SJB Architects

Design Integrity Panel
Design Evolution

634-652 High Street & 87-91 Union Road
Penrith
NSW 2750

We create spaces people love.
SJB is passionate about the possibilities of architecture, interiors, urban design and planning.
Let's collaborate.

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Prepared for
TOGA

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4 March 2020

We create amazing places

At SJB we believe that the future of the city is in generating a rich urban experience through the delivery of density and activity, facilitated by land uses, at various scales, designed for everyone.

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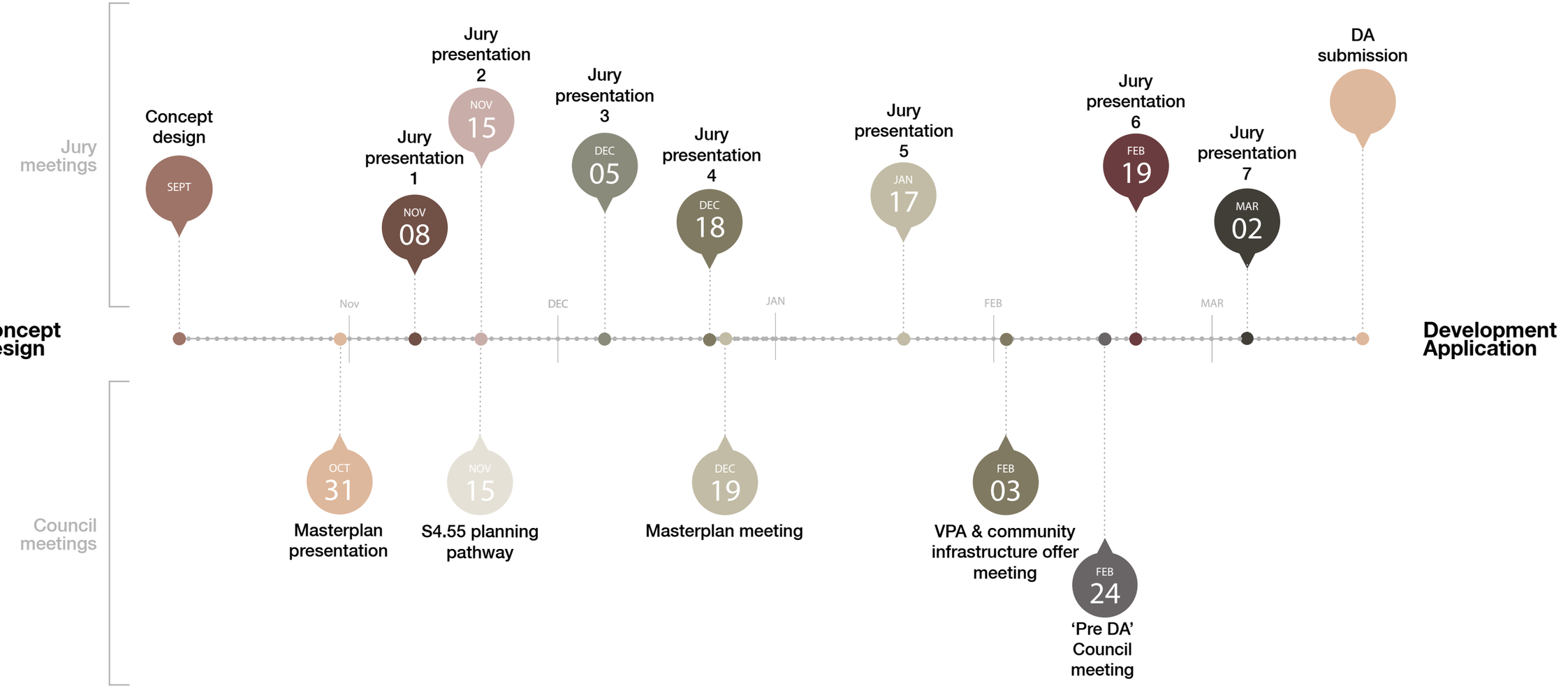
Jury meetings
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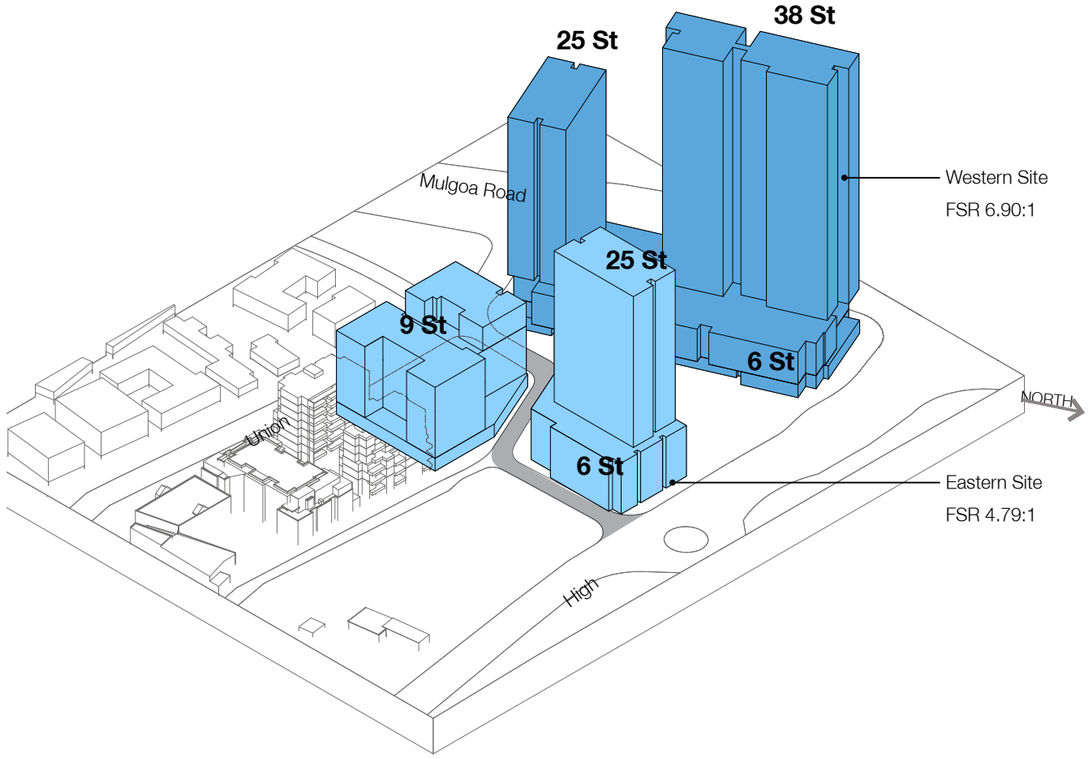
Design Integrity Panel Presentation 1

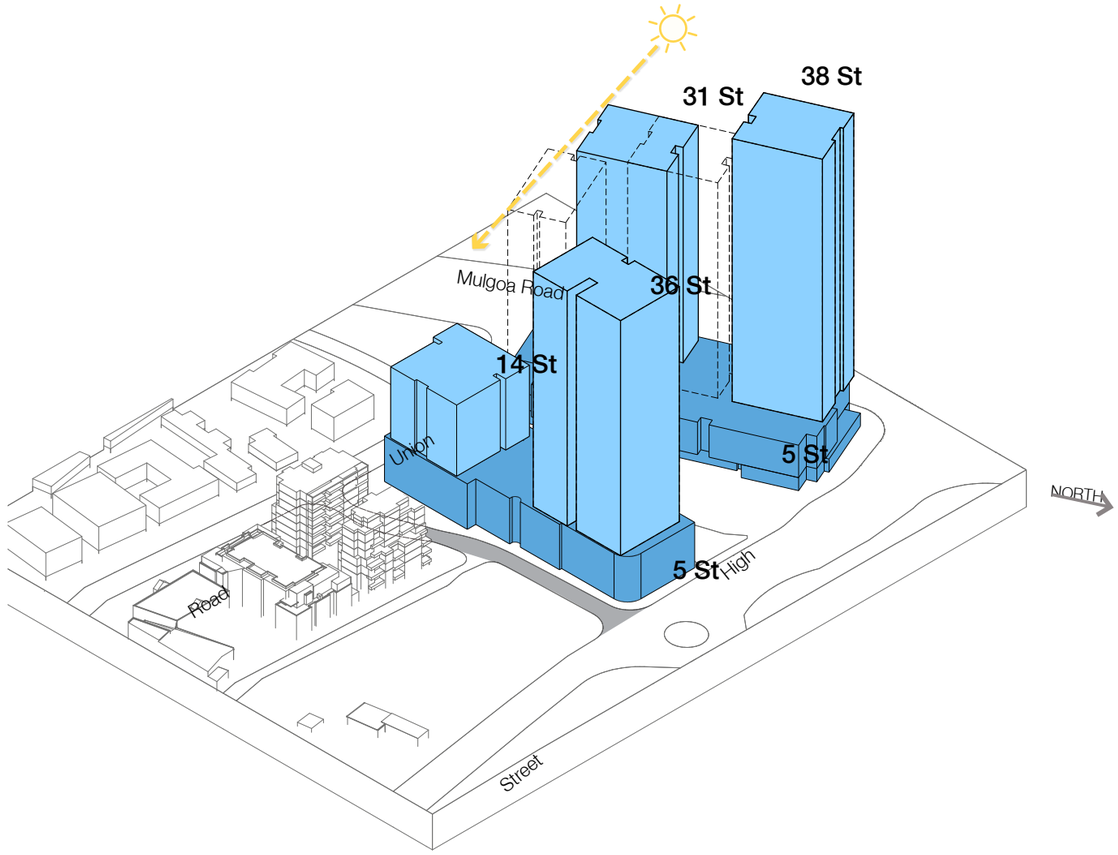
1

8 November 2019

FSR Distribution



Competition Scheme - Total FSR 6:1



Proposed massing - Redistributed GFA to achieve FSR 6:1 across both sites

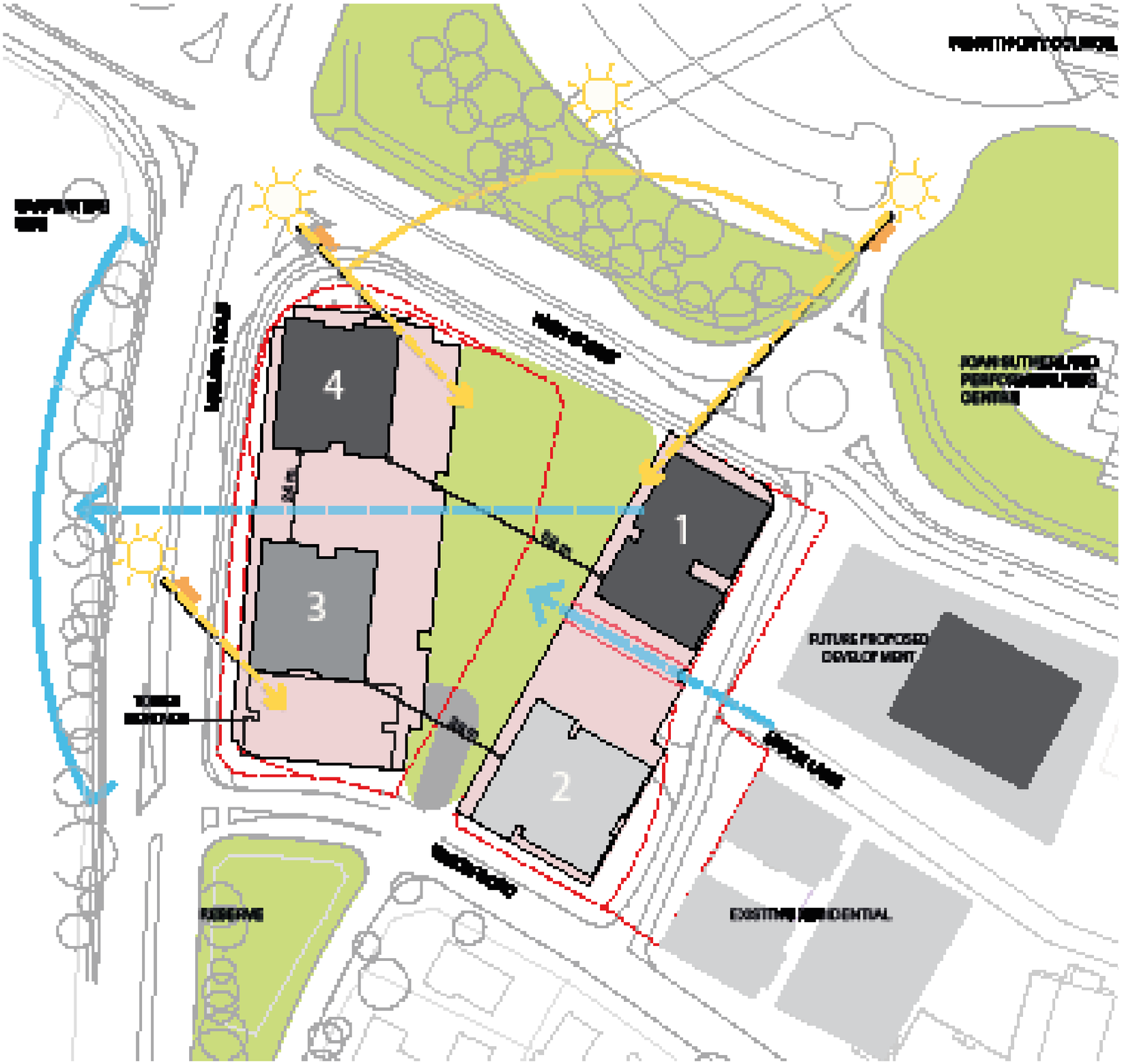
The proposed massing is in keeping with the original design principles and seeks to improve through the following:

- Podium - 5 storeys (reduced by 1 Level)
- Tower - 14 - 38 storeys
- Providing a series of tall slender tower forms
- Reduced to 4 tower forms
- Improved solar access
- Building seperation ADG compliant

Site analysis

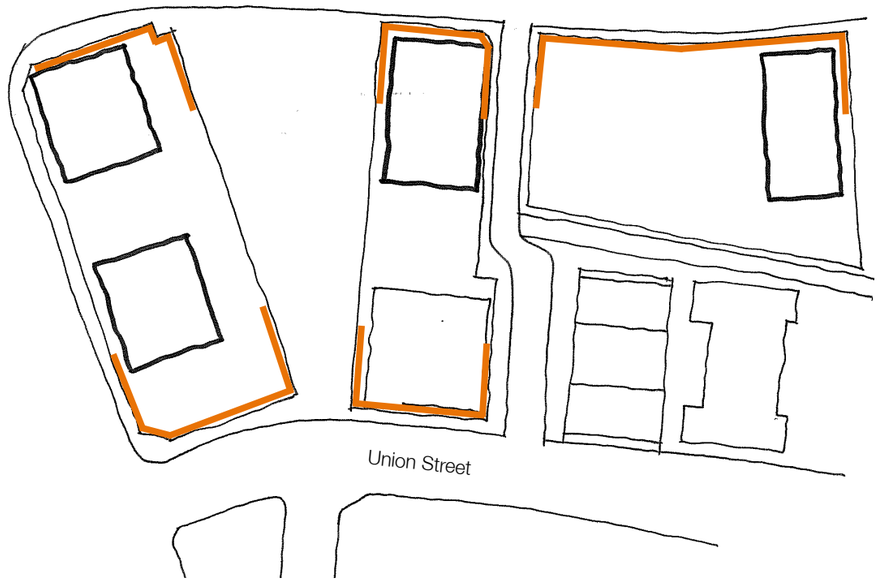
The placement of built forms is a result of considered and careful site analysis of the surrounding existing and proposed future context.

- Ensures a high degree of amenity throughout the public domain spaces
- Ensures a high degree of internal amenity to the occupants.
- Reinforces the importance of this key site to Penrith city's greater vision
- Improved views to Blue Mountains
- Increased tower setbacks along Union Road to improve solar access to the south
- Improved apartment amenity
- Relocated lane to the east increases the public open space

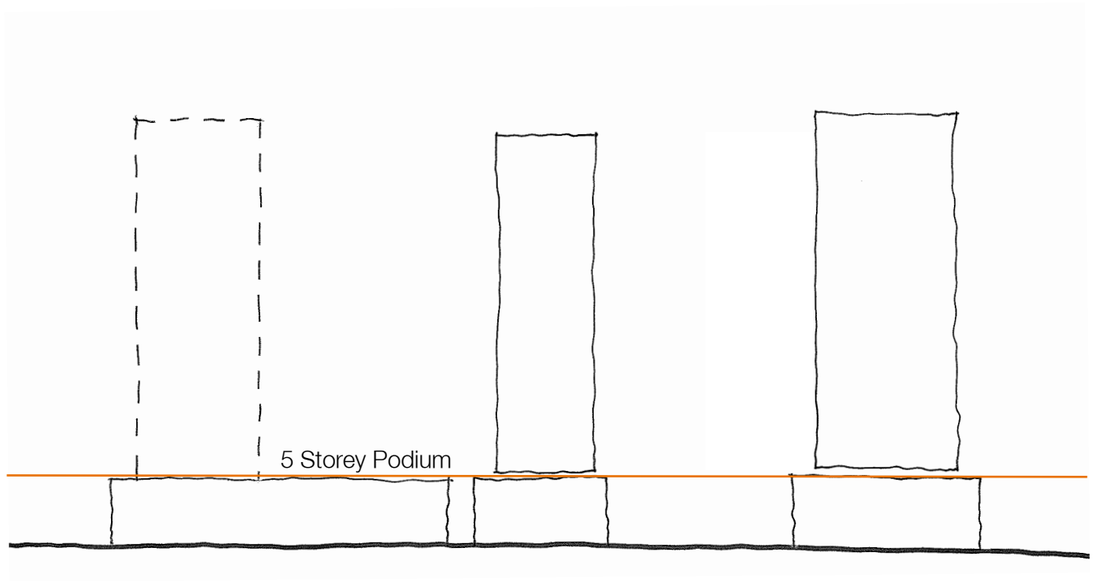


Tall Slander Towers Addressing High Street
Medium Rise Tower
Low Rise Tower
Podium

Podium and tower typology

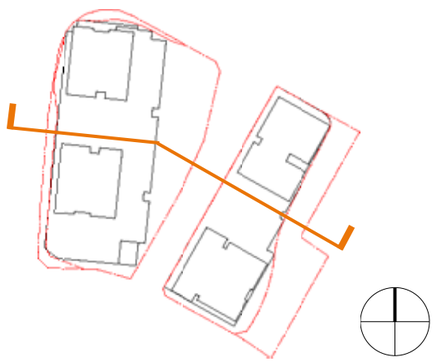


Defining Street Edges



High Street Elevation

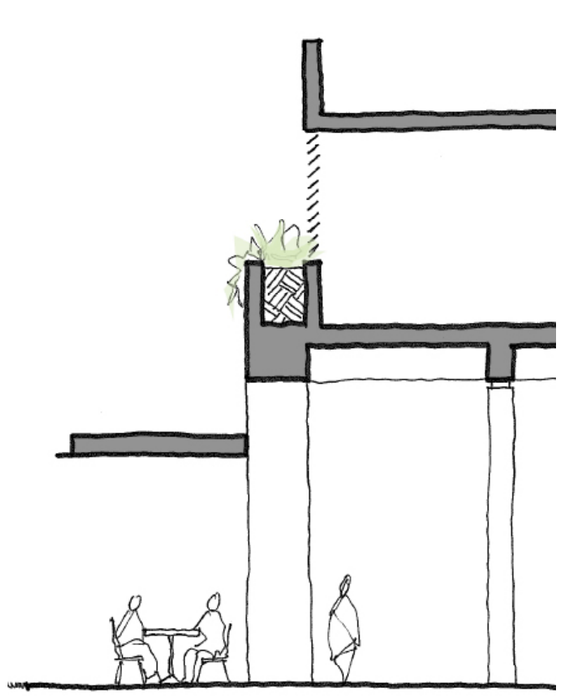
Built form relationship - site section



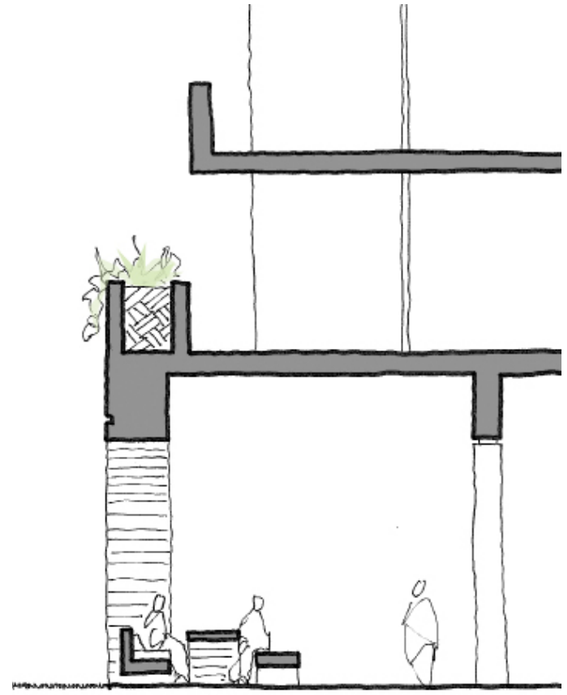
Competition design principles - podium

Podium built form principles are consistant with the competition scheme through the following:

- Active frontages to High Street and the park
- Covered outdoor retail spaces
- Entry points expressed
- Use of face brick to the ground level
- Integrated landscape solution



Section through verandah



Section through colannade

Podium proposed design

Design Integrity Panel Presentation 2

2

15 November 2019

Podium proposed design

D.I.P Comments

Following SJB's presentation on the 8.11.19 and subsequent podium renders issued on the 15.11.19, the Design Integrity Panel provided the following advice.

The panel supported:

- Rationale for 5 level podium subject to achieving a quality design solution.
- Requirement for additional parking levels to allow redistribution of 6:1 GFA between east and west portions of the Site
- Preliminary design concept for the open space public domain as part of an overall site masterplan including podium and towers.
- Introducing additional vertical planting elements to modulate podium elevations.

The panel recommended the following aspects of podium design be reconsidered:

- Design quality of podium more strongly reflect character of the original competition winning scheme.
- Spandrel panels be modulated to make space for planting behind them rather than appear as an attached planter box.
- High Street elevation and corners require more activation (similar to the approved DA where glazing was suggested with backlighting at night time).
- Make the upper level podium elevations more animated and less like car parking, using precedent examples as reference.
- Opportunities to visually connect the residential towers with the podium and through to ground level.

Design Integrity Panel Presentation 3

3

5 December 2019

Podium facade options

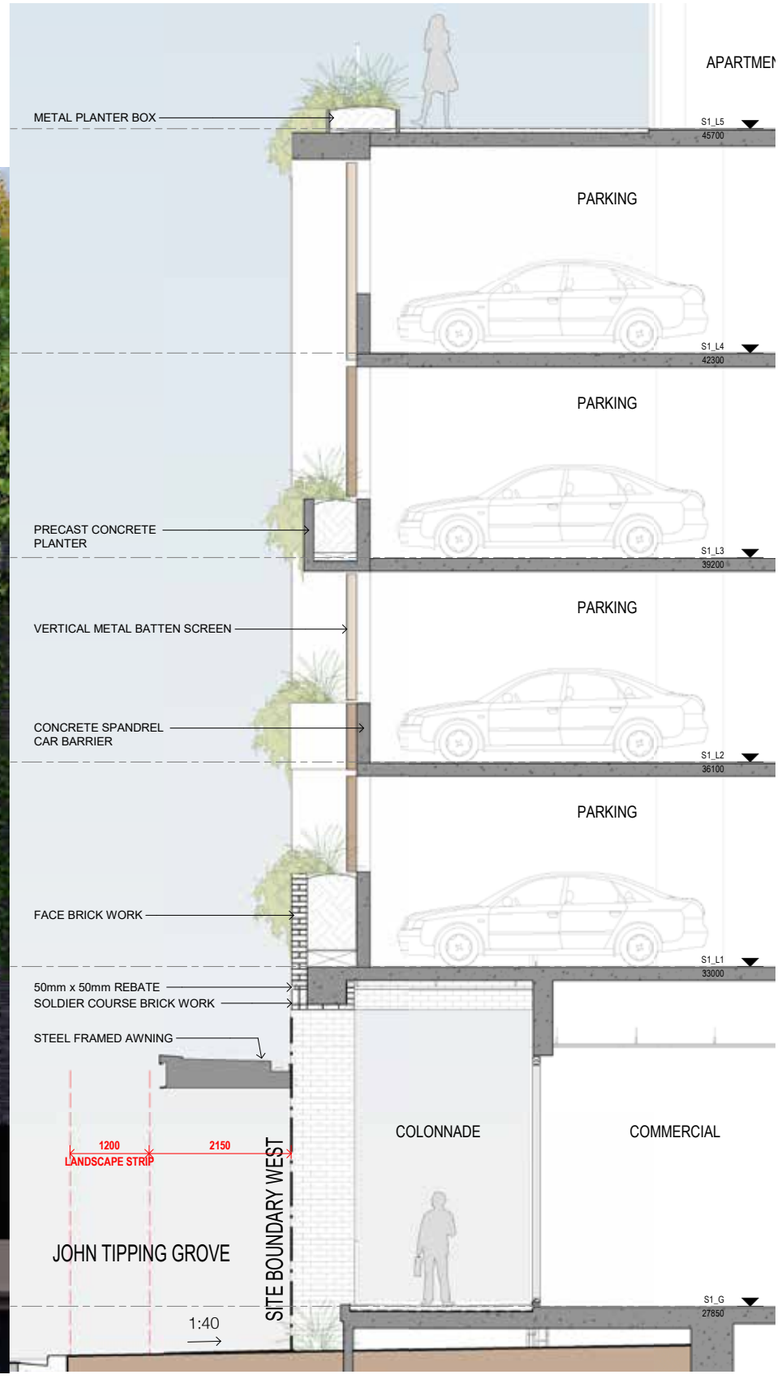
High Street & New Road corner options

Glazing

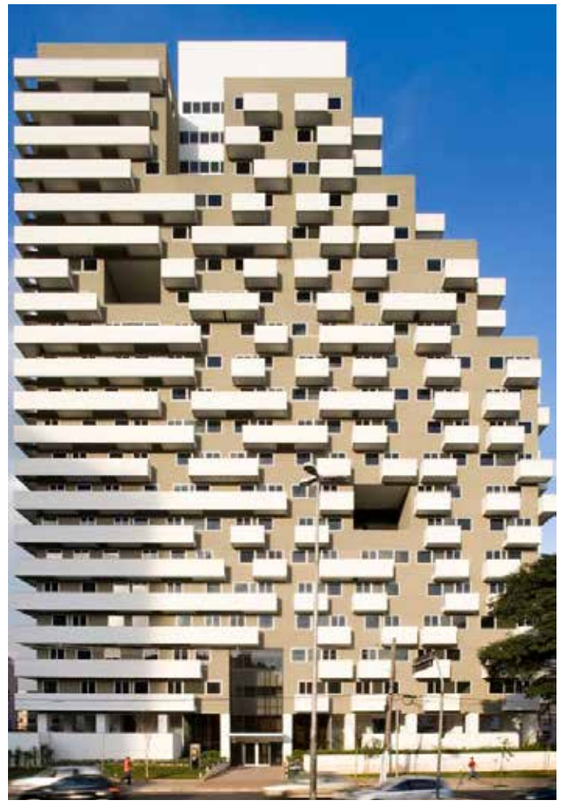
Planter boxes

Louvre screen

Podium detail



Competition design principles - Building 2



Building 2 proposed design

DA approved design

DA design applied to Building 2

Proposed Building 2 design

D.I.P Comments

The panel supported:

· The corner of High & New Street with similar treatment as rest of podium.
· Option A podium facade with white framing and design rhythm.
· Tower design with balconies filtering/ merging into screens as it rises.

The panel recommended the following aspects of podium design be reconsidered:

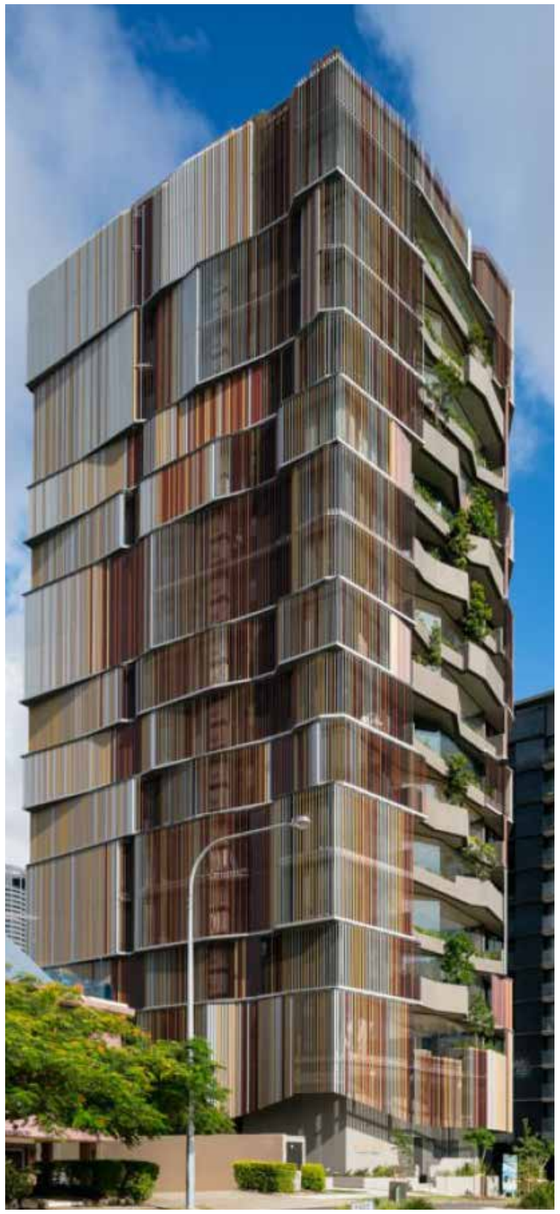
· Planter box expression.
· Reliance on the planter boxes as a primary element to the facade.
· Suitability of the vegetation.
· Ability to maintain and ongoing survival of the vegetation.

Design Integrity Panel Presentation 4

4

18 December 2019

Podium screening



Podium facade options

Option A1

Option A2

Podium facade options

Option A3

Option A4

D.I.P Comments

The panel supported the design and recommended the following aspects of podium design be reconsidered:

- Option A4 was preferred as it provided an articulated façade treatment, that incorporated the planter boxes within the façade, and appropriately breaks down the scale of the large podium.
- To consider this screening treatment to the remainder of the facades.
- To review the ‘balcony’ treatment to the corner of High St and John Tipping Grove in light of the new screening treatment. If ‘balcony’ is retained consider removing the corner column to further express the corner.
- Concern for amenity within carpark. Consider incorporating some openings or a louvre that allows views out from the carpark to provide relief for the users.
- Maintenance of planters to be considered. This may involve an opening or slot behind the planter which can provide access for maintenance. Access panels or doors not a preferred solution as they impede ease of access.
- Consider planter boxes on the inside of the screens so plants appear to come out from behind the screens, this will help with maintenance and shading the soil.
- Selection of plants on the podium to respond to the local climate – Black Beetle to provide a list of appropriate species inclusive of natives.
- Concern for the vertical landscaped slots and ability to provide the level of dense planting indicated, as well as ongoing maintenance. SJB and Black Beetle to further consider this treatment, cascading planting from the top of the podium maybe sufficient.
- Advised rainwater tanks proposed but no grey water recycling. Consideration should be given to the size of the tanks and ability to provide irrigation to all landscaped areas across the site particularly now that water restrictions are in place.
- The ‘cuts’ with the coloured reveals to be considered when viewed form both directions.
- Use of brickwork to the ground level and vertical slots seen to be working well.

Design Integrity Panel Presentation 5

5

17 January 2020

Podium facade refined

D.I.P Comments

The panel supported the design and recommended the following aspects of podium design be reconsidered:

- Consider strong/ clear way finding to residential tower foyers.
- Needs to meet communal space requirements for additional apartments.
- Provide typical 1:20 detailed sections of the screen fixing and planter box design, with a strategy for maintaining them.
- Present revised material/ colour samples.

Design Integrity Panel Presentation 6

6

19 February 2020

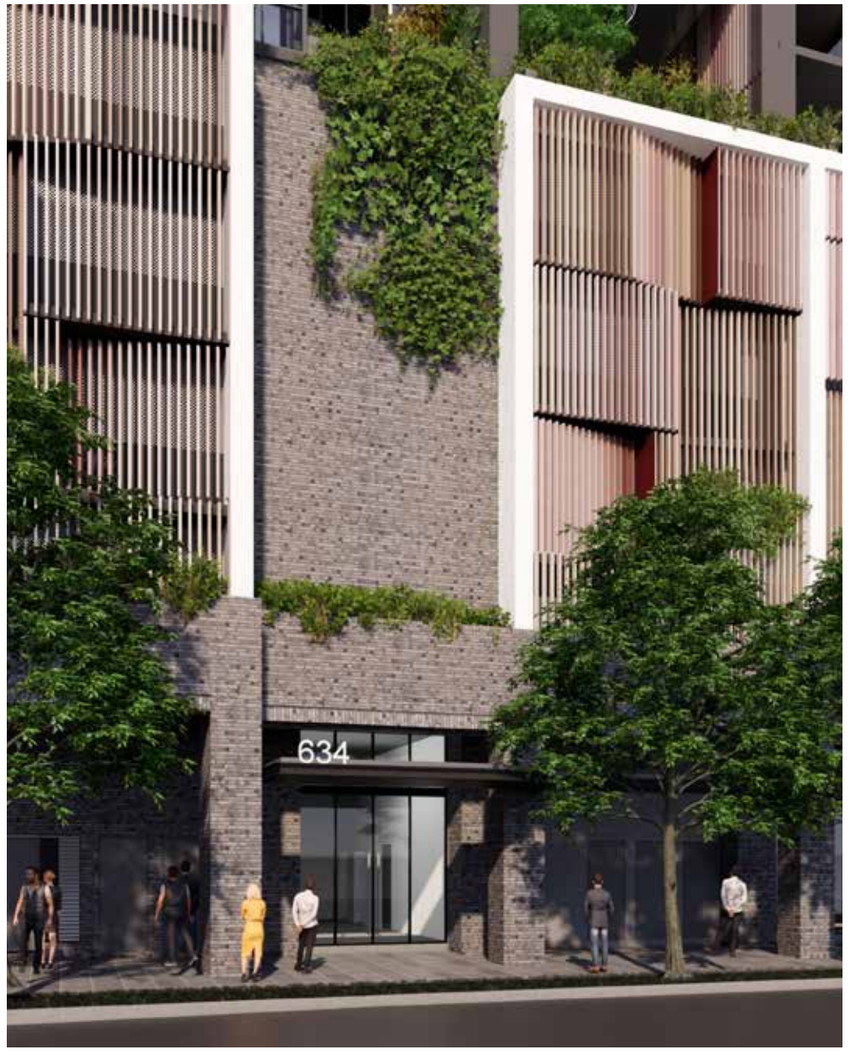
Residential foyers

The following has been amended to improve the identity to the street and amenity of the residential entries.

The residentail entries have an improved amenity and a stronger identity to the street through the following:

- Awnings have been added or extended infront of the lobby spaces.
- Street trees along New Road have been repositioned to relate to the building entry and provide a clear sight line from the street to the lobby.
- Street numbering is proposed to be integrated into the awning design.
- Lighting and building identification signage to be considered in the detailed design process.
- The use of a feature material to identify and differentiate from the rest of the facade.

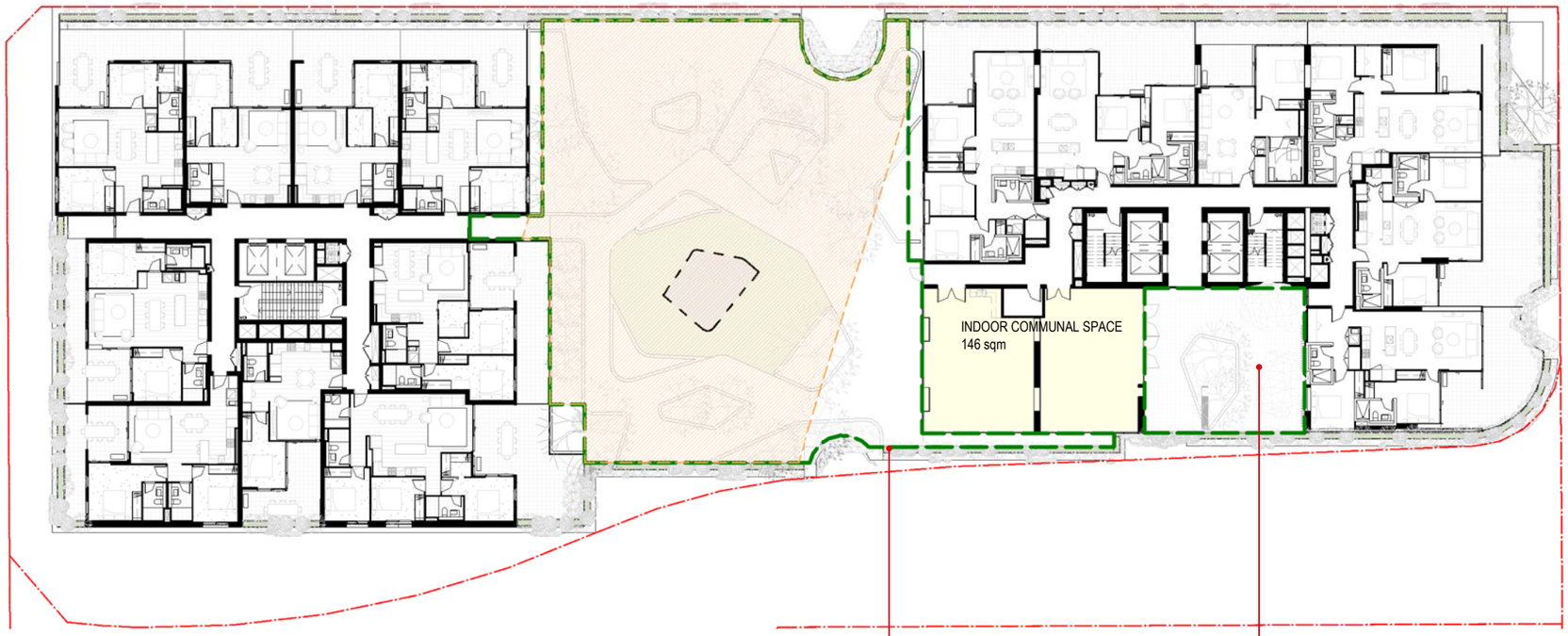
Union Road Entry



New Road Entry

Communal open space

Site Area	3,784m²
External Communal Space	
Level 5	873m²
Level 34	121m²
Internal Communal Space	146m²
Total Communal Open Space	**1,140m²**
Communal Open Space Required	25%
Communal Open Space Proposed	**30.1%**



Level 5 Podium Plan

External communal open space shown as green dash

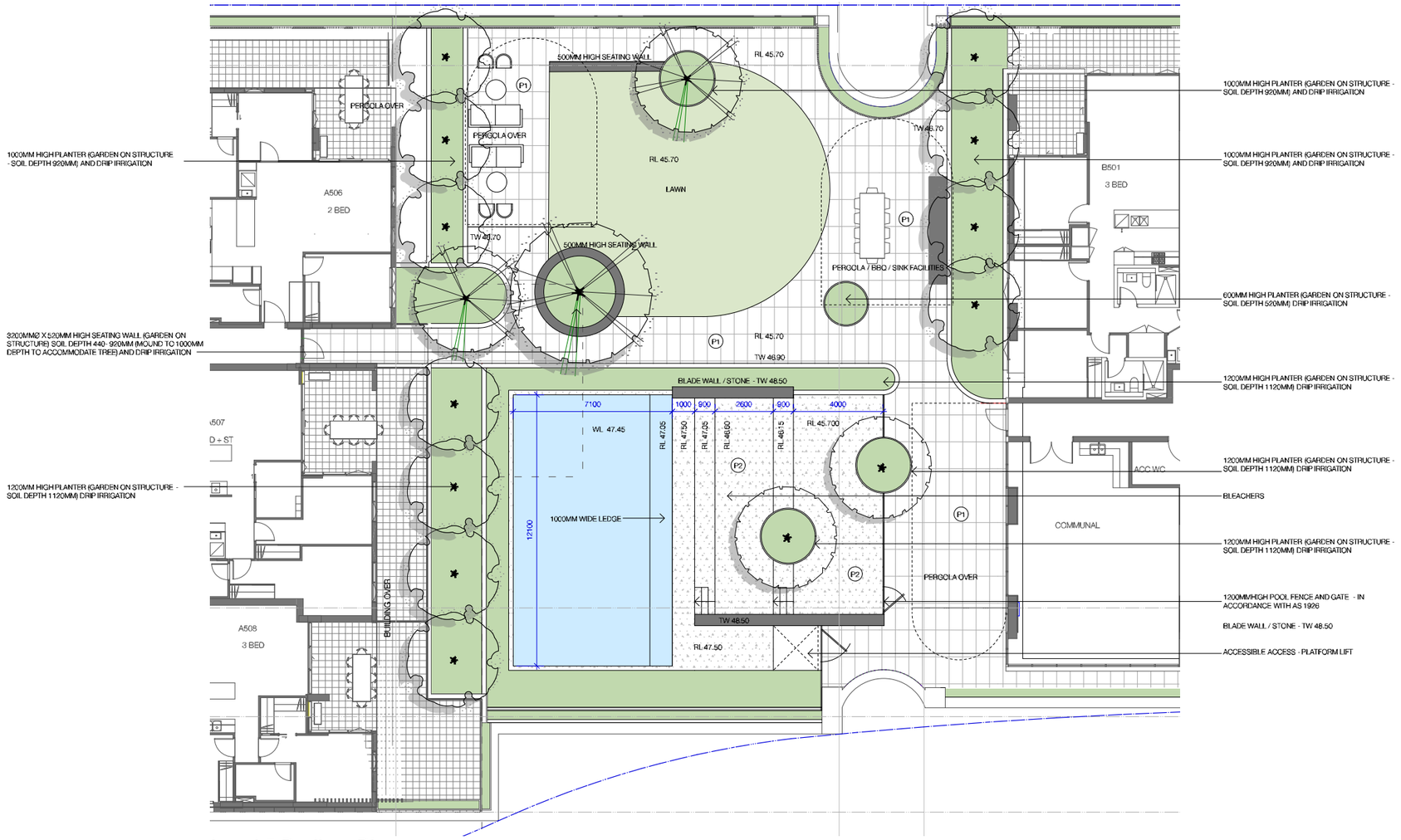
Additional 2 storey high covered area quiet space for activities associated with the gym such as yoga

Communal open space

The communal open space on the podium has been designed to accomodate a mix of passive and active uses that include a swimming pool, BBQ area, shaded seating, lawn area and a quiet space associated with the gym such as yoga.

An additional open space has been added on Level 34 of Building 2 that allows for passive actives for small groups.

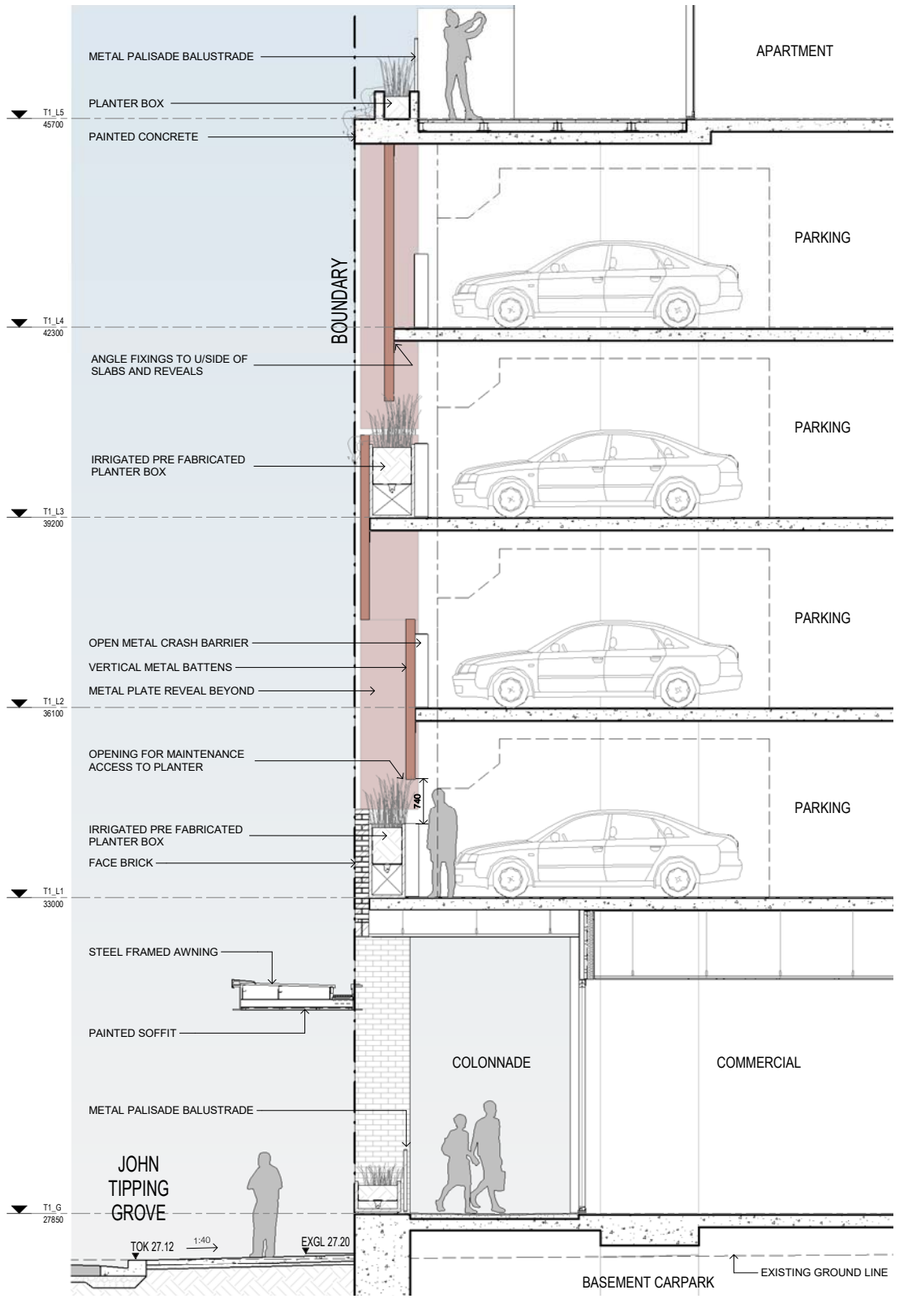
Level 34 Plan - Building 2



Level 5 Podium Plan

Podium facade detail

- Light weight pre fabricated planter boxes are proposed to be installed behind the batten screening.
- The batten screening stops approximately 750mm above the planter boxes to allow for maintenance access from within the carpark.
- The batten screening has a metal angle subframe that is fixed to the underside of the slabs and reveals.



External finishes

1. ALUMINUM FRAMED GLASS

2. GLASS BALUSTRADES (TOWERS)

3. VERTICAL UPRIGHT METAL BALUSTRADES (Building 1 only)

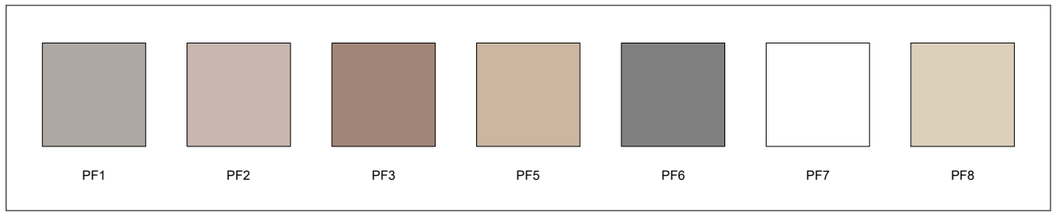
4. PODIUM METAL SCREENING

5. FACE BRICK FACADE

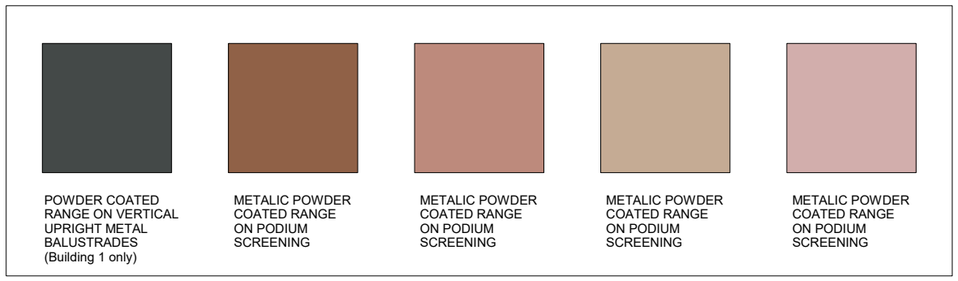
6.SOLID PANELS WITH APPLIED FINISH AND EXPRESSED JOINTS

7.METAL STEEL EDGE AWNING

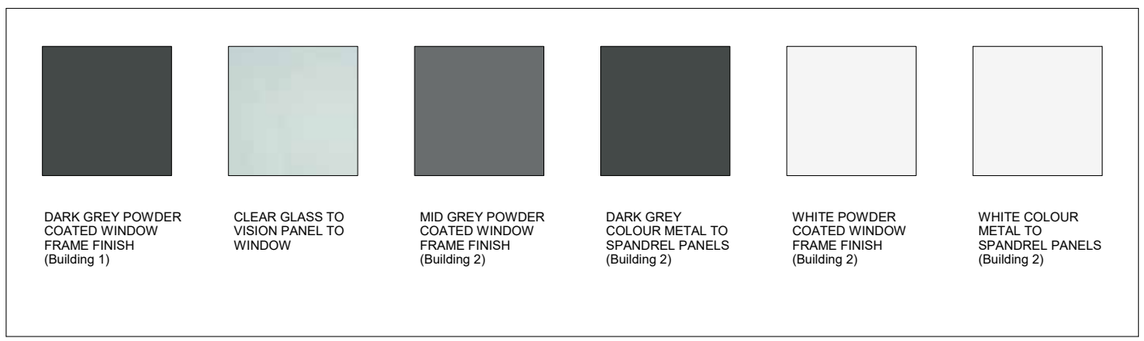
PAINT FINISHES



METAL FINISHES



GLAZING SYSTEM



Building 2 proposed design

The proposed design maintains consistency with the competition design principles and integrates the recommendations of the thermal comfort analysis. This is achieved in the following ways:

- The tower consists of a play with solid and glass elements where the solid panels provide a peeling-off effect as the tower rises to accentuate the slenderness of the forms
- The previous horizontal spandrel expression through the tower had a relation to the previously exposed horizontal planter boxes in the podium. As the planter boxes have been integrated into a vertical batten-type podium façade, the proposed tower design has a stronger vertical expression as well
- The vertical expression of the tower reflects the lower building, with 2 storey high panels that are appropriate to the scale of the tower.
- The solid elements of the tower appear to peel away as the tower rises
- Thermal comfort on bedrooms will be improved as there is a lower window to wall ratio, particularly on areas were views are not required.
- The landscaped podium edge creates a visual connection from the tower to the park

View from the SW along JTG

Building 2 proposed design

Thermal comfort

Issue

The previous concept façade design had a significant amount of glazing throughout the façade, with a combination of louvres and solid spandrels used to produce an aesthetic effect rather than a practical building solution which would perform well thermally. The client raised following concerns:

- The design needs to perform over and above the minimum BASIX requirements to provide internal comfort levels for the users which are commensurate with the climate experienced in Penrith.
- Thermal comfort needs to be improved by way of a façade design which firstly considers the nature of the building fabric, rather than by simply increasing A/C capacity.
- The apartment floorplates need to be considered in greater detail to ensure desirable views to the Blue Mountains from living spaces are not compromised through the use of external attachments such as louvres or screens.
- The building needs to be designed in such a way as to increase cost-efficiency in order to meet budgetary requirements.

Analysis

ESD consultants, Atelier Ten, were engaged by Toga to conduct a thermal comfort analysis of the tower with the aim of optimising the façade in order to achieve the greatest levels of internal comfort, with as little reliance on mechanical cooling and heating as practically possible. The following elements were considered in the analysis:

- Shading
- Orientation
- Window to wall ratio
- Thermal mass
- Glazing performance (U-value, SHGC)

Results

The analysis enabled the ESD consultant to determine the elements that had greatest impact on thermal comfort and provide a set of recommendations which have guided the design of the façade, as summarised below:

- The outer (exposed) façade was a key driver for thermal comfort and the performance of the outer façade is driven by solar exposure.
- Increasing solidity on the western facade (50/50 solid to glazed ratio) greatly increased the ability of the façade to positively affect internal comfort levels to within an acceptable range. The eastern facade could be afforded a greater degree of transparency.
- Living rooms on west and north facing apartments would benefit from double glazing on exposed facades (subject to budget considerations).

Living Room's Overheating Hours (OH) during Occupied Period

Orientation	Base Case (BASIX compliant)	Absolute Best Case	Proposed	%age improvement
North	30%	7%	17%	12%
East	27%	8%	20%	7%
South	-	-	-	-
West	21%	7%	16%	5%

Bedroom's Overheating Hours (OH) and Hours Above 26 deg (HA26) during Occupied Period

Orientation	Base Case (BASIX compliant)		Absolute Best Case		Proposed		%age Improvement	
	OH	HA26	OH	HA26	OH	HA26	OH	HA26
North	19%	7%	7%	4%	12%	4%	7%	3%
East	21%	20%	4%	3.5%	6%	5%	15%	15%
South	8%	8%	3%	3%	6%	6%	2%	2%
West	12%	4.5%	<1%	<1%	7%	3%	5%	1.5%

D.I.P Comments

The panel supported the design and recommended the following aspects of podium design be reconsidered:

- Ground level wayfinding to lift lobbies.
- All floor plans including number and mix of the apartment.
- The logic for determining common open space requirements.
- Design of all common open space including new rooftop area on level 34.
- Visual and acoustic privacy for apartment external spaces, particularly those adjacent to common open space
- Building elevations / sections including relationship to streetscape and future central park.
- Typical facade details
- Wind and Solar heat gain mitigation measures.

Design Integrity Panel Presentation 7

7

2 March 2020

Residential foyers

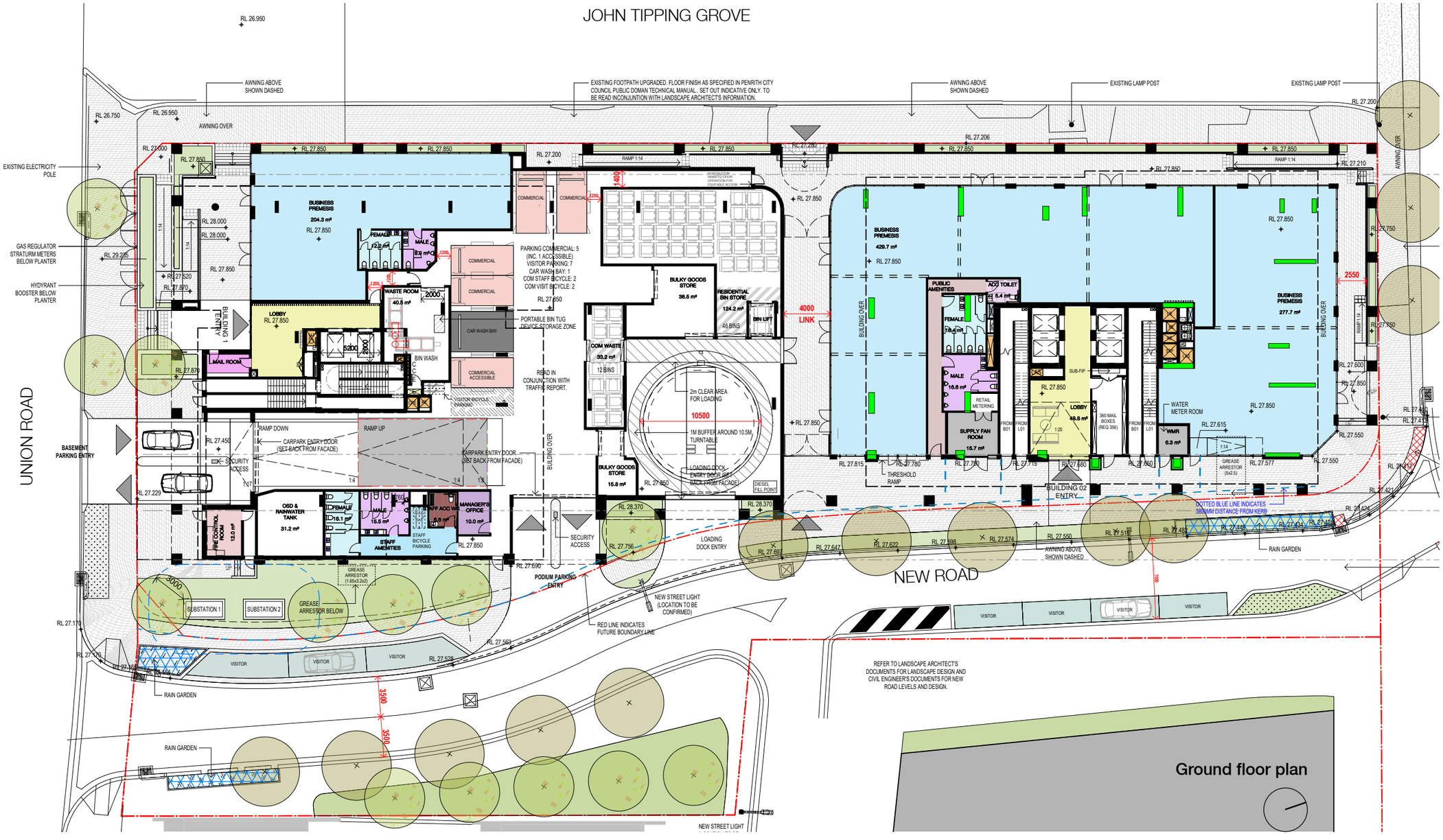
The following has been amended to improve the identity to the street and amenity of the residential entries.

- The entry awnings become a unifying feature that links the inside with out.
- The use of vertical batten screens continues through the entry spaces to knit together with the building fabric.
- Lighting and building identification signage to be considered in the detailed design stage.

Union Road Entry

New Road Entry

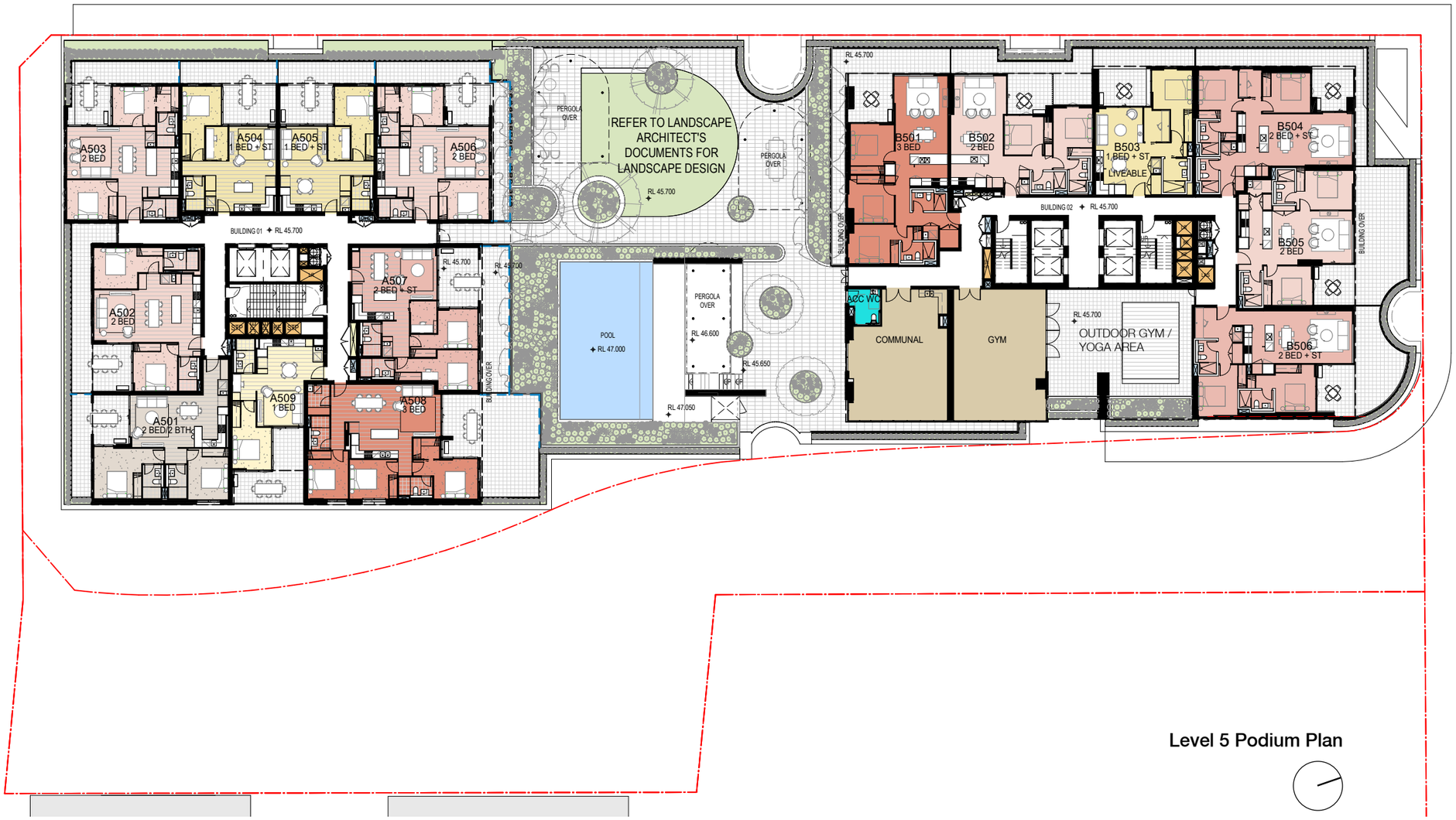
Floor Plans


JOHN TIPPING GROVE
UNION ROAD
HIGH STREET
NEW ROAD
BUSINESS PREMISES
204.3 m²
BUSINESS PREMISES
429.7 m²
BUSINESS PREMISES
277.7 m²
COMMERCIAL
PARKING COMMERCIAL: 5
(INC. 1 ACCESSIBLE)
VISITOR PARKING: 7
CAR WASH BAY: 1
COM STAFF BICYCLE: 2
COM VISIT BICYCLE: 2
PORTABLE BIN TUG DEVICE STORAGE ZONE
READ IN CONJUNCTION WITH TRAFFIC REPORT.
WASTE ROOM
40.5 m²
LOBBY
MAIL ROOM
CAR WASH BAY
BIN WASH
BUILDING ENTRY 1
BASEMENT PARKING ENTRY
RAMP DOWN
RAMP UP
CARPARK ENTRY DOOR (SET BACK FROM FACADE)
SECURITY ACCESS
OSD & RAINWATER TANK
31.2 m²
FIRE CONTROL ROOM
12.0 m²
STAFF AMENITIES
MANAGER'S OFFICE
10.0 m²
STAFF BICYCLE PARKING
GREASE ARRESTOR BELOW
SUBSTATION 1
SUBSTATION 2
PODIUM PARKING ENTRY
BULKY GOODS STORE
38.6 m²
RESIDENTIAL BIN STORE
124.2 m²
46 BINS
BIN LIFT
COM WASTE
33.2 m²
12 BINS
BULKY GOODS STORE
16.8 m²
2m CLEAR AREA FOR LOADING
10500
1M BUFFER AROUND 10.5M TURNTABLE
LOADING DOCK ENTRY DOOR (SET BACK FROM FACADE)
LOADING DOCK ENTRY
DIESEL FILL POINT
4000 LINK
BUILDING OVER
PUBLIC AMENITIES
ACC TOILET
5.4 m²
FEMALE
10.4 m²
MALE
16.6 m²
RETAIL METERING
SUPPLY FAN ROOM
15.7 m²
SUB-FIP
LOBBY
48.8 m²
360 MAIL BOXES (REQ 356)
WATER METER ROOM
WMR
6.3 m²
GREASE ARRESTOR (5x2.5)
THRESHOLD RAMP
BUILDING 02 ENTRY
DOTTED BLUE LINE INDICATES 3600MM DISTANCE FROM KERB
AWNING ABOVE SHOWN DASHED
RAIN GARDEN
NEW STREET LIGHT (LOCATION TO BE CONFIRMED)
RED LINE INDICATES FUTURE BOUNDARY LINE
REFER TO LANDSCAPE ARCHITECT'S DOCUMENTS FOR LANDSCAPE DESIGN AND CIVIL ENGINEER'S DOCUMENTS FOR NEW ROAD LEVELS AND DESIGN.
VISITOR
AWNING ABOVE SHOWN DASHED
EXISTING FOOTPATH UPGRADED. FLOOR FINISH AS SPECIFIED IN PENRITH CITY COUNCIL PUBLIC DOMAN TECHNICAL MANUAL. SET OUT INDICATIVE ONLY. TO BE READ INCONJUNTION WITH LANDSCAPE ARCHITECT'S INFORMATION.
EXISTING LAMP POST
EXISTING ELECTRICITY POLE
GAS REGULATOR STRATURM METERS BELOW PLANTER
HYDYRANT BOOSTER BELOW PLANTER
AWNING OVER
RAMP 1:14
Ground floor plan

Floor Plans

A summary of the apartment mix for the development is as follows:

	Apartment No.	Apartment Mix
1B 1B+ST	114	**32%**
2B 2B+ST	201	**56%**
3B	41	**12%**
TOTAL	**356**	100%



Level 5 Podium Plan

Floor Plans

Typical Floor Plan - Level 9

Communal open space

Site Area	3,784m²
External Communal Space	
Level 5	873m²
Level 34	121m²
Internal Communal Space	146m²
Total Communal Open Space	**1,140m²**

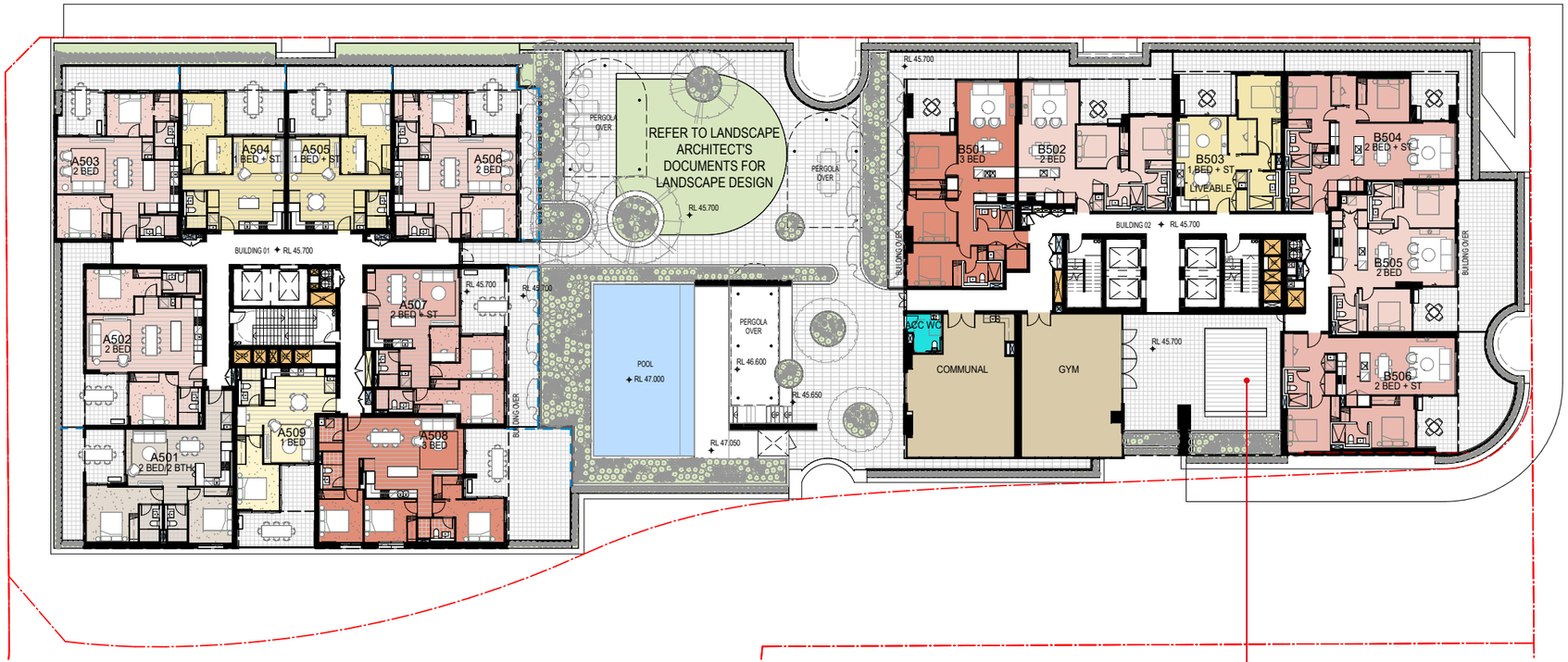
ADG - Communal Open Space Required 25%

Communal Open Space Proposed 30.1%

Approved DA Communal Open Space 878m²

Increase in Communal Open Space 262m² - 6.9%

- The communal space in the approved DA had always envisaged the increase in density.
- The C.O.S is maximised based on the site's constraints.
- Provides 5.1% more than the ADG requirements.
- Variety of uses - Pool, gym, bbq, lawn, sheltered areas, and roof terrace caters for various demographics.
- Designed to encourage interaction between residents.
- Communal open space in this DA will be supplemented by the addition of the future public park between the east and west sites. (Subject to a future DA)

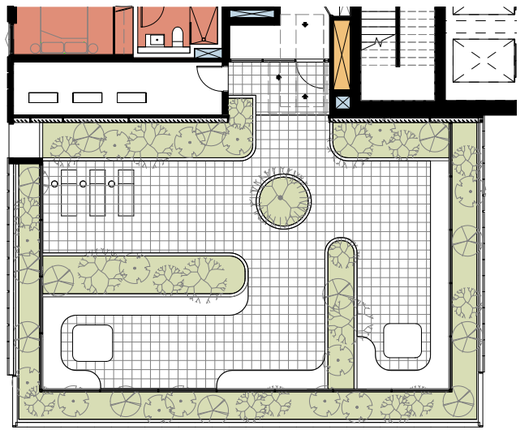


Level 5 Podium Plan

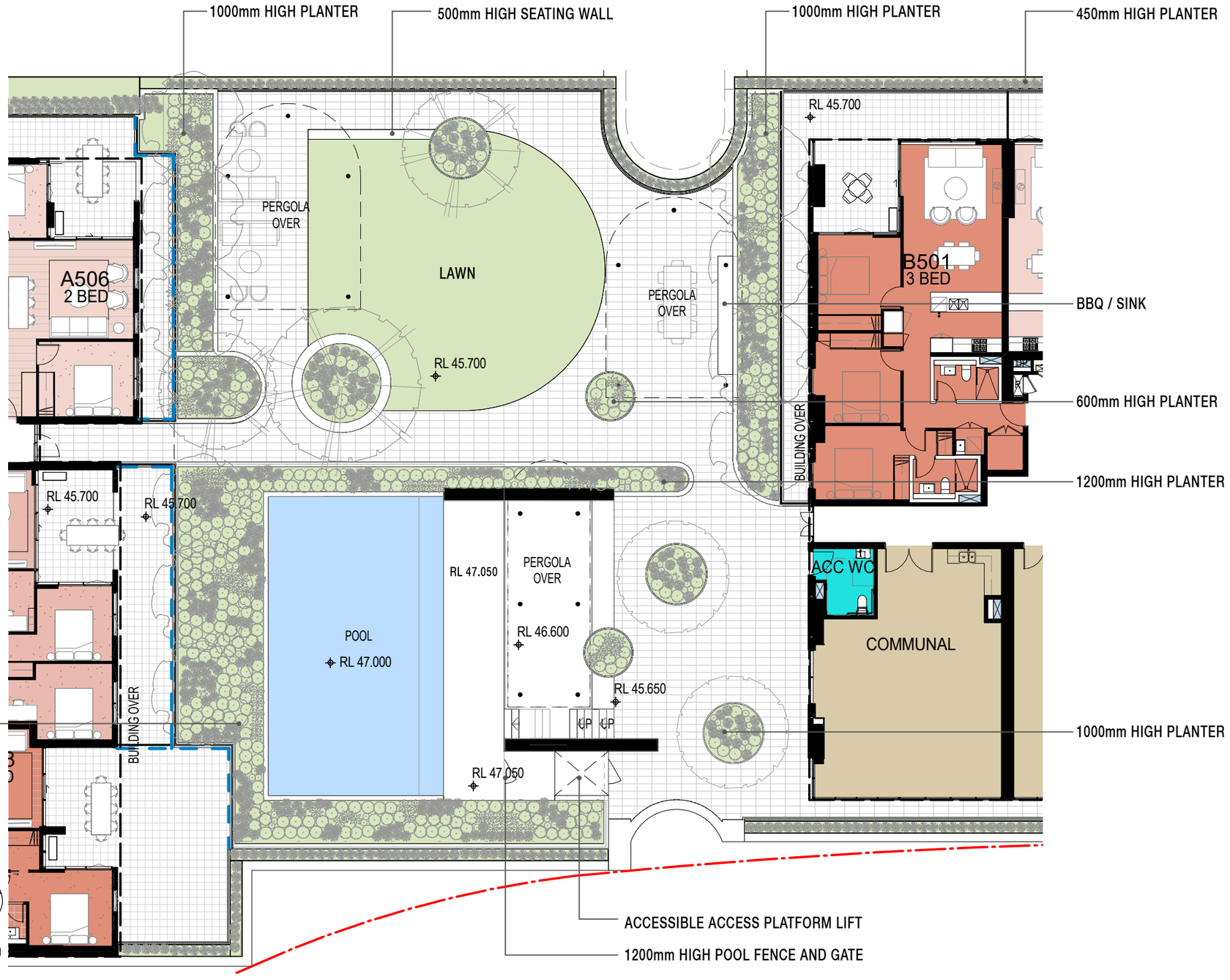
Additional 2 storey high covered area quiet space for activities associated with the gym such as yoga

Communal open space - Level 5

The communal open space on the podium has been designed to accomodate a mix of passive and active uses that include a swimming pool, BBQ area, shaded seating, lawn area and a quiet space associated with the gym such as yoga.

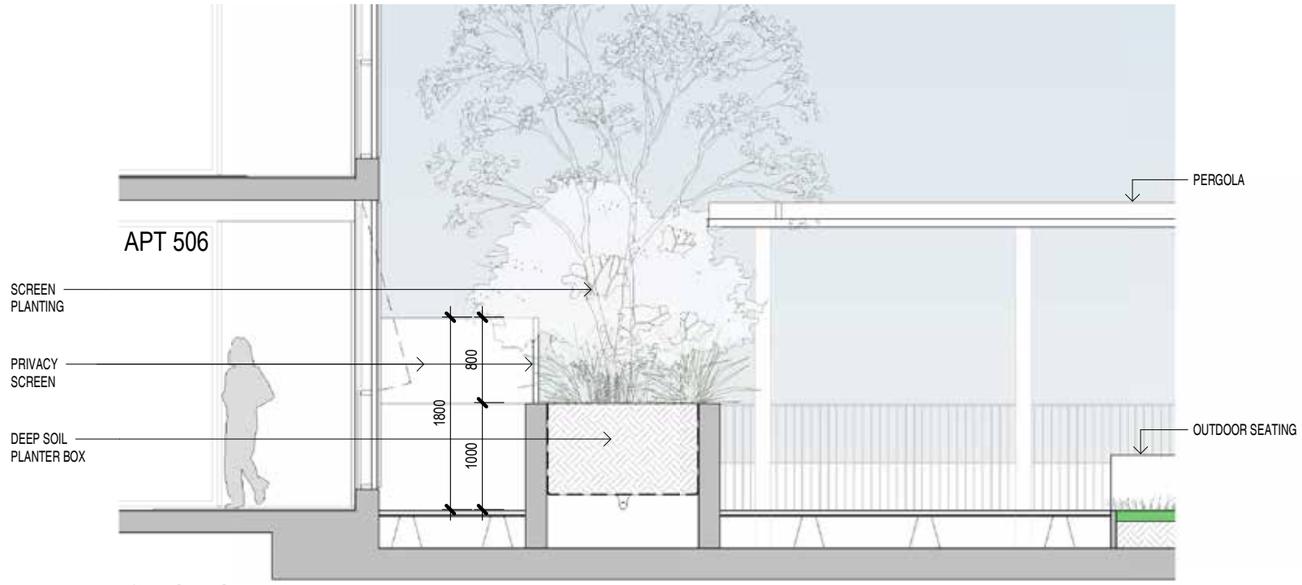


Level 34 Plan

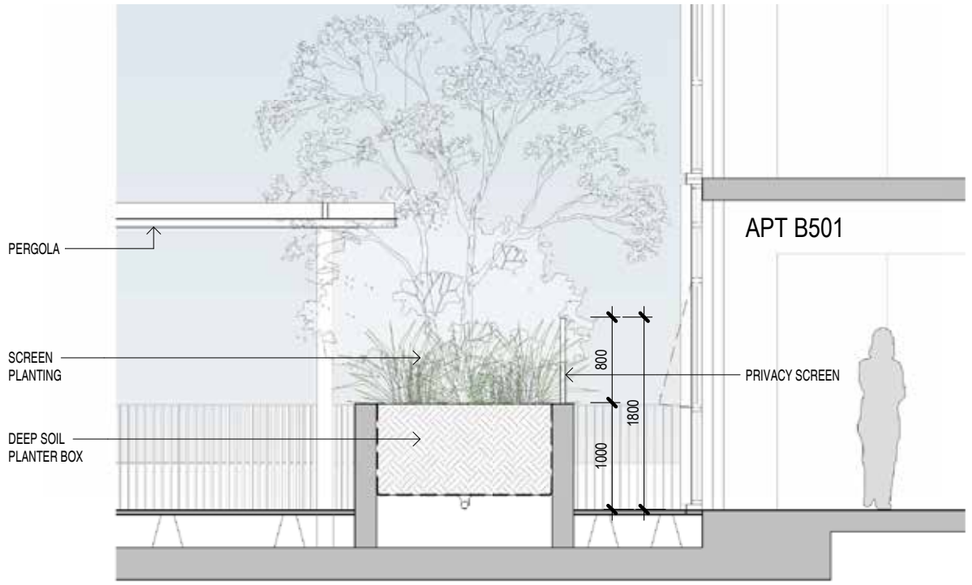


Level 5 Podium Plan

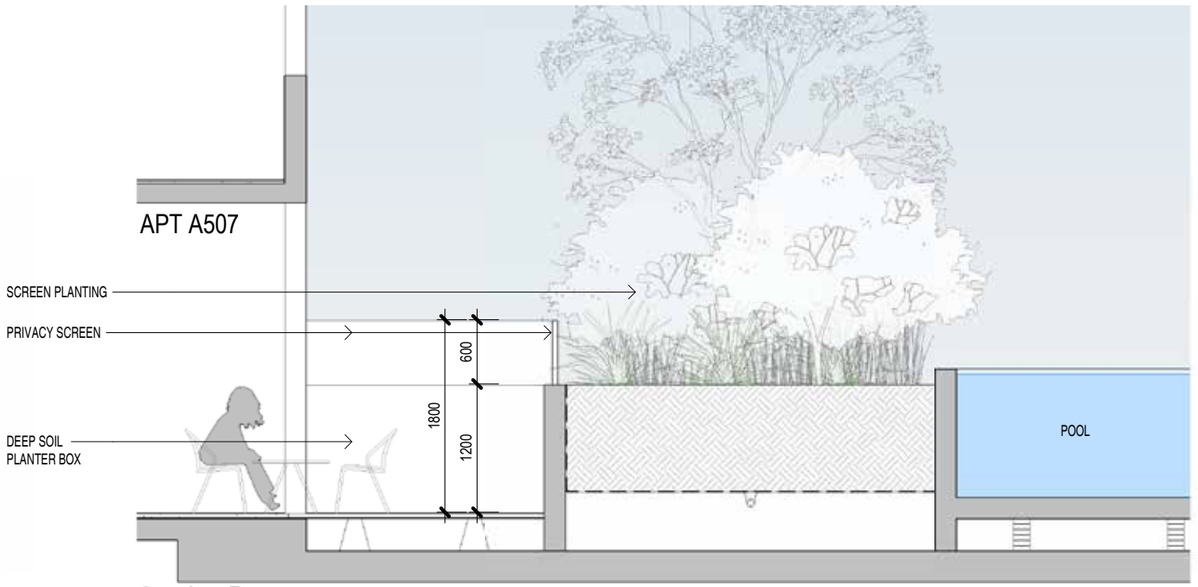
Visual and Acoustic Privacy - Communal Open Space



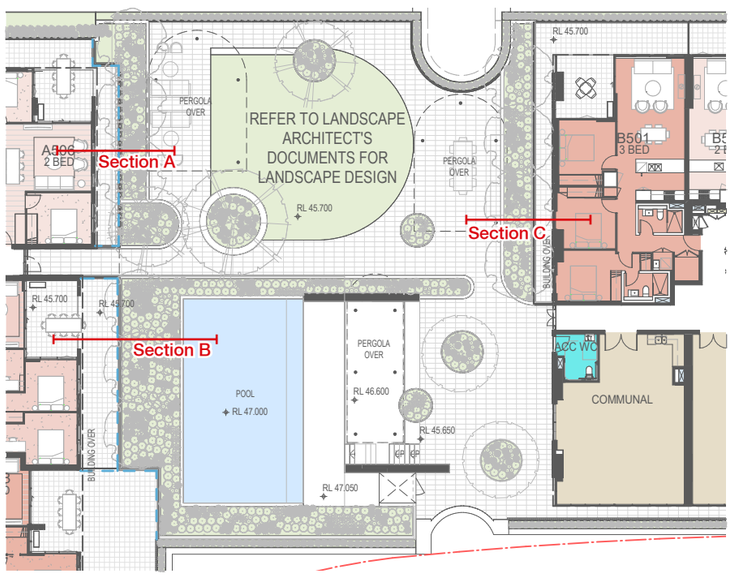
Section A



Section C

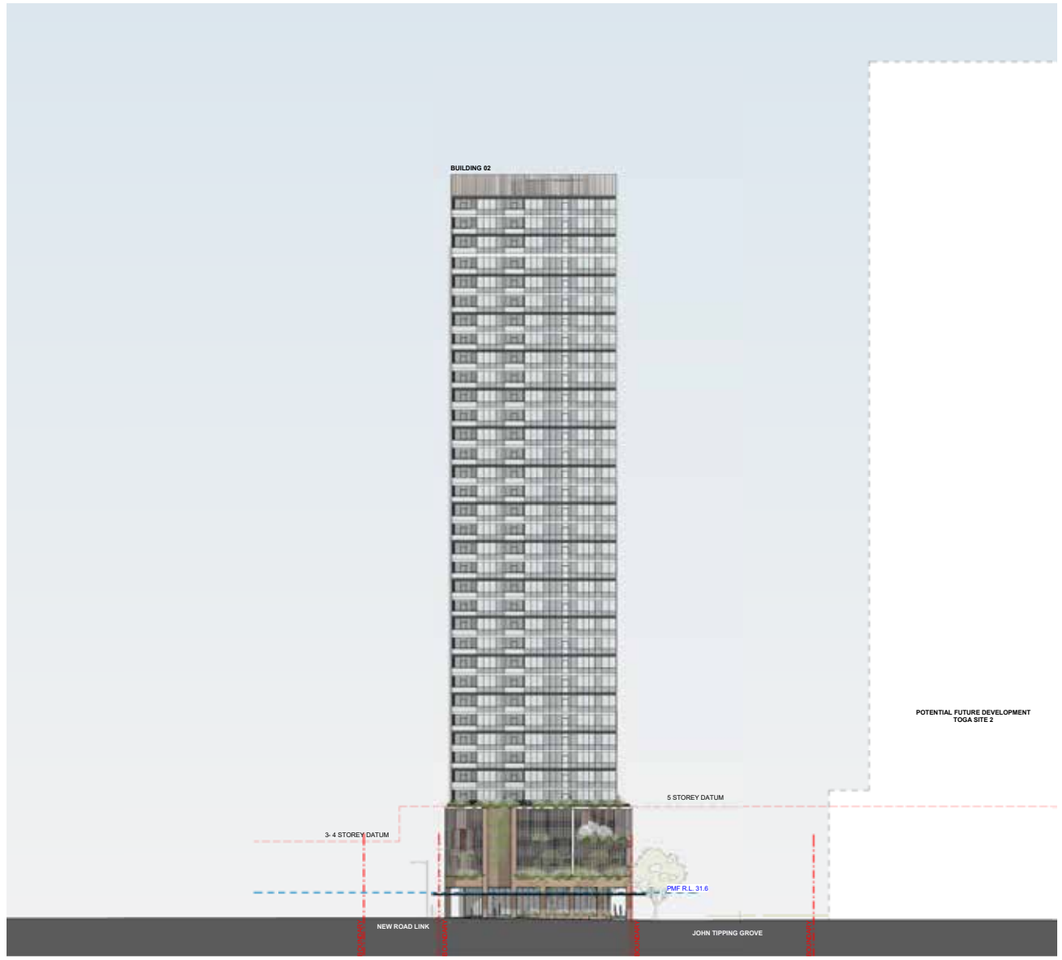


Section B

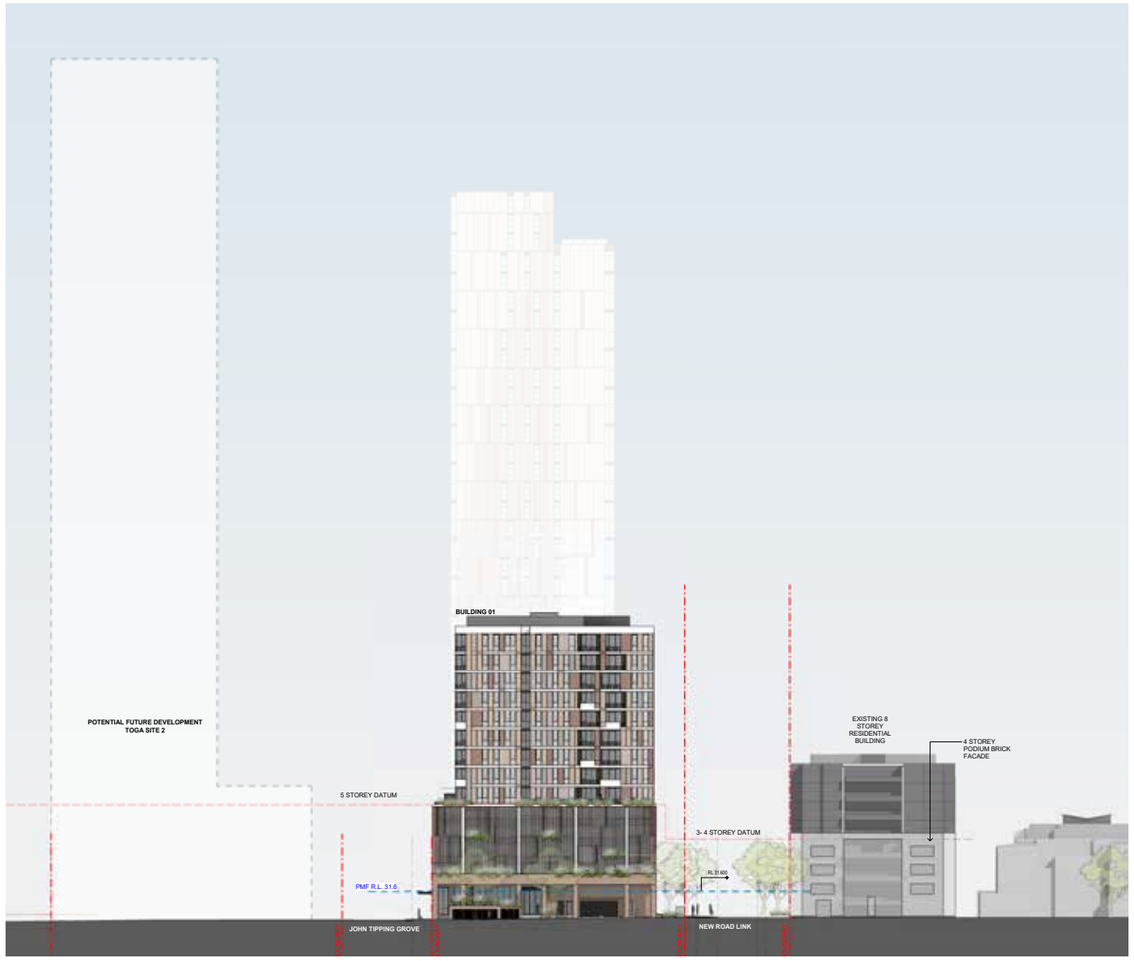


Key Plan

Building elevations



North Elevation - High St



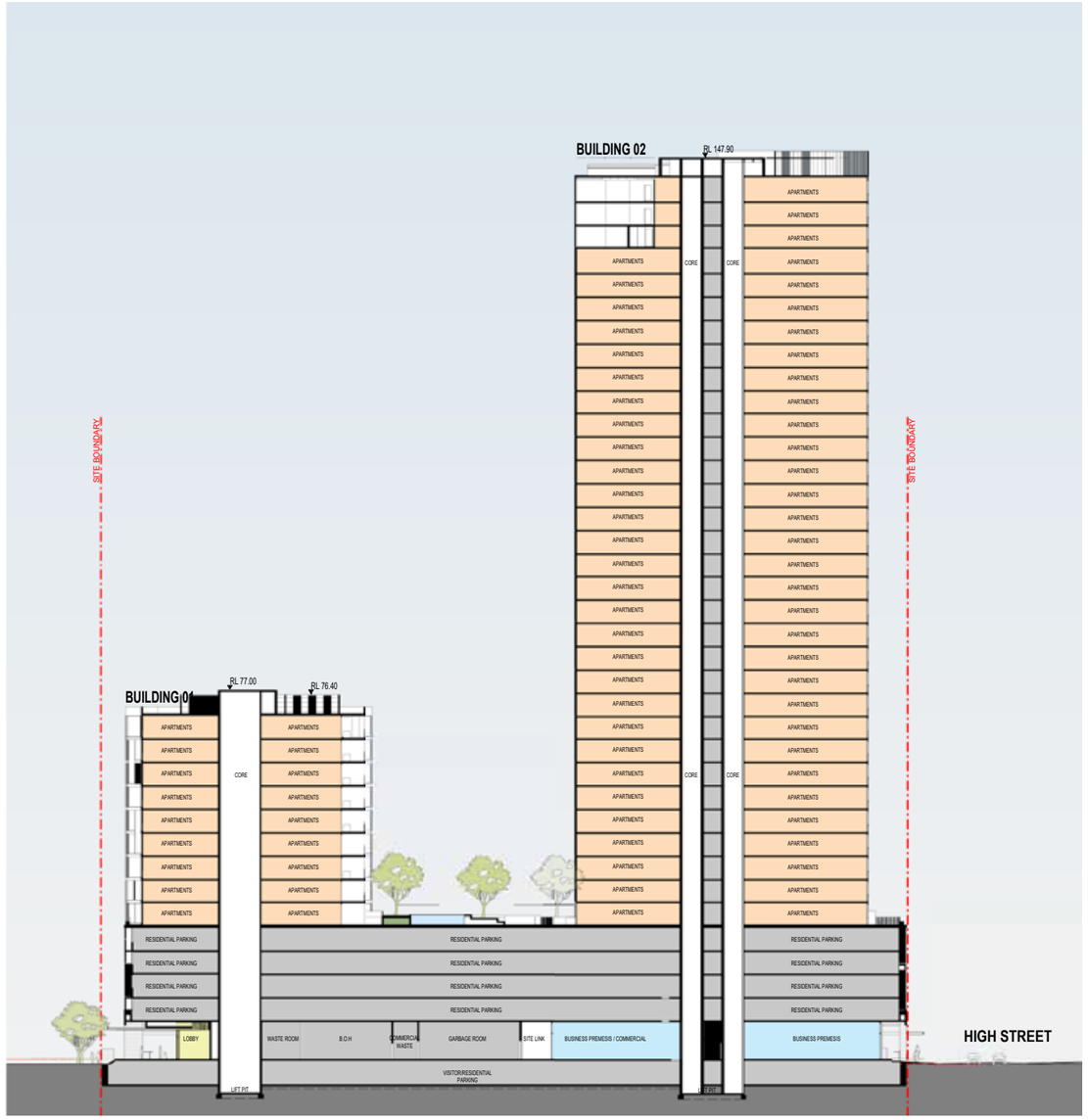
South Elevation - Union Road

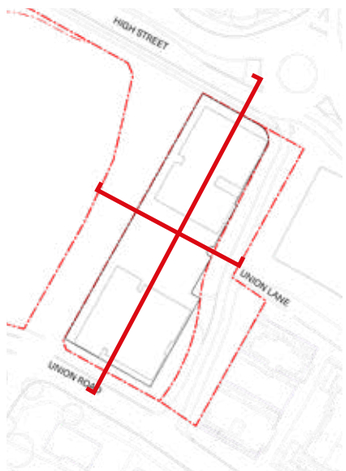
Building elevations

West Elevation - John Tipping Grove

East Elevation - New Road

Building sections

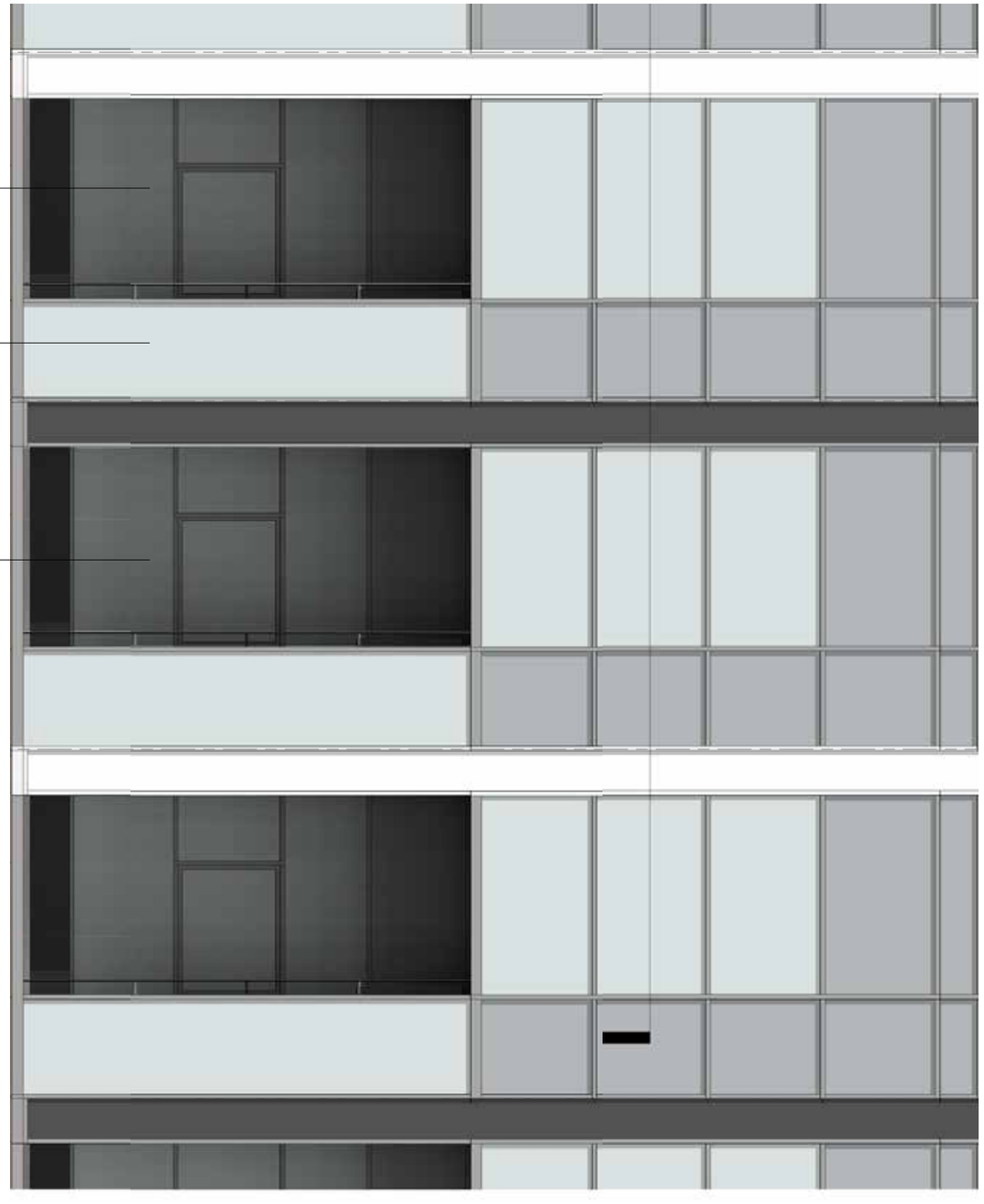




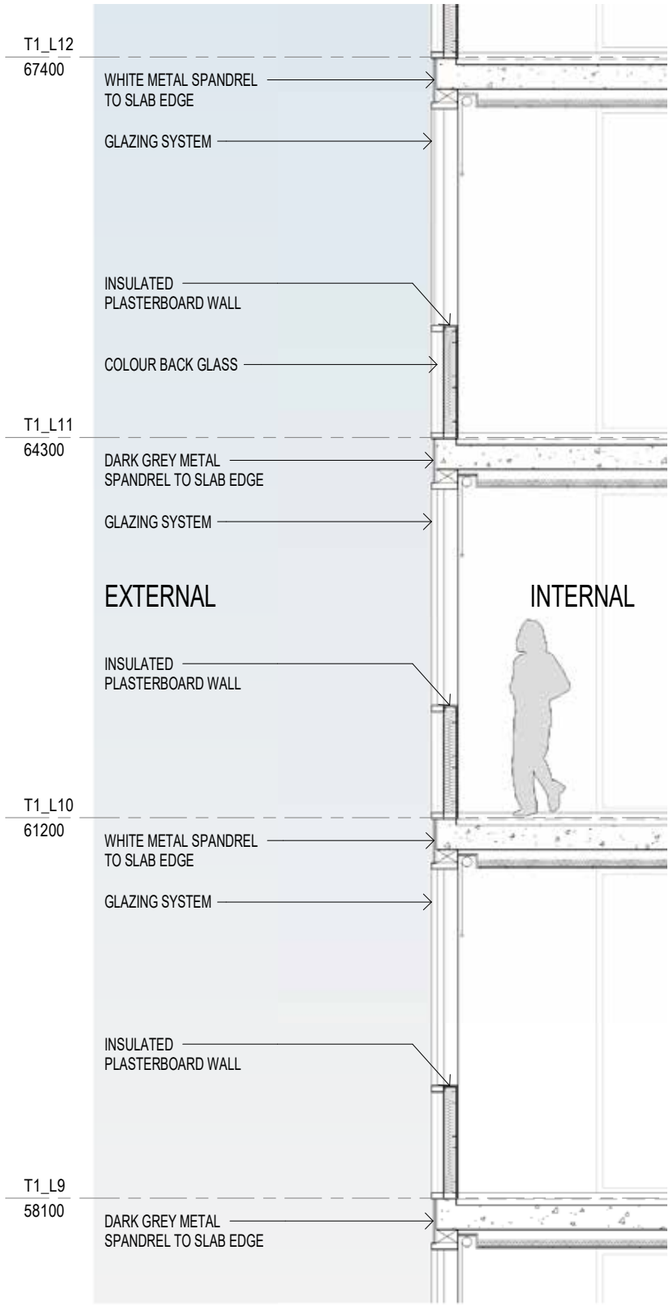
Design Integrity Panel Presentation 7

View from the SW along JTG

Tower Facade Detail - Glazing

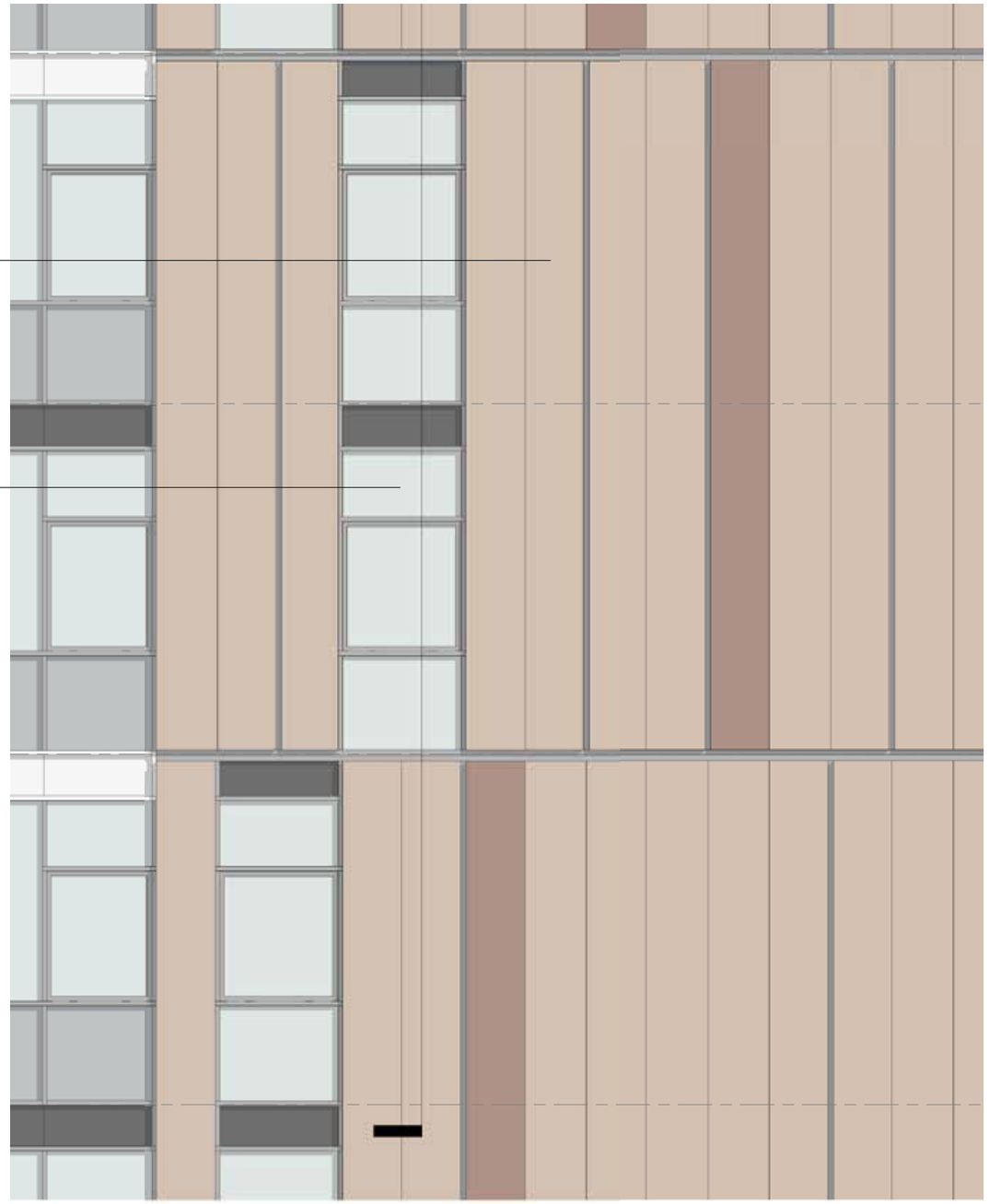


Detail Facade Elevation

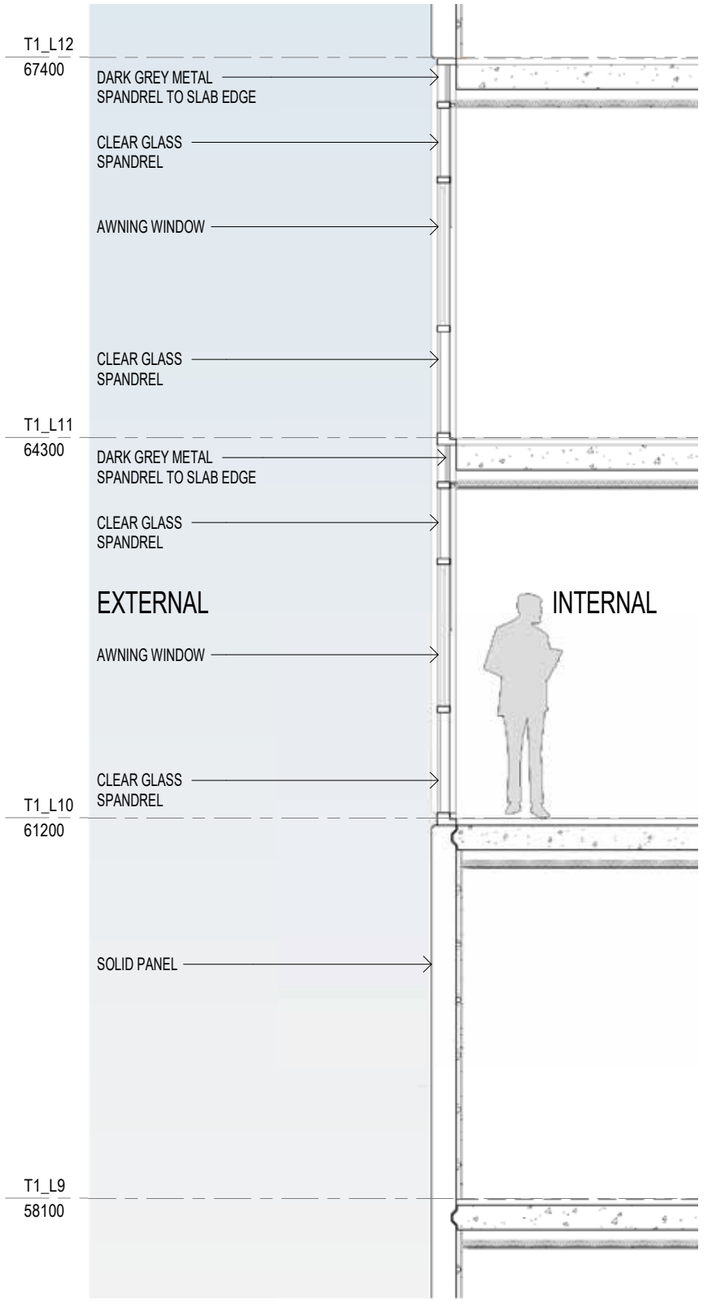


Detail Facade Section

Tower Facade Detail



Detail Facade Elevation



Detail Facade Section

Wind

The proposed development will be exposed to higher wind levels in the following locations:

- Westerly winds are the strongest
- Downwash to western corners of the buildings, particularly Building 2
- Channelled westerly winds through the communal open space
- Open corner balconies in Building 2

The following measures have been proposed:

- Tower setbacks, colonnade and awnings will ameliorate wind to the ground level.
- South western corner of Building 2 has a landscaped podium that is not accessible by the occupants
- Solid balustrade and screen planting along the western edge of the podium's communal open space
- Corner balconies are only open on one façade with full height glazing on secondary facade.
- Glazed wind break around the perimeter of Level 34 communal space

Solar Heat Gain

Objective

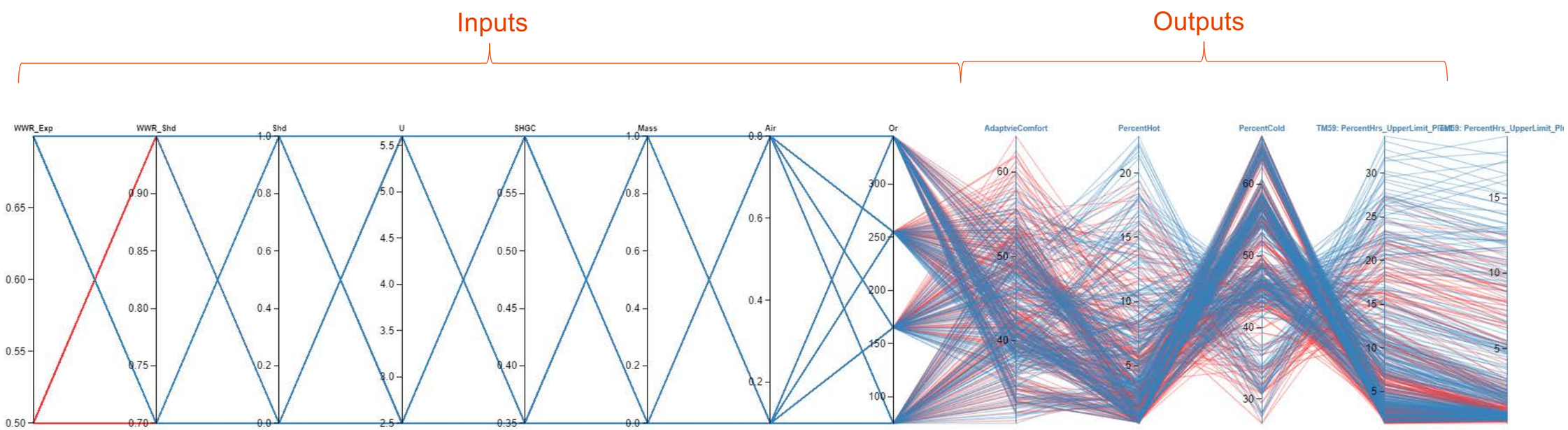
The study was undertaken, with ESD consultants Atelier Ten, to assess the thermal performance of bedrooms and living rooms in the development at High street, Penrith.

The analysis utilised a number of envelope performance parameters for each orientation to better understand their influence on the final performance, informing passive design solutions within the architectural design.

The objective is to improve thermal outcomes for the site beyond BASIX compliance in order to deliver a quality product that is comfortable and safe.

The team worked with Atelier Ten's modelling diagram to identify the impact of different inputs such as window to wall ratio, shading, glazing U-value and SHGC as well as the orientation to understand the impact on outputs such as thermal comfort, heating and cooling loads and hours of overheating.

Below is an example of a graph showing how the adjustment of inputs affects the thermal comfort outputs. This allowed the team to measure the outputs against a base BASIX compliant scheme.



D.I.P Comments

The panel supported the design and recommended the following aspects of podium design be reconsidered:

- South-west corner of Building 1 on Ground Floor to be further reviewed and developed from a wayfinding, design and access perspective (i.e. review planters and handrail details).
- Break-out/waiting area next to the lift core of Building 2 to be reviewed (i.e. potential resting/viewing area).
- The apparent depth of the solid panels on the Building 2 façade to be reviewed.
- Rationale of residential population against communal open space areas to be provided.
- Level 34 open space/terrace to be reviewed considering the wind impact, user-comfort and value to customer.
- Level 5 corridor across to communal, gym and yoga area to be relocated to provide better visual connection and direct access to these spaces
- Thermal comfort process and improvements from BASIX further support the design excellence achievement, therefore it is important to address this in the relevant reports for teh DA submission.
- Solar analysis to the surrounding neighbours to be considered/included in the DA.

SJB Architects

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possibilities of architecture,
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