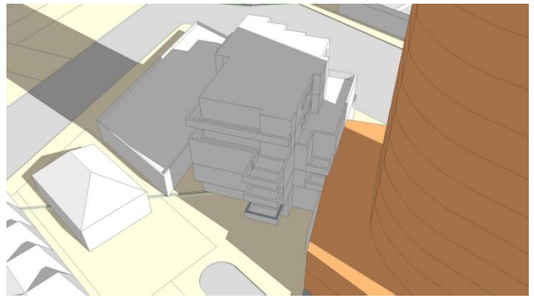
Existing Building - 1200



Potential Building (Current Permissible) - 20m Height – 1200

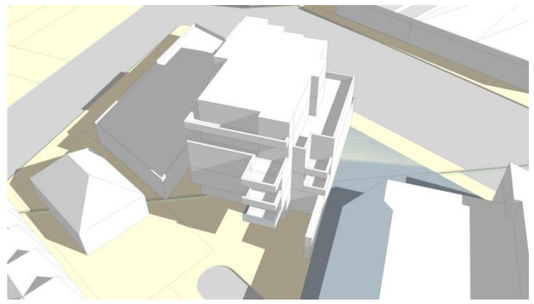


Built Form 4 - 79m Height – 1200

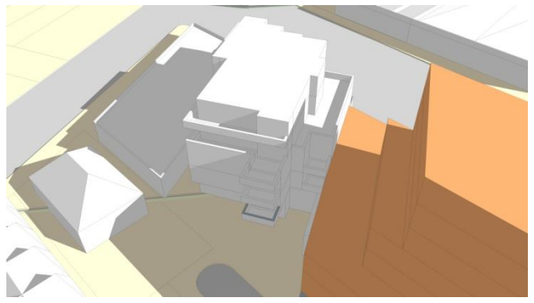


Built Form 5 - 90m Height – 1200

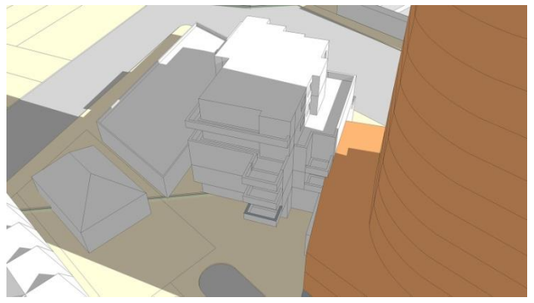
Existing Building - 1300



Potential Building (Current Permissible) - 20m Height – 1300

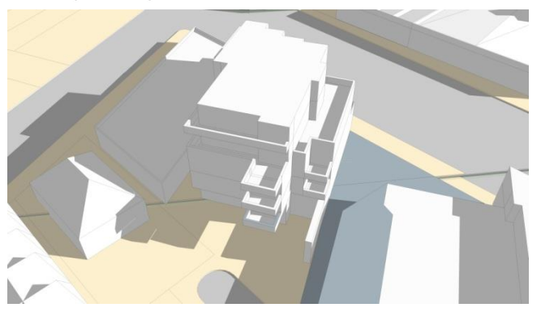


Built Form 4 - 79m Height – 1300

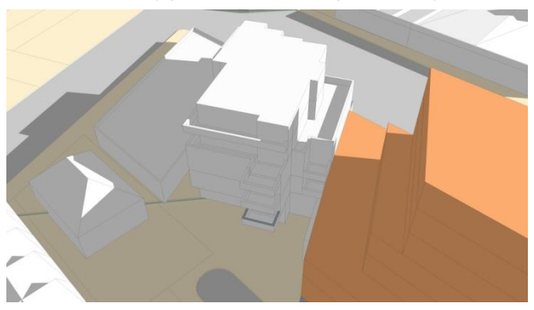


Built Form 5 - 90m Height – 1300

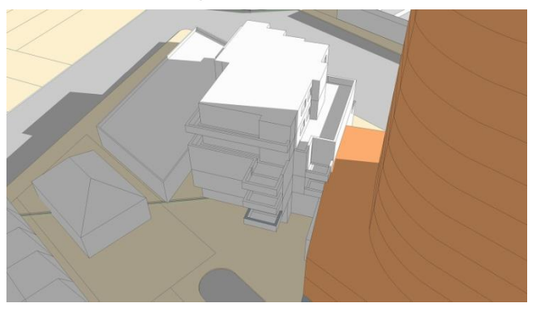
Existing Building - 1400



Potential Building (Current Permissible) - 20m Height – 1400



Built Form 4 - 79m Height – 1400

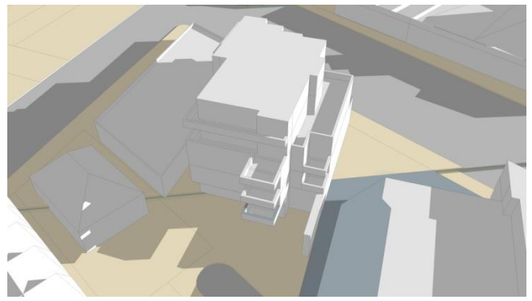


Built Form 5 - 90m Height – 1400

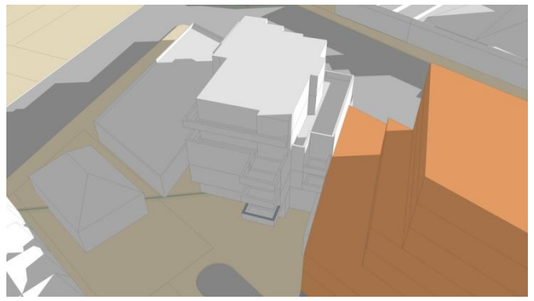
Shadow Analysis

Solar Study for building at 621 – 627 Pacific Highway – Eastern Elevation - June 21 – 0900 - 1500

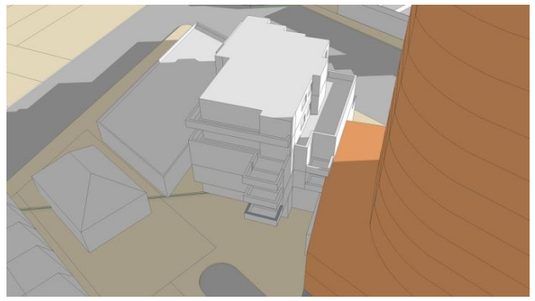
Existing Building - 1500



Potential Building (Current Permissible) - 20m Height – 1500



Built Form 4 - 79m Height – 1500



Built Form 5 - 90m Height – 1500

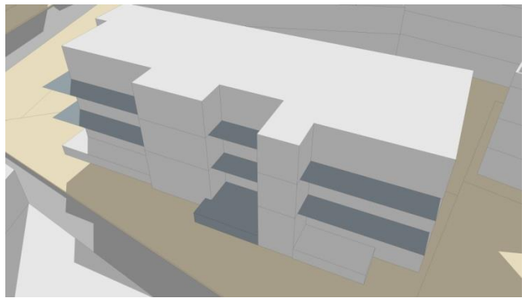
Conclusion

- All existing private open spaces/balconies and living rooms that face east will receive a minimum 2 hours daylight in the morning as shown.
- There is no significant difference in overshadowing impact in the afternoon between the permissible built form envelope (20m) and the proposed Built Form 5 envelope (90m).
- The major overshadowing impact that will occur to the existing large private open space/balcony on Level 4 that is facing north (common boundary) is between 11:00 am and 12:00 pm. However, the subject private open space/balcony will receive 3 hours sunlight in mid winter in the afternoon (12:00 pm – 3:00 pm). The additional impact is considered acceptable.

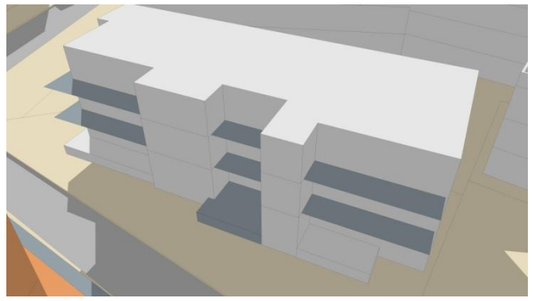
Shadow Analysis

9.3 Solar Study for building at 10 Gordon Avenue - Western Elevation - June 21 – 0900 - 1500

Existing Building - 0900



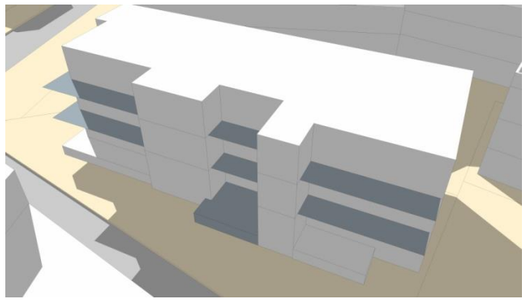
Potential Building (Current Permissible) - 20m Height – 0900



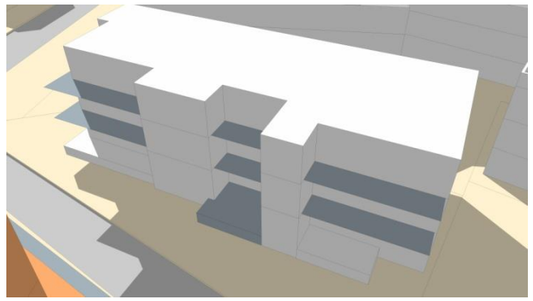
Built Form 4 - 79m Height – 0900

Built Form 5 - 90m Height – 0900

Existing Building - 1000



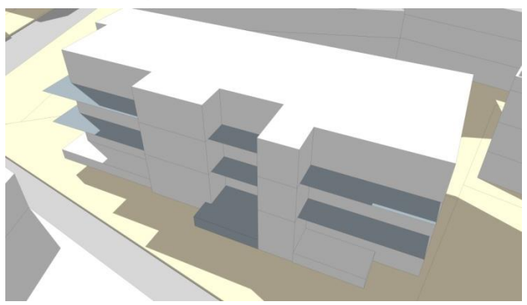
Potential Building (Current Permissible) - 20m Height – 1000



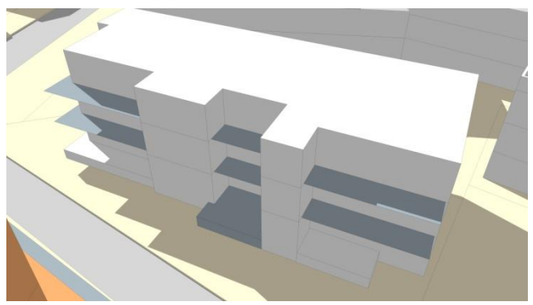
Built Form 4 - 79m Height – 1000

Built Form 5 - 90m Height – 1000

Existing Building - 1100



Potential Building (Current Permissible) - 20m Height – 1100



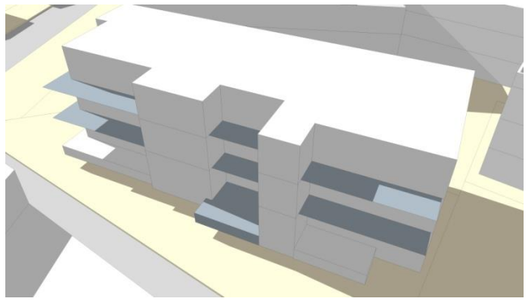
Built Form 4 - 79m Height – 1100

Built Form 5 - 90m Height – 1100

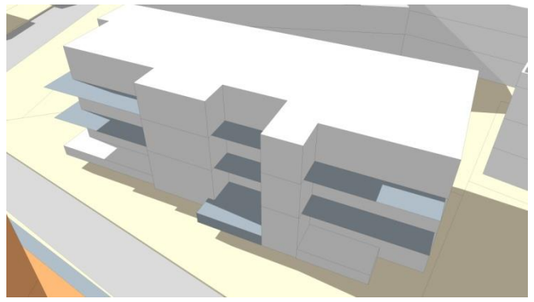
Shadow Analysis

Solar Study for building at 10 Gordon Avenue - Western Elevation - June 21 – 0900 - 1500

Existing Building - 1200



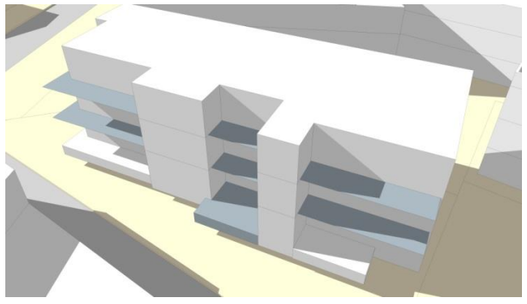
Potential Building (Current Permissible) - 20m Height – 1200



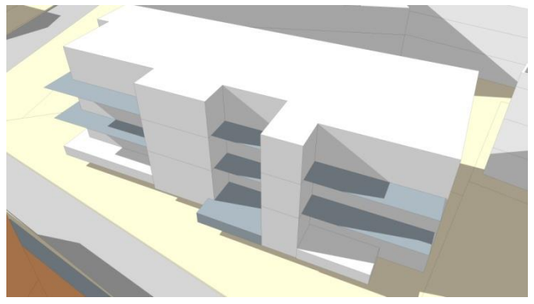
Built Form 4 - 79m Height – 1200

Built Form 5 - 90m Height – 1200

Existing Building - 1300



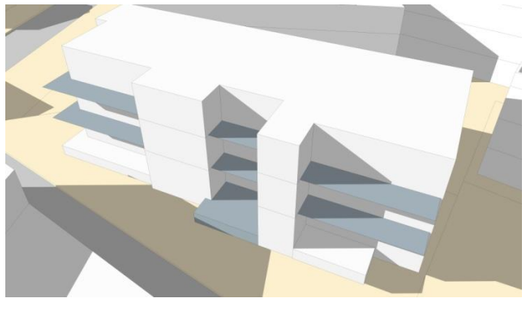
Potential Building (Current Permissible) - 20m Height – 1300



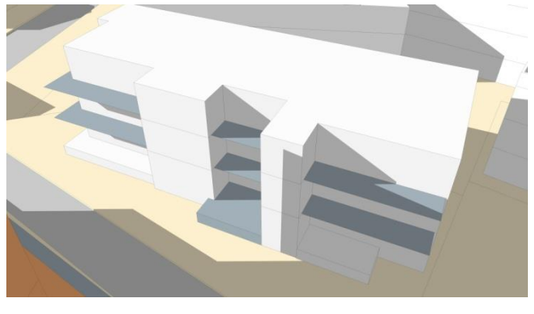
Built Form 4 - 79m Height – 1300

Built Form 5 - 90m Height – 1300

Existing Building - 1400



Potential Building (Current Permissible) - 20m Height – 1400



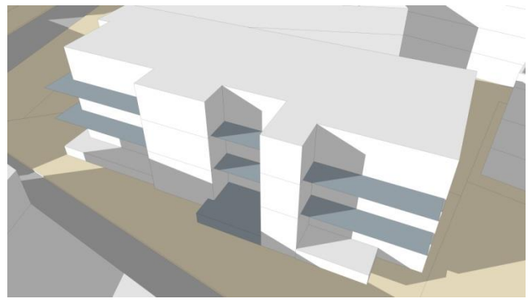
Built Form 4 - 79m Height – 1400

Built Form 5 - 90m Height – 1400

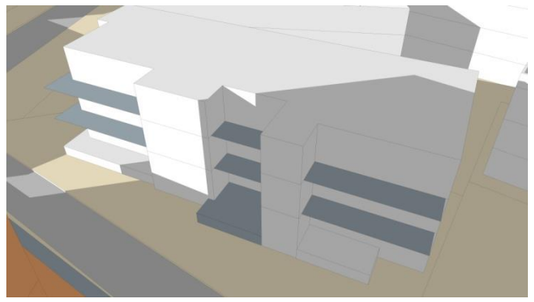
Shadow Analysis

Solar Study for building at 10 Gordon Avenue - Western Elevation - June 21 – 0900 - 1500

Existing Building - 1500



Potential Building (Current Permissible) - 20m Height – 1500



Built Form 4 - 79m Height – 1500

Built Form 5 - 90m Height – 1500

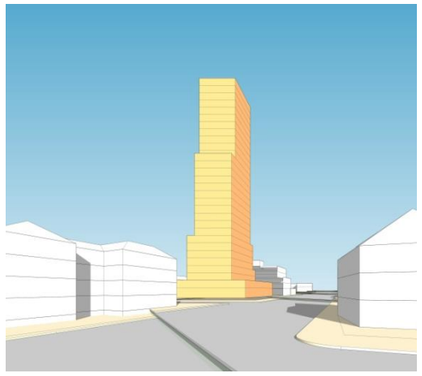
Conclusion

- There will be no significant difference in overshadowing impact in the afternoon between the permissible built form envelope (20m) and the proposed Built Form 5 envelope (90m).
- The major overshadowing impact associated with Built Form 5 will affect the existing ground floor unit and first floor units that face Hammond Lane (west) between 2:00 pm to 3:00 pm.
- There is less overshadowing impact associated with Built Form 4 however this form does not comply with the setbacks in the Chatswood CBD Planning and Urban Design Strategy.

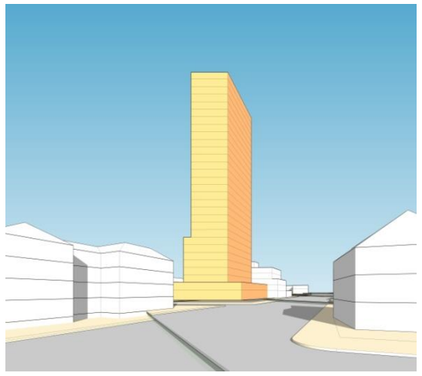
10.0 Streetscape Views

10.1 View south along the Pacific Highway – with Existing Built Form

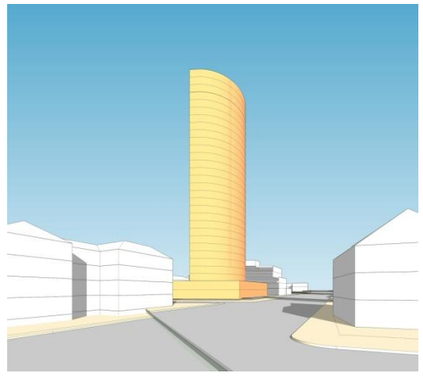
Built Form 1 – 28 Storey High Envelope



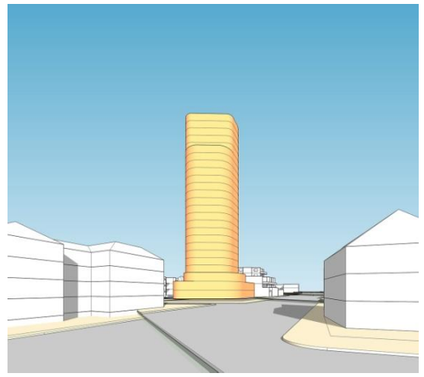
Built Form 2 – 28 Storey High Envelope



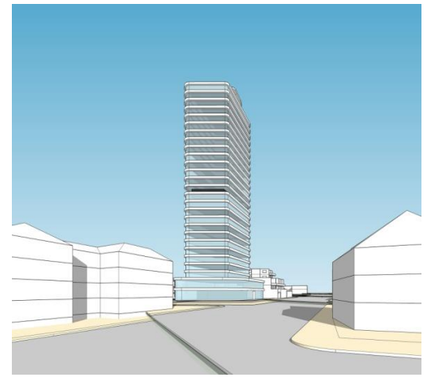
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope

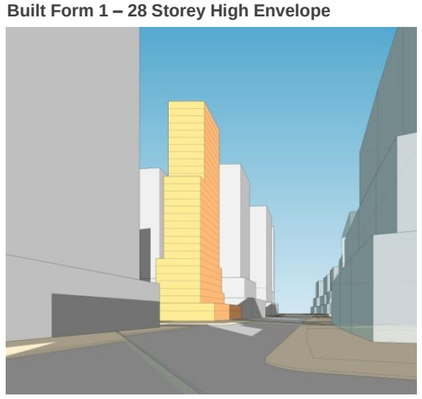


Built Form 5 – 27 Storey High Envelope

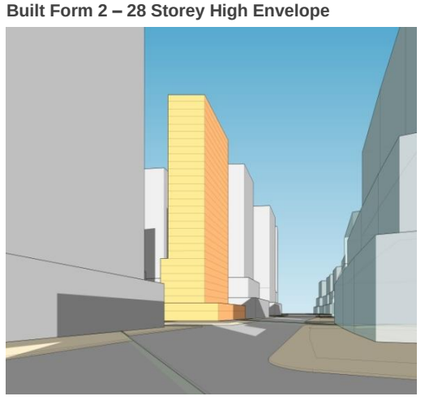


10.2 View south along the Pacific Highway – with Future Built Form

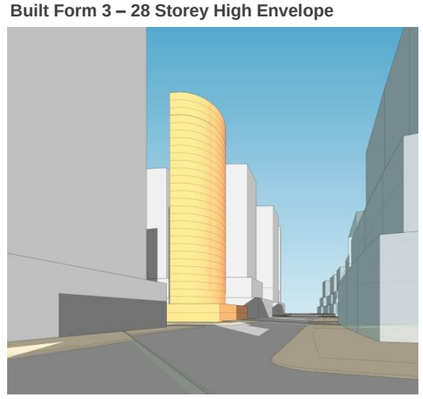
Built Form 1 – 28 Storey High Envelope



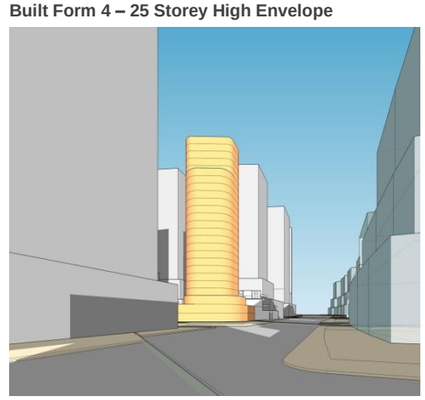
Built Form 2 – 28 Storey High Envelope



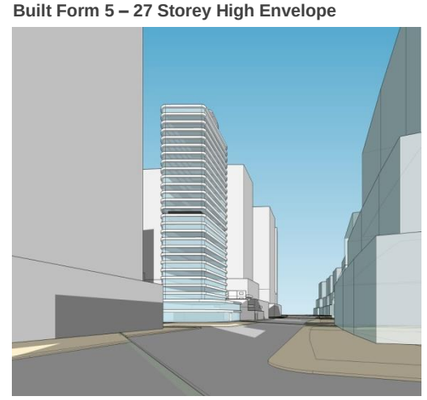
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope



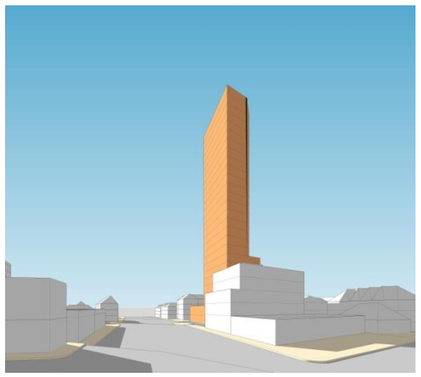
Built Form 5 – 27 Storey High Envelope



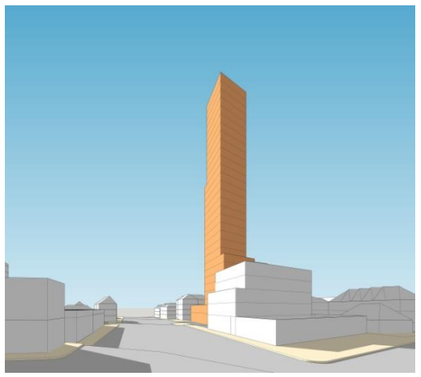
Streetscape Views

10.3 View north along the Pacific Highway – with Existing Built Form

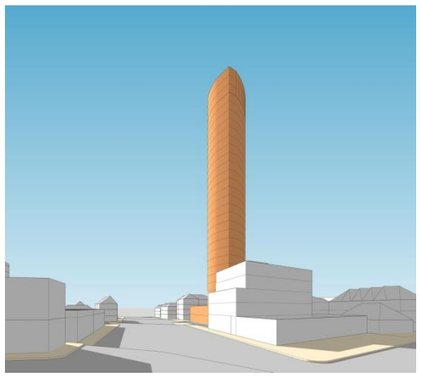
Built Form 1 – 28 Storey High Envelope



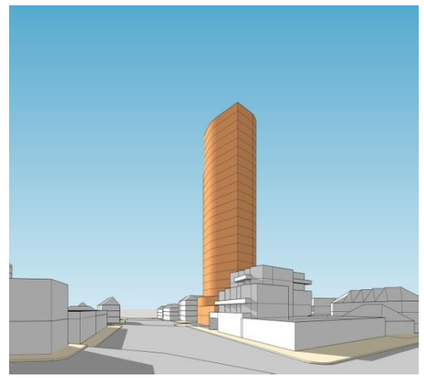
Built Form 2 – 28 Storey High Envelope



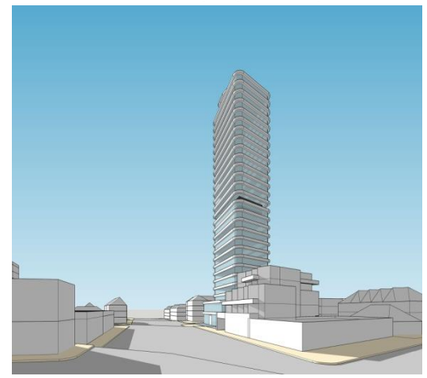
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope

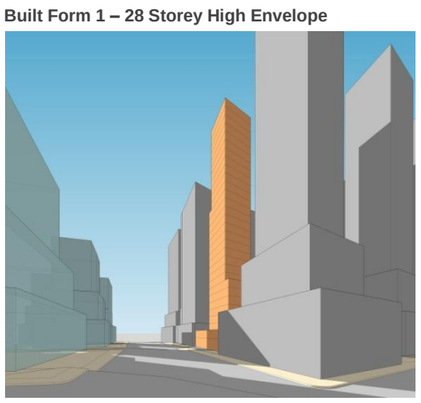


Built Form 5 – 27 Storey High Envelope

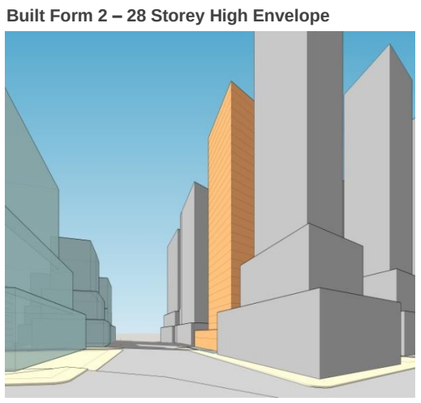


10.4 View north along the Pacific Highway – with Future Built Form

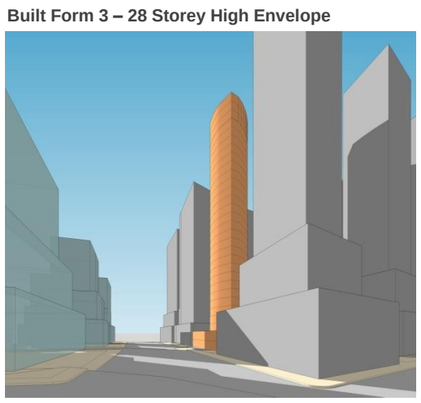
Built Form 1 – 28 Storey High Envelope



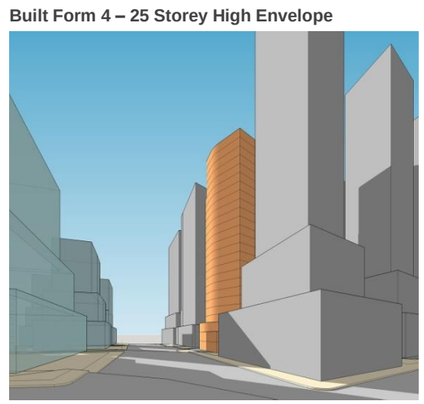
Built Form 2 – 28 Storey High Envelope



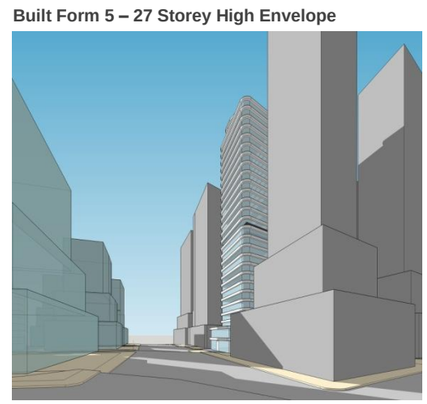
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope



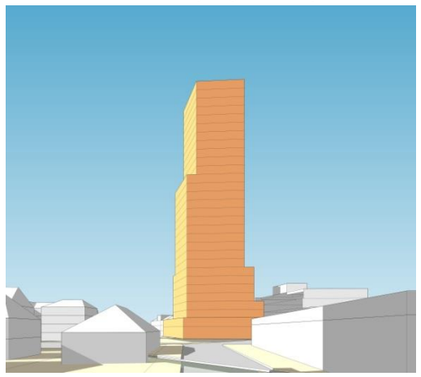
Built Form 5 – 27 Storey High Envelope



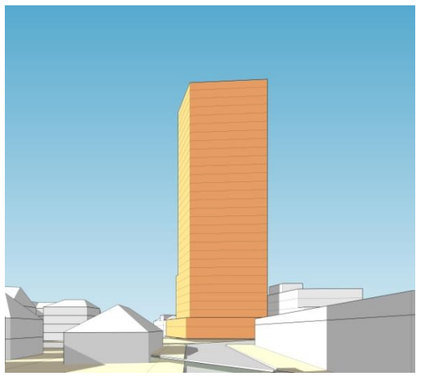
Streetscape Views

10.5 View from Fehon Road – with Existing Built Form

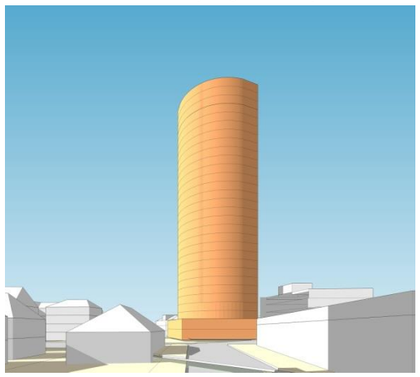
Built Form 1 – 28 Storey High Envelope



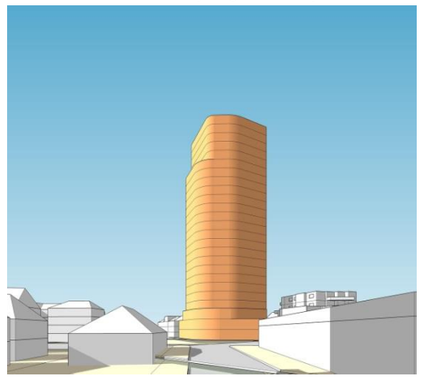
Built Form 2 – 28 Storey High Envelope



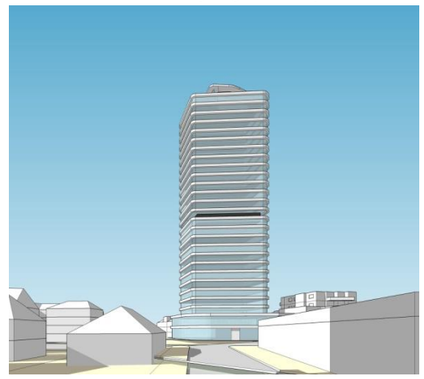
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope

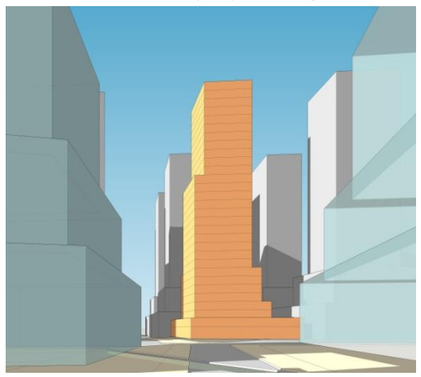


Built Form 5 – 27 Storey High Envelope



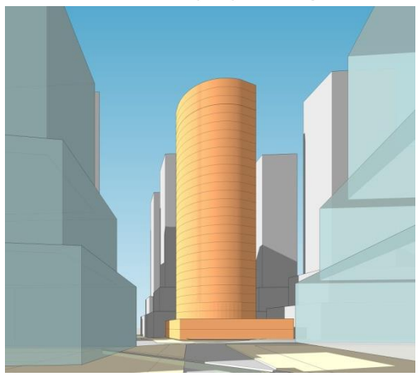
10.6 View from Fehon Road – with Future Built Form

Built Form 1 – 28 Storey High Envelope

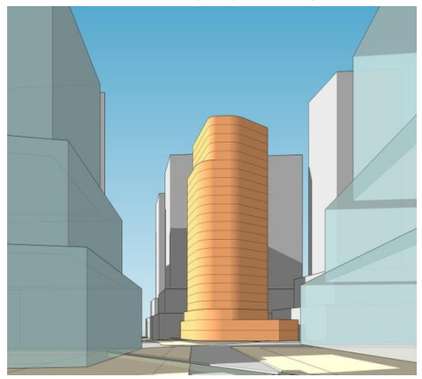


Built Form 2 – 28 Storey High Envelope

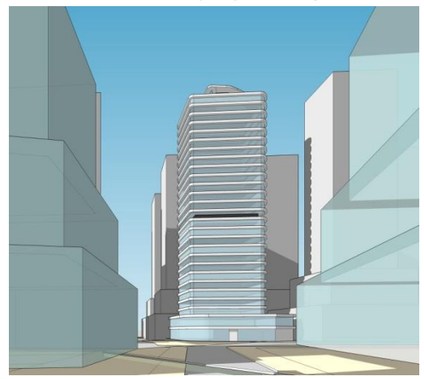
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope



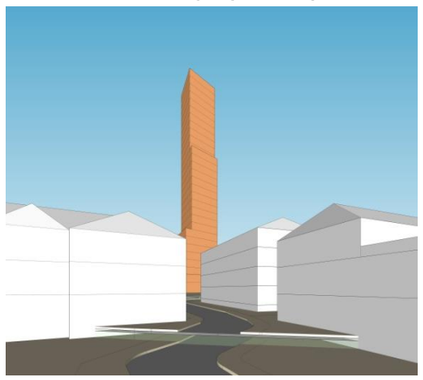
Built Form 5 – 27 Storey High Envelope



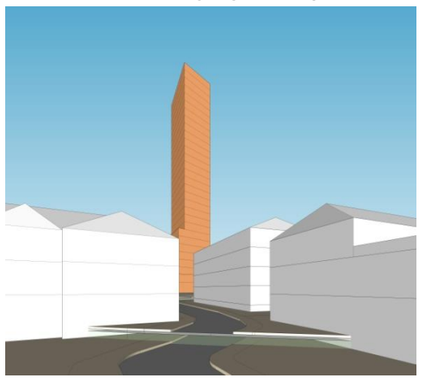
Streetscape Views

10.7 View south from Hammond Lane – with Existing Built Form

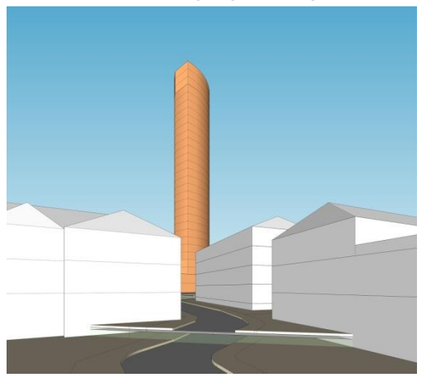
Built Form 1 – 28 Storey High Envelope



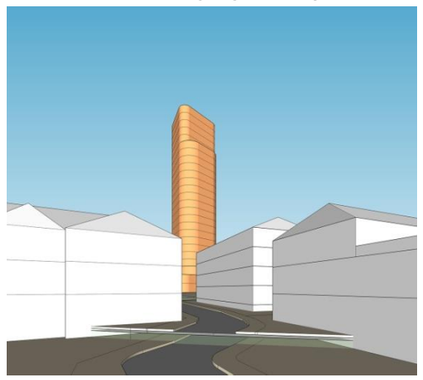
Built Form 2 – 28 Storey High Envelope



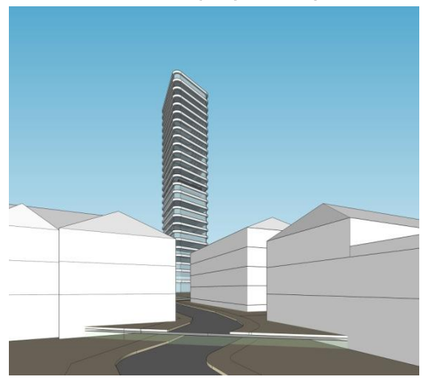
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope

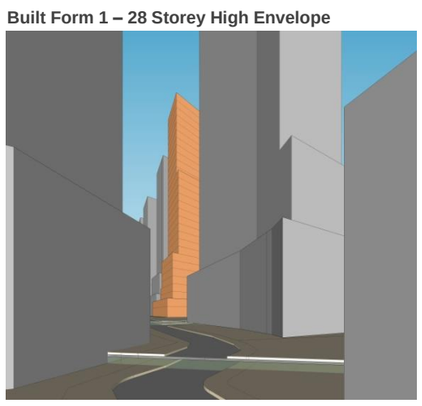


Built Form 5 – 27 Storey High Envelope

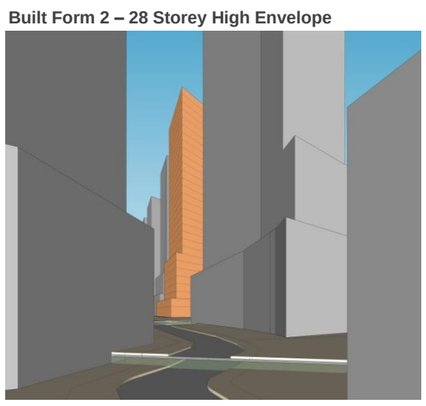


10.8 View south from Hammond Lane – with Future Built Form

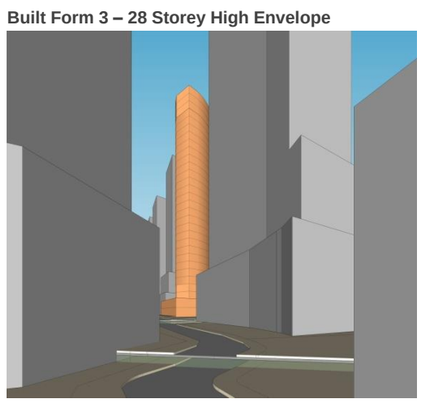
Built Form 1 – 28 Storey High Envelope



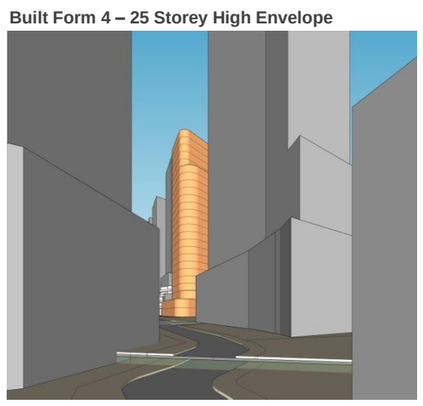
Built Form 2 – 28 Storey High Envelope



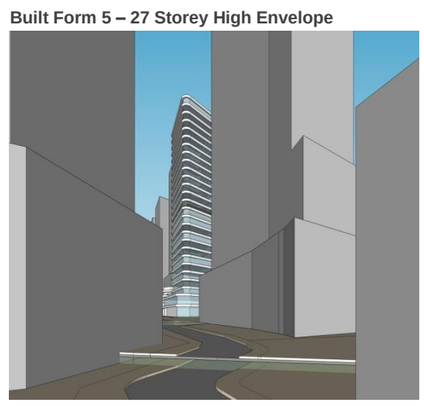
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope



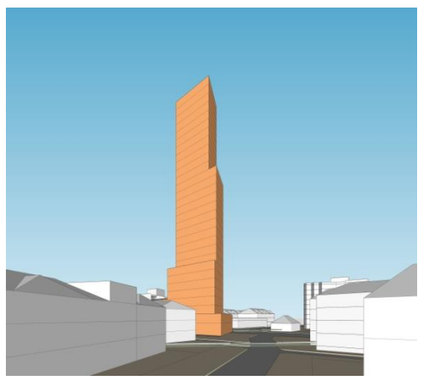
Built Form 5 – 27 Storey High Envelope



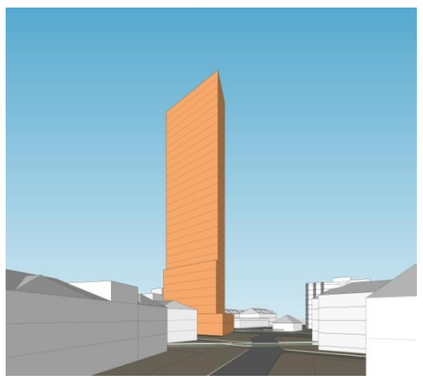
Streetscape Views

10.9 View west from Gordon Avenue – with Existing Built Form

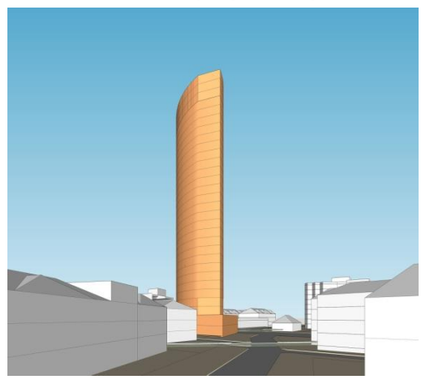
Built Form 1 – 28 Storey High Envelope



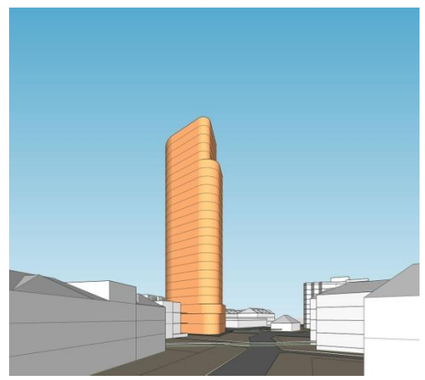
Built Form 2 – 28 Storey High Envelope



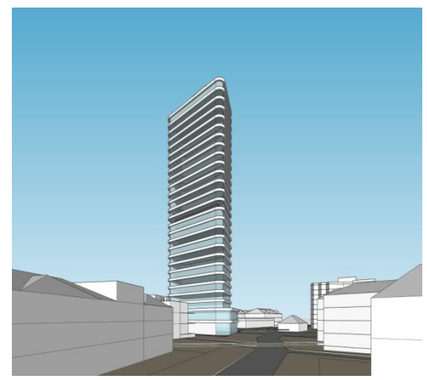
Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope

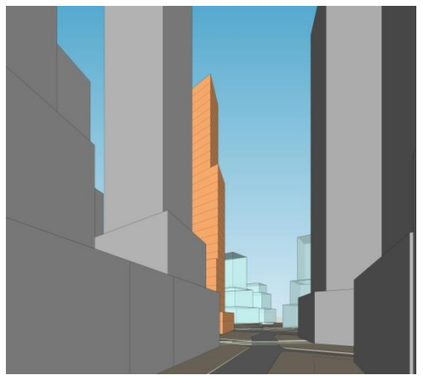


Built Form 5 – 27 Storey High Envelope



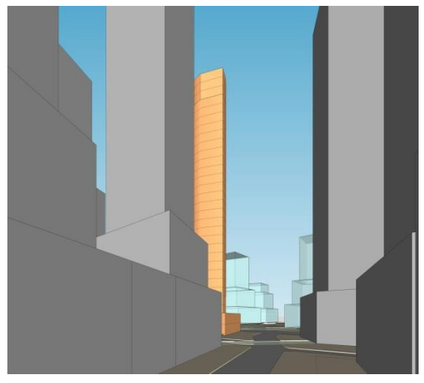
10.10 View west from Gordon Avenue – with Future Built Form

Built Form 1 – 28 Storey High Envelope



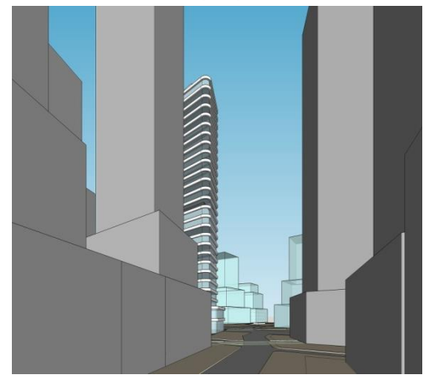
Built Form 2 – 28 Storey High Envelope

Built Form 3 – 28 Storey High Envelope



Built Form 4 – 25 Storey High Envelope

Built Form 5 – 27 Storey High Envelope

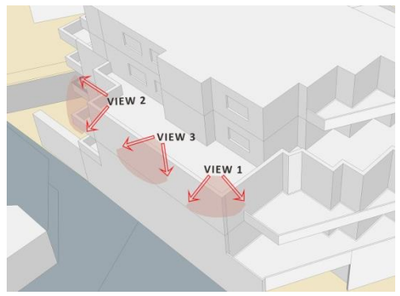


11.0 View Study from 621-627 Pacific Highway

11.1 View from Level 4 balcony of adjoining building facing north

Views from the balcony of the adjoining building have been modelled for the following built forms:

1. The existing building.
2. A built form satisfying current permissible planning controls.
3. Built Form 4 - submitted in the Planning Proposal to Willoughby City Council.
4. Built Form 5 – the built form revised in accordance with Council comments.



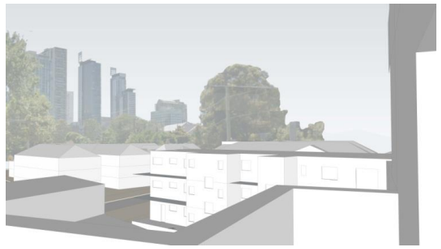
View Position 1 - Existing View

View Position 1 - Potential Building (Current Permissible)

View Position 1 – Built Form 4

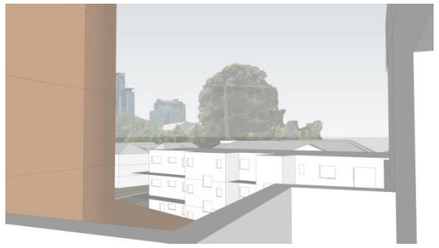
View Position 1 - Built Form 5

View Position 2 - Existing View



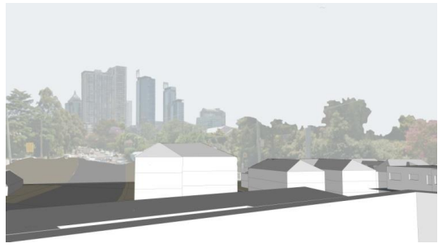
View Position 2 - Potential Building (Current Permissible)

View Position 2 – Built Form 4

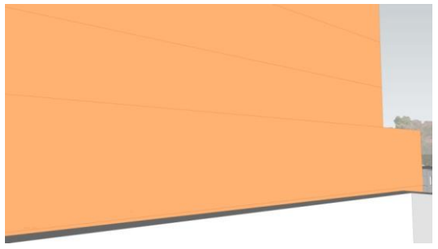


View Position 2 - Built Form 5

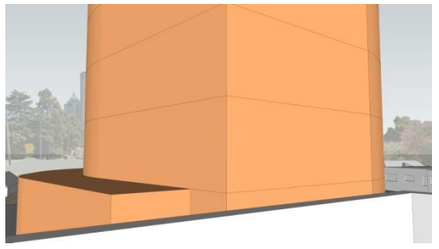
View Position 3 - Existing View



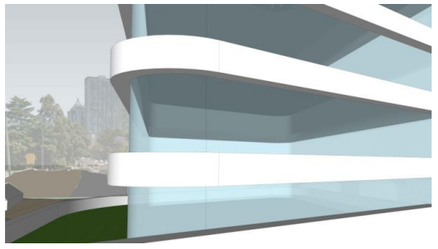
View Position 3 - Potential Building (Current Permissible)



View Position 3 – Built Form 4



View Position 3 – Built Form 5



12.0 Proposed Building Envelope

Proposed Zoning = Mixed Use

Site Area = 1,185 sqm

Permissible FSR (GFA) = 6:1 (7,110 sqm)

Proposed HOB = 90m

Proposed GFA – Residential = 6,405 sqm
(Including Affordable Housing 4%)

Proposed GFA – Commercial/Retail = 705 sqm

Proposed GFA - Affordable Housing (4%) = 246 sqm

Total GFA achieved = 7,110m² (FSR 6: 1)

7,110m² GFA is the maximum floor space that can be accommodated in the envelope and allows for affordable housing

Figures above are for Built Form 5, the preferred option based on Council feedback.

The proposed building envelope is in full compliance with the Chatswood CBD Planning and Urban Design Strategy, fully endorsed by the Department of Planning, Industry and Environment on 9 July 2020.

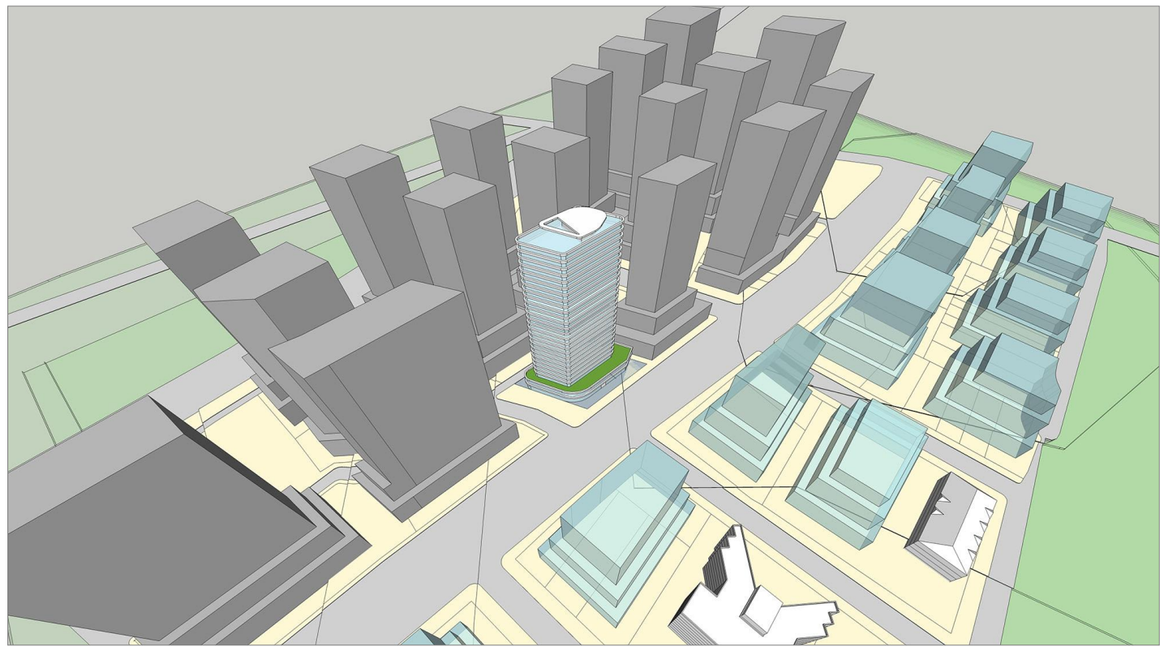


Figure 12.1: Proposed Building Envelope

Color Legend

Existing Building Envelope

Future Building Envelope - 90m Height

Future Building Envelope - 45m Height

13.0 Preferred Built Form

- The proposed building form will visually mark the southern extension to the Chatswood CBD.
- The mixed use development will provide retail /commercial space and a choice of housing to meet the increased in demand for housing which is integral to the ongoing viability and success of Chatswood as a strategic centre.
- The contemporary, elegant building form will provide a southern gateway to the Chatswood CBD and create a benchmark for architectural quality for the rebranding of Chatswood as a major strategic centre.
- The proposed building height and form will provide a catalyst for future development for the southern precinct of the Chatswood CBD area and strengthen the visual relationship between this southern precinct and the area surrounding Chatswood station.
- The building form and articulation will provide detail and architectural interest at prominent components of the building including the streetscape, awning, podium and roof gardens.
- The roof will be designed as an integral part of the building, providing a visually distinctive and interesting contribution to the Chatswood CBD skyline.
- The roof form will also conceal plant and equipment.
- The simple curved form of the tower will be designed to respond to climatic conditions to maximise solar access to neighbouring residential properties.
- The tower will sit on a two storey podium which will create a human scale streetscape character along the Pacific Highway and Gordon Avenue, with residential lobbies and street activities such as retail and public seating areas.
- The podium building form and articulation will be designed to clearly define the Gordon Avenue and Pacific Highway corner, with setbacks to provide good external spaces with improved pedestrian amenity and security.
- The podium building form will provide an upgrade to the Pacific Highway and Gordon Avenue public realm and will enhance the pedestrian connectivity from Frank Channon Walk to the surrounding residential neighbourhood by providing improved activation and passive surveillance.
- An awning element is designed as an integral part of the building and will provide improved pedestrian comfort and protection from unpleasant weather conditions.
- There is potential to utilise a ‘winter garden’ type strategy in design development for the tower’s balconies to improve the wind environment at higher levels and enhance the amenity of apartments.
- A single point of vehicular entrance and exit to the building is proposed via Hammond Lane, leaving the surrounding pedestrian pavements adjacent to the Pacific Highway and Gordon Avenue to contribute to a vibrant, activated and safe public realm.

Figure 13.1: Precedent Built Form Images

14.0 Sustainability

- The design is focussed on provision of simple, passive strategies to reduce energy consumption and maximise sustainability. These passive strategies would be supplemented with building systems to further reduce ongoing resource use.
- Apartments have been planned to provide a good level of cross ventilation above SEPP 65 minimum standard requirements. Many of the apartments will have dual frontages which will provide improved daylight penetration and cross ventilation.
- The majority of apartments have also been orientated to provide a good level of solar access in mid winter, providing passive heating and daylight penetration during the winter months.
- The benchmark for the building design is to well exceed minimum BASIX requirements.

Issues to be considered during design development include:

Energy Use

- Coordination of glazing, thermal mass and surface reflectance.
- Provision of sun shading, insulation, low glare high performance glass.
- Use of light shelves, appropriate ceiling finishes, motion sensors and external time switch controls to reduce electric lighting usage.
- Incorporation of operable louvres where required.
- Carpark mechanical ventilation systems compliance with AS 1668 energy efficiency measures.

Water Use

- Best practice fixtures and fittings.
- Use of water tolerant plant species in public and communal open spaces.

Materials

- Use of materials and building elements that are recycled and recyclable.
- Use of timber or timber from responsibly managed forests.
- Selection of materials with levels of finish and quality to minimise ongoing maintenance requirements.
- Use of locally manufactured building materials where available.

Transport

- Provision of cyclist facilities.
- Provision of small car spaces in preferred locations.

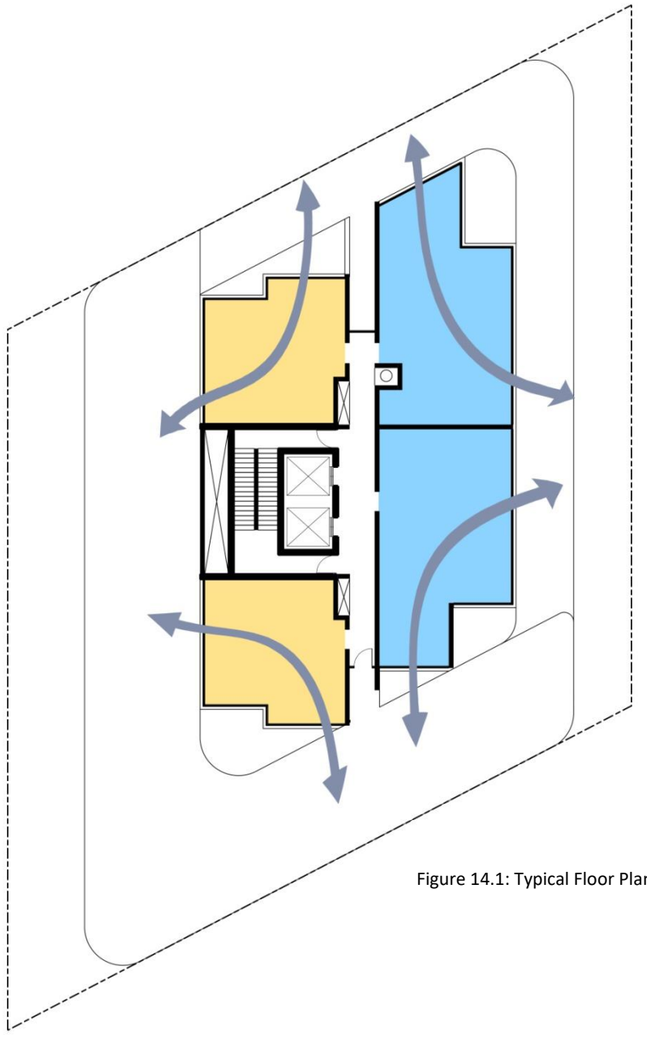


Figure 14.1: Typical Floor Plan – Cross Flow Ventilation

15.0 Reference Concept Design

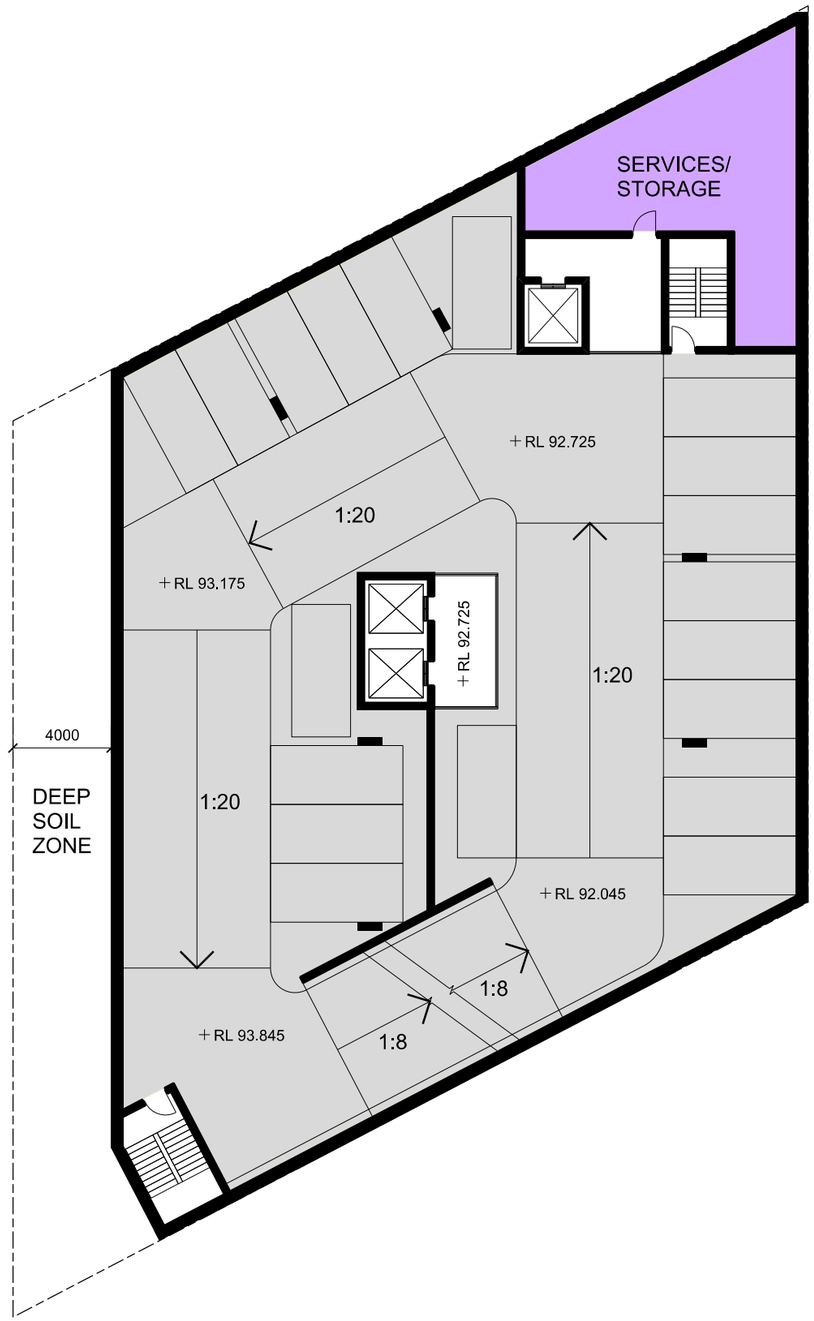
nominated architects: Rudi Valla BArch (Hons) nsw reg no 6582 Jon Pizey BArch nsw reg no 6567

dem

COLOR LEGEND

- COMMUNAL AREA MIN. 25% OF ENTIRE SITE
- PRIVATE OPEN SPACE
- COMMERCIAL/RETAIL
- SERVICES/LOADING STORAGE/PLANT ROOM
- 1 BEDROOM MIN. 50 SQM
- 2 BEDROOM MIN. 70 SQM
- 3 BEDROOM MIN. 90 SQM
- BASEMENT LEVEL

1 TYPICAL BASEMENT PLAN
SCALE 1:250



2 BASEMENT 2
SCALE 1:250

629 - 639 Pacific Highway Chatswood

Reference Concept Diagrams

date 08-03-18
scale 1:250
drwg no. arsk3001
proj no. 4445-00
rev no. -04

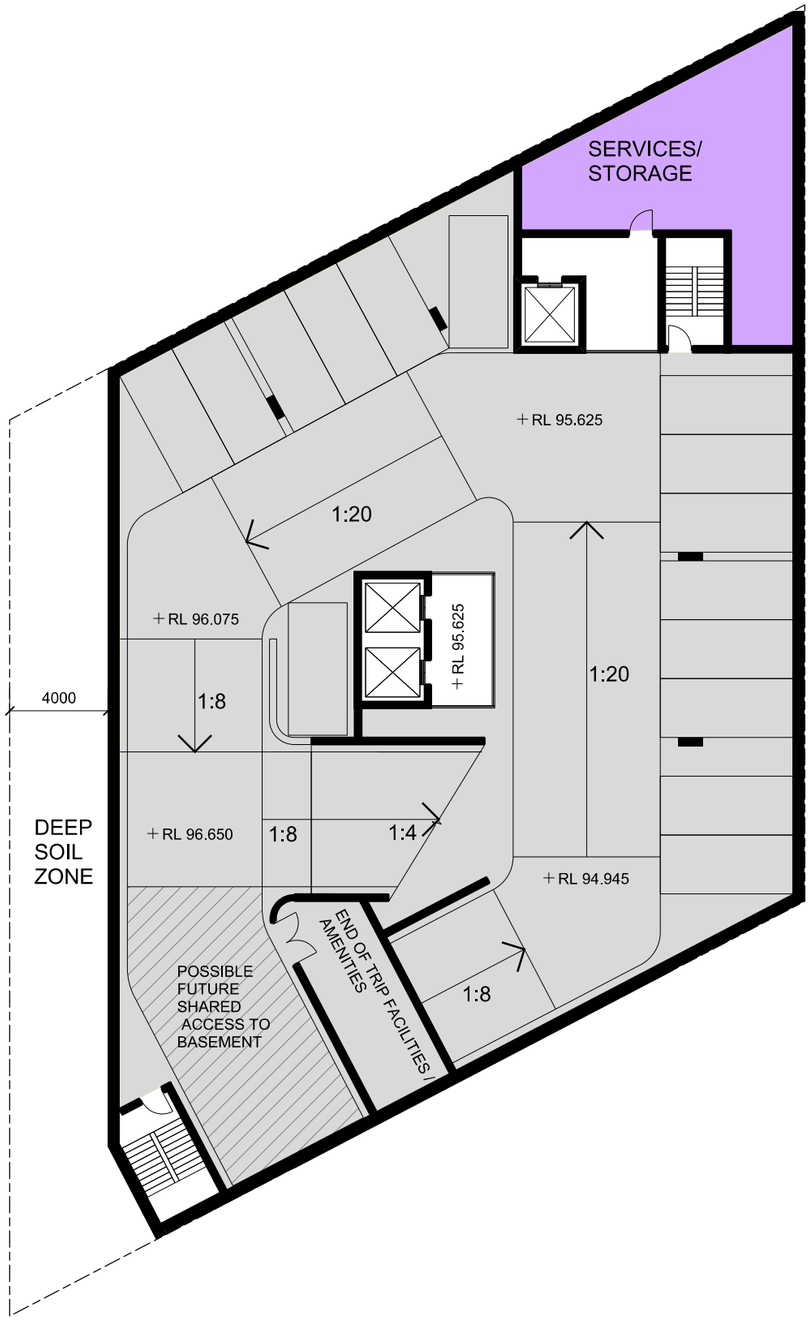
planning, urban design, architecture, landscape architecture, interior design
level 8 15 help street chatswood nsw 2067
t: (02) 8966 6000 f: (02) 8966 6111
e: sydney@dem.com.au

nominated architects: Rudi Valla BArch (Hons) nsw reg no 6582 Jon Pizey BArch nsw reg no 6567

dem

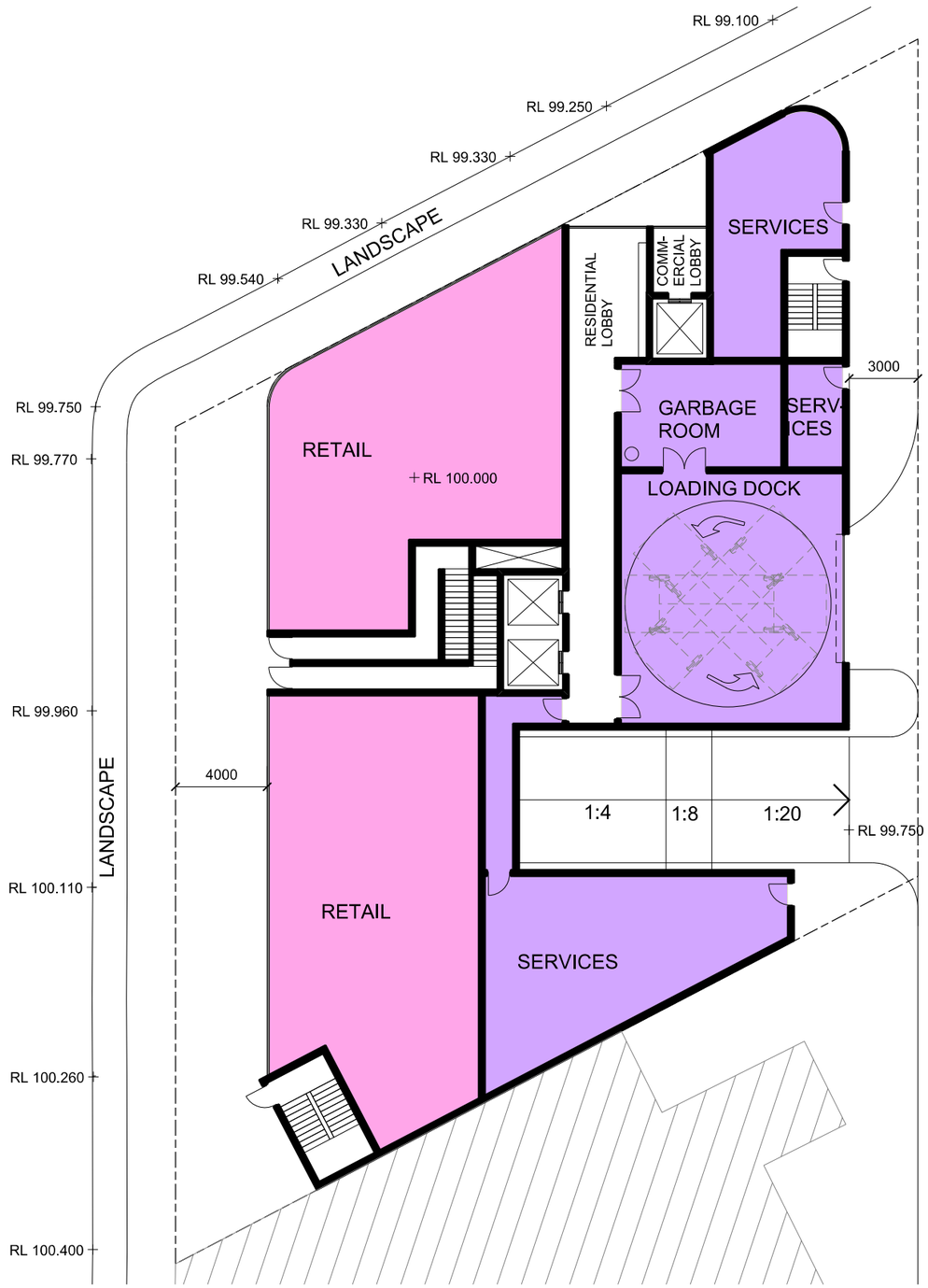
COLOR LEGEND

- COMMUNAL AREA MIN. 25% OF ENTIRE SITE
- PRIVATE OPEN SPACE
- COMMERCIAL/RETAIL
- SERVICES/LOADING STORAGE/PLANT ROOM
- 1 BEDROOM MIN. 50 SQM
- 2 BEDROOM MIN. 70 SQM
- 3 BEDROOM MIN. 90 SQM
- BASEMENT LEVEL



1 BASEMENT 1

SCALE 1:250



2 GROUND FLOOR / LEVEL 1

SCALE 1:250

629 - 639 Pacific Highway Chatswood

Reference Concept Diagrams

plotted: 08/03/18 plotted by: ETang

date 08-03-18
scale 1:250
drwg no. arsk3002
proj no. 4445-00
rev no. -04

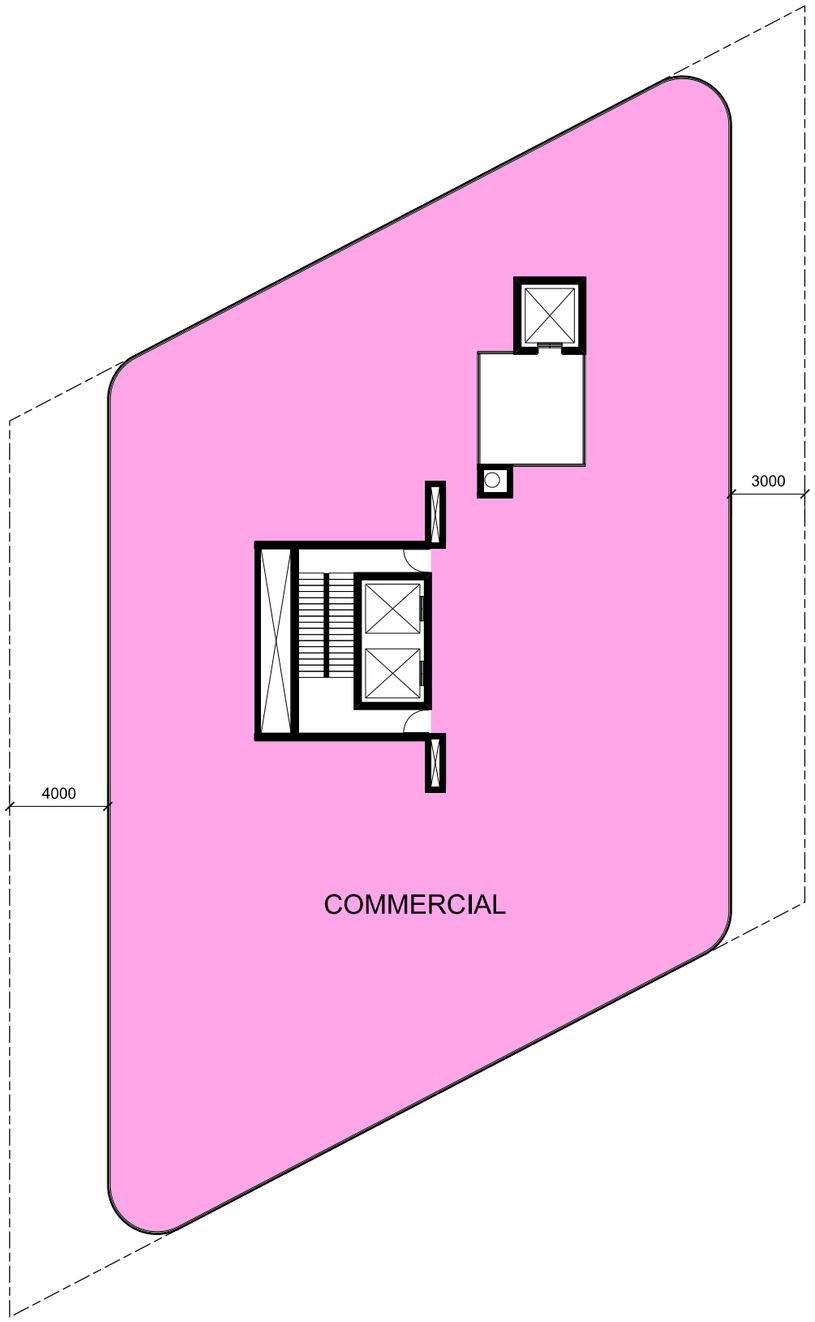
planning, urban design, architecture, landscape architecture, interior design
level 8 15 help street chatswood nsw 2067
t: (02) 8966 6000 f: (02) 8966 6111
e: sydney@dem.com.au

nominated architects: Rudi Valla BArch (Hons) nsw reg no 6582 Jon Pizey BArch nsw reg no 6567

dem

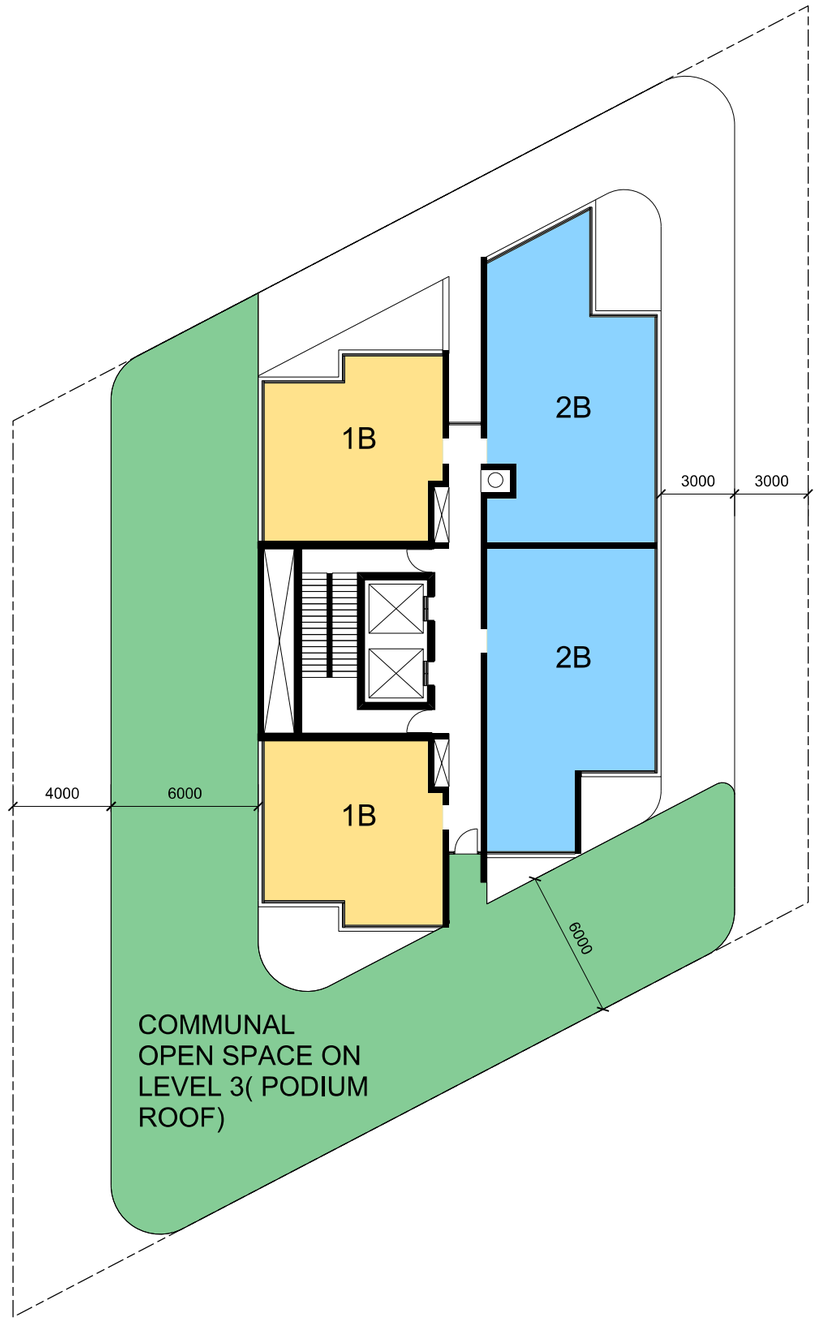
COLOR LEGEND

- COMMUNAL AREA MIN. 25% OF ENTIRE SITE
- PRIVATE OPEN SPACE
- COMMERCIAL/RETAIL
- SERVICES/LOADING STORAGE/PLANT ROOM
- 1 BEDROOM MIN. 50 SQM
- 2 BEDROOM MIN. 70 SQM
- 3 BEDROOM MIN. 90 SQM
- BASEMENT LEVEL



1 LEVEL 2 FLOOR PLAN

SCALE 1:250



2 TYPICAL FLOOR PLAN L3-L13

SCALE 1:250

629 - 639 Pacific Highway Chatswood

Reference Concept Diagrams

date 08-03-18
scale 1:250
drwg no. arsk3003
proj no. 4445-00
rev no. -04

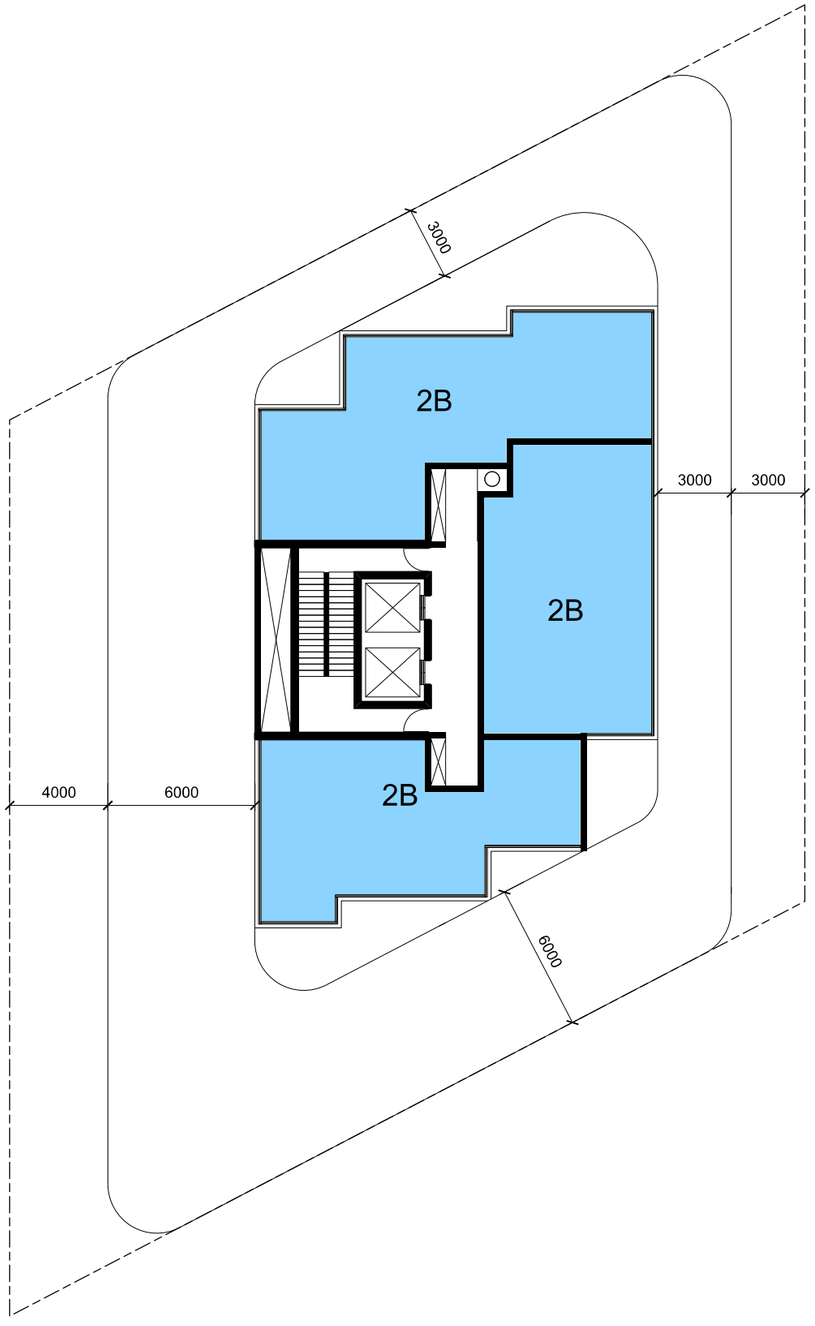
planning, urban design, architecture, landscape architecture, interior design
level 8 15 help street chatswood nsw 2067
t: (02) 8966 6000 f: (02) 8966 6111
e: sydney@dem.com.au

nominated architects: Rudi Valla BArch (Hons) nsw reg no 6582 Jon Pizey BArch nsw reg no 6567

dem

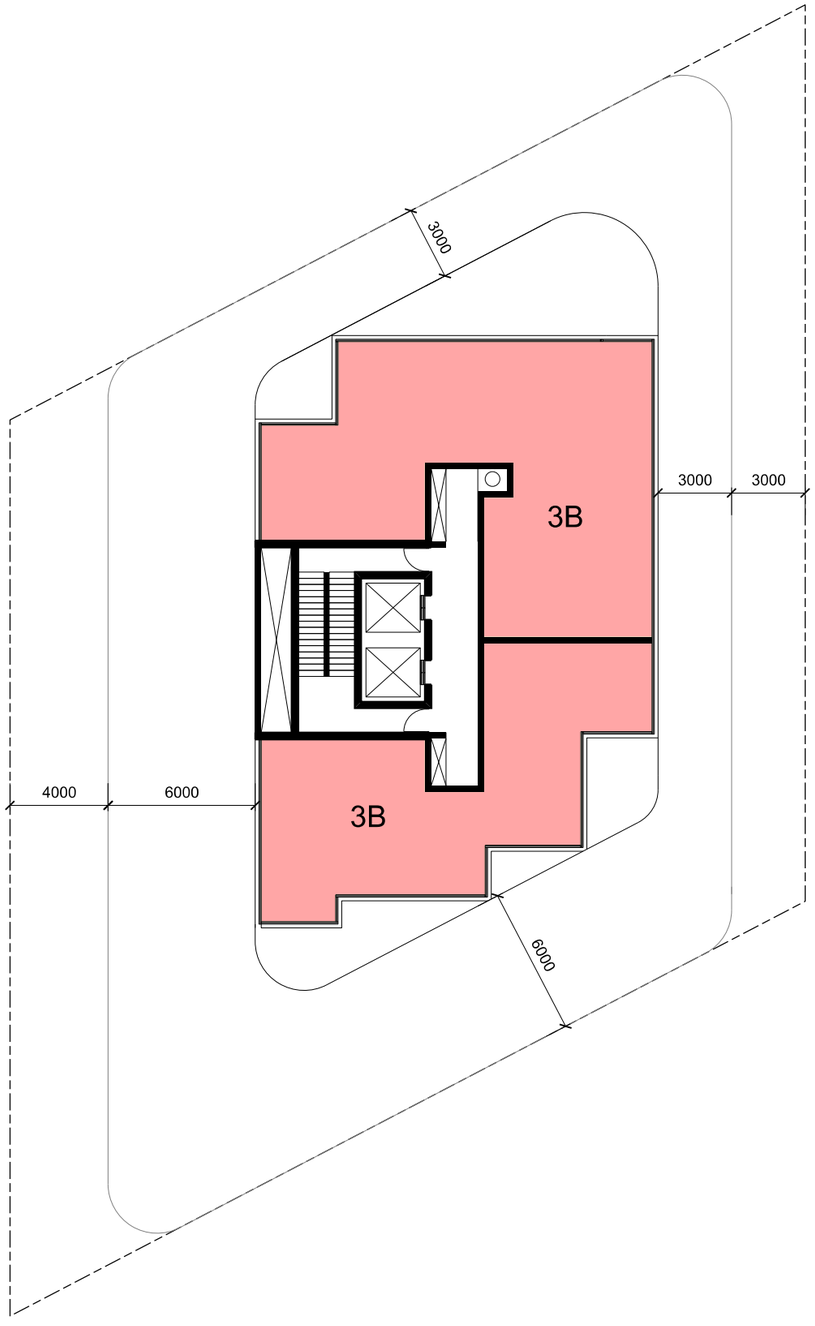
COLOR LEGEND

- COMMUNAL AREA MIN. 25% OF ENTIRE SITE
- PRIVATE OPEN SPACE
- COMMERCIAL/RETAIL
- SERVICES/LOADING STORAGE/PLANT ROOM
- 1 BEDROOM MIN. 50 SQM
- 2 BEDROOM MIN. 70 SQM
- 3 BEDROOM MIN. 90 SQM
- BASEMENT LEVEL



1 TYPICAL FLOOR PLAN L15-L25, Plant Room On L14

SCALE 1:250



2 TYPICAL FLOOR PLAN L26&L27

SCALE 1:250

629 - 639 Pacific Highway Chatswood

Reference Concept Diagrams

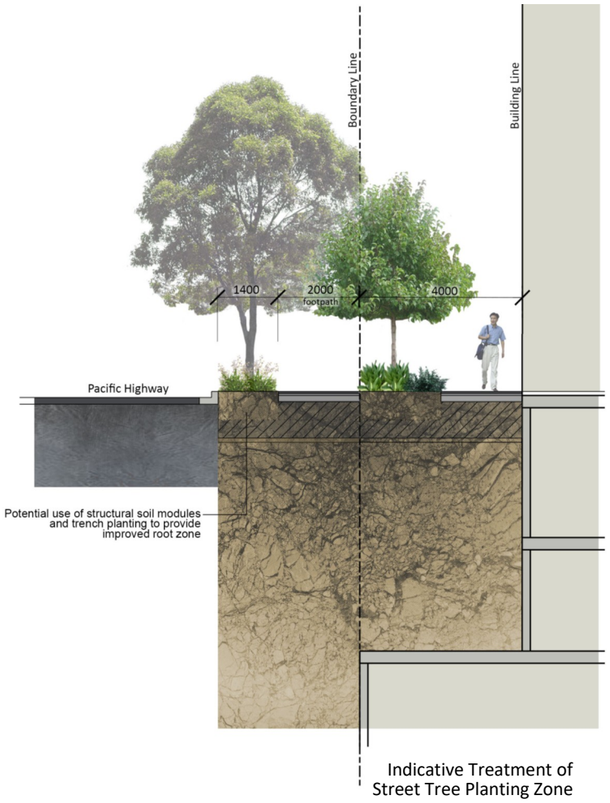
date 08-03-18 | scale 1:250 | drwg no. arsk3004 | proj no. 4445-00 | rev no. -04

planning, urban design, architecture, landscape architecture, interior design
level 8 15 help street chatswood nsw 2067
t: (02) 8966 6000 f: (02) 8966 6111
e: sydney@dem.com.au

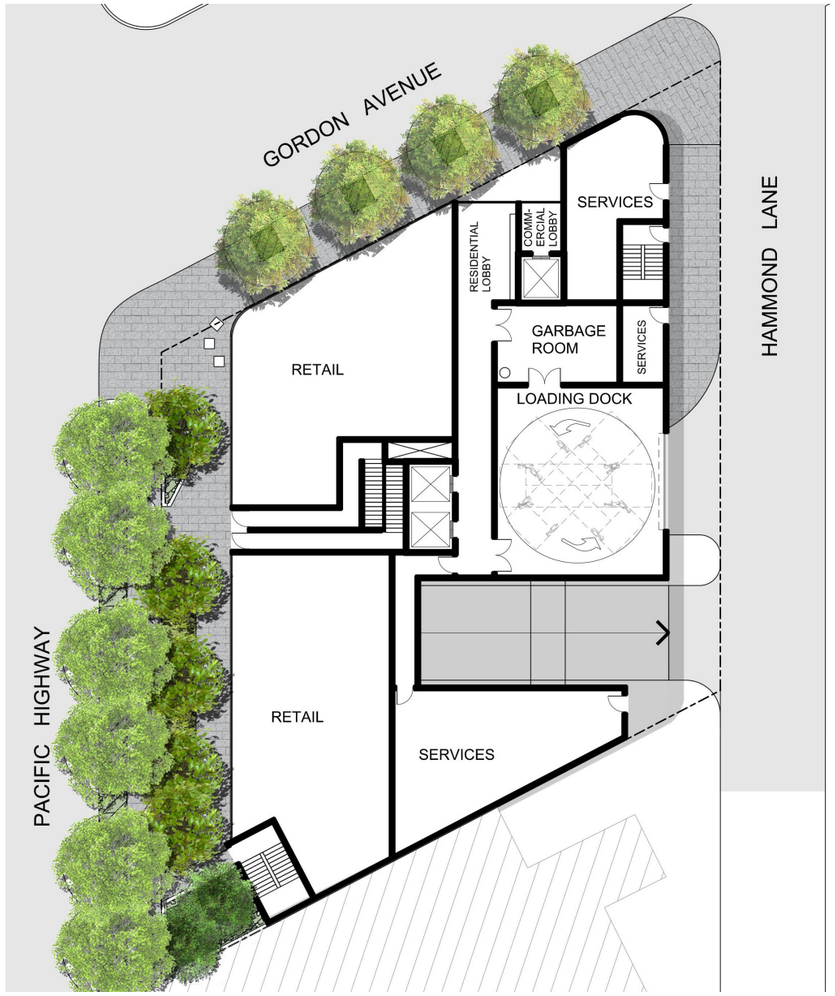
nominated architects: Rudi Valla BArch (hons) nsw reg no 6582 Jon Pizey BArch nsw reg no 6567

Landscape open space associated with the proposed tower incorporates the ground level public realm and roof gardens and features the following elements:

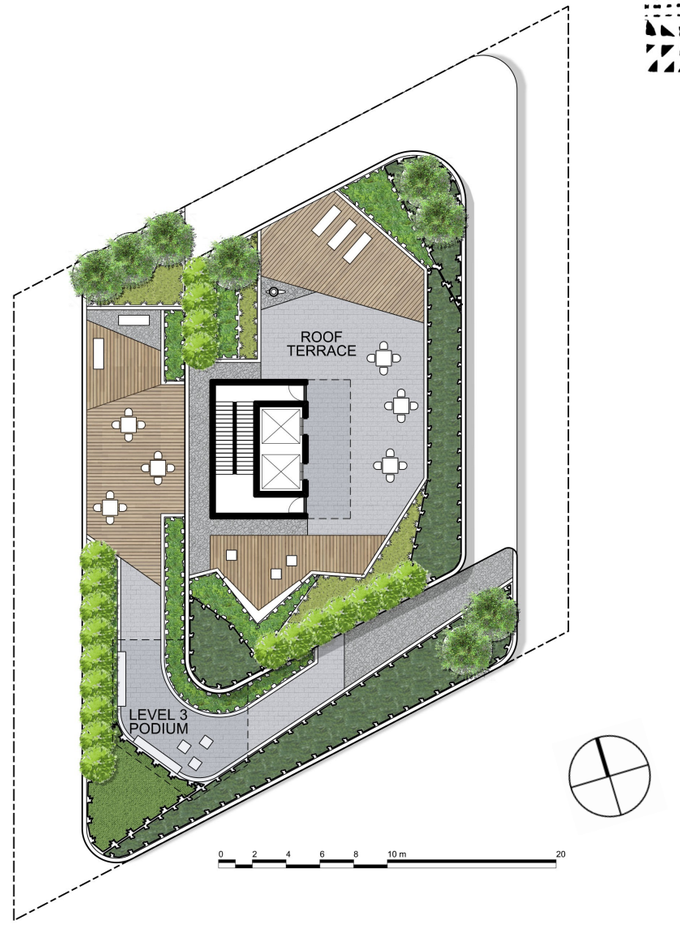
- A planted buffer along the Pacific Highway to reinforce the 'greening' of Chatswood CBD and provide increased amenity to the ground level retail and lobby.
- A permeable street frontage providing safe, legible access to the building.
- Outdoor spaces for passive recreation and social interaction on the roof terrace and Level 3 podium.
- Roof and podium planting to provide enhanced amenity and outlook.
- Screens on the roof and podium levels to provide wind protection.
- A simple, precise design vocabulary to reflect the qualities of the architectural design.
- A refined palette of high quality elements and material to support the Chatswood CBD identity.



Indicative Treatment of Street Tree Planting Zone



Ground Level



Podium and Roof Level

629 - 639 Pacific Highway Chatswood

Illustrative Landscape Concept

date 20/12/17
scale nts
drwg no. lask0201
proj no. 4445-00
rev no. -01

planning, urban design, architecture, landscape architecture, interior design
level 8 15 help street chatswood nsw 2067
t: (02) 8966 6000 f: (02) 8966 6111
e: sydney@dem.com.au

Appendix A: Preliminary SEPP 65 Compliance Checklist

SEPP No. 65 – Apartment Design Guide
Schedule of Compliance

Revision: C Date: 05th Aug 2020

dem

Objective	Design Criteria	Complies	Comments
Part 3 Sitting Development			
3A Site Analysis			
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		YES	Refer to Urban Design Report submitted for details
3B Orientation			
3B - 1 Building types and layouts respond to the streetscape and site while optimising solar access within the development		YES	The subject site has 2 main street frontages and a rear lane frontage that allows main vehicular and services vehicle access without interfere the primary frontage of the development and public domain interface. At street level the proposed development provides primary retail opportunities combined with a prominent and legible street level residential lobby which will provide an active and vibrant street edge to the development site. Residential apartment typical floor plate design has been carefully thought through to maximise daylight access, natural ventilation and cross ventilation to individual units and well excess the minimum requirements under the SEPP.
3B - 2 Overshadowing of neighbouring properties is minimised during mid winter		YES	The proposed redevelopment respects and responds to the Chatswood CBD Planning and Urban Design Strategy's desired future character, scale and objectives. The overall building envelope has been formulated through detailed shadow & visual impact analysis studies and provides sufficient separation from existing properties to the eastern, southern and

Objective	Design Criteria	Complies	Comments
			northern side of the proposed development. Overshadowing impacts to adjacent properties are minimal and will not result in any property NOT receiving more than 2 hours of sunlight to its private open space and living room in mid-winter (Refer to Urban Design Report submitted for details). Overshadowing impacts to neighbouring properties will only improve once adjoining properties are developed in accordance with Council's new CBD strategy and zoning provisions and SEPP 65 ADG requirements.
3C Public Domain Interface			
3C - 1 Transition between private and public domain is achieved without compromising safety and security		YES	Open space has been designed to provide a hierarchy of areas and to provide privacy for residents, whilst maintaining an open area with clear sight lines within the communal areas. The differentiation between public and private open spaces has been incorporated into the project by way of building level separation, landscape zones at the interface of the public/private realm and selection of materials. The principle of passive surveillance has been incorporated into the planning of the development. Activation is ensured by way of positioning the main building entry with direct access off the pedestrian network and the main street frontage which enables visual interaction with the public domain. In addition the majority of living areas and balconies have been orientated to allow overlooking over pedestrian / public areas for passive surveillance.
3C - 2 Amenity of the public domain is retained and enhanced		YES	The existing context creates a mix of residential styles with a predominance of medium rise residential development in the local precinct within which the proposed development sits comfortably. The proposed design also creates the opportunity for improved

Objective	Design Criteria	Complies	Comments
			pedestrian acess along Gordon Avenue and Pacific Highway frontage. The new pedestrian foot path linkages and retail shop front area will provide convenient, safe and well activated pedestrian routes from the site to surrounding context, CBD and station precinct. The public domain network within the development is aimed to : • Integrate the new development with the mixed use surroundings whilst creating a sense of ownership for the site. • Provide a communal open space focus for the development that is easily accessible and incorporates sunny and shaded outdoor seating areas and gathering spaces. • Allow for surveillance of public and communal areas and provide open space that is well illuminated to promote a safe and secure environment. • Highlight entries into the new development and highly visible along the retail frontage. • Provide variety throughout the development to promote a sense of ownership for residents. • Provide visual interest when viewed from upper levels of the residential units and surrounding buildings. • Provide a mixed plant palette of indigenous trees and medium scaled feature plants to enhance the streetscape character.
3D Communal and Public Open Space			
3D - 1 An adequate area of communal open	1. Communal open space has a minimum area equal to 25% of the site.	YES	Two landscaped communal courtyard spaces have been provided at podium level and roof top level to provide articulation to the side

Objective	Design Criteria	Complies	Comments
space is provided to enhance residential amenity and to provide opportunities for landscaping	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 9 am and 3 pm on 21 June (mid winter)		boundaries, reduce the scale of the development adjacent neighbouring properties and to provide landscape screening. A communal courtyard has been provided along the southern boundary of the site to allow for landscape planting which will create a vegetation buffer to adjoining residential properties to the south. The primary communal open space area has been provided at the top of the building as a landscaped roof terrace which provides outstanding views and outlook to the Bushland view to the west/north and the city view to the east/south. Site Area = 1185 sqm (min 25% communal open space required = 296.25 sqm) Podium courtyards = 300 sqm Roof top courtyard = 250sqm Total = 550sqm (46.4%) More than 50% of the principle communal open space receives a minimum of 2 hours direct sun light between 9am and 3m in mid winter.
3D - 2 Communal open space is designed to allow for a range of activities, respond to site conditions and be attractive and inviting		YES	The communal open space on the ground floor on the northern side of the building allows seating areas below awning structure along the retail frontage. A mix of native evergreen and exotic deciduous trees provide a habitable space all year round. The communal courtyard on the podium to the south provides one metre of soil on slab with varying heights of shade tolerant plants, timber seating and green facade with climbers. BBQ facilities and lounge areas will be provided on the roof top garden with excellent views.
3D - 3		YES	All communal Open Spaces are fully accessible from common lift,

<table>
<tr><th>Objective</th><th>Design Criteria</th><th>Complies</th><th>Comments</th></tr>
<tr><td>Communal open space is designed to maximise safety</td><td></td><td></td><td>lobbies and community rooms. Visual privacy will be considered and allowed by way of acceptable landscape screening, differentiation in levels between the public and private zones, landscape screening and careful planning of the floor layout for the buildings pursuant to the provisions of SEPP 65.</td></tr>
<tr><td>3D - 4
Public open space, where provided, is responsive to the existing pattern and uses of the neighbourhood</td><td></td><td>YES</td><td>The communal area on the ground floor are fully accessible by the public and fully integrated with the Public Domain interface to ensure the retail frontage is highly visible and fully integrated with surrounding context.</td></tr>
<tr><td colspan="4">3E Deep Soil Zones</td></tr>
<tr><td>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</td><td>Deep soil zones are to meet the following minimum requirements:
<table>
<tr><th>Site Area</th><th>Min. Dimensions</th><th>Deep Soil Zone (% of site area)</th></tr>
<tr><td>< 650 sqm</td><td>N/A</td><td rowspan="4">7 %</td></tr>
<tr><td>650 - 1500 sqm</td><td>3m</td></tr>
<tr><td>>1500 sqm</td><td>6m</td></tr>
<tr><td>>1500 sqm with significant existing tree cover</td><td>6m</td></tr>
</table></td><td>N/A</td><td>The subject site is located within high density town center area and building typology has limitation and no space for deep soil at ground floor level.
However, street tree in pods and landscape planting on structures at podium level and roof garden level have been considered to ensure landscaping opportunities are maximised throughout the development.</td></tr>
<tr><td colspan="4">3F Visual Privacy</td></tr>
<tr><td>3F -1
Adequate building separation distances are shared equitably between neighbouring sites, to</td><td>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</td><td>YES</td><td>Refer to Urban Design Report for details.
Preferred Built Form Option / Reference Concept Design:
<u>Podium setback - L1(G) – L2</u></td></tr>
</table>

<table>
<tr><th>Objective</th><th>Design Criteria</th><th>Complies</th><th>Comments</th></tr>
<tr><td>achieve reasonable levels of external and internal visual privacy</td><td>as follows:<table><tr><td>Building Height</td><td>Habitable rooms & balconies</td><td>Non-habitable rooms</td></tr><tr><td>Up to 12m (4 storeys)</td><td>6m</td><td>3m</td></tr><tr><td>Up to 25m (5-8 storeys)</td><td>9m</td><td>4.5m</td></tr><tr><td>Over 25m (9+ storeys)</td><td>12m</td><td>6m</td></tr></table></td><td></td><td>4m setback from Pacific Highway
0m setback from Gordon Avenue
3m setback from Hammond Lane
<u>Building setback - L3 – L28</u>
10m setback from Pacific Highway
3m setback from Gordon Avenue
6m setback from Hammond Lane
6m rear setback</td></tr>
<tr><td>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</td><td></td><td>YES</td><td>The proposed built form provides maximum opportunities for day light and distance views from each units.
Communal open spaces are provided within setback area and on the roof to ensure a focus for the development that is easily accessible and incorporates sunny and shaded outdoor seating areas and gathering spaces with large tree canopy provided.
Surveillance of public and communal areas are considered and provide open space that is well illuminated to promote a safe and secure environment by providing a differentiation in levels between the public and private zones and using landscaping, screen fencing and Public/Communal Open Spaces, but retains desirable passive surveillance throughout the development where achievable.</td></tr>
<tr><td colspan="4">3G Pedestrian Access and Entries</td></tr>
<tr><td>3G-1
Building entries and pedestrian access connects to and addresses</td><td></td><td>YES</td><td>The proposed main building entry is located with direct access off the Pacific Highway/existing pedestrian network which enables visual interaction with the public domain and enhances street activation and security around the site.</td></tr>
</table>

Objective	Design Criteria	Complies	Comments
the public domain **3G-2** Access, entries and pathways are accessible and easy to identify **3G-3** Large sites provide pedestrian links for access to streets and connection to destinations			The proposed design also creates the opportunity for improved pedestrian acess along the Gordon Avenue frontage. The new pedestrian foot path linkages that will be created as part of the proposed development will provide convenient, safe and well activated pedestrian routes between Chatswood Town Centre and the site.
3H Vehicle Access			
3H-1 Vehicle access points are designed and located to achieve safety, minimise conflicts between pedestrians and vehicles and create high quality streetscapes		YES	The proposed vehicle car park entry is located at the rear Hammond Lane/south-east corner of the site to ensure less disruptive to primary street frontages, adequate vehicle clearance headroom and to minimise the length of the vehicular ramp into basement car park. The proposed loading bay is also located at the rear on ground floor to minimise conflict with pedestrian access and separate these vehicular zones from the main lobby entry and retail shop fronts to maintain high quality pedestrian oriented presentation from the primary street.
3J Bicycle and Car Parking			
3J-1 Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas **3J-2** Parking and facilities are provided for	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	YES, capable to comply subject to detail design at DA stage	The subject site is proposed to be rezoned from B5 - Business Development to Mixed Use zone under Chatswood CBD Planning and Urban Design Strategy 2016. The minimum car parking requirement in Metro Sub-Regional Centres for residents and visitors is set out in the Guide to Traffic Generating Developments (GTGD) as follow,

<table>
<tr><th>Objective</th><th>Design Criteria</th><th>Complies</th><th>Comments</th></tr>
<tr>
<td>other modes of transport

3J-3

Car park design and access is safe and secure

3J-4

Visual and environmental impacts of underground car parking are minimised .

3J-5

Visual and environmental impacts of on-grade car parking are minimised.

3J-6

Visual and environmental impacts of above ground enclosed car parking are minimised</td>
<td>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</td>
<td></td>
<td>
<table>
<tr><th></th><th>1B</th><th>2B</th><th>3B</th><th>Total</th></tr>
<tr><td>No.</td><td>22</td><td>55</td><td>4</td><td>81</td></tr>
<tr><td>Ratio</td><td>0.6</td><td>0.9</td><td>1.4</td><td></td></tr>
<tr><td>Require</td><td>13.2</td><td>49.5</td><td>5.6</td><td>64.6</td></tr>
<tr><td>Visitor</td><td colspan="3">1 space per 5 dwellings</td><td>16.2</td></tr>
<tr><td>Sub- Total</td><td colspan="3">For Residential</td><td>81</td></tr>
</table>
Proposed Parking Rate amendment under Chatswood CBD Strategic Transport Study as follow,
<table>
<tr><th></th><th>1B</th><th>2B</th><th>3B</th><th>Total</th></tr>
<tr><td>No.</td><td>22</td><td>55</td><td>4</td><td>81</td></tr>
<tr><td>Ratio</td><td>0.5</td><td>1</td><td>1</td><td></td></tr>
<tr><td>Require</td><td>11</td><td>55</td><td>4</td><td>70</td></tr>
<tr><td>Visitor</td><td colspan="3">1 space per 10 dwellings</td><td>8.1</td></tr>
<tr><td>Sub- Total</td><td colspan="3">For Residential</td><td>78.1</td></tr>
<tr><td>Retail (<1000m2)</td><td colspan="3">N/A</td><td>0</td></tr>
<tr><td>Commercial</td><td colspan="3">1 space per 400m2</td><td>1.1</td></tr>
<tr><td rowspan="2">Total</td><td colspan="3">With RMS rate</td><td>83</td></tr>
<tr><td colspan="3">With CCBD ST rate</td><td>80</td></tr>
</table>
4 levels of basement car park is anticipated in the final design, which can accommodate approx. 86 car spaces subject to further design development at DA stage.
</td>
</tr>
</table>

Part 4 Designing The Building

4A Solar and Daylight Access

4A-1 To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space	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. 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. 3. A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter.	YES	The fundamental urban design principles of passive surveillance, integrated/unified street character, good visual and open space amenity and building comfort have all been adopted when orientating the building and appartment layouts. Careful orientation and internal planning has been adopted to allow for excellent solar access, natural ventilation and avoid no direct sunlight units and overshadowing where possible. The building form and internal planning has been vigorously tested with 3D modelling and is documented in the Urban Design Report submitted together with the Planning Proposal Submission The design and orientation of apartments ensures that a minimum of 2 hours of solar access during the winter solstice hours of 9am to 3pm is received by at least 70% of the total number of units and kept the total of No Direct Sunlight units under 15% as pursuant to the requirements of SEPP65.

	Total
Solar Access (min 70%)	**70 / 81 (86.4%)**
No Direct Sun units (max 15%)	**0 (0%)**

4A-2 Daylight access is maximised where sunlight is limited		YES	The proposed built form with two primary street corner frontage achieves maximum opportunities in distance views and quality daylight to the majority of the units. Low height solid balustrades or glazed balustrades on balconies are proposed to maximise daylight penetration whilst maintaining privacy at lower levels.
4A-3		YES	Shading devices would be considered to some windows and

Design incorporates shading and glare control, particularly for warmer months			balconies to ensure that undesirable midday summer sun is screened without compromising the outlook viewing from apartments.

4B Natural Ventilation			
4B-1 All habitable rooms are naturally ventilated		YES	The propsoed built form maximises capture and use of prevailing breezes for natural ventilation in habitable rooms. All windows provided to habitable rooms are at least 5% of the floor area which they serve.
4B-2 The layout and design of single aspect apartments maximises natural ventilation		YES	The majority of the apartments are at least dual aspect apartments, which allows air flow through windows on opposite walls.
4B-3 The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents	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 2. Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line	YES	Over 60% of units in the development have been designed to provide natural cross flow ventilation through windows provided on opposite walls **Cross Ventilated Units** — **70 / 81 (86.4%)** Cross-ventilated apartments are limited to 8m in depth measured from glass line to glass line as shown in the Reference Concept Design.

4C Ceiling Height

4C-1

Ceiling height achieves sufficient natural ventilation and daylight access

4C-2

Ceiling height increases the sense of space in apartments and provides for well proportioned rooms

4C-3

Ceiling heights contribute to the flexibility of building use over the life of the building

Measured from finished floor level to finished ceiling level, minimum ceiling heights are:

Minimum ceiling height for apartment and mixed use buildings	
Habitable rooms	2.7m
Non-habitable rooms	2.4m
For 2 storey apartments	2.7m for main living area floor 2.4m for second floor, where its area does not exceed 50% of the apartment area
Attic spaces	1.8m at edge of the room with a 30 degree minimum ceiling slope
If located in mixed used areas	3.3m for ground and first floor to promote future flexibility of use

YES

The proposed minimum floor-to-floor height of 3.1m which will achieve the recommended 2.7m minimum for ceiling height in all habitable rooms and 2.4m minimum ceiling height in all non-habitable rooms.

The sizes of the living areas of the units ensure that these spaces are usable and comfortable, with plentiful natural light and airflow.

4D Apartment Size and Layout

4D-1

The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity

1. Apartments are required to have the following minimum internal areas:

Apartment Type	Min. Internal area
Studio	35 m2
1 bedroom	50 m2
2 bedroom	70 m2
3 bedroom	90 m2

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

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.

YES

There are total of 81 apartments proposed in the preferred concept option and broken down as follows:

Apartment Type	Area (m2)
1 Bedroom	50 - 60
2 Bedroom	70 - 85
3 Bedroom	90 - 110

All habitable rooms will have a window on external walls for daylight and natural ventilation. The area of the windows will be at least 10m2 of the floor area of the room it served.

4D-2

Environmental performance of the apartment is maximised

1. Habitable room depths are limited to a maximum of 2.5 x the ceiling height
2. In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m

YES

All single aspect units have a maximum habitable room depth of 8m from a window with a common ceiling height of 2.7m.

<table>
<tr><td></td><td>from a window</td><td></td><td></td></tr>
<tr><td>4D-3
Apartment layouts are designed to accommodate a variety of household activities and needs</td><td>1. Master bedrooms have a minimum area of 10m2 and other bedrooms 9m2 (excluding wardrobe space)
2. Bedrooms have a minimum dimension of 3m (excluding wardrobe space)
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
• The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts</td><td>YES</td><td>The bedrooms have been sized to allow for maximum flexibility when furnishing each apartment with a minimum dimension of 3m and a minimum are of 10sqm.
All living/dining area have a minimum dimension of 3.6m in width for 1 bedroom units and 4m for 2& 3 bedroom units.</td></tr>
<tr><td colspan="4">4E Private Open Space and Balcony</td></tr>
<tr><td>4E-1
Apartments provide appropriately sized private open space and balconies to enhance residential amenity
4E-2
Primary private open space and balconies are appropriately located to enhance liveability for residents
4E-3
Private open space and balcony design is integrated into and contributes to the overall architectural form and detail of the</td><td>1. All apartments are required to have primary balconies as follows:
<table><tr><th>Dwelling Type</th><th>Min. area</th><th>Min. Depth</th></tr><tr><td>Studio</td><td>4m2</td><td>N/A</td></tr><tr><td>1 Bedroom</td><td>8m2</td><td>2m</td></tr><tr><td>2 Bedroom</td><td>10m2</td><td>2m</td></tr><tr><td>3 Bedroom</td><td>12m2</td><td>2.4m</td></tr></table>The minimum balcony depth to be counted as contributing to the balcony area is 1m
2. For apartments at ground level or on a</td><td>YES</td><td>Each of the units, regardless of size, has been provided with a usable external balcony or terrace area associated with the living area. This ensures that the residents are able to enjoy the outdoor lifestyle and the interface between the inside and outside is seamless and fully accessible.
Balconies also assist in the casual surveillance of the Communal Open Space and the public streets without compromising the privacy of the residents.
The majority of the balconies have a northern, eastern and western aspect to ensure a high quality of daylight is received onto balconies and into associated living areas.
Balconies have been provided with a minimum size of 8m^2, 10m^2 and 12m^2 in all 1 bed, 2 bed and 3 bed units respectively.</td></tr>
</table>

building **4E-4** Private open space and balcony design maximises safety	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		
4F Common Circulation and Spaces			
4F-1 Common circulation spaces achieve good amenity and properly service the number of apartments **4F-2** Common circulation spaces promote safety and provide for social interaction between residents	The maximum number of apartments off a circulation core on a single level is eight For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40	YES	The design of internal lobbies and common circulation areas is provided with large breakout / glazed areas on lower levels which allow infiltration of natural light and ventilation into common lobby and common circulation areas. In addition, all common lobbies / corridors provide direct acess to landscaped Communal Open Spaces which provides an excellent level of activation, surveillance and security of these spaces. The proposed development has a maximum number of 4 units per common lobby on all levels.
4G Storage			
4G-1 Adequate, well designed storage is provided in each apartment **4G-2** Additional storage is conveniently located, accessible and nominated for individual apartments	In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided: Dwelling Type / Storage Size Volume Studio — 4 m3 1 bedroom — 6 m3 2 bedroom — 8 m3 3 bedroom — 10 m3 At least 50% of the required storage is to be located within the apartment.	YES, capable to comply subject to detail design at DA stage	All units will be provided with a linen cupboard within the unit and some units have additional storage space in the common storage area in the basement car park with an approx. 50/50 split.
4H Acoustic Privacy			
4H-1		YES,	The unit layout has consciously provided adequate separation

Noise transfer is minimised through the siting of buildings and building layout **4H-2** Noise impacts are mitigated within apartments through layout and acoustic treatments		capable to comply subject to detail design at DA stage	between bedrooms and living areas. Where possible, the design of the units has ensured that bedrooms adjoin bedrooms and living areas adjoin living areas. Internal planning also facilitates that each unit's service zones (kitchen, laundry and bathroom) generally backs against the service zones of the adjoining apartment to minimise services noise transfer between units. Entrance areas/kitchens have generally been located to shield units from lobby/lift areas. All common/party walls will be insulated to achieve sufficient acoustic rating where required. Discontinuous wall construction methodology will be incorporated where required between habitable and non-habitable area if necessary.
4J Noise and Pollution			
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-2** Appropriate noise shielding or attenuation techniques for the building design, construction and choice of materials are used to mitigate noise transmission		YES, capable to comply subject to detail design at DA stage	The proposed development is located off Pacific Highway which is one of the major arterial road in lower north-shore and linked up Chatswood CBD centre. The proposed recessed balcony design (particularly on the lower levels of the development) assists in reducing and mitigating noise transmission into the habitable rooms without compromising on daylight penetration. Appropriate type of glazing and facade construction and any mitigation measures will be used where required to ensure all units are acoustically shielded from noise transmission subject to detail assessment to be undertaken by qualified Acoustic Engineer.

<table>
<tr><td colspan="4">4K Apartment Mix</td></tr>
<tr><td>4K-1
A range of apartment types and sizes is provided to cater for different household types now and into the future

4K-2
The apartment mix is distributed to suitable locations within the building</td><td></td><td>YES</td><td>There are total of 81 apartments proposed in the preferred concept option with the following mix proposed,
<table><tr><td>Apartment Type</td><td>No. of Units</td><td>% of Total</td></tr><tr><td>1 Bedroom</td><td>22</td><td>27.2%</td></tr><tr><td>2 Bedroom</td><td>55</td><td>67.9%</td></tr><tr><td>3 Bedroom</td><td>4</td><td>4.9%</td></tr></table></td></tr>
<tr><td colspan="4">4L Ground Floor Apartments</td></tr>
<tr><td>4L-1
Street frontage activity is maximised where ground floor apartments are located

4L-2
Design of ground floor apartments delivers amenity and safety for residents</td><td></td><td>N/A</td><td>Primary and secondary street frontages will be utilised for retail with no ground floor apartments are proposed.</td></tr>
</table>

4M Facades			
4M-1 Building facades provide visual interest along the street while respecting the character of the local area **4M-2** Building functions are expressed by the facade		YES, capable to comply subject to detail design at DA stage	The overall building mass has been simplified to provide a contemporary and elegant building aesthetic that contribute to the future Chatswood CBD skyline. The building design adopts a defined podium and slim tower form that reduce the appearance of bulk and provides a simple elegant expression. The external treatment to the proposed development also give consideration to the interface between the public and private domains, e.g. the articulation of the street levels of the building with smaller more humanised-scaled elements and warmer colours ensure a better, more sensitive response to the public streetscape domain and character for the development. All building services will be integrated within the building or within the extent of balcony and facade treatment to avoid visual dominance of service elements from the streets.

4N Roof Design			
4N-1 Roof treatments are integrated into the building design and positively respond to the street **4N-2** Opportunities to use roof space for residential accommodation and open space are maximised **4N-3** Roof design incorporates sustainability features		YES	The roof design has been integrated with the proposed roof top communal area. The roof will be carefully designed to provide an attractive addition to Chatswood Town Centre skyline whilst facilitating recreational use by the building occupants. Shelter and weather protection to roof top seating areas will be provided and effectively maintain daylight access in winter and shading in summer. The contemporary roof design will further soften the building massing and create a visual interest from the surrounding streetscapes.
4O Landscape Design			
4O-1 *Landscape design is v*iable and sustainable **4O-2** Landscape design contributes to the streetscape and amenity		YES, capable to comply subject to detail design at DA stage	The landscape vision for the site includes: • Provision of private, communal and common open spaces which are clearly delineated through the use planting, fences / balustrades and varying site levels. • Incorporation of a mix of mainly indigenous / native vegetation and some exotic vegetation to contribute to biodiversity and solar performance. • Selection of drought tolerant indigenous, native and exotic plant species to minimise water use on the site. • Provision roof top garden/Communal Open Space to maximise usable outdoor space with excellent outlook and daylight opportunities.

4P Planting on Structures			
4P-1 Appropriate soil profiles are provided **4P-2** Plant growth is optimised with appropriate selection and maintenance **4P-3** Planting on structures contributes to the quality and amenity of communal and public open spaces		YES, capable to comply subject to detail design at DA stage	All planting areas within the project are located over concrete slabs (proposed basement carpark or apartments on podium levels). Each of the areas will be designed to maximise soil depth in each space for a variety different sizes of plants from groundcovers to trees. An automatic drip irrigation system will be used to irrigation all on slab areas, including private courtyards. Plant selection aims to be low water use, refer plant list on landscape drawings.

4Q Universal Design			
4Q-1 Universal design features are included in apartment design to promote flexible housing for all community members **4Q-2** A variety of apartments with adaptable designs are provided **4Q-3** Apartment layouts are flexible and accommodate a range of lifestyle needs		YES, capable to comply subject to detail design at DA stage	The units will be designed to Livable Housing Guideline with min 20% of units achieving silver level benchmark.
4R Adaptive Reuse			
4R-1 New additions to existing buildings are contemporary and complementary and enhance an area's identity and sense of place **4R-2** Adapted buildings provide residential amenity while not precluding future adaptive reuse		N/A	Due to the nature of the proposed new high density zoning of the site and the relatively commercial use of existing properties on the site, it is not feasible for the proposed development to contemplate and adaptive reuse of any existing buildings. All existing building on site will be demolished as part of early works.
4S Mixed Use			
4S-1 Mixed use developments are provided in appropriate locations and		YES	The subject site is located within the proposed Chatswood Town centre expansion area and Mixed used development is encouraged.

provide active street frontages that encourage pedestrian movement **4S-2** Residential levels of the building are integrated within the development, and safety and amenity is maximised for residents			The communal area on the ground floor are fully accessible by the public and fully integrated with the Public Domain interface to ensure the retail frontage is highly visible and fully integrated with surrounding context. The principle of passive surveillance has been incorporated into the planning of the development. Activation is ensured by way of positioning the main building entry with direct access off the pedestrian network and the main street frontage which enables visual interaction with the public domain. In addition the majority of living areas and balconies have been orientated to allow overlooking over pedestrian / public areas for passive surveillance.
4T Awnings and Signage			
4T-1 Awnings are well located and complement and integrate with the building design **4T-2** Signage responds to the context and desired streetscape character		YES, capable to comply subject to detail design at DA stage	An awning will be considered at main building entry and will be fully integrated into the building design to ensure that the main entry lobby entry is well defined and visible from the public domain. Signage will be low key in keeping with the residential nature of the building and will clearly provide the street address and building identification to assist in legibility.
4U Energy Efficiency			
4U-1 Development incorporates passive environmental design **4U-2** Development incorporates passive solar design to optimise heat storage in winter and reduce heat transfer in summer **4U-3**		YES, capable to comply subject to detail design at DA stage	The proposed design has maximised the building's orientation to allow for excellent solar access, natural ventilation, cross ventilation and minimise no direct sunlight units and overshadowing where possible. The building design will meet minimum BASIX requirements subject to detail design at the DA stage. The design and orientation of the units ensure that a minimum of 2 hours of solar access during the winter solstice hours of 9am to 3pm is received by at least 70% of the total number of units. All

Adequate natural ventilation minimises the need for mechanical ventilation			habitable rooms are naturally ventilated through external windows and a minimum of 60% of the units are cross ventilated either through windows proposed on opposite walls where possible.
4V Water Management and Conservation			
4V-1 Potable water use is minimised **4V-2** Urban stormwater is treated on site before being discharged to receiving waters **4V-3** Flood management systems are integrated into site design		YES, capable to comply subject to detail design at DA stage	Provision of a stormwater detention system will be proposed to control downstream flooding of stormwater system and improve the water quality of stormwater run-off. Rainwater collection system will be adopted for reuse on landscape irrigation. Urban stormwater will be treated on site before being discharged and flood management systems have been integrated into the site design where required subject to detail design by qualified Stormwater Design Consultant at the DA stage
4W Waste Management			
4W-1 Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents **4W-2** Domestic waste is minimised by providing safe and convenient source separation and recycling		YES, capable to comply subject to detail design at DA stage	Garbage room will be located on ground floor with direct access from the lobbies and to the designated loading dock for collection. General waste, recycle waste and organic waste bins will be provided in the main garbage room for residents.
4X Building Maintenance			
4X-1 Building design detail provides protection from weathering		YES, capable to comply	Robust, durable, low maintenance and long life span materials and finishes have been adopted to ensure minimal on-going building maintenance will be required.

4X-2 Systems and access enable ease of maintenance **4X-3** Material selection reduces ongoing maintenance costs		subject to detail design at DA stage	All service and equipment rooms are either located with easy access from lobbies and in sub-floor basement area or on the roof top.

Appendix B: Design Excellence Strategy

The Chatswood CBD Planning and Urban Design Strategy document identifies that Design Excellence and Building Sustainability is one of many controls.

- *Design excellence and building sustainability is to be required for all developments exceeding the base FSR based on the following processes:*
    - *Competitive designs for developments over 35m high.*
    - *A Design Review Panel for developments up to 35m high.*
- *To achieve design excellence, developments must achieve higher building sustainability standards.*
- *The Architects for design excellence schemes should be maintained through the DA process and can only be substituted with agreement of Council.*

Our proposed design excellence strategy is summarised as follows:

1. Establish a Design Review Panel

A design review panel would be established with members to include a:

- Willoughby Council representative with urban design qualification;
- Client Representative; and a
- Peer review architect/ urban designer.

2. Preparation of Design Concept Options

The client's nominated Architects would prepare the following:

- An extensive urban design analysis and visual assessment of the site and its surrounding context is to be undertaken before any design concept work is commenced.
- Preparation of three different concept design options for review and feedback from the Design Review Panel.

3. Design Review - Session 1

- The client's nominated Architects would present the urban design analysis, visual assessment and the three concept design options for review and feedback from the Design Review Panel.
- The preferred concept design will be selected for development of the DA approval submission.
- Involvement: Review Panel, Council DA key stakeholders: Traffic, Waste, Landscape, Urban Design, Public Domain etc
- Timeframe: Response in 14 days after review session.

4. Development and Refinement of Preferred Design Concept

- The client's nominated Architects would prepare the preferred design concept option to Pre DA level of documentation.
- Formulation of preliminary plans, elevations, facade details and 3D models.
- Formulation of preliminary materials and finishes boards.

5. Design Review - Session 2 (Pre-DA meeting)

- The client's nominated Architects would present the urban design analysis, visual assessment and the preferred concept design options for review and feedback from the Design Review Panel.
- Involvement: Review Panel, Council DA key stakeholders: Traffic, Waste, Landscape, Urban Design, Public Domain etc
- Timeframe: Response in 14 days after review session.

6. Lodge DA