IVANHOE
LOT A1

DEVELOPMENT APPLICATION
DESIGN REPORT
PREPARED FOR ASPIRE CONSORTIUM
DOCUMENT NO. S12067A-001

REVISION G
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1.0 INTRODUCTION

This Design Report has been prepared by Bates Smart for The Aspire Consortium on behalf of NSW Land and Housing Corporation and forms part of a Development Application to the NSW Department of Planning and Environment.

It describes the proposed design and architectural response for a site known as Lot A1 within Stage 1 of Masterplan State Significant Development Application (SSD8707). It is to be read in conjunction with a separate document prepared by Hassell Studio - Landscape & Public Domain Report, under which application for relevant roads and public domain around the site are also proposed. This proposal has been developed with careful consideration to the building envelope and Design Guidelines defined in the Ivanhoe Estate Masterplan State Significant Development Application.

In summary the development proposes:

/ A twenty-five storey tower consisting of 23 residential floors,
/ A single storey childcare centre occupying the upper ground floor,
/ Four below ground basement floors containing off street parking for residents, visitors and child care centre staff and visitors.
/ Landscaped spaces including landscaped setbacks to streets at ground level, a landscaped external play area for the childcare centre on the upper ground floor, and a rooftop containing private landscaped terraces further described within the public domain design report prepared by Hassell Studio.

We confirm that Guy Lake of Bates Smart directed the design of the enclosed Development Application and that Mr Lake is registered as an architect in accordance with the Architects Act 1921.

We confirm that in our professional opinion the proposed design is capable of achieving the design principles set out in State Environmental Planning Policy 65 - Design Quality of Residential Flat Development, and has been designed with regard to the publication Apartment Design Guide. (ADG).

DEVELOPMENT SUMMARY:

Floor Space	
Lot Area:	3,150sqm
Total Floor Space:	21,580 sqm GFA
Residential Mix	
Dwellings:	269 Apartments
	7 studio apartments
	111 one bedroom apartments
	141 two bedroom apartments
	10 three bedroom apartments
Parking	
Car Spaces:	233 Spaces total
	208 residents spaces
	13 visitor spaces
	15 Child care centre spaces (12 in basement and 3 on street)
Bicycle Spaces:	269 Spaces

Our vision has been to deliver a new gateway building consisting of warm, textured materials and expressing a fine grain human scale. Earthy precast concrete combined with Sydney sandstone create a rich, warm and uniquely Sydney palette. Bronze aluminium fins shimmer downwards through vertical gardens and wrap around the base of the tower expressing the smooth flowing lines of the floorplate. Ivanhoe Lot A1 intentionally presents a strong, slender, and organic presence to Herring Road, seeking to stand as both a benchmark and icon identifying a warm and vibrant future residential community within.

2.0 SITE + CONTEXT

2.1 SITE LOCATION

The site is Lot A1 within Stage 1 of the Masterplan Development Application submitted to the Department of Planning and Environment in February of 2018 known as the Ivanhoe Masterplan. It is located near the corner of Epping Road and Herring Road within the Ryde Local Government Area (LGA) and falls within the Macquarie University Station (Herring Road) Priority Precinct, a planning initiative undertaken by the Department of Planning and Environment to transform the area into a vibrant centre that benefits from the available transport infrastructure and the precinct's proximity to jobs, retail and education opportunities within the Macquarie Park Corridor.

Lot A1 is located at the northernmost point of the masterplan and has three road frontages comprising Herring Road to the North West, a proposed new entrance road with a steep gradient into the Masterplan from Herring Road to the South East, and a new neighbourhood street within the masterplan to the South.

2.2 EXISTING SURROUNDING CONTEXT

Immediately to the North East of the site are a series of four storey residential apartment buildings. Immediately to the West of the site, four former student accommodation buildings are located on a lot which is subject to a future redevelopment from an approved DA, while to the North on the opposite side of Herring Road, Morling College, an education facility consisting of a two storey and seven storey building, is flanked on both east and west sides by several 13-23 storey residential buildings, some currently under construction. Macquarie University Railway Station and Macquarie Park Shopping Centre are located 430 metres to the North West.

2.3 FUTURE MASTERPLAN CONTEXT

Lot A1 acts as the interfacing development between the currently evolving context along Herring Road and the proposed future Ivanhoe Masterplan to the south. The proposed development will be:

/ the first development undertaken within the proposed Ivanhoe precinct,

/ the only development which interfaces with an existing road frontage, and

/ is positioned at the primary vehicular entrance and exit point and links to the new 'Main Street' within the masterplan.

As such it is considered the 'gateway' site to the future Ivanhoe precinct.

The masterplan will be developed in stages and when completed will accommodate around 3,400 residential apartments in a mixed tenure of both market, social and affordable dwellings. Dwellings will be provided in a 'tenure blind' manner such that market, social and affordable dwellings are indistinguishable from each other.

At the Southern interface of Lot A1, a proposed new 'Main Street' connects through the future precinct linking Herring Road via a new bridge over Shrimptons Creek to Lyonpark Road and the employment district to the South.

Lot A1 will consist of 269 residential market apartments and a childcare centre for 75 children.

2.4 PLANNING CONTEXT

The Ivanhoe SSDA Masterplan defines building envelopes for Lot A1 which envisages a 75 metre height limit.

The proposed development is compliant with the height, GFA and use controls.

In addition, the Masterplan adopts a series of Development Design Guidelines against which any individual lot application is to be assessed. A summary of responses to the development control guidelines is contained within chapter 7 of this report.

LEGEND:

- Macquarie University Train Station
- Camera Location (Refer to Adjacent Page)
- Lot A1
- Future New Road
- Future Bridge Connection to Lyonpark Rd

Principle 1: Context and neighbourhood character

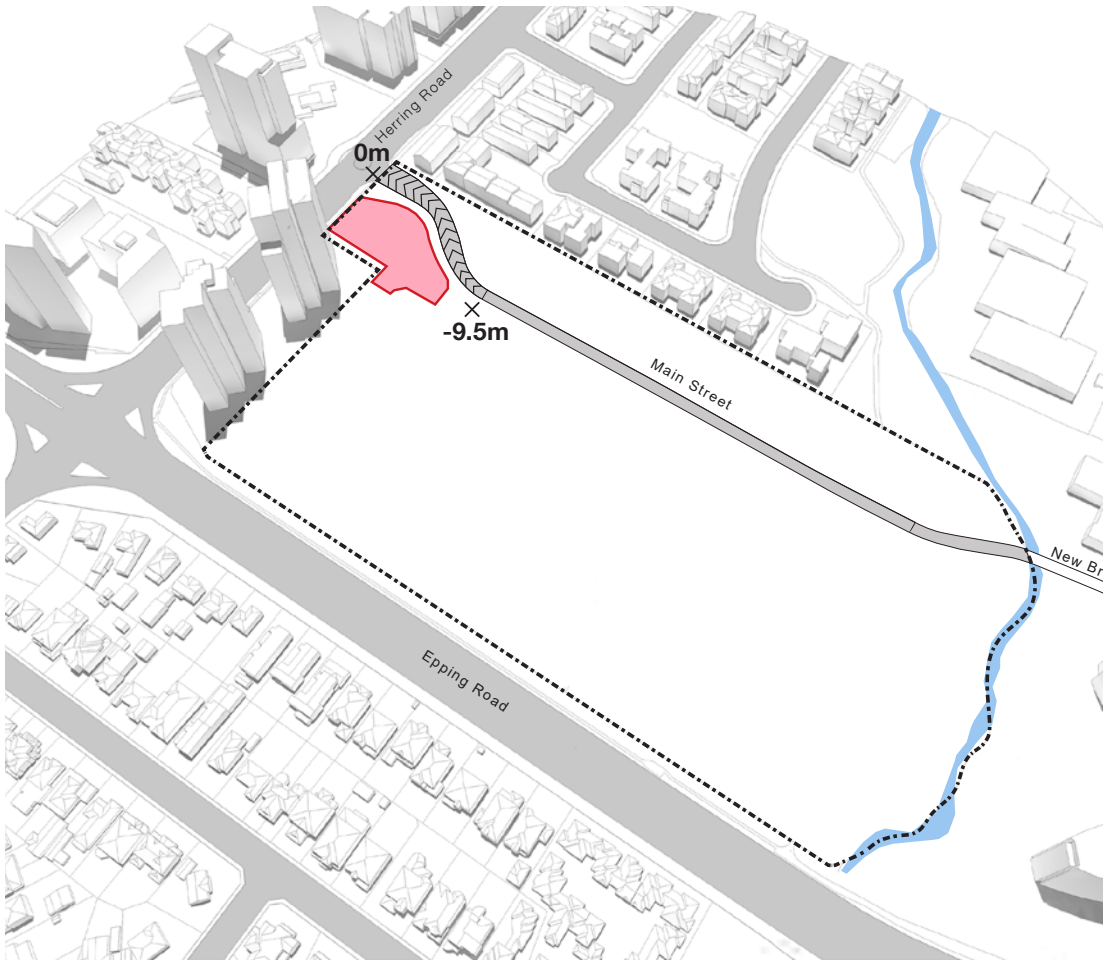
Good design responds and contributes to its context. Context is the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions.

Responding to context involves identifying the desirable elements of an area's existing or future character. Well designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood.

PICTURED
1/ Student Accommodation immediately adjacent to the West.
2/ Existing Buildings on Lot A1 from the South
3/ View West along Herring Road showing residential development to the North
4/ Lot A1 from Herring Road.
5/ Concept imagery of future developments within the Masterplan
6/ Concept imagery of future developments within the Masterplan

2.5 THE SITE

Lot A1 is located to the North East of the Ivanhoe Masterplan fronting Herring Road. It is 3,150 square metres in area. A steep existing grade falls away from Herring Road, creating a height difference of 9.5 metres along the length of Lot A1. An upgraded intersection and new two-way entry road will connect Herring Road with the proposed new Main Street.



2.6 FUTURE MASTERPLAN CONTEXT

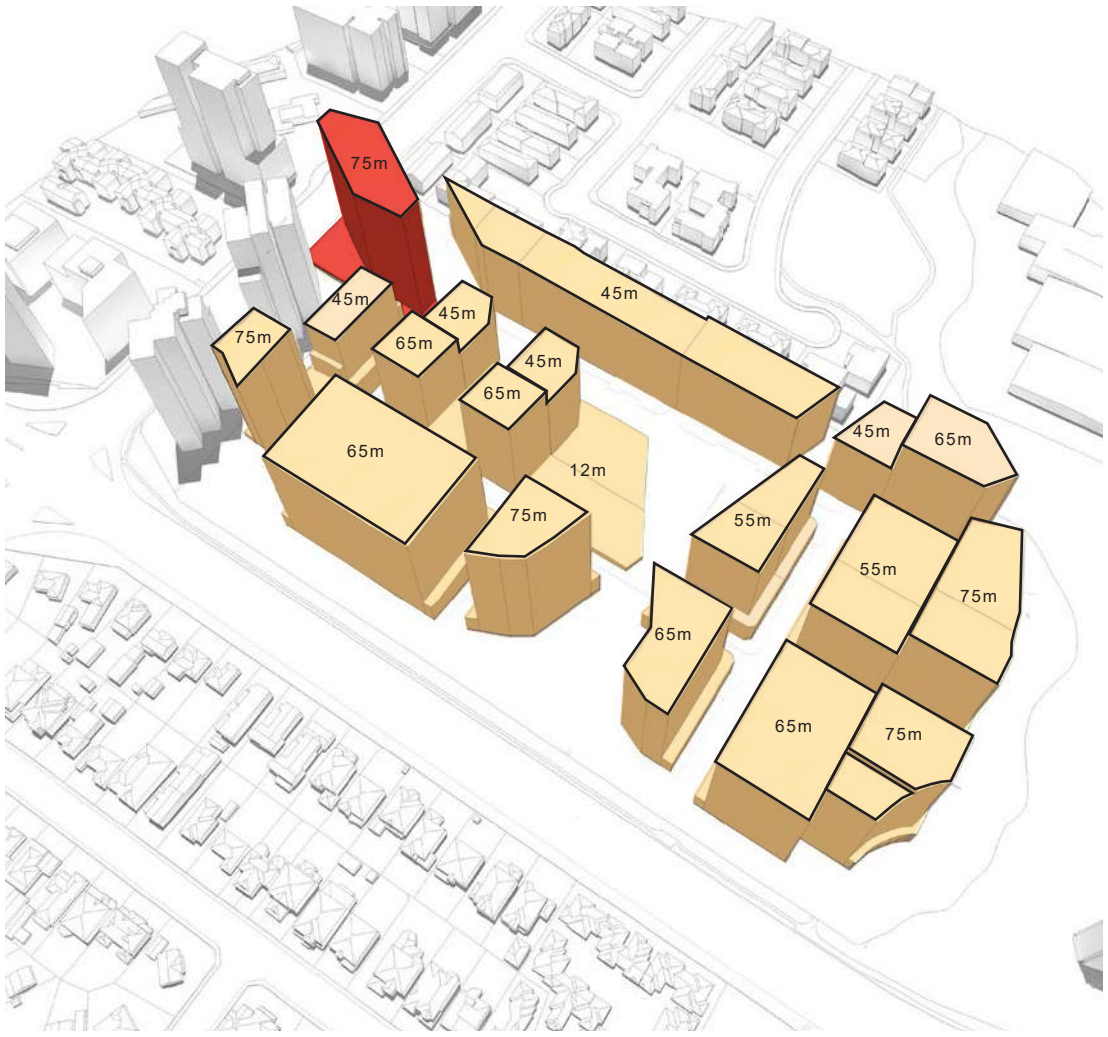
The future masterplan consists of a series of Neighbourhood Streets accessed via Main Street. Neighbourhood Streets consist almost exclusively of residential uses and are more intimate in scale, whereas Main Street consists mostly of non residential uses at ground floor and is therefore more civic in scale. Lot A1 sits on axis with Main Street.

Main Street

Neighbouring Streets

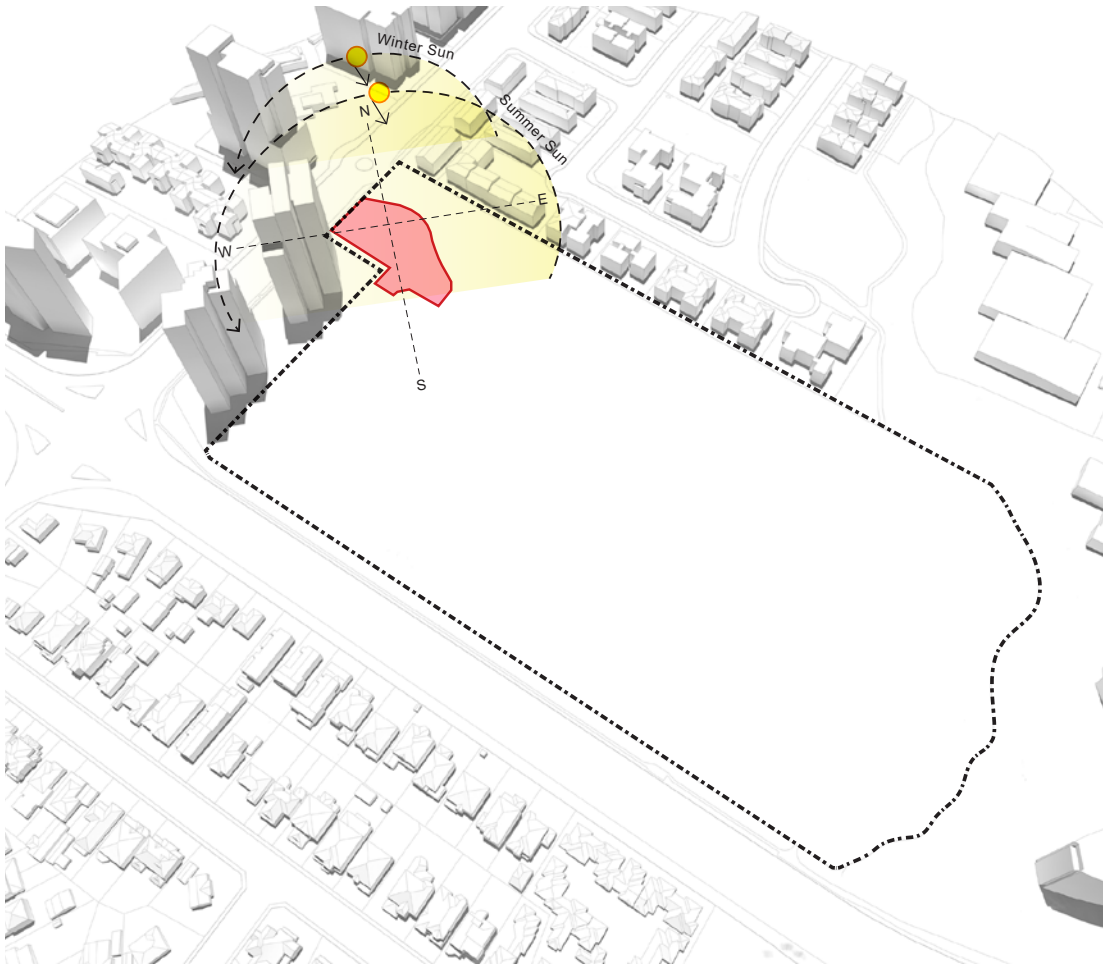
2.7 MASTERPLAN ENVELOPES

Three height limits apply across the masterplan precinct, 75 metres, 65 metres and 45 metres. Lot A1 is located in the zone with a 75 metre height limit and is consistent with that of existing and proposed residential buildings on the northern side of Herring Road.



2.8 SOLAR ACCESS + VIEWS

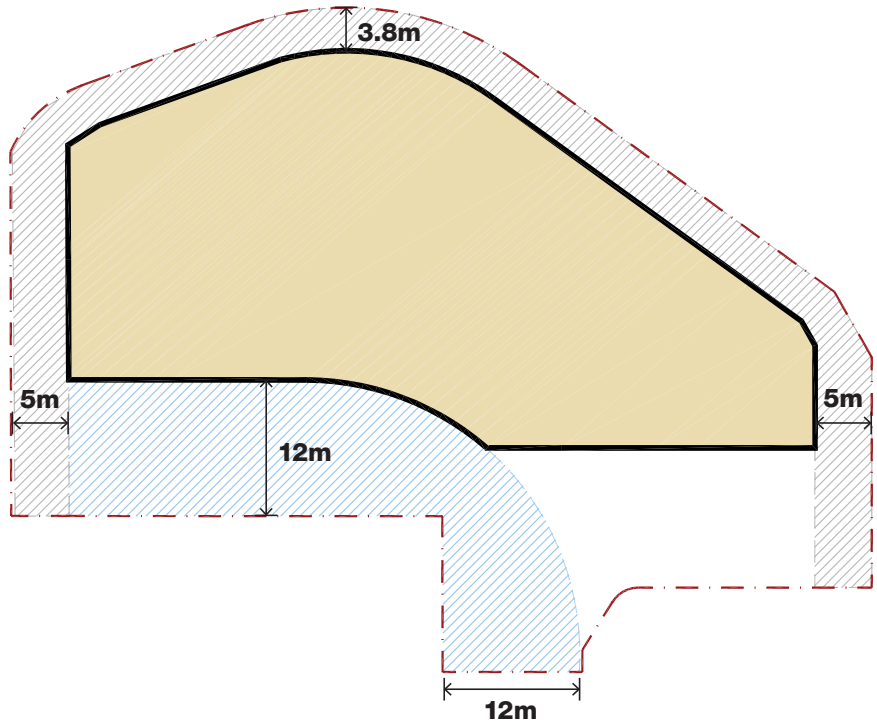
The site enjoys excellent opportunity for solar access with frontages of approximately 75 metres facing east and west, and a frontage of 33 metres facing north. At upper levels, high levels of residential amenity can be achieved through views East and South East towards Sydney and the CBD skyline, while district views are available to the West.



3.0 DESIGN CONCEPT

3.1 SITE SETBACKS

The SSDA masterplan requires a setback of 5 metres from Herring Road. A setback of 3.8m metres applies from the lot boundary fronting the new entry road. A setback of 5metres is required on the southern frontage to Neighbourhood Street. A building separation of 12m is required from western site boundary in accordance with ADG requirements for a compliant building of 8 or more storeys located on the adjacent site.

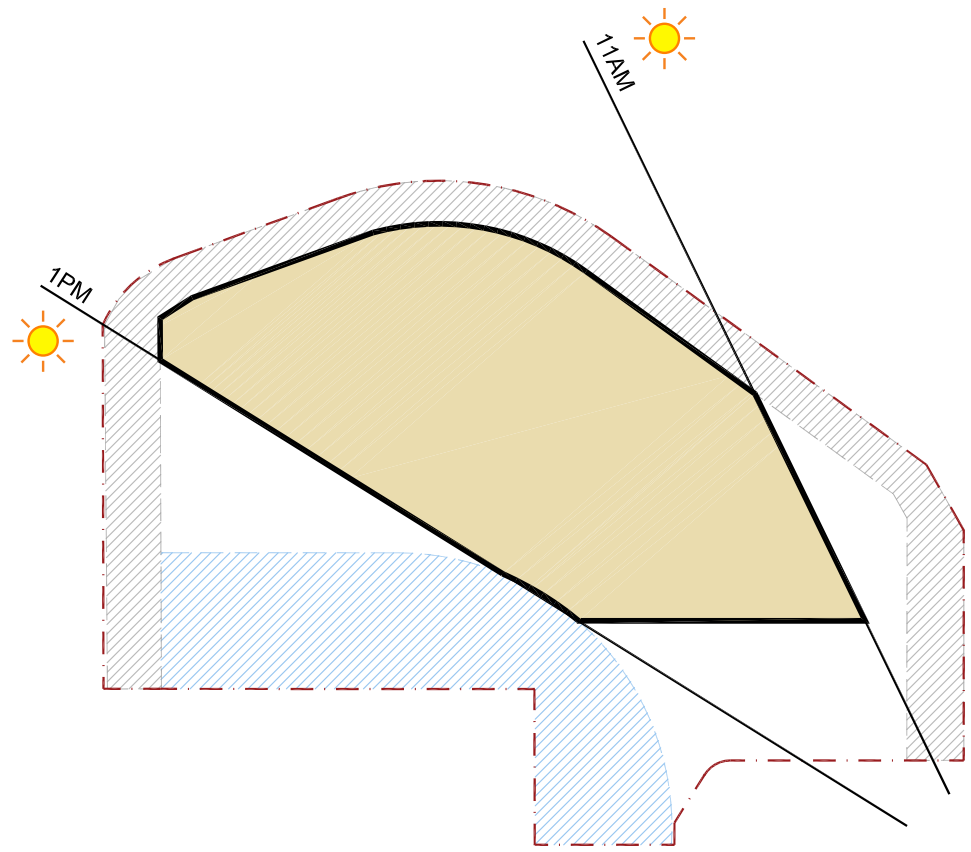


3.2 SOLAR ACCESS ALIGNMENTS

Two solar access alignments have been applied to the remaining permissible envelope:

/ A line representing the angle of the sun at 11am on the 21st June, applied to the eastern side to ensure 2 hours of solar access can be achieved to the adjacent future development on lot C1, and

/ A line representing the angle of the sun at 1pm on the 21st June, applied to the western side of the envelope to ensure apartments facing this orientation are able to achieve 2 hours of solar access during midwinter.



Principle 2: Built form and scale

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

Good design also achieves an appropriate built form for a site and the building's purpose in terms of building alignments, proportions, building type, articulation and the manipulation of building elements.

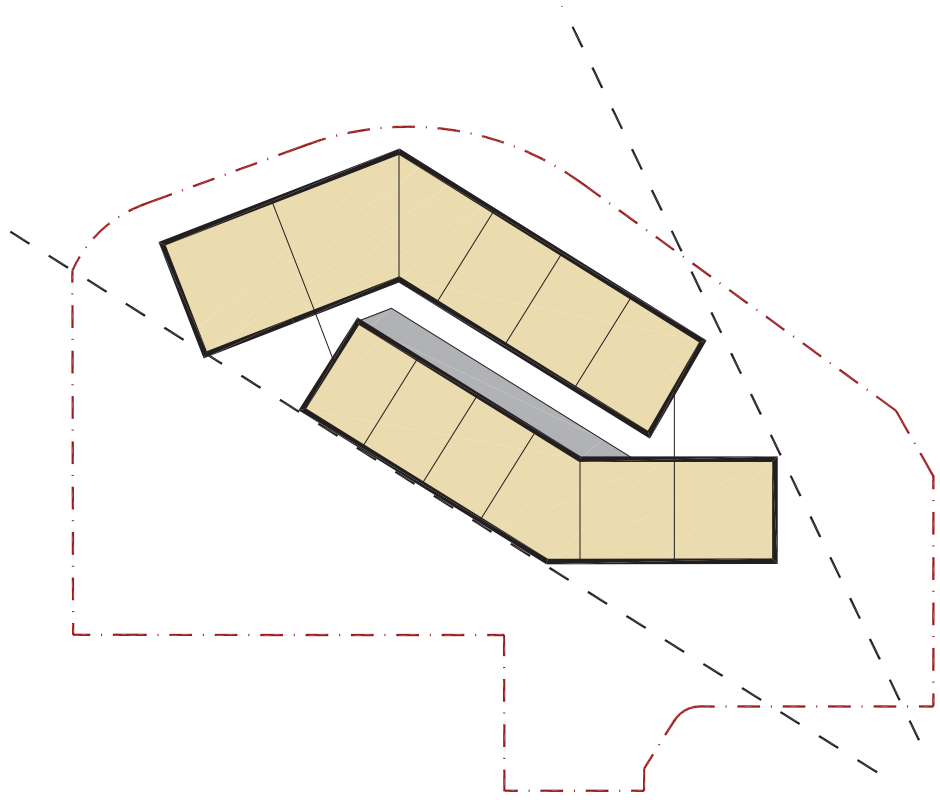
Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.

3.3 INTERLOCKING FORMS

Two linear 'bars' of residential apartments 9.2 metres deep are arranged around a central core and lift lobby containing 3 residential lifts. The internal circulation corridor forms the space between both 'bars' and is left open at both ends, flaring open to achieve expansive views out as well as daylight and natural ventilation into the common areas.

The two 'bars' create a dynamic and symmetrical form to
/ present a slender vertical form to Herring Road at the entry to the masterplan
/ present a slender vertical form when viewed on axis from Main Street
/ Offer multiple unique viewpoints when viewed 'in the round' from the adjacent street network and context,
/ Reduce perceptions of building bulk through shortening the length of each facade into a series of shorter elements.

Our intention has been to design a unique and distinctive form which has no 'front' or 'back', but rather four unique sides which can be read 'in the round' given its prominent location and three street frontages.



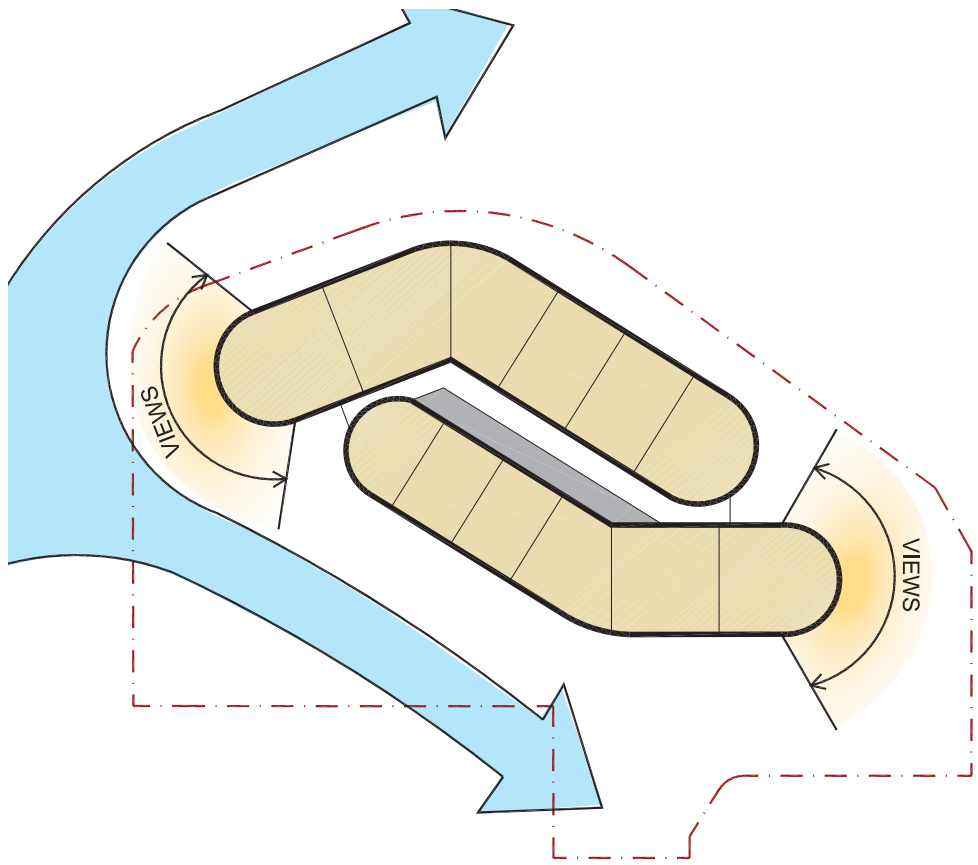
3.4 CURVED ENDS

The ends of each residential 'bar' are curved to:

/ Maximise resident amenity to end apartments by offering panoramic views out,

/ Reduce high level wind speeds, improving environmental conditions on both residential balconies as well as at ground level.

/ Create a soft organic form which contrasts from the prevailing rectangular forms nearby reinforcing the proposed development as a visual marker and 'gateway' to a new precinct rather than an extension of the residential developments on the Northern side of Herring Road.



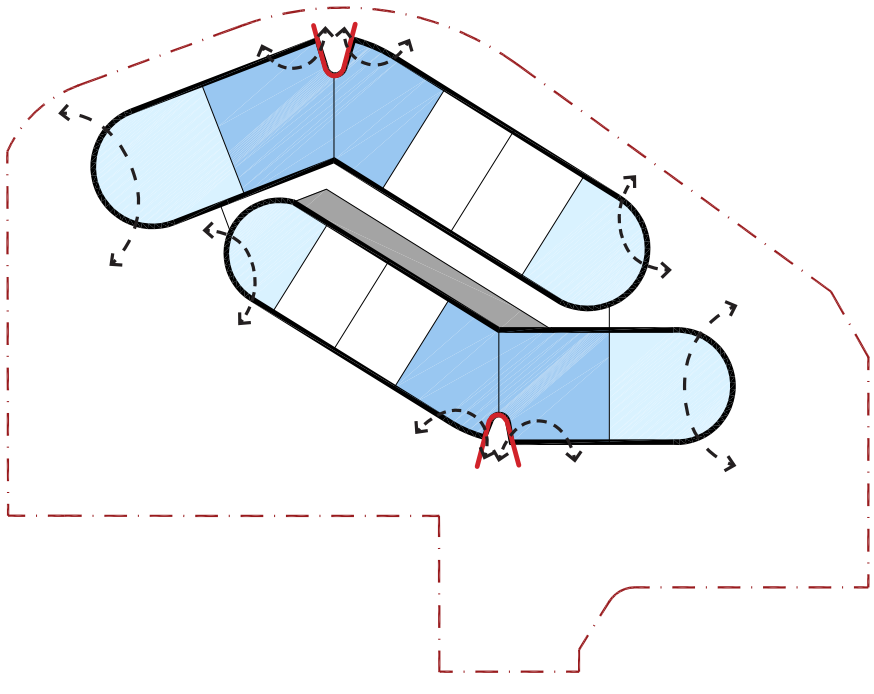
3.5 CREASES

Vertical “creases” are introduced at the geometric fold within each residential ‘bar’. The creases:

/ Enable crossflow ventilation to be achieved to 60% of apartments up to the first 9 storeys in accordance with ADG requirements,

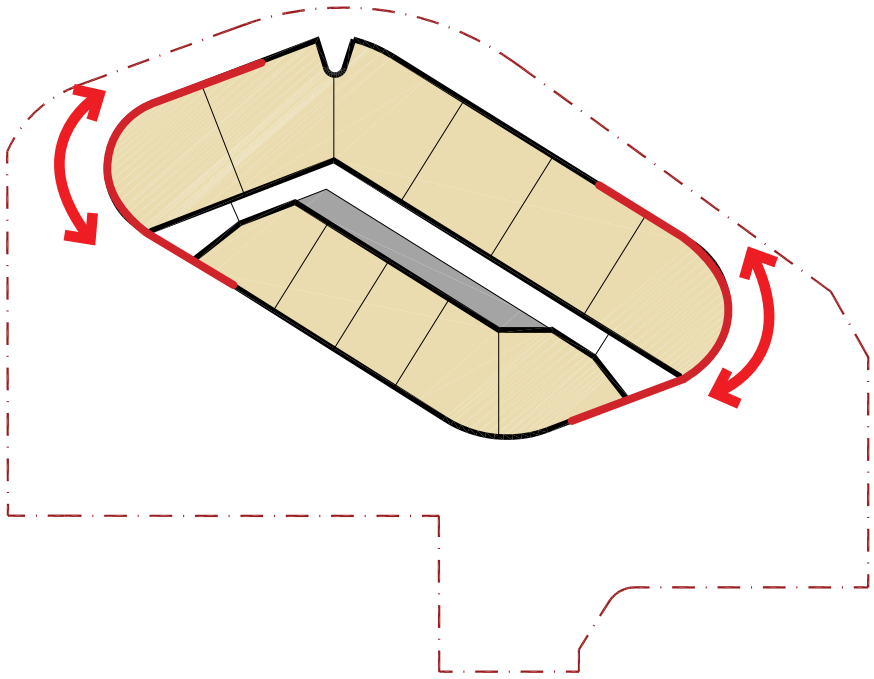
/ Bring light deeper into the plan through providing additional windows into bedrooms which also offer filtered views out,

/ Create a deep shadow articulation in the building form which breaks it into visually smaller vertical elements.



3.6 SINGULAR FORM

The form is further refined to create a ‘singular’ object which reads as a stronger and more unified single element.



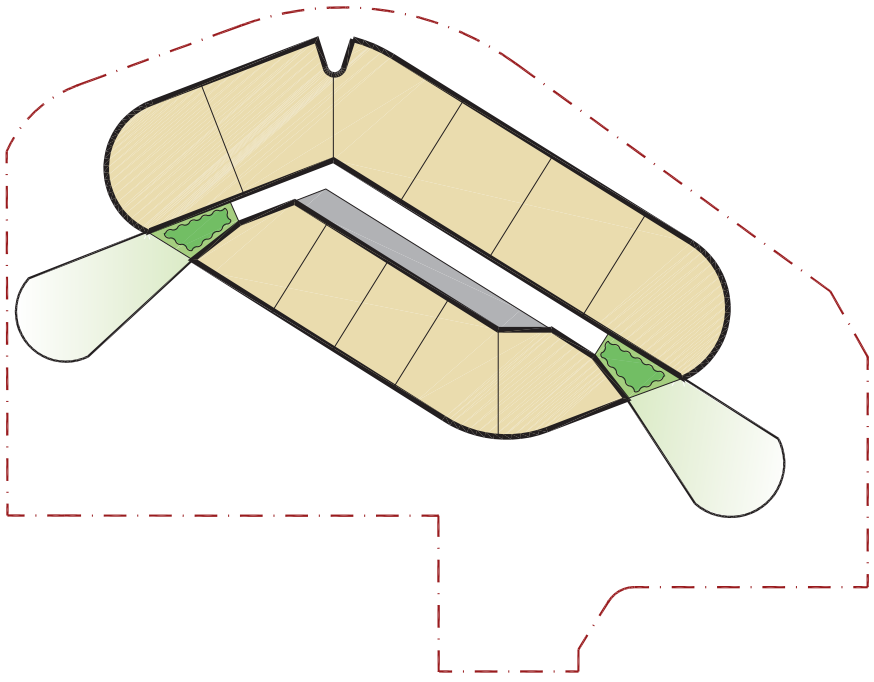
3.7 GARDENS

At each end of the internal circulation corridor, two storey voids are created to maximise daylight penetration into the circulation space. At the base of each void, external landscaped planters contain low level planting to provide a pleasant landscaped 'sky garden' outlook. ADG requirements stipulate that excellent amenity must be provided to internal circulation spaces in order to achieve 12 residential apartments per floor. The proposed development contains 13 apartments on low rise floors and 11 apartments on high rise floors, representing an average of 12 apartments per floor. Excellent amenity is achieved through:

/ Two storey voids located at the end of each corridor to bring natural light deep into the building,

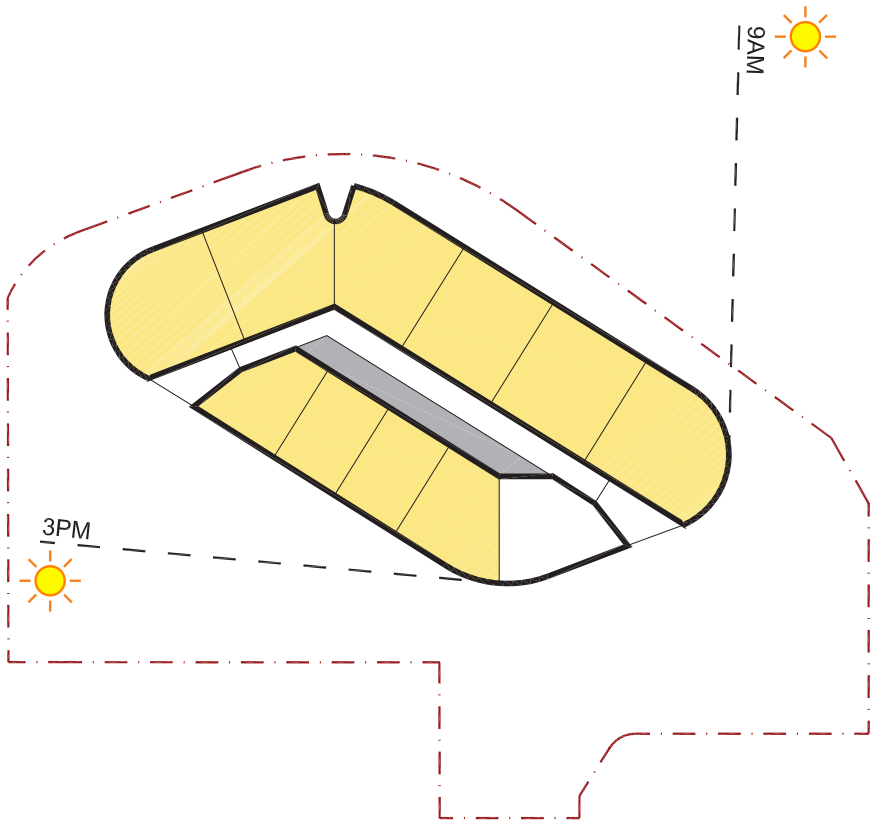
/ Operable louvres at the end of each corridor provide natural crossflow ventilation,

/ Views out are provided on all floors, with alternating gardens ensuring each floor receives one garden outlook.



3.8 SOLAR ACCESS

The resulting floorplate achieves excellent amenity with 12 out of 13 apartments receiving a minimum of 2 hours solar access between 9am and 3pm during the winter solstice on mid rise floors (92%), and 10 out of 11 apartments achieving a minimum of 2 hours solar access between 9am and 3pm on high rise floors (91%).



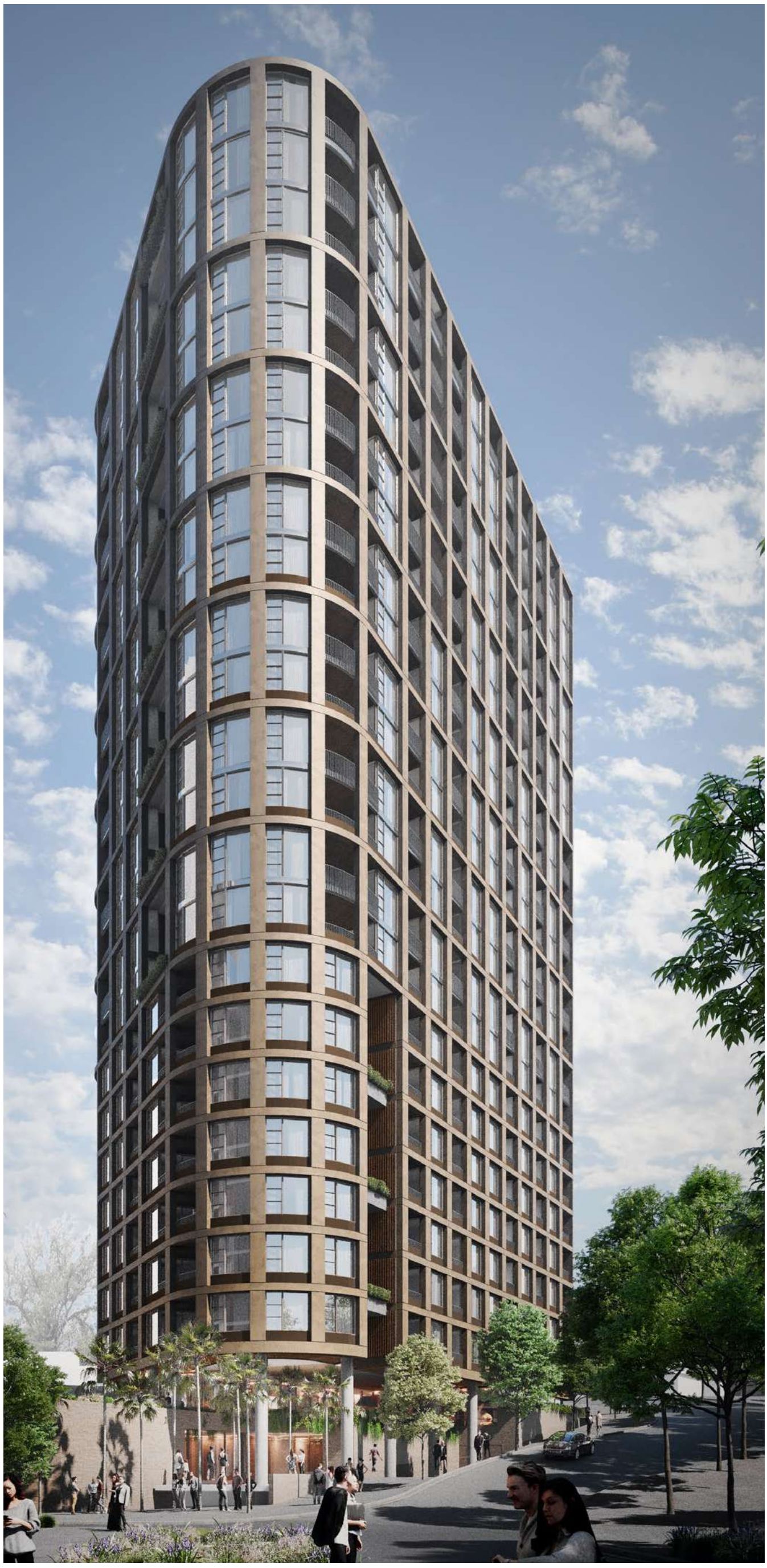
4.0 PROJECT DESCRIPTION

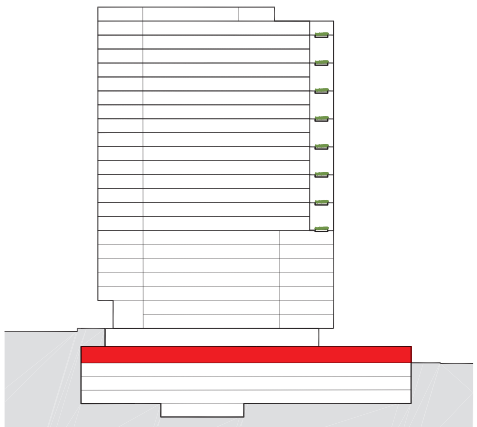
4.1 OVERVIEW

The proposed building is comprised of two elements:

/ A two storey base which steps in elevation to follow the natural gradient of the site and contains a childcare centre with outdoor play area for 75 children, two residential entrance lobbies, and a main vehicular entry point into the development.

/ A 23 storey tower consisting of 22 floorplates of approximately 1228 square metres gross building area each, with a 23rd rooftop penthouse floor of 495 square metres gross building area, set back from the floorplates below and with generous rooftop terraces.





4.2.1 LOWER GROUND INTERFACE (LEVEL LG)

The lowest point of Lot A1 occurs at RL 58 which also forms the northernmost end of Main Street. At this point, Lot A1 is on axis with Main Street and will form the visual termination of Main Street when future masterplan stages are complete.

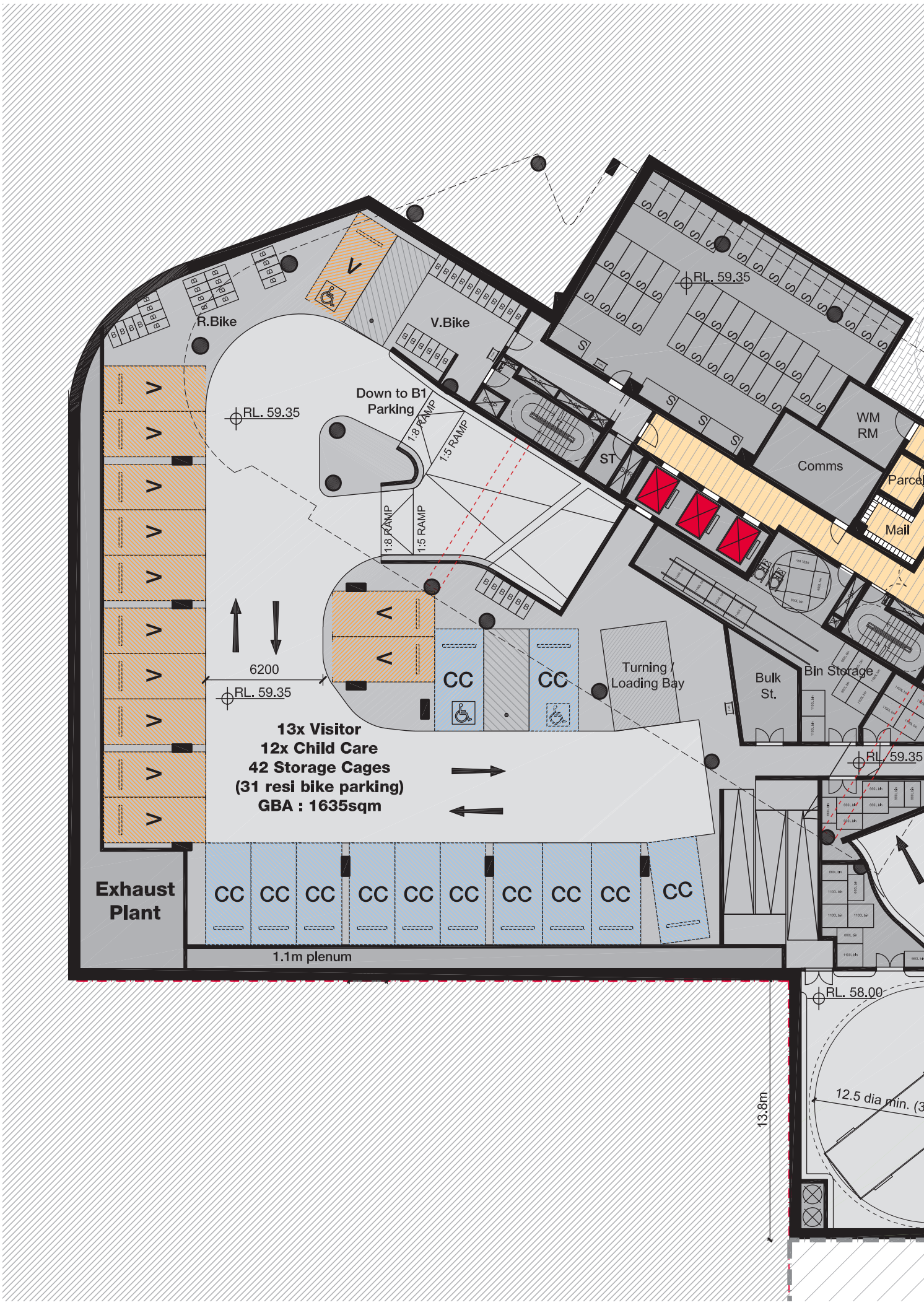
The proposed building seeks to address this key alignment via a landscaped public forecourt of approximately 340 square metres. Approximately 75 percent of the plaza is open to the sky and receives morning sun, while approximately 25 percent is sheltered by the lowest floor of the residential tower which soars 9 metres above.

Stairs gently rise by 1.35 metres within the forecourt to interface with the lower ground floor level at RL 59.35. To the north, a single storey glazed residential lobby provides access to the main residential lift bank, allowing convenient, accessible and direct future access to Main Street for residents. A second glazed entrance lobby containing lift and stair also provides access to the childcare centre located on the upper ground floor. The childcare centre entrance has been carefully located so as to ensure maximum visibility from Main Street, reinforcing its future civic character.

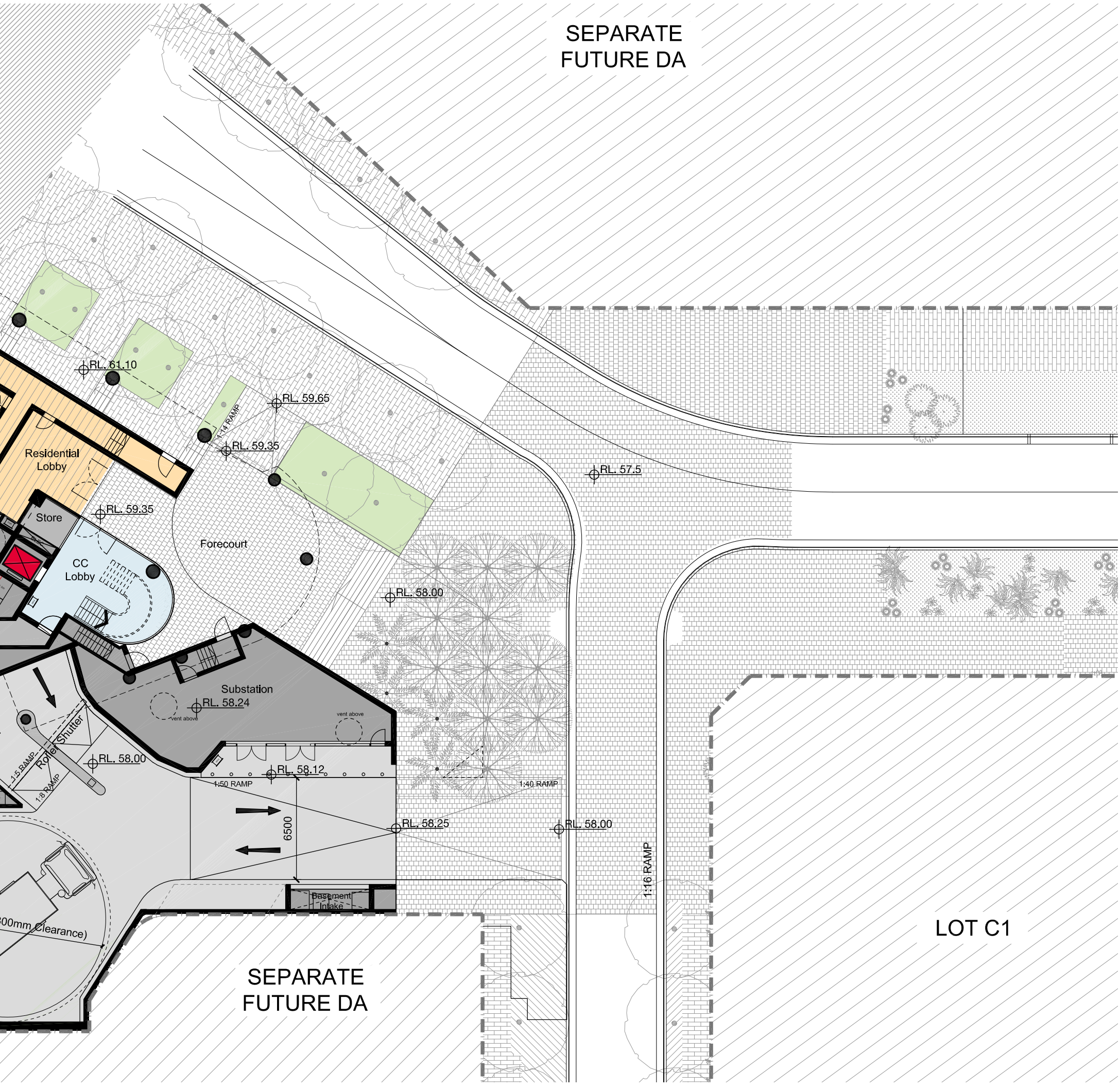
A colonnade of 2.0 metres in width, set back from the tower above, fronts East towards the new entrance road. The colonnade enables additional footpath width to be achieved within the public domain, within which a series of gentle steps are proposed to facilitate pedestrian movement along the area with steepest gradient. The two storey colonnade gradually tapers back in height from two storeys at the intersection between main street and neighbourhood street to 2.7 metres in height as the footpath rises towards Herring Road.

At the lowest point of the site and in the most discreet possible location, a basement entry ramp provides access to the below ground loading dock and carpark. The lower ground floor accommodates all waste and loading facilities for the proposed development in addition to 13 visitor parking spaces and 15 parking spaces for childcare centre use, of which 12 are located within the A1 basement and 3 are located on street level. Visitor and childcare car parking spaces are intentionally located on this level to enable separation of public and resident parking, while also provides convenient level access for both visitors and childcare centre users to the residential and childcare lobbies respectively.

The below ground loading dock contains a 12.5m diameter turntable and has been designed to also serve as the future loading dock for building A2, thus minimising vehicle entry points from the streetscape in accordance with masterplan design guidelines.



Our intention has been to achieve a two storey interface with Main Street in accordance with masterplan design guidelines while also creating a strong civic marker at the termination of its axis. The floorplate geometry presents as a soft, slender vertical form to Main Street, while the residential tower has been lifted 9 metres above ground enabling public domain to flow into the site and create a public landscaped plaza at street level.



NSW 22A

4.2.2 UPPER GROUND LEVEL

Located one floor above Main Street and one floor below Herring Road, the upper ground floor contains a dedicated childcare centre for 75 children. Whilst the internal design of the childcare centre will be subject to a separate future DA once an operator is secured, the concept plan allows for a total of 580 sqm of internal area which consists of 375 sqm of unencumbered internal play area and 780 square metres of unencumbered external play area on a landscaped terrace.

Internal spaces are able to be configured in up to 5 separate play areas of different age groups, while external play areas are located on both eastern and western sides to achieve solar access in both mornings and afternoons. The main external area, located to the west of the building and open to the sky, consists of approximately 650 square metres and achieves both privacy and visual separation from Herring Road through a level change of approximately 4.5 metres. The perimeter retaining walls are both landscaped and stepped, intentionally stepping down to the scale of the children envisaged to use the space.

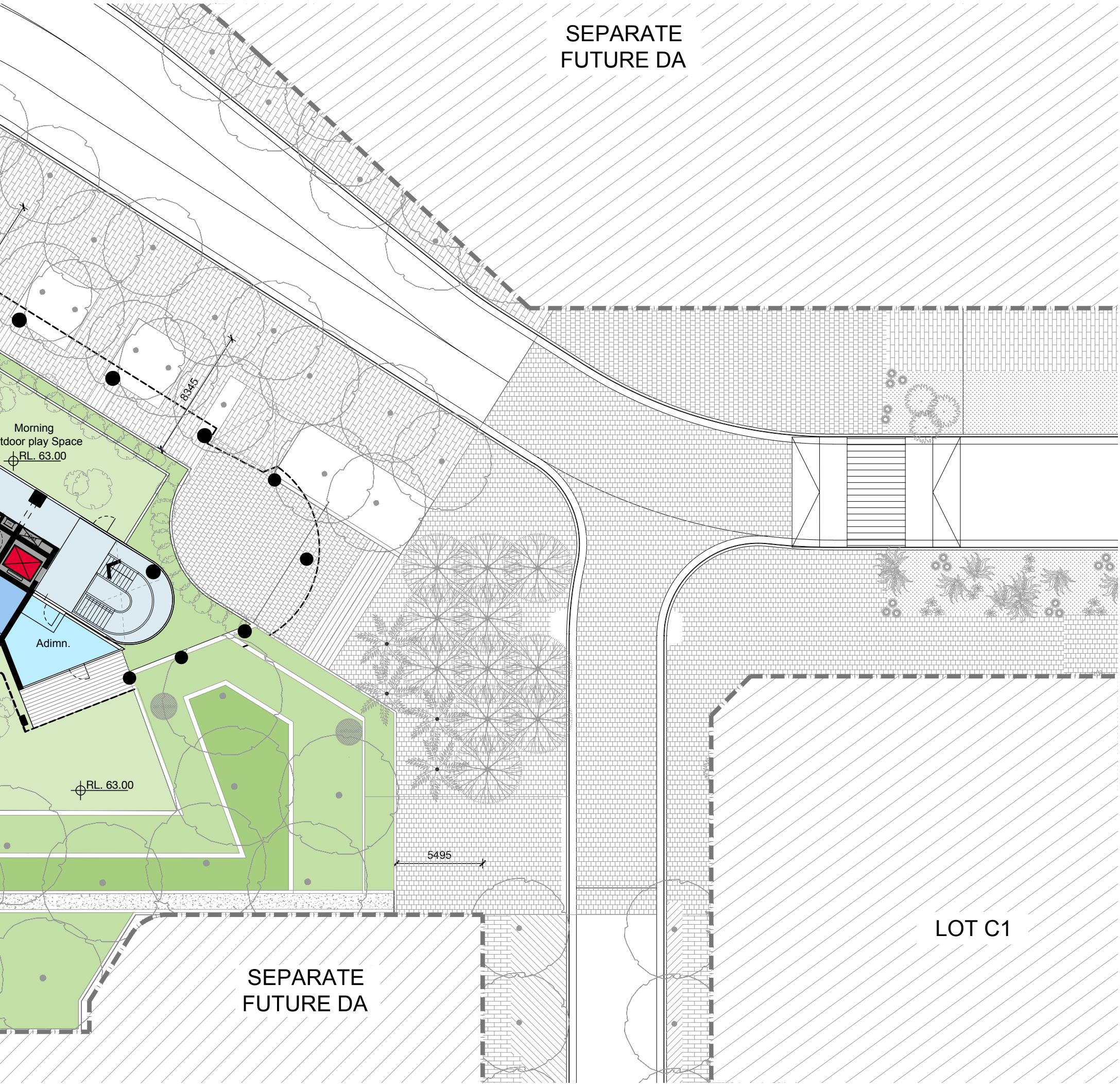
The large outdoor play area is designed to house separate pergolas for different ages groups in order to provide adequate shading area and to also create a visual barrier for privacy to the lower level residents in A1. Screen planting is also provided on the south-west of the outdoor play space to provide visual privacy from future low level apartments on site A2.

The childcare centre is accessed via a lift and stair connecting to both Main Street and the centre carpark via a childcare entrance lobby on the lower ground floor.

Within the childcare centre, internal circulation is direct and linear, with play spaces arranged east and west of the main circulation spine where they achieve maximum frontage to the outdoor play areas. The western facade is set back 2.5 metres to provide protection to the play rooms from the afternoon sun.

At the northern end of the plan, a two storey external void with landscaped garden at the base brings natural light and ventilation deep into the plan from above, while also creating pleasant landscaped views out from within the childcare centre at the location most likely to be used for communal and staff / office uses.

Principle 5: Landscape
Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood.
Good landscape design enhances the development's environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values and preserving green networks.
Good landscape design optimises useability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity and provides for practical establishment and long term management.



1.

2.

3.

PICTURED
1/ Podium viewed from Main Street
2/ Childcare afternoon outdoor play area
3/ Childcare morning outdoor play area
4/ Childcare courtyard & atria

4.

4.2.3 HERRING ROAD INTERFACE (LEVEL 01)

The main residential entrance lobby is located on Level 01 fronting Herring Road. This location has been selected as it provides near level pedestrian access to Macquarie University Train Station, Macquarie Shopping Centre and also Macquarie University, all key infrastructure elements within the current context.

The tower floorplate above has been lifted by two storeys to present a generous two storey scale to Herring Road, thus continuing the 2 storey expression fronting Main Street whilst also clearly following the natural gradient of the site. (refer to image on following page).

Lobby glazing is set back from the tower above by 3 metres to provide a landscaped noise and privacy buffer from traffic on Herring Road. Warm bronze vertical aluminium fins wrap around the lobby glazing to create a sinuous privacy screen which limits views into the lobby while also creating a warm and intimate interior feel.

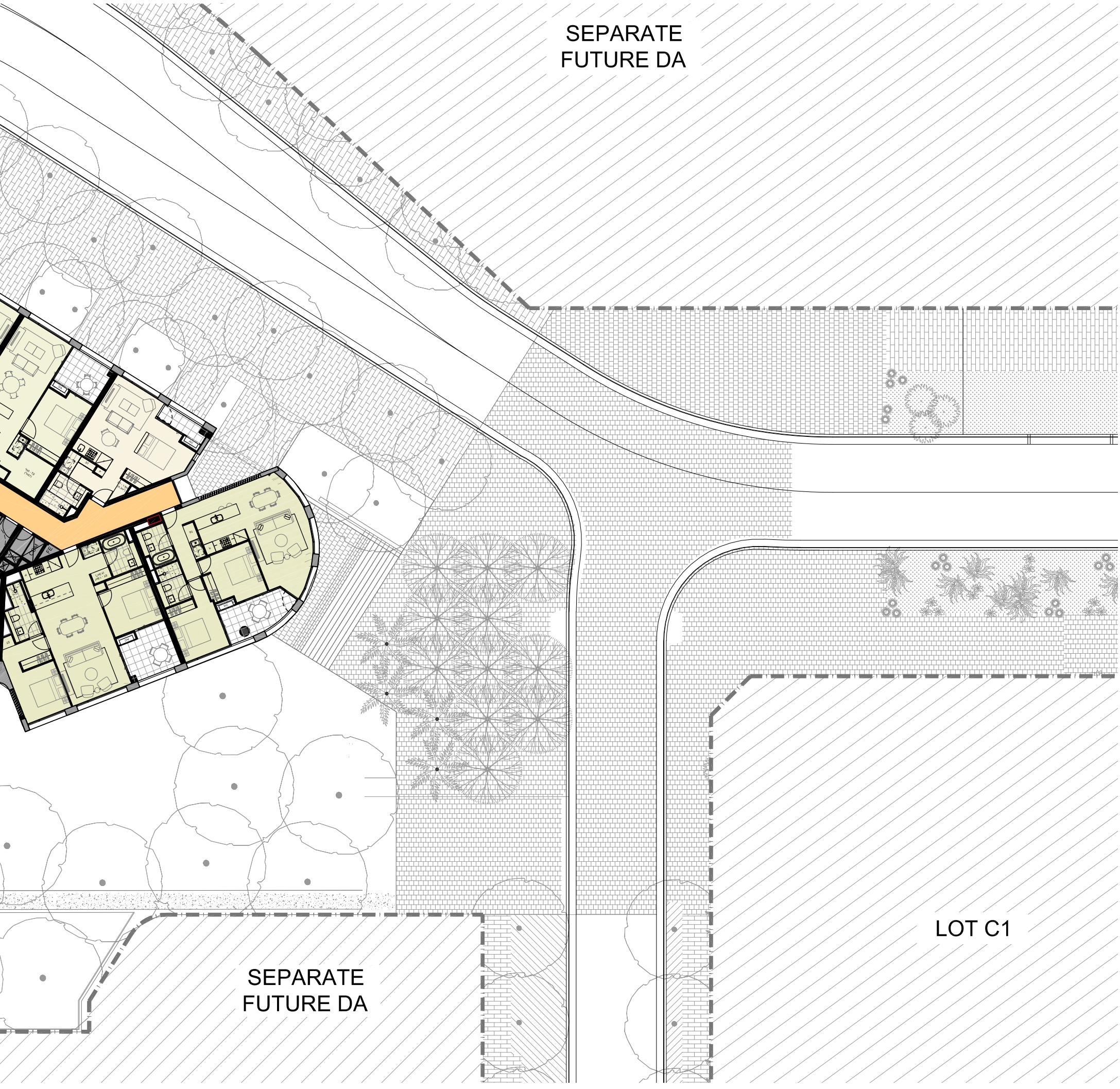
Immediately adjacent the residential lobby, a three storey landscaped void opens to the childcare centre below. This void carries light and ventilation into the childcare centre, whilst creates a base for the tower 'crease' above to seamlessly wrap its architectural language of vertical aluminium fins into the facade of the residential lobby.

The lift lobby is centrally located within the building footprint. 3 residential lifts are provided in addition to two fire escape stairs. 11 residential apartments are arranged around the central circulation corridor predominantly with eastern and western orientation. The ground floor RL has been carefully set so as to ensure a minimum of 1.5 metres between northernmost residential apartment and the footpath to the entrance road.

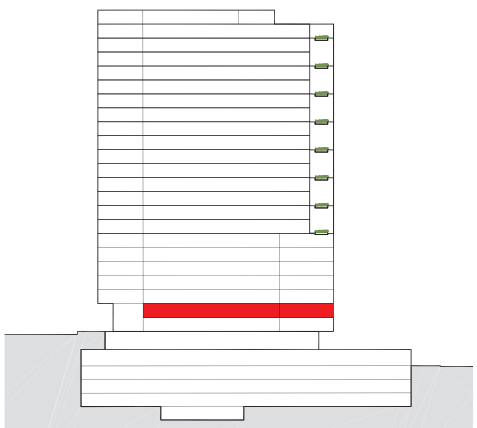
Principle 7: Safety

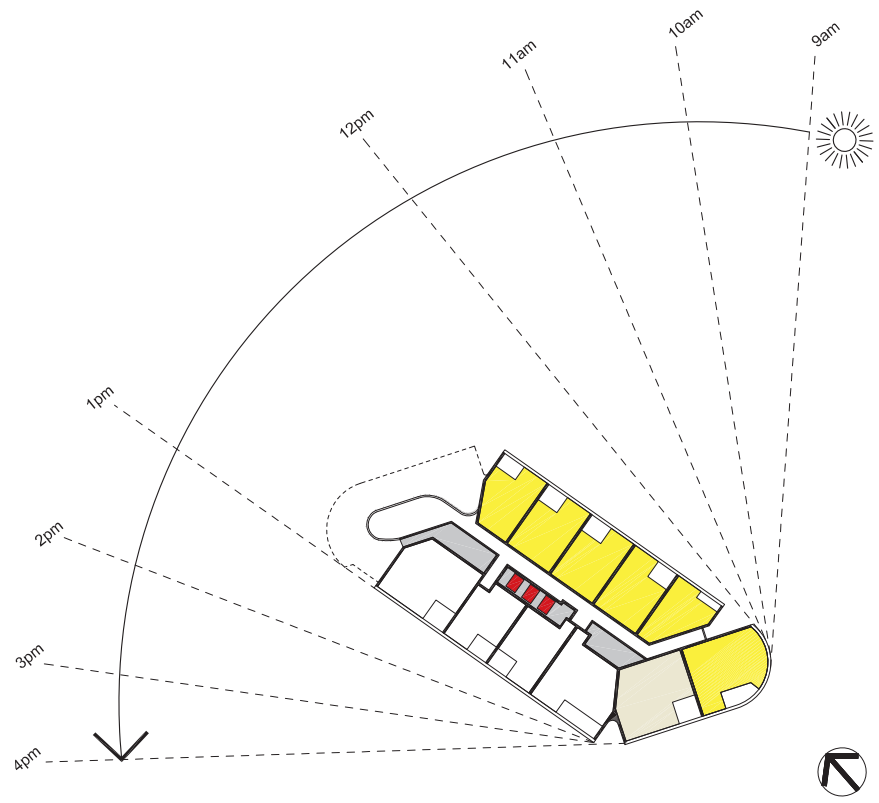
Good design optimizes safety and security within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety.

A positive relationship between public and private spaces is achieved through clearly defined secure access points and well lit and visible areas that are easily maintained and appropriate to the location and purpose.



N-SW 22A





4.2.4 LEVEL 02 PLAN

Level 02 contains 11 residential apartments consisting of 1 x studio, 6 x one bedroom apartments, and 4 x two bedroom apartments. One bedroom apartments are generally oriented in the 'linear' portion of the tower with outboard living areas and balconies enabling them to achieve a minimum of 2 hours of solar access in mid winter.

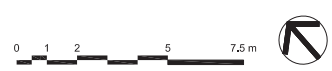
Two bedroom apartments are generally located in the curved ends where they benefit from panoramic views out from living areas, or around the fold in floorplate geometry where the 'crease' occurs.

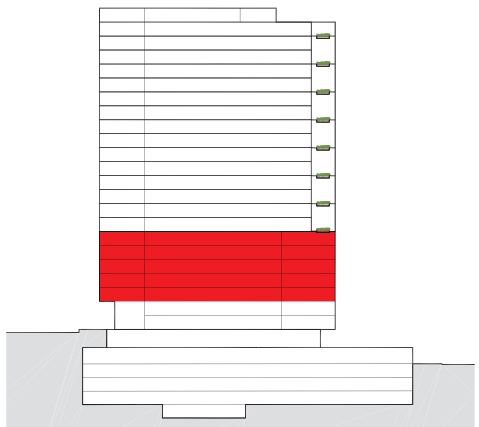
Placing two bedroom apartments at this fold enables these units to achieve full frontage to all bedrooms while still remaining of an efficient and affordable size, thus eliminating the common need to restrict frontage into the second bedroom which is common in compact apartments. Key to our design approach has been to ensure that all second bedrooms achieve full width facade frontage to maximise residential amenity achieved through access to daylight and views.

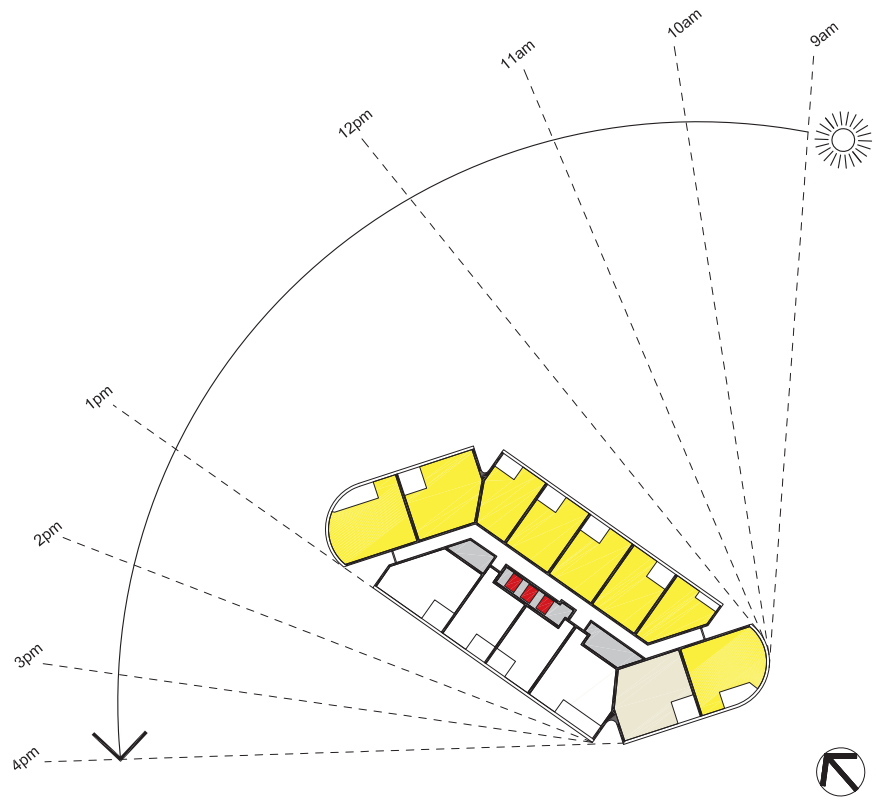
The lift core is centrally located within the floorplate. A garbage room containing garbage and recycling chute are located immediately adjacent the lift core, with escape stairs located towards the ends of each corridor to minimise travel distances in accordance with BCA requirements.

Where possible, external air conditioning units have been designed into integrated screened areas within the building facade so as to provide a considered design response which does not negatively impact on future usability of balconies.

- Studio Apartment (x 1)
- One Bedroom Apartment (x 6)
- Two Bedroom Apartment (x 4)
- Three Bedroom Apartment (x 0)
- Achieves 2 hours Solar Access 21st June
- Achieves no Solar Access 21st June







4.2.5 TYPICAL LOW RISE FLOOR (LEVEL 3 - 7)

The typical floorplate has a gross area including balconies of 1240sqm. The low rise floorplate consist of 13 residential apartments comprising 1 x studio, 6 x one bedroom apartments and 6 x two bedroom apartments.

Outstanding amenity is provided to central corridor areas via two flared garden 'slots' located at the end of the internal circulation corridor, opening to 4.5 metres in width at the perimeter. These garden slots are two storeys in height and contain external planting at the base of each, staggering in height such that one garden exists on each residential floor. The garden 'slots' enable:

/ Sunlight to penetrate deep into the core,

/ Corridors to be naturally ventilated with operable louvres located at both ends,

/ Additional daylight into, and pleasant garden views out, from apartments located immediately adjacent them,

/ Crossflow ventilation to be achieved in apartments immediately facing them.

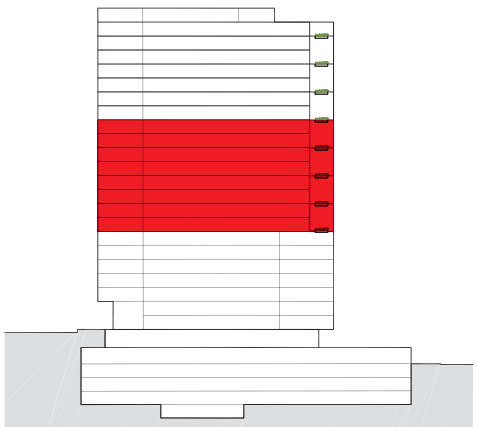
A mix of studio, one bedroom and two bedroom apartments are located adjacent the garden slots and 'creases'. Generally living rooms are located adjacent the 'slots' to enable pleasant views out, while bedrooms are located adjacent the 'creases'. Vertical linear screening on the 'creases' directs views outward, preventing overlooking between apartments while allowing natural light and ventilation in.

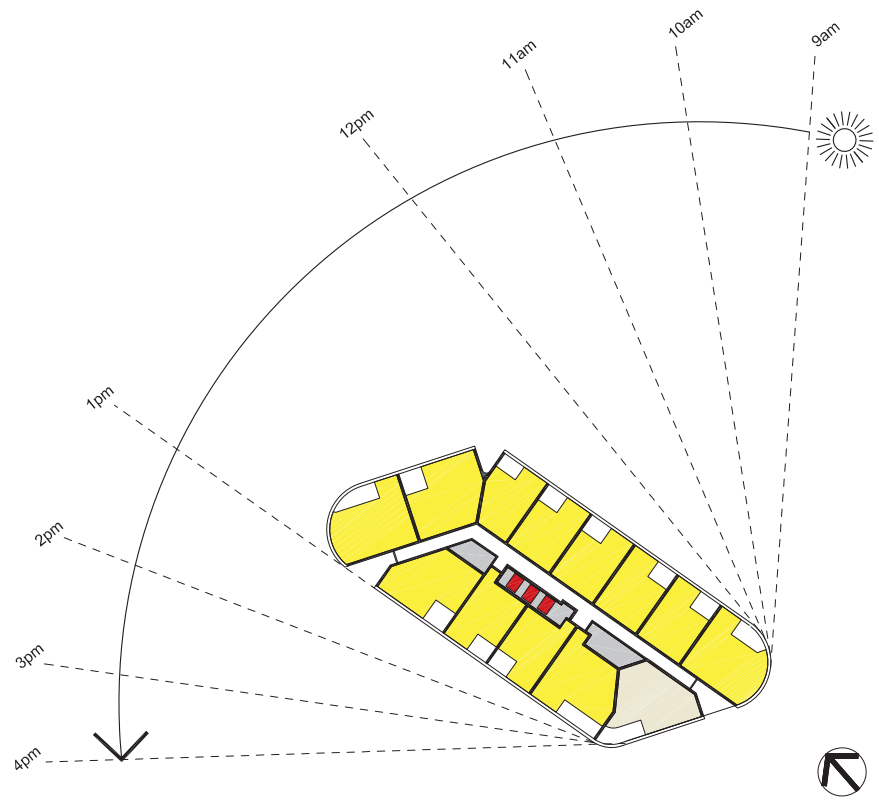
Low rise floors achieve 8 out of 13 apartments (61%) achieve a minimum of 2 hours of solar access to their living rooms and private open spaces on 21st June.

8 out of 13 apartments (61%) achieve crossflow ventilation through a combination of dual aspect apartments located i) in curved ends, ii) adjacent garden slots, and iii) adjacent the vertical 'creases'. This is slightly in excess of the 60% required by the ADG.

- Studio Apartment (x 1)
- One Bedroom Apartment (x 6)
- Two Bedroom Apartment (x 6)
- Three Bedroom Apartment (x 0)
- Achieves 2 hours Solar Access 21st June
- Achieves no Solar Access 21st June

0 1 2 5 7.5 m





4.2.6 TYPICAL MID RISE FLOOR (LEVEL 8 - 15)

Above level 7, the southern 'garden slot' alters location and switches from an eastern to southern orientation. This change occurs to create an external massing articulation of 9 storeys on the eastern frontage, while also allowing direct line of sight views out from the lift lobby.

7 x one bedroom apartments ranging from 51 to 55 sqm net internal area are provided, each with a balcony of between 8 and 9 sqm. Larger one bedroom apartments facing East are slightly deeper than those facing west and contain a generous storage / study / media area at the rear of the apartment. Slightly more compact 51sqm one bedroom apartments face west and are provided with conventional storage located near apartment entries. All one bedroom living rooms are a minimum of 3.6 metres in width and all bedrooms achieve a width of 3.0 metres, in accordance of ADG requirements. In excess of ADG requirements, all bedrooms and living rooms are provided with full width facade frontage to maximise amenity through access to daylight and natural ventilation.

Although the building is partially curved, fundamental to our planning approach has been to adopt regular orthogonal room geometry in almost all scenarios, thereby virtually eliminating angled rooms or spaces which can be difficult to furnish.

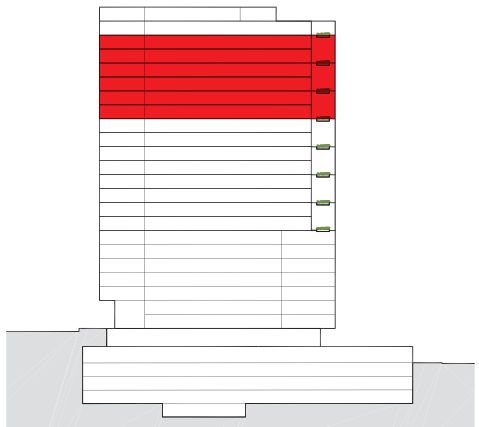
A mixture of two bedroom apartments ranging from 71 to 78 sqm are provided in both 1 bath and 2 bath varieties. Living areas and balconies in two bedroom apartments are located outboard such that both can receive a minimum of 2 hours of solar access on the winter solstice in accordance with ADG requirements.

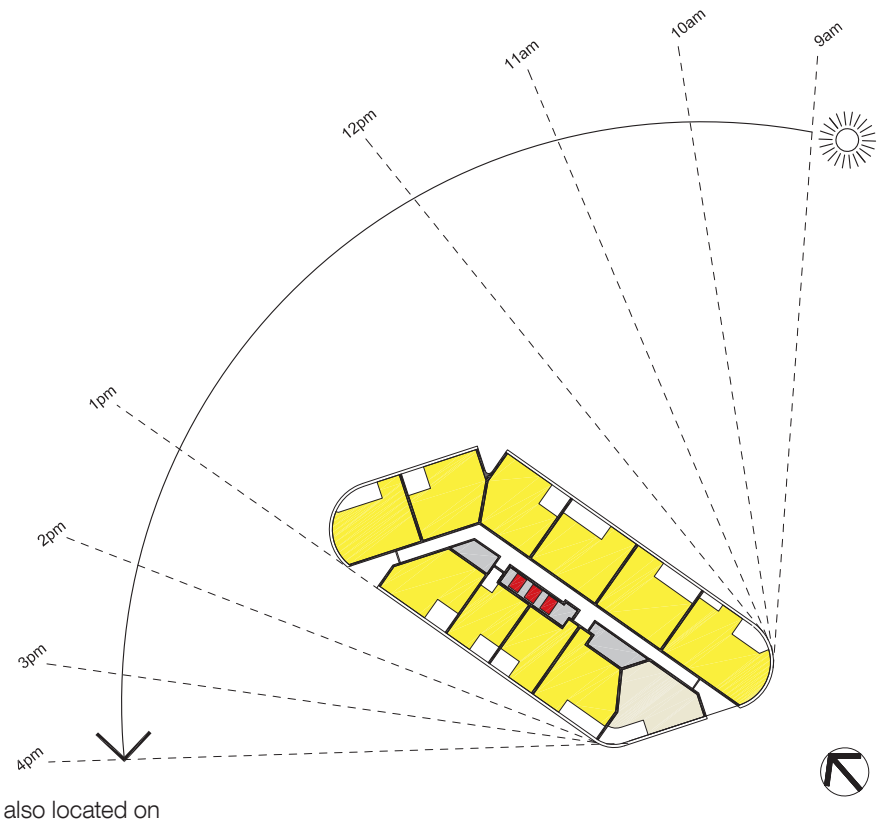
In all two bedroom apartments, living areas are increased in width to 4.0m width in accordance with ADG requirements. Where possible in curved ends, both living and dining areas are located adjacent the facade to maximise panoramic views out.

12 out of 13 apartments (92%) in the upper mid rise floors achieve a minimum of 2 hours of solar access to their living rooms and private open spaces on 21st June. 1 out of 13 (7%) apartments achieve no direct solar access on 21st June, well below the maximum 15% permissible under the ADG.

- Studio Apartment (x 0)
- One Bedroom Apartment (x 7)
- Two Bedroom Apartment (x 6)
- Three Bedroom Apartment (x 0)
- Achieves 2 hours Solar Access 21st June
- Achieves no Solar Access 21st June

0 1 2 5 7.5 m





4.2.7 TYPICAL HIGH RISE FLOOR (LEVEL 16 - 21)

Above level 15, 5 x one bedroom and 1 x two bedroom apartments facing east are replaced by 2 x two bedroom apartments and 2 x three bedroom apartments, creating a total of 11 apartments per floor.

The two bedroom apartments facing east are larger in size than typical, each approximately 86sqm internal with an oversized balcony of 13 sqm, and contain two bathrooms, larger walk-in robes in master bedrooms, and a flexible storage / media area.

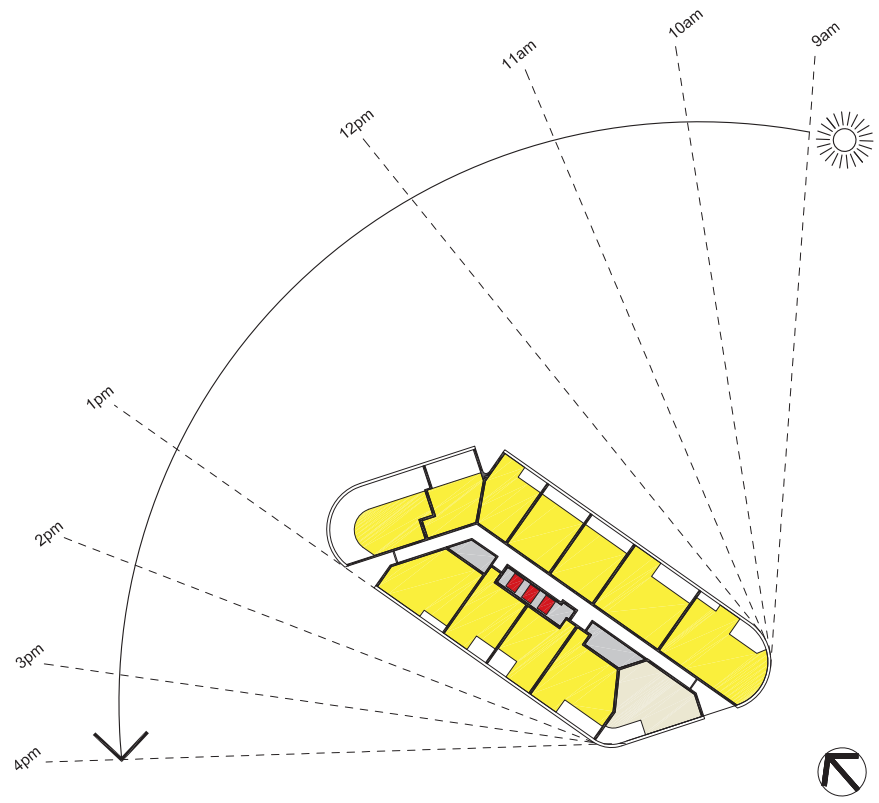
The three bedroom apartment is 106 square metres in area and has been located at the southern end of the floorplate where it benefits from panoramic city views from both the living and dining area, in addition to view outlook from the kitchen onto the 'garden slot' and associated opportunity for cross ventilation. All three bedrooms are provided with full width facade frontage in keeping with our key design principles established for the project.

Two compact one bedroom apartments are also located on high rise floors with Western orientation with an internal area of 55 square metres.

10 out of 11 apartments (91%) in the high rise floors achieve a minimum of 2 hours of solar access to their living rooms and private open spaces on 21st June. 1 out of 13 (7%) of apartments achieve no direct solar access on 21st June, well below the maximum 15% permissible under the ADG.

- Studio Apartment (x 0)
- One Bedroom Apartment (x 2)
- Two Bedroom Apartment (x 8)
- Three Bedroom Apartment (x 1)
- Achieves 2 hours Solar Access 21st June
- Achieves no Solar Access 21st June

0 1 2 5 7.5 m



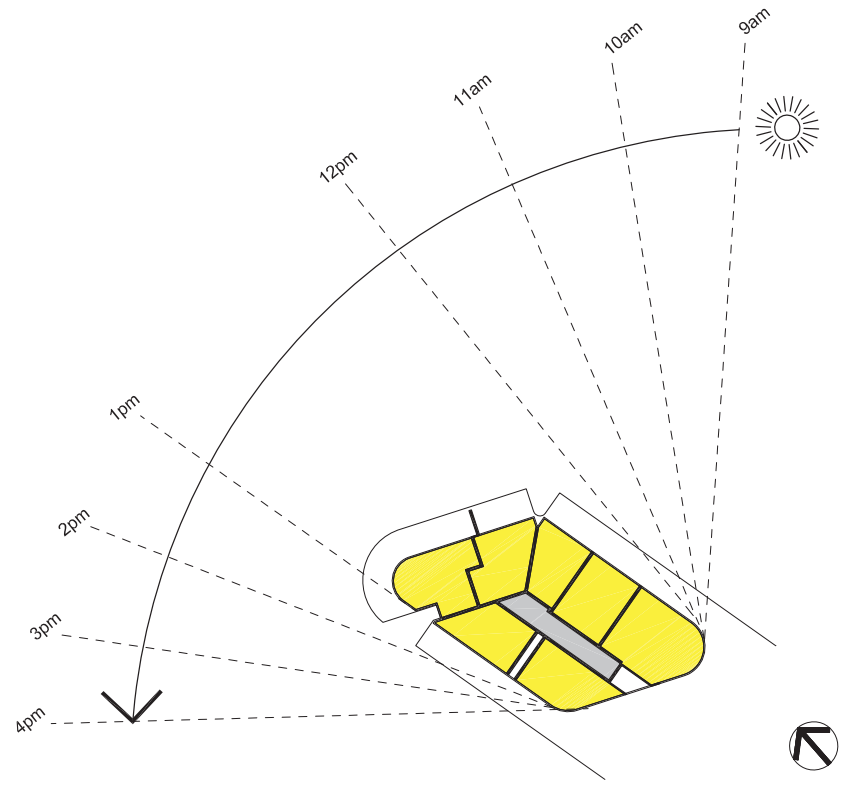
4.2.8 LEVEL 22

Level 22 is the uppermost floor served by the main lift bank. It provides access to 12 apartments, 7 of which are two storey penthouses located in the northern portion of the floorplate and in a series of two and three bedroom configurations ranging in internal area from 89 to 141 square metres nett.

The two northernmost penthouses, a two and a three bedroom apartment, have inboard living areas located on the entry level and are lined with extensive north facing outdoor terraces. The outdoor terrace areas are two storeys in height, enabling solar access to reach deep into living areas, while also creating a strong two storey scale articulation to the top of the tower.

The remaining penthouses provide bedroom, study and storage areas on the entrance level with stairs and internal voids located beneath skylights leading to living areas on upper floors.

- Studio Apartment (x 0)
- One Bedroom Apartment (x 2)
- Two Bedroom Apartment (x 8)
- Three Bedroom Apartment (x 1)
- Achieves 2 hours Solar Access 21st June
- Achieves no Solar Access 21st June



4.2.9 LEVEL 23

Level 23 is set back by 3 metres from the floorplate below on north, east and west frontages, and has a total area of 400 square metres internally. It's size and location are determined by the height plane which reflect the steep natural ground level of the site.

Two storey penthouses with living areas on level 23 benefit from expansive outdoor terraces. The set back plan results in shallow apartment depths which receive generous facade and terrace frontages. Terrace areas are protected from high wind speeds by 1.8m high glass screens set back 800mm from the building edge, enabling a facade maintenance zone with independent access from the main service core to be achieved.

- Studio Apartment (x 0)
- One Bedroom Apartment (x 0)
- Two Bedroom Apartment (x 4)
- Three Bedroom Apartment (x 3)
- Achieves 2 hours Solar Access 21st June
- Achieves no Solar Access 21st June

4.3 AMENITY

Apartments have been arranged to maximise the number of dwellings with access to direct sunlight and opportunities for cross ventilation.

4.3.1 SOLAR ACCESS

A total of 71% of dwellings will achieve at least 2 hours direct sunlight to their balconies and living spaces between 9am and 3pm on the winter solstice. The relevant apartments are identified on the adjacent spreadsheet.

Achieves min. 2 hr Solar Access during mid-winter

Achieves min. 1 hr Solar Access during mid-winter

Residential Unit Solar Access Schedule

Use	Level	Height RL	Height m	Apartment Number E			S		W				N		E		2hrs	>1hrs	No Sun	Total Units Per
Penthouses	L23	135.20	3.10																	
	L22	132.10	3.10	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212		11	0	1	12
High-Rise	L21	129.00	3.10	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111			10	0	1	11
	L20	125.90	3.10	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			10	0	1	11
	L19	122.80	3.10	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911			10	0	1	11
	L18	119.70	3.10	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811			10	0	1	11
	L17	116.60	3.10	1701	1702	1703	1704	1705	1706	1707	1708	1709	1710	1711			10	0	1	11
	L16	113.50	3.10	1601	1602	1603	1604	1605	1606	1607	1608	1609	1610	1611			10	0	1	11
Mid-Rise	L15	110.40	3.10	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	12	0	1	13
	L14	107.30	3.10	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	8	4	1	13
	L13	104.20	3.10	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	8	4	1	13
	L12	101.10	3.10	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	8	4	1	13
	L11	98.00	3.10	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	8	4	1	13
	L10	94.90	3.10	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	8	4	1	13
	L09	91.80	3.10	901	902	903	904	905	906	907	908	909	910	911	912	913	8	4	1	13
	L08	88.70	3.10	801	802	803	804	805	806	807	808	809	810	811	812	813	8	4	1	13
Low-Rise	L07	85.60	3.10	701	702	703	704	705	706	707	708	709	710	711	712	713	8	4	1	13
	L06	82.50	3.10	601	602	603	604	605	606	607	608	609	610	611	612	613	8	4	1	13
	L05	79.40	3.10	501	502	503	504	505	506	507	508	509	510	511	512	513	8	4	1	13
	L04	76.30	3.10	401	402	403	404	405	406	407	408	409	410	411	412	413	8	4	1	13
	L03	73.20	3.10	301	302	303	304	305	306	307	308	309	310	311	312	313	8	4	1	13
	L02	70.10	3.10	201	202	203	204	205	206	207	208	209	210	211			6	4	1	11
	L01	67.00	3.10	101	102	103	104	105	106	107	108	109	110	111			6	4	1	11
																	191	56	22	269
																	71%	21%	8%	

Principle 6: Amenity

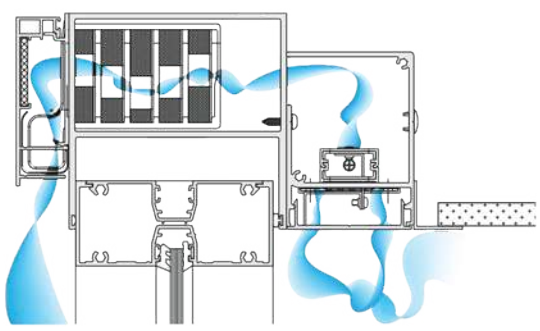
Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well being.

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

4.3.2 CROSSFLOW VENTILATION

A total of 60% of apartments below Level 08 have windows facing in more than one direction and are deemed to be naturally cross ventilated, in compliance with ADG requirements. North and West facing cross ventilated dwellings will be fitted with acoustic trickle ventilators (AWS Ventient system detail shown below) to provide natural cross ventilation with windows and doors closed.

Above the 9th Storey (Level 07), the ADG does not require apartments to be cross ventilated, however a total of 92 apartments above Level 07 achieve crossflow ventilation. The relevant apartments are tabulated below.



AWS Ventient Acoustic Trickle Ventilator System installed in window and/or door subhead

Cross Flow apartments within first 9 storeys

Cross Flow apartments above 9 storeys

Residential Unit Cross-Ventilation Schedule

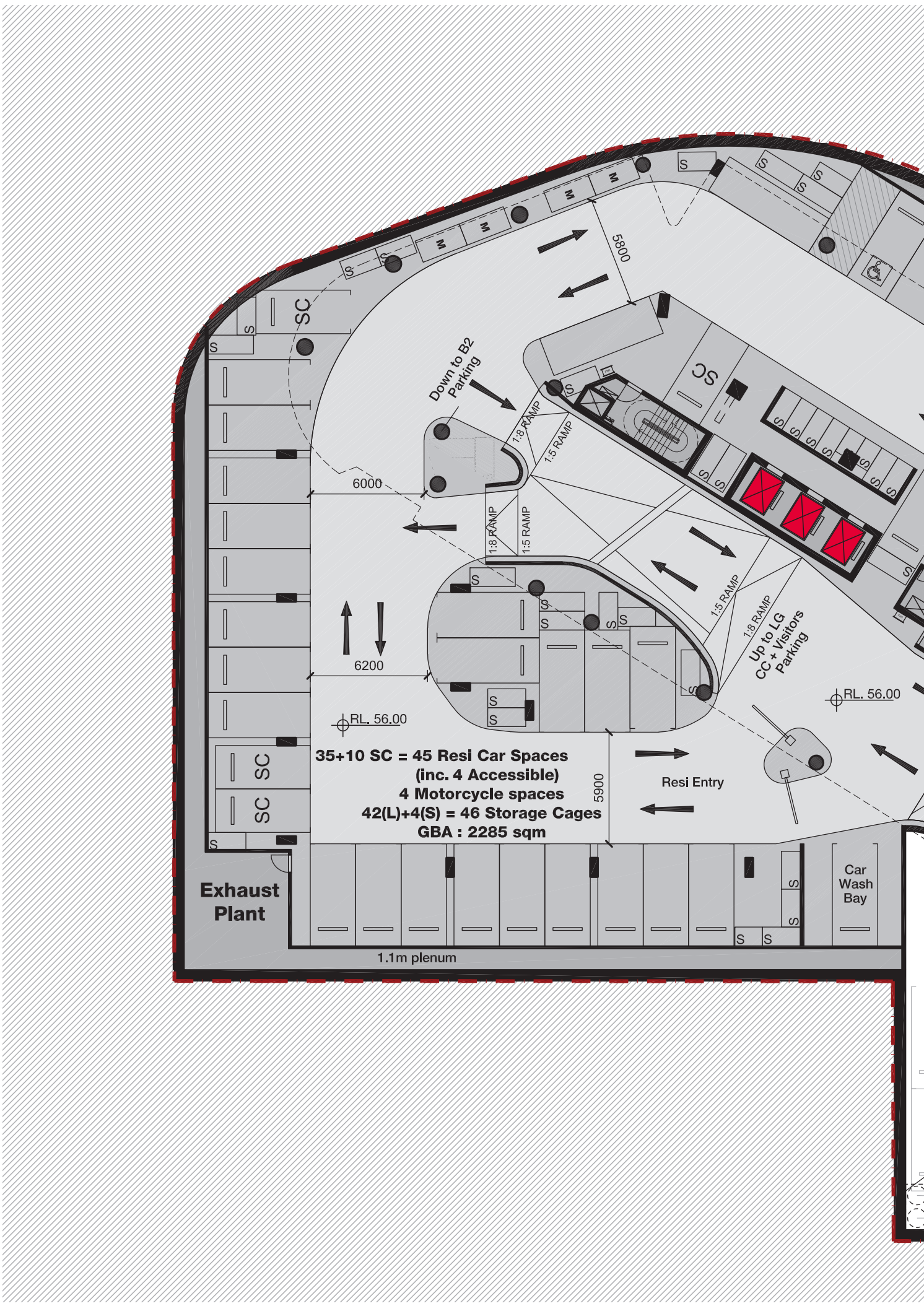
Use	Level	Height RL	Height m	Apartment Number E			S		W			N		E		Cross Flow Units	Total Units	
Penthouses	L23	135.20	3.10															
	L22	132.10	3.10	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	9	12	
High-Rise	L21	129.00	3.10	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111		6	11	
	L20	125.90	3.10	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		6	11	
	L19	122.80	3.10	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911		6	11	
	L18	119.70	3.10	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811		6	11	
	L17	116.60	3.10	1701	1702	1703	1704	1705	1706	1707	1708	1709	1710	1711		6	11	
	L16	113.50	3.10	1601	1602	1603	1604	1605	1606	1607	1608	1609	1610	1611		6	11	
Mid-Rise	L15	110.40	3.10	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	6	13	
	L14	107.30	3.10	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	6	13	
	L13	104.20	3.10	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	6	13	
	L12	101.10	3.10	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	6	13	
	L11	98.00	3.10	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	6	13	
	L10	94.90	3.10	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	6	13	
	L09	91.80	3.10	901	902	903	904	905	906	907	908	909	910	911	912	913	6	13	
	L08	88.70	3.10	801	802	803	804	805	806	807	808	809	810	811	812	813	6	13	
Low-Rise	L07	85.60	3.10	701	702	703	704	705	706	707	708	709	710	711	712	713	8	13	9th Storey
	L06	82.50	3.10	601	602	603	604	605	606	607	608	609	610	611	612	613	8	13	
	L05	79.40	3.10	501	502	503	504	505	506	507	508	509	510	511	512	513	8	13	
	L04	76.30	3.10	401	402	403	404	405	406	407	408	409	410	411	412	413	8	13	
	L03	73.20	3.10	301	302	303	304	305	306	307	308	309	310	311	312	313	8	13	
	L02	70.10	3.10	201	202	203	204	205	206	207	208	209	210	211			6	11	
	L01	67.00	3.10	101	102	103	104	105	106	107	108	109	110	111			6	11	
	UG																	
	LG																	
Total required																	52	87	
																	60%		

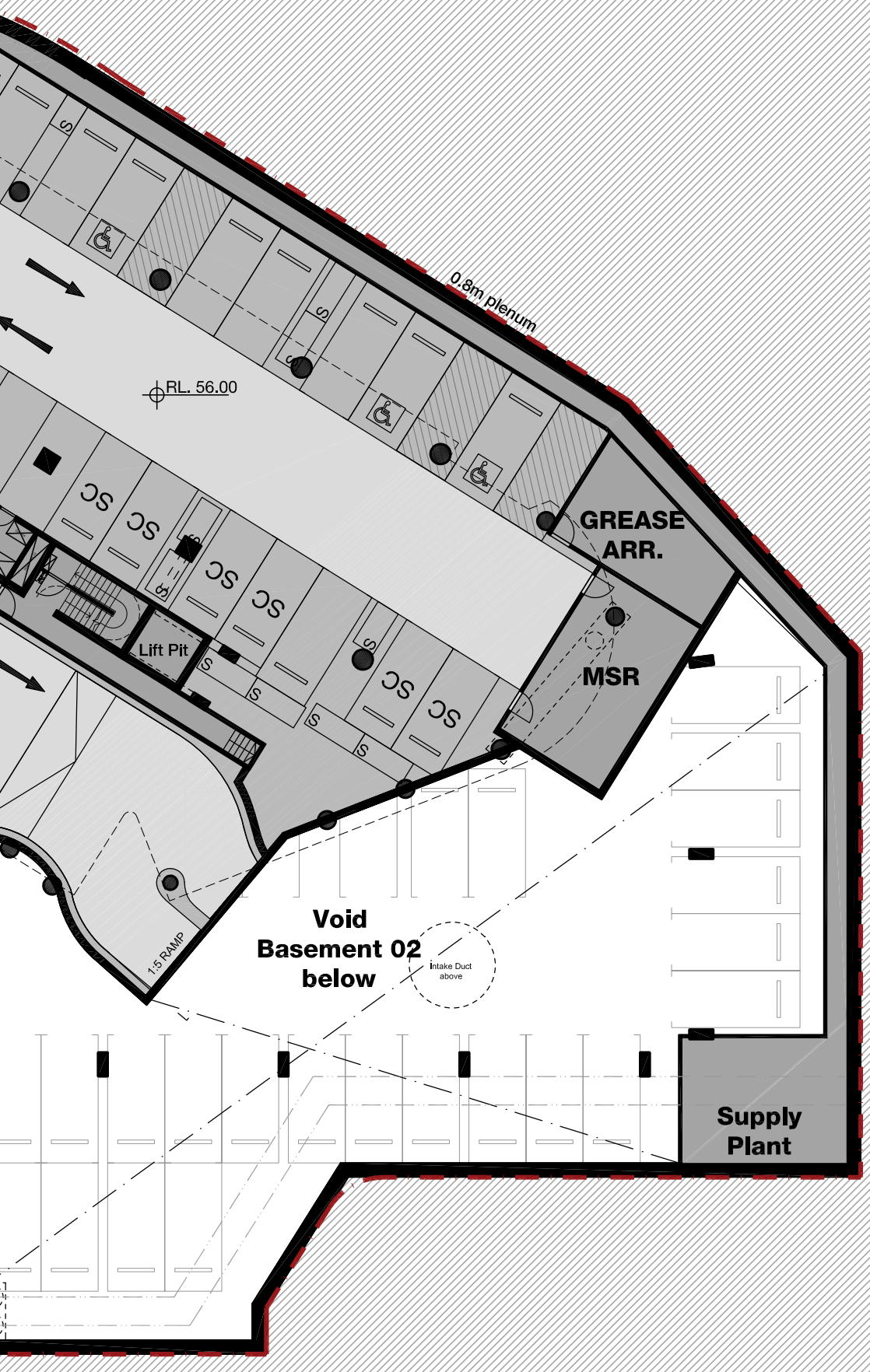
4.4 BASEMENT LEVEL 01

All cars arriving into the site enter via the ramp located at lower ground floor level and proceed to Basement Level 01.

At the base of the entry ramp, residents will turn left where a boom gate will restrict access to residential parking floors below to residents only.

Visitors, childcare centre staff and patrons will proceed forwards and return to the lower ground floor via a ramp directly ahead, where the childcare and visitor parking areas provide direct and level access to the residential and childcare lobbies. (Refer to 4.2.1 Upper Ground Floor).




0.8m plenum
RL. 56.00
GREASE
ARR.
MSR
Lift Pit
1.5 RAMP
Void
Basement 02
below
Intake Duct
above
Supply
Plant

4.5 TYPICAL BASEMENT FLOOR

2 x basement floors are proposed beneath Basement Level 01 with each providing 80 and 83 residential parking spaces respectively.

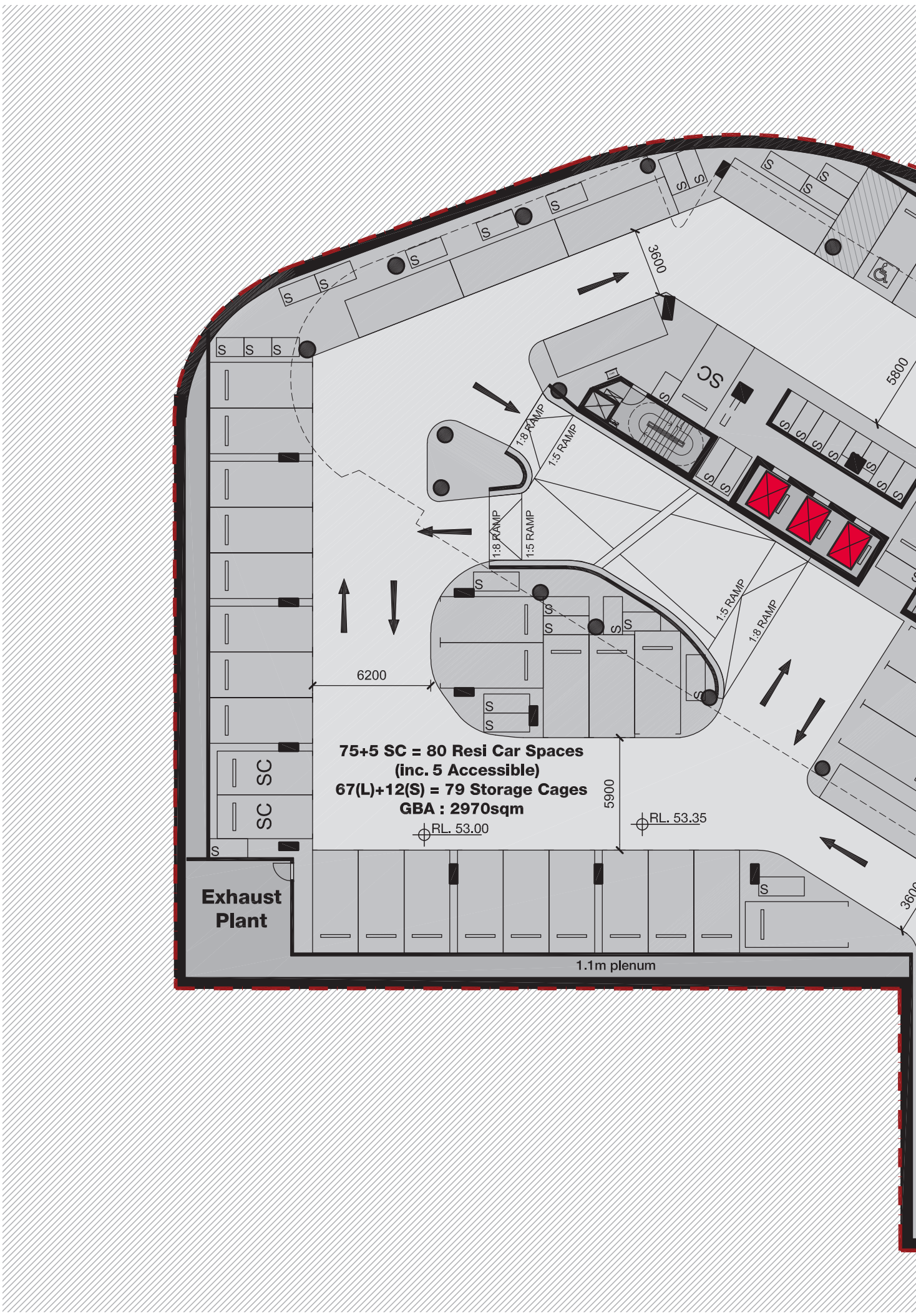
The main circulation ramp is centrally located with a short length of two way roadway connecting the top and bottom of each ramp. Downwards movement is via short and continuous left movements, while upwards movements are similarly via short and continuous right movements.

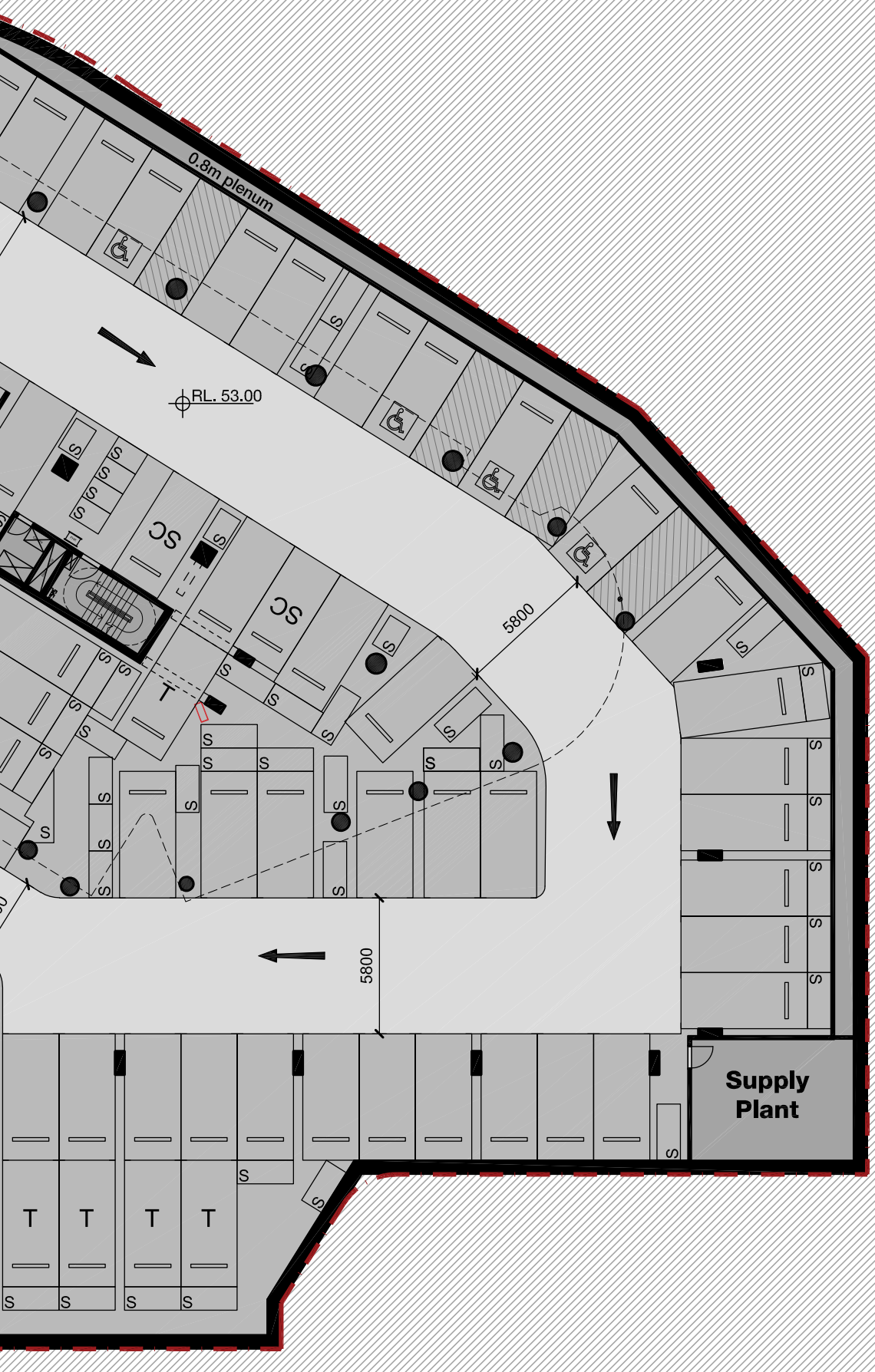
Upon reaching the appropriate floor, vehicles will peel away from the two-way circulation ramp and proceed along a 1 way circulation loop around each floor providing access to the parking spaces.

Direct lift access is provided from residential floors to all basement floors, with lifts and stairs centrally located. A total of 269 Storage Cages are provided throughout the basement. Refer to storage schedule located in Appendix D of this report. Storage cages have been provided in accordance with AS.2890.3 and are therefore deemed to enable storage of resident bicycles. As such, minimum separate and dedicated bicycle parking is provided only Lower Ground Floor.

A total of 13 x accessible parking spaces are provided between Basement Level 01 and Level 03. These have been located close to lifts to ensure minimum travel distances for wheelchair users.

4 tandem parking spaces are provided in the south western portion of the floorplate, together with 1 tandem parking space provided adjacent to the core on Basement Level 02 and Level 03. These spaces will be assigned to larger three bedroom and penthouse apartments requiring 2 spaces per unit.

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5.0 APARTMENT PLANNING

5.1 TYPICAL APARTMENT TYPES

Although the building has a partially curved form, apartments have been designed to create simple rectilinear spaces with high amenity achieved through solar access and views outlook. The floorplate accommodates a range of single frontage and dual aspect apartment types and sizes. Living rooms to all apartments are located outboard to maximise solar access during mid winter.

Apartments have been designed to be highly compliant with ADG requirements. Living rooms of one bedroom apartments are minimum 3.6m wide, with all bedrooms being minimum 3m in width. All one bedroom apartments are larger than 50sqm in area, in accordance with ADG requirements, with balcony size varying from 8-9 sqm, in accordance with ADG requirements.

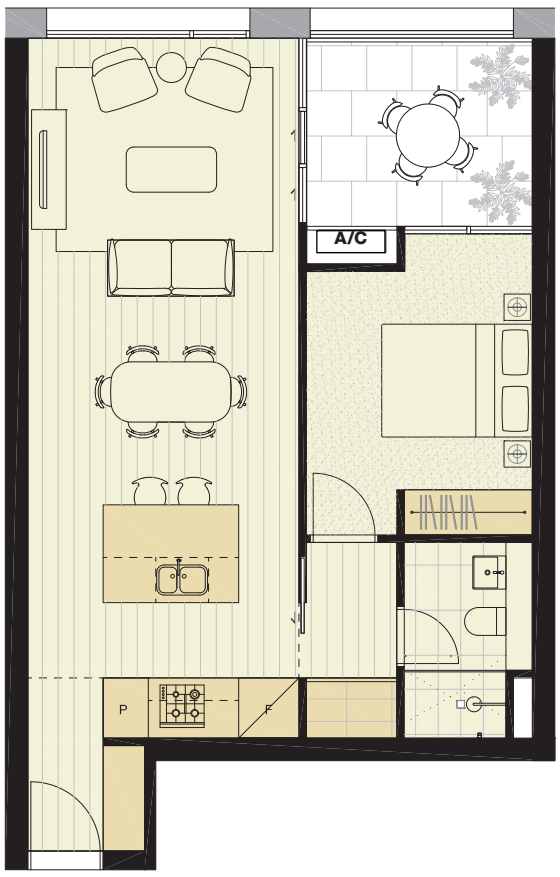
In smaller one bedroom apartments, dimensions have been carefully refined to provide island kitchens of a sufficient depth to double up in use as a breakfast bar, with discreet access to laundry, bathroom and bedroom areas located away from the living / entertaining area. Most storage cupboard area provided adjacent to entries area designed in accordance with ADG requirements, with each apartment also receiving a storage cage within the basement.

All two bedroom apartments provide a minimum living room width of 4m in accordance with ADG requirements, with the exception of apartments in the curved ends of the floorplate where an average width of 4m has been adopted. All two bedroom - one bathroom types are a minimum of 70 sqm internal area, while all two-bedroom two bathroom types are a minimum of 75 sqm internal area, in accordance with ADG requirements. Balcony areas for two bedroom apartments vary from 10-13 sqm, in accordance with ADG requirements of 10sqm for two bedroom units.

Vertical facade articulation has been carefully placed to reduce the glazing area facing east and west while still balancing the need to achieve solar access in mid winter.

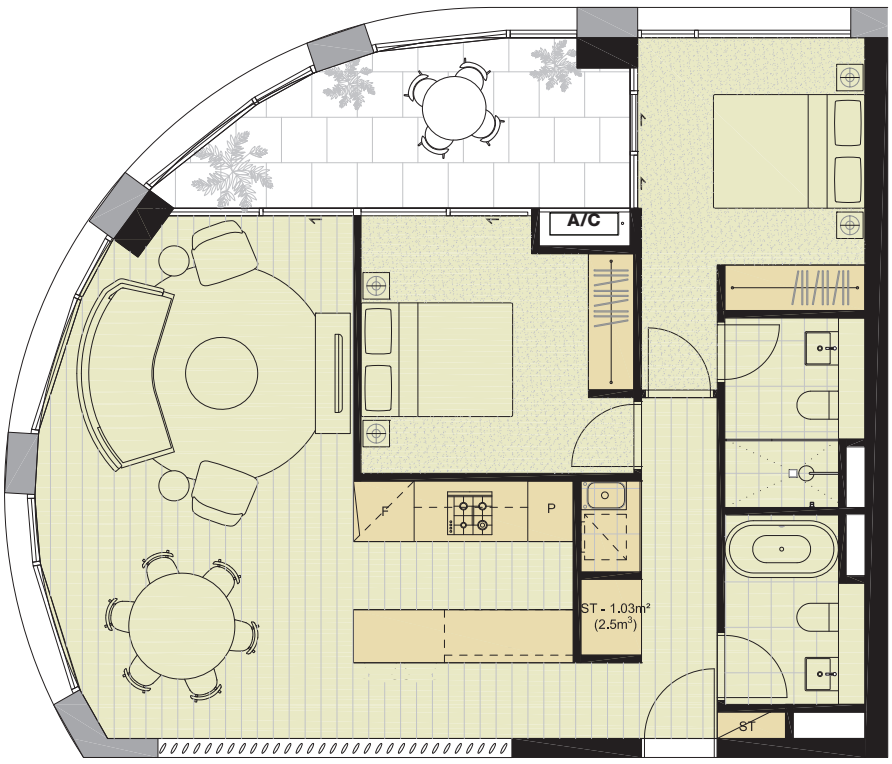
A series of 400mm deep, 800mm wide projecting vertical precast concrete facade elements are carefully located so as to provide some internal shading, to enable interface of balcony door sets with the tower facade, and to integrate the tower structure into the facade and internal planning.

A full summary of ADG compliance for residential units is contained within Appendix B. Detailed schedules outlining residential unit mix and sizes is contained within chapter D, along with storage calculations and schedules for each apartment type.



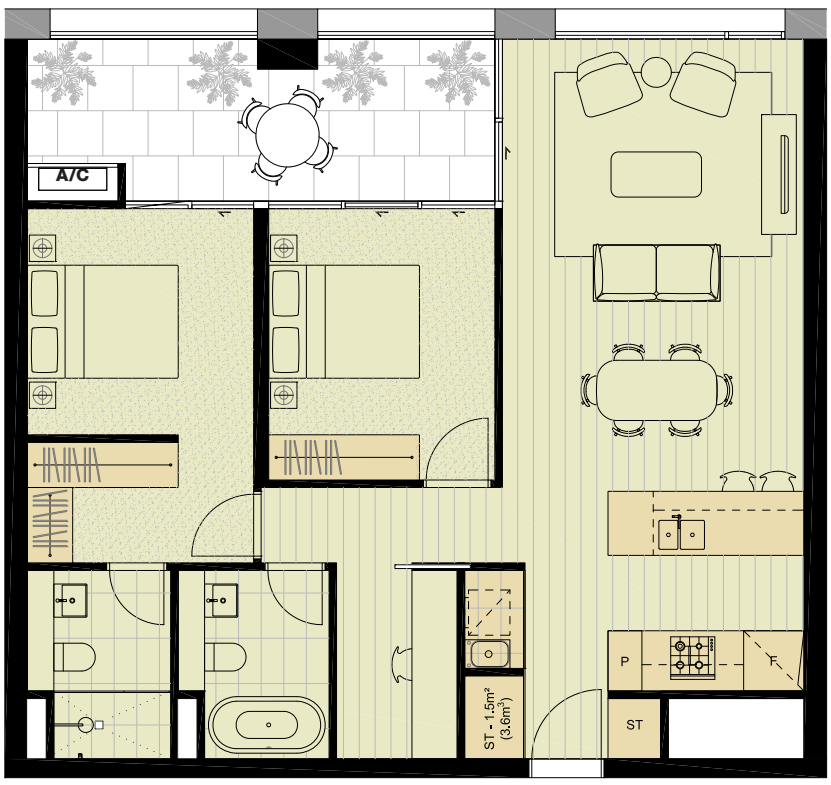
5.2 TYPICAL 1 BEDROOM APARTMENT

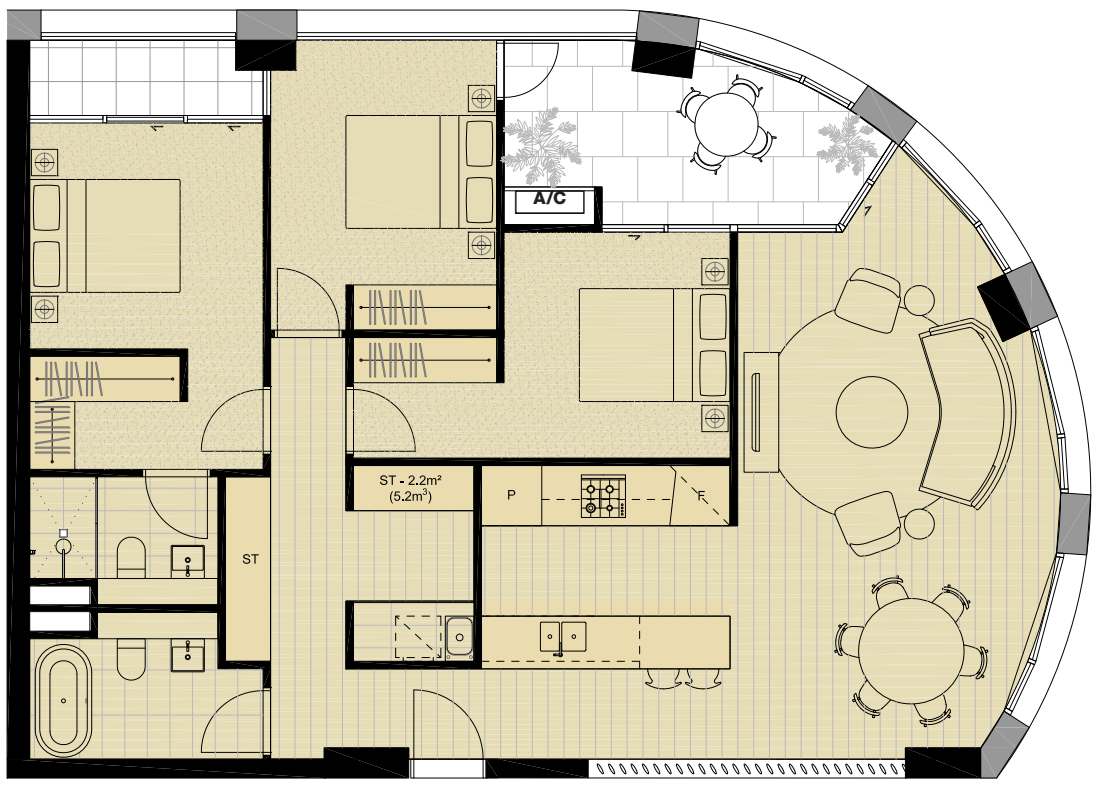
INTERNAL AREA:	56 SQM
BALCONY:	8 SQM



5.3 TYPICAL 2 BEDROOM CORNER APARTMENT

INTERNAL AREA:	77 SQM
BALCONY:	12 SQM



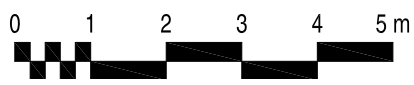


5.4 TYPICAL 2 BEDROOM LINEAR APARTMENT

INTERNAL AREA:	82 SQM
BALCONY:	13 SQM

5.5 TYPICAL 3 BEDROOM APARTMENT

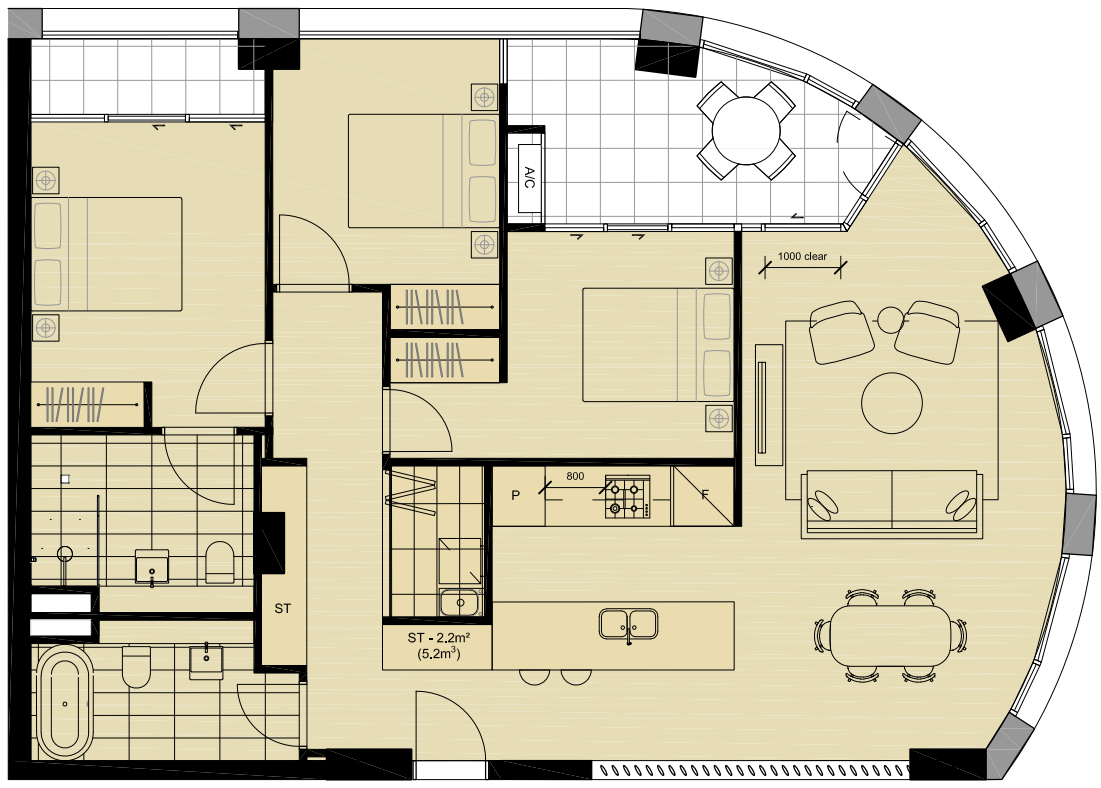
INTERNAL AREA:	106 SQM
BALCONY:	14 SQM

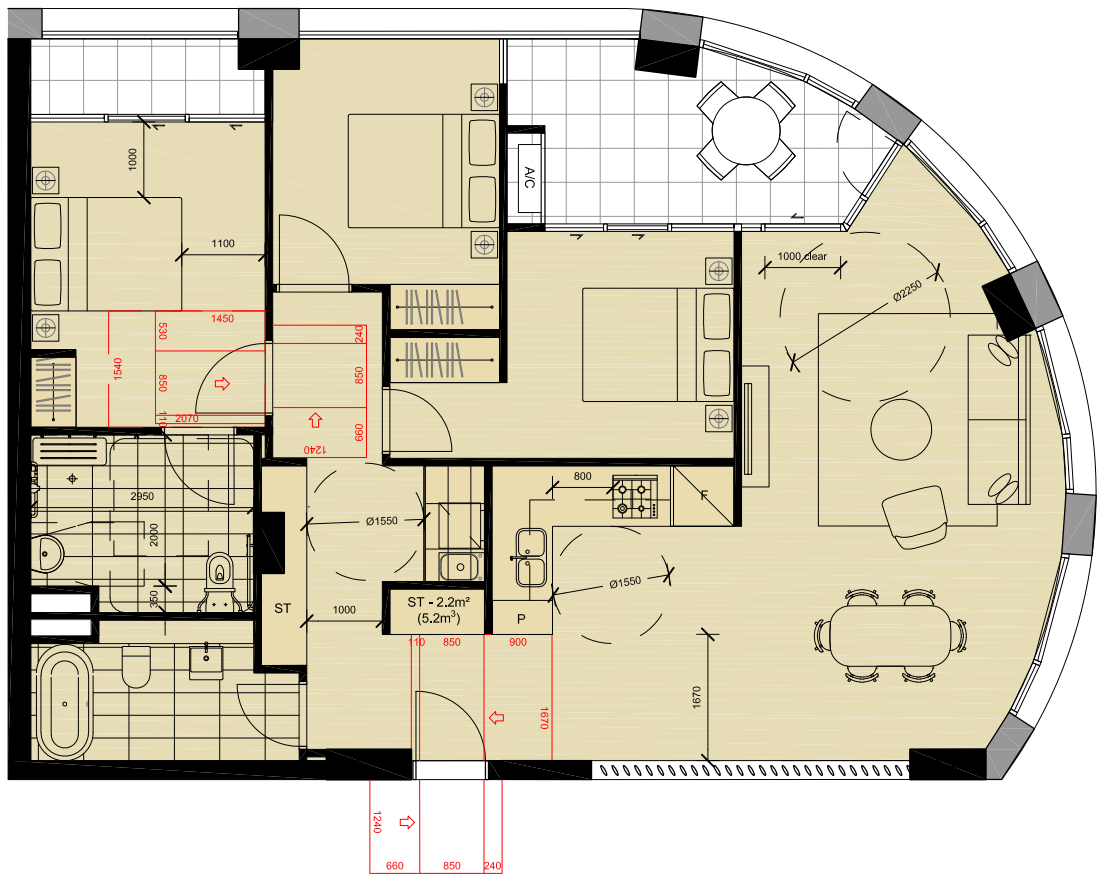


5.6 ADAPTABLE APARTMENTS

This development proposes 269 residential units. In accordance with the PDA arrangement with Aspire and LAHC, a minimum total of 13 units are designed to be adaptable in accordance with AS4299-1995, representing a total of 5% of apartments.

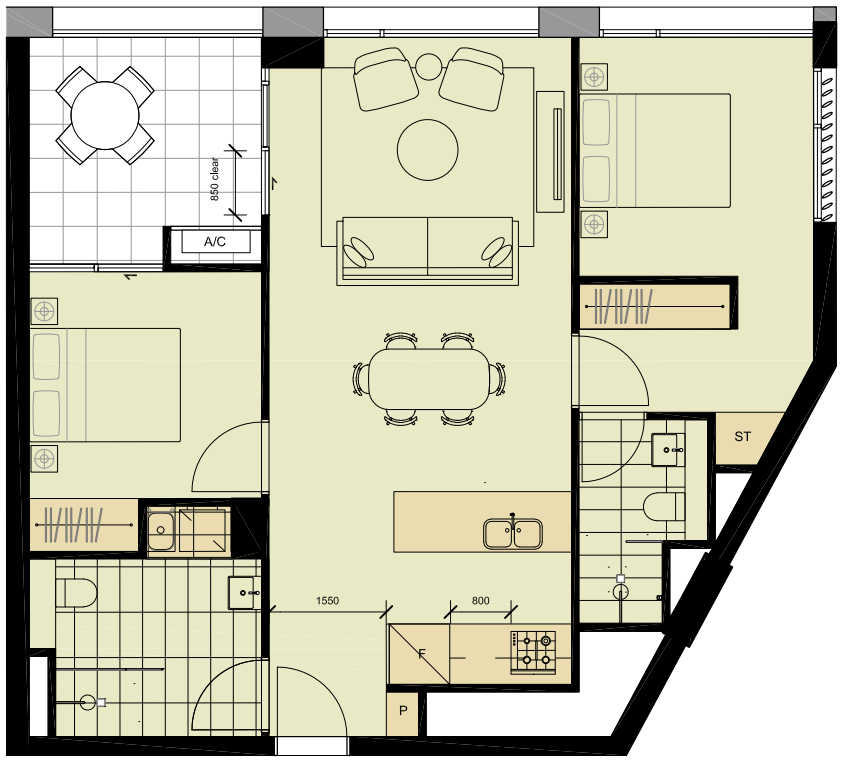
Pre and post adaption layouts are shown on the adjacent pages and locations of each type are provided in Appendix A of this report. A combination of one, two and three bedroom adaptable apartments are provided. Refer to the accompanying accessibility report for additional detail.

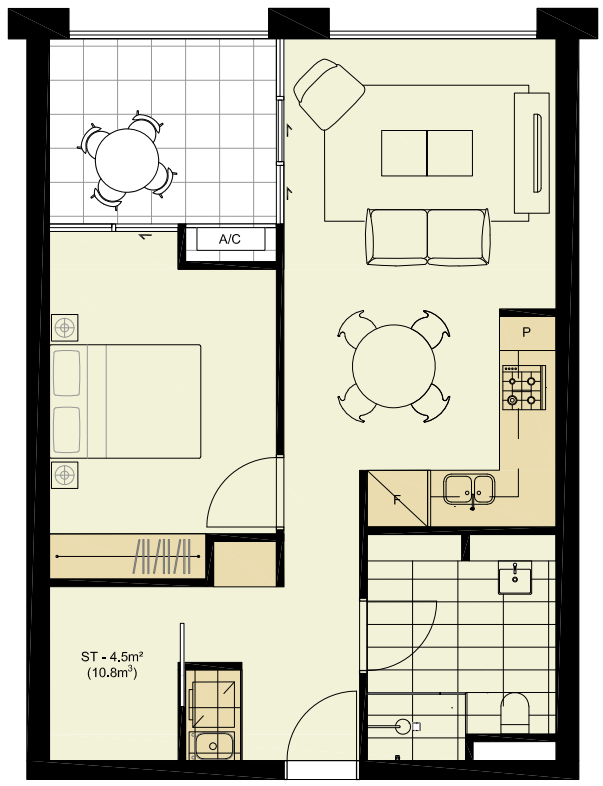


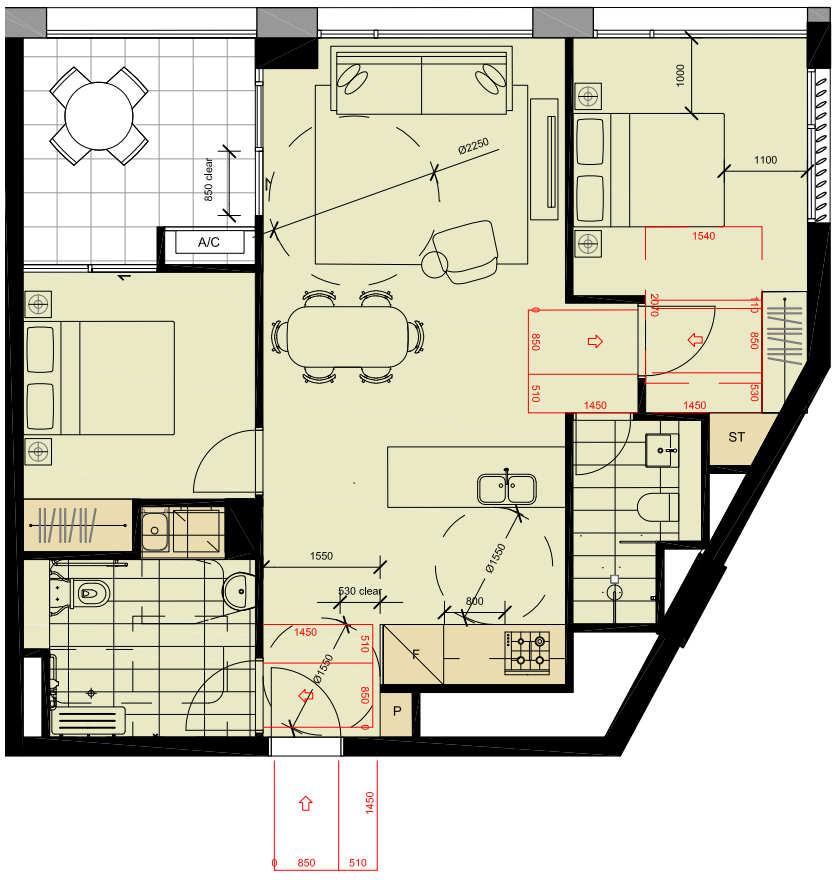


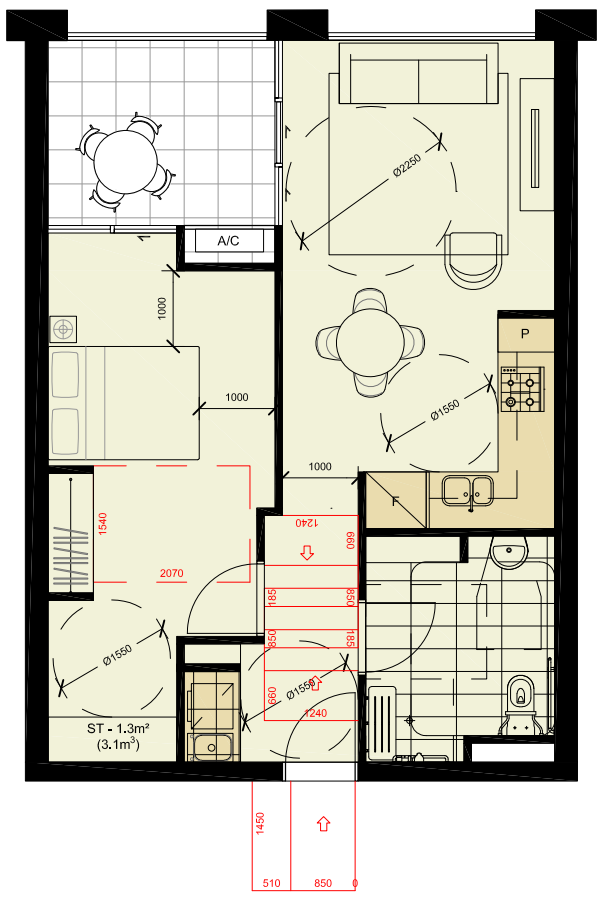
5.6.1 3 BEDROOM ADAPTABLE APARTMENT

Total No. of: 2 units
(Level 16-17)









5.6.2 2 BEDROOM ADAPTABLE APARTMENT

Total No. of: 4 units
(Level 03-06)

5.6.3 1 BEDROOM ADAPTABLE APARTMENT

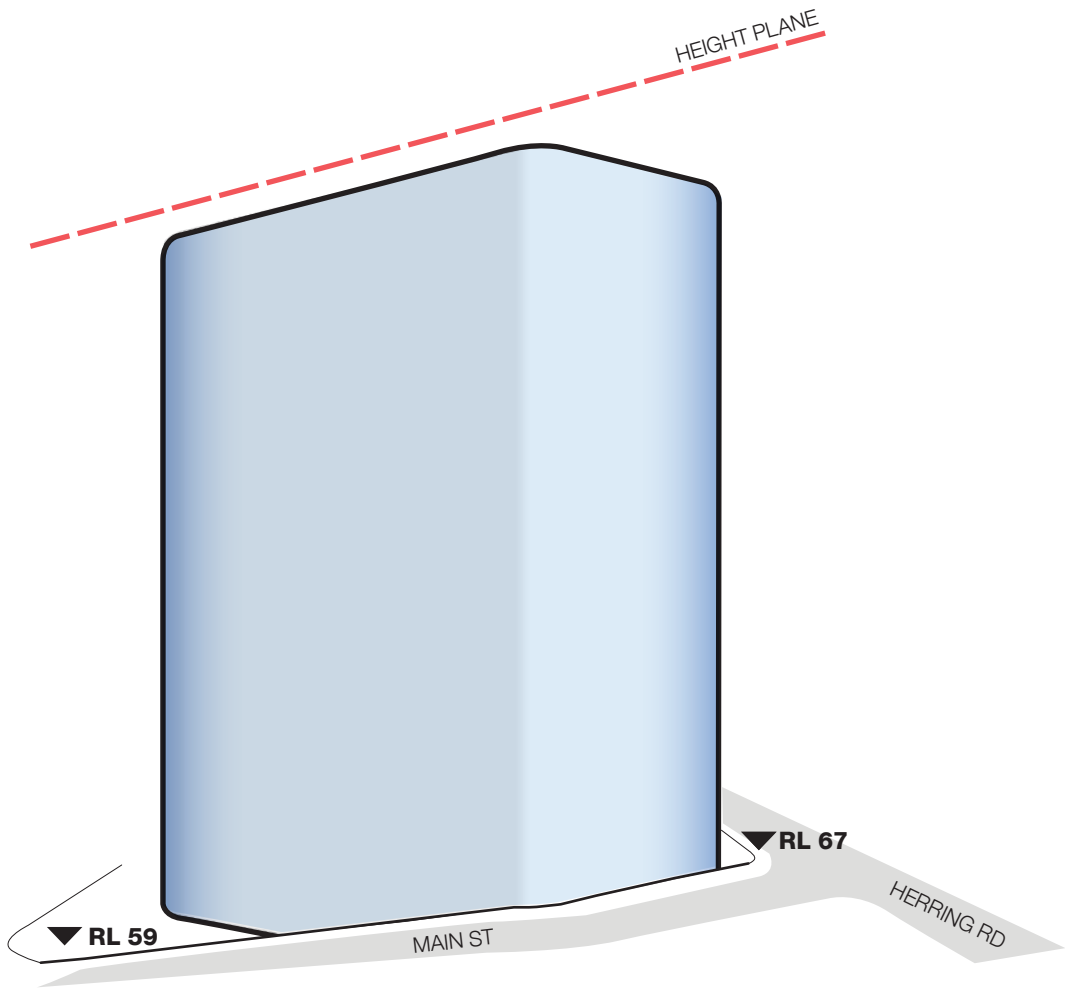
Total No. of: 7 units
(Level 01-07)

0 1 2 3 4 5 m

6.0 MASSING ARTICULATION

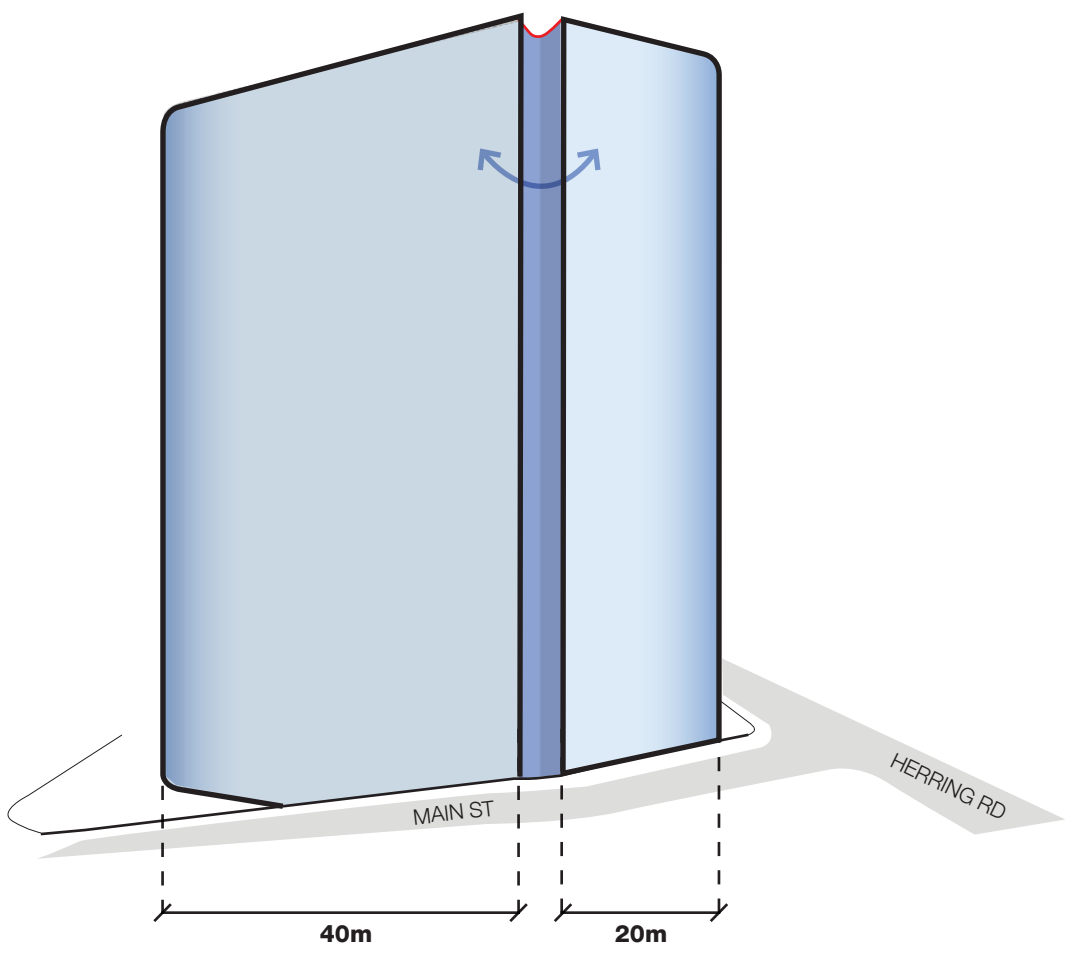
6.1 TOWER ENVELOPE

The initial building envelope is derived from the site setbacks, building separation requirements, and solar access alignments on 21st June. The site has a steep natural gradient from Herring Road to Main Street with a maximum height limit which is equally steep.



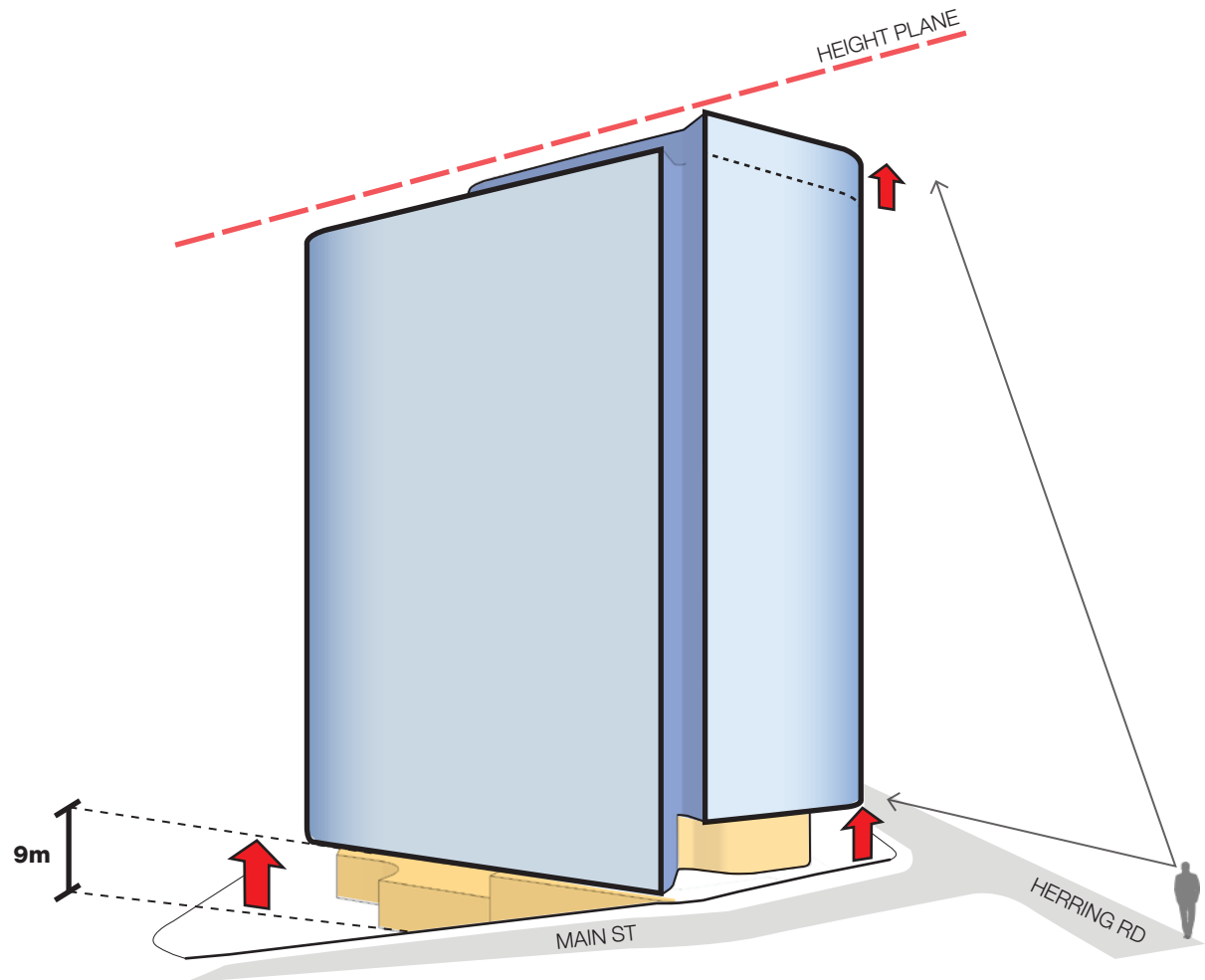
6.2 ARTICULATION THROUGH TOWER CREASES

A full height vertical “crease” of 4 metres wide is incorporated into the Eastern façade at the fold in floorplate geometry. A second crease of 7 storeys in height is applied on the Western Façade. The ‘creases’ bring daylight deeper into the apartments and allow high levels of cross ventilation to be achieved, in addition to articulating the form into two smaller elements with a more slender proportion.



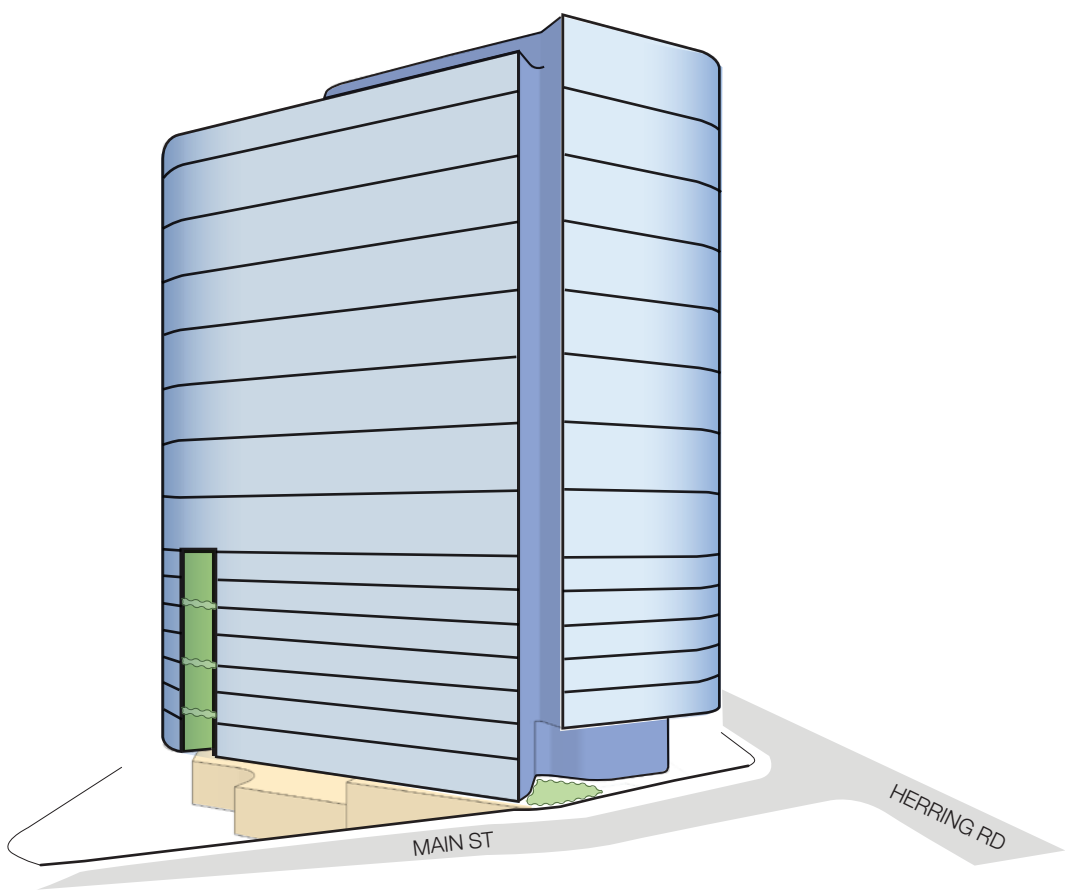
6.3 TWO STOREY SCALE TO BASE

The base of the tower is lifted 9 metres at the South to present a two storey scale to Main Street and the future Residential Street in accordance with Masterplan Design Guidelines. A childcare centre and residential lobby are located within the base. The Northern portion of the tower is also lifted to present a two-storey scale and lobby to Herring Road. At the top of the tower, the topmost floor of the Northern volume is extended upwards by one-storey to create two-storey penthouse apartments with external terraces on the rooftop of the lower volume. The resultant massing achieves a legible two-storey scale at the base. In addressing the corner entry from Herring Road, it creates a "gateway" into the new precinct and reinforces its urban role within the new development. The proposed articulation strategy provides clarity and legibility at the civic / district scale.



6.4 VERTICAL GARDENS & FACADE ARTICULATION

Two storey high vertical 'slots' containing landscaped gardens are incorporated into the massing at the ends of the internal corridors. A one and two storey facade articulation described in the next chapter is then overlaid to further reduce scale to a residential / humane level which serves to reinforce the residential nature of the building while providing further detail and richness to the pedestrian/intimate scale.



7.0 FACADE & MATERIALS

7.1 MASTERPLAN FRAMEWORK

The Masterplan Design Guidelines provide clear guidance on the proposed material and colour palette envisaged for proposed developments within masterplan. Building functions are to be clearly defined through use of material, lower levels of residential buildings are to use masonry as the prominent façade material, and the colour palette should consist of warm, naturally occurring hues.

IVANHOE MASTERPLAN DESIGN GUIDELINES

OBJECTIVES

A. To define and reinforce a distinctive character within the masterplan precinct.
B. To express building functions.
C. To create buildings which will improve with age.

PROVISIONS

1. The lower levels of residential buildings should use masonry as the predominant facade material.
2. White render should be avoided as the primary facade material.
3. Façade materials should be self-finished, durable and low maintenance.
4. Use of colour in building façades should focus on warm, naturally occurring hues.

7.2 FACADE CONCEPT

Our façade approach adopts the use of precast concrete in a warm, earthy tone. Precast concrete is an authentic and self finishing masonry material which is suitable for use in high rise developments while also expressing a warmth and texture appropriate for residential use.

7.2.1 Two Storey Scale Frame

A two-storey high primary 'frame' has been applied to the envelope consisting of precast concrete elements 400mm in depth and projecting 300mm forward of the glassline. The role of the two storey frame articulation is to:

/ Create a fine grain human residential scale which reinforces the residential use of the building,

/ Create a solid visual framework within which balconies can where needed without diluting or eroding the clarity of the primary form

/ Reduce glazed area and consequently reduce heat loads,

/ Provide depth, shadow and detail to the facade while also providing some shading to the glass.

7.2.2 Single Storey Scale at Base

The 'frame' expression is decreased to a two-storey scale to a one-storey scale in all low rise residential floors up to Level 08. These bands create additional visual solidity at the base of the building, reinforcing the Masterplan Design Guideline adopting masonry as the predominant facade material at low levels. The single storey scale also assists to achieve an intimate more humane scale at ground level.

7.2.3 Secondary Layer of Upstands to Low and Mid rise Floors:

Additional vertical upstands have been applied to all low rise and mid rise residential floors, to a height of 760 mm above the internal floor level. These upstands serve several purposes:

/ To provide additional masonry visual solidity at the base further enhancing Masterplan Design Guidelines,

/ Provide visual privacy to residents on low and mid rise floors by restricting direct line of sight views into apartments from street level,

/ Screening the entrance road and future vehicular traffic from living areas of apartments while still allowing high levels of passive surveillance to be achieved from balconies.

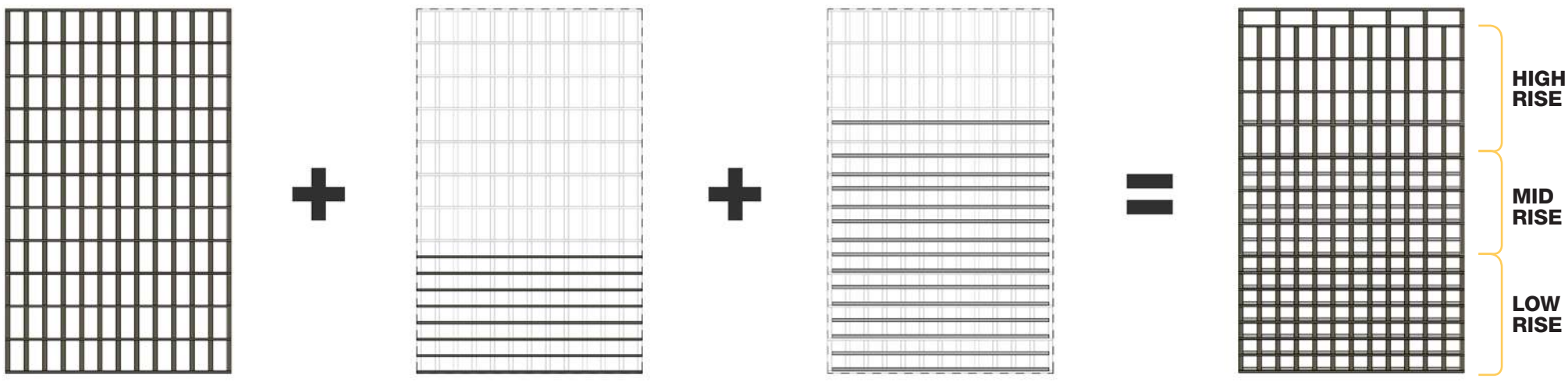
The spandrel panels are of precast concrete on low rise floors, and opaque backpainted or interlayer glass at upper levels.

In addition, the spandrel panels also gradually drop off on high rise floorplates such that the tower becomes visually 'lighter' as it rises, while also delivering maximum view amenity through on high rise floors through floor to ceiling glass.

7.2.4 Layered Frame Expressing 3 Zones

The resulting facade expression is cohesive singular form with a residential warmth and scale, consisting a rich fine grain overlay of multiple individual responses to the below design and amenity needs:

/ Expression of residential scale
/ Intimate scale at lower levels,
/ Increased visual solidity at lower levels in accordance with masterplan guidelines,
/ Protection of resident privacy through upstands restricting direct line of sight into apartments from street level,
/ Retaining for passive surveillance of the streetscape from balconies,
/ Reduction of glazing area
/ Shading of remaining glazed area through use of expressed horizontal and vertical elements which project 300mm beyond the glassline,
/ Achieve maximum amenity through view outlook on high rise floors.

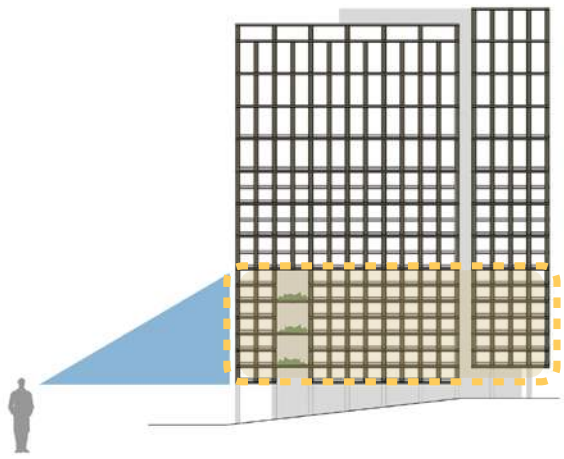


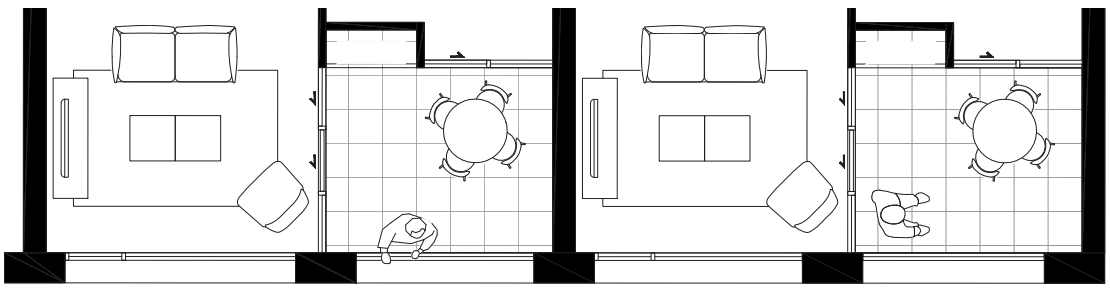
7.2.1 TWO-STOREY SCALE FRAME | 7.2.2 SINGLE-STOREY SCALE AT BASE | 7.2.3 SECONDARY LAYER OF UPSTANDS | 7.2.4 LAYERED FRAME EXPRESSING 3 ZONES

Principle 9: Aesthetics
Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures.
The visual appearance of a well designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.

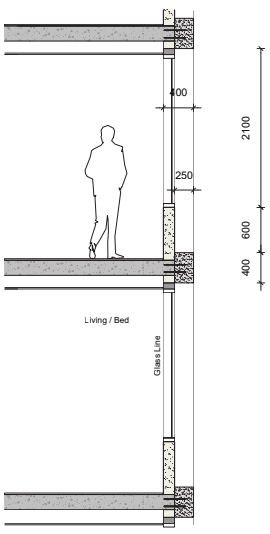
7.3 LOW RISE FACADE

A horizontal primary precast concrete spandrel of 400mm in height occurs at every low rise floor level. Precast concrete verticals of 800mm in width and 400mm in depth are located on party walls and between living and balcony areas. Living and balcony areas are both located outboard to maximise solar amenity. A precast concrete upstand of 760mm in height above floor level provides privacy to living areas and balconies protecting from direct line of sight views from street level. To living areas, natural ventilation is provided via two stacked operable awning sash windows. Access to balcony areas is via sliding glass doorsets, with air conditioning condensors contained in full height louvred enclosures integrated into the balcony doorsets.

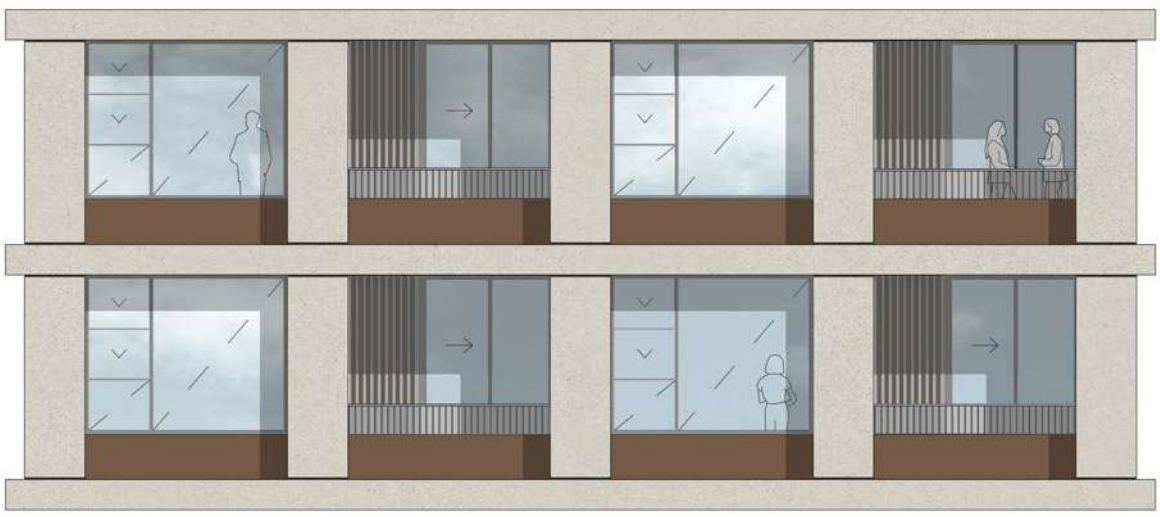




PLAN: LOW RISE FACADE



SECTION: LOW RISE FACADE



ELEVATION: LOW RISE FACADE

A/ CONCRETE PLATER BOX
B/ PRECAST CONCRETE
C/ PAINT FINISH CONCRETE UPSTANDS
D/ LOW-E GLASS
E/ METAL BALUSTRADE
F/ ANODISED ALUMINIUM LOUVRES

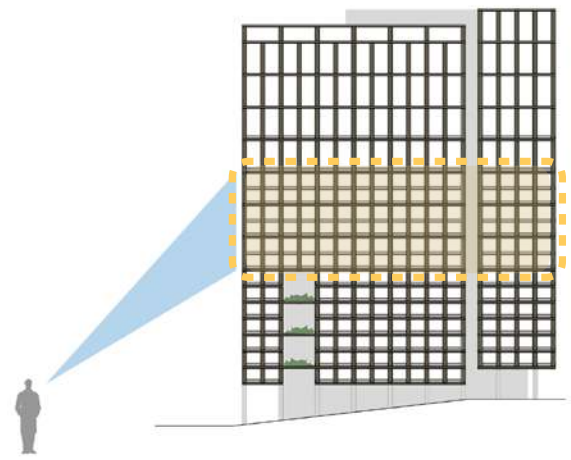
LOW RISE FACADE DETAIL

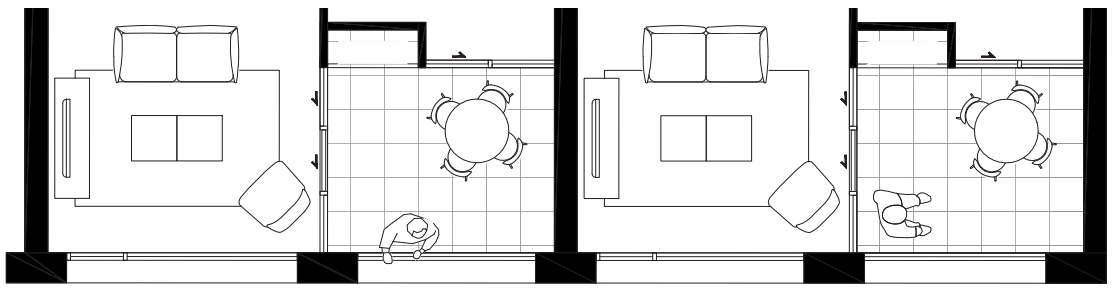
7.4 MID RISE FACADE

A primary horizontal precast concrete spandrel of 400mm in height occurs at every second floor. Precast concrete verticals of 800mm in width and 400mm in depth are located on party walls and between living and balcony areas.

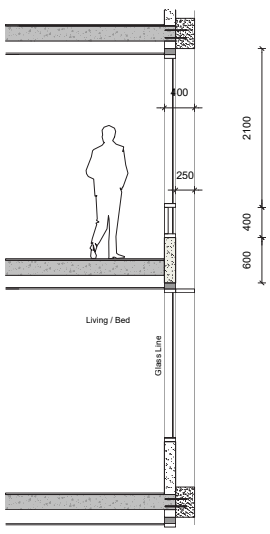
On the lower level of each two-storey stack, a precast concrete upstand of 760mm in height above floor level provides privacy to living areas and balconies.

On the upper level of each two-storey stack, a precast concrete spandrel conceals the slab edge while being set back to align with the upstand on the level below. The upstand is achieved to living areas only via use of backpainted or interlayer glass up to the same height. Natural ventilation is achieved as per the low rise floor.





PLAN: MID RISE FACADE TYPE



SECTION: MID RISE FACADE TYPE

ELEVATION: MID RISE FACADE TYPE

A/ COLOURBACK GLASS
B/ PRECAST CONCRETE
C/ PAINT FINISH CONCRETE UPSTANDS
D/ LOW-E GLASS
E/ METAL BALUSTRADE
F/ HORIZONTAL SUN SHADING
G/ ANODISED ALUMINIUM LOUVRES

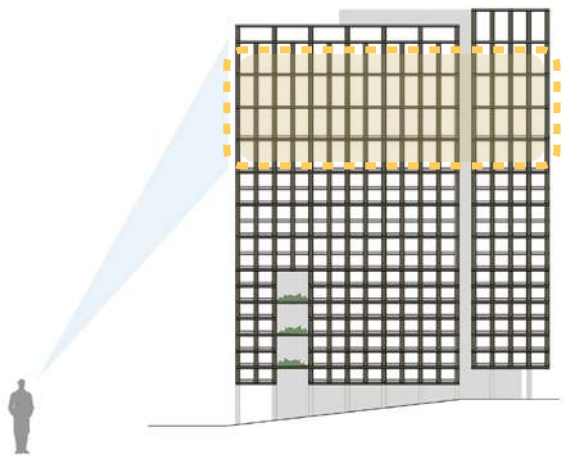
MID RISE FACADE DETAIL

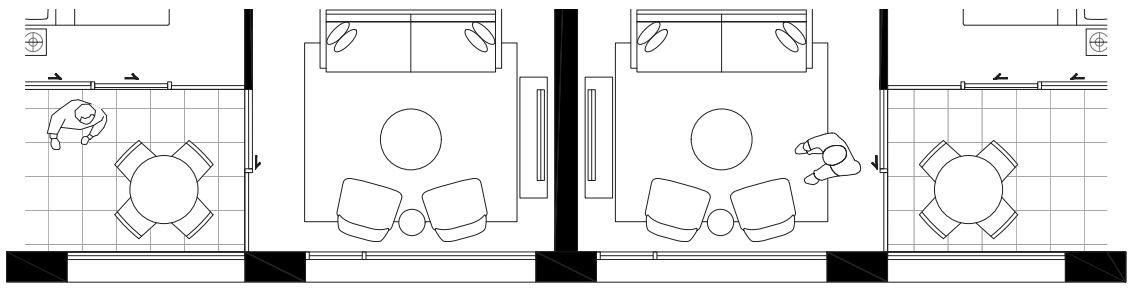
7.5 HIGH RISE FACADE

A primary horizontal precast concrete spandrel of 400mm in height occurs at every second floor. Precast concrete verticals of 800mm in width and 400mm in depth are located on party walls and between living and balcony areas.

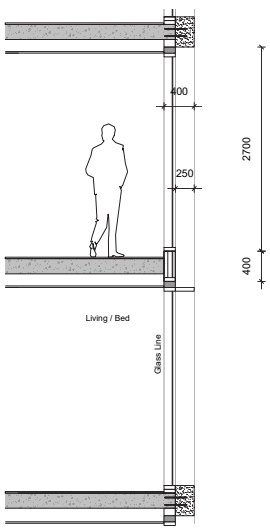
Upstands are not provided on either floor in order to maximise amenity from view outlook where privacy concerns are minimal.

The spandrel of the upper level within each two-storey stack is backpainted or interlayer glass, concealing the slab edge and reinforcing a clear two-storey scale in contrast to the lower levels.





PLAN: HIGH RISE FACADE



SECTION: HIGH RISE FACADE

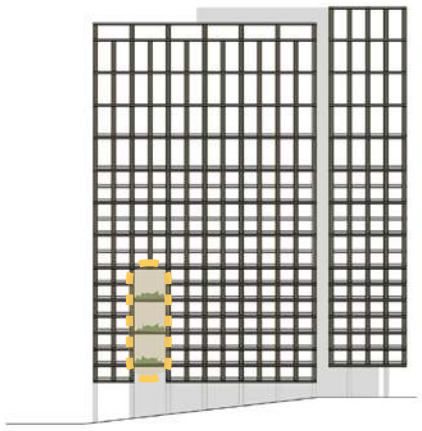
ELEVATION: HIGH RISE FACADE

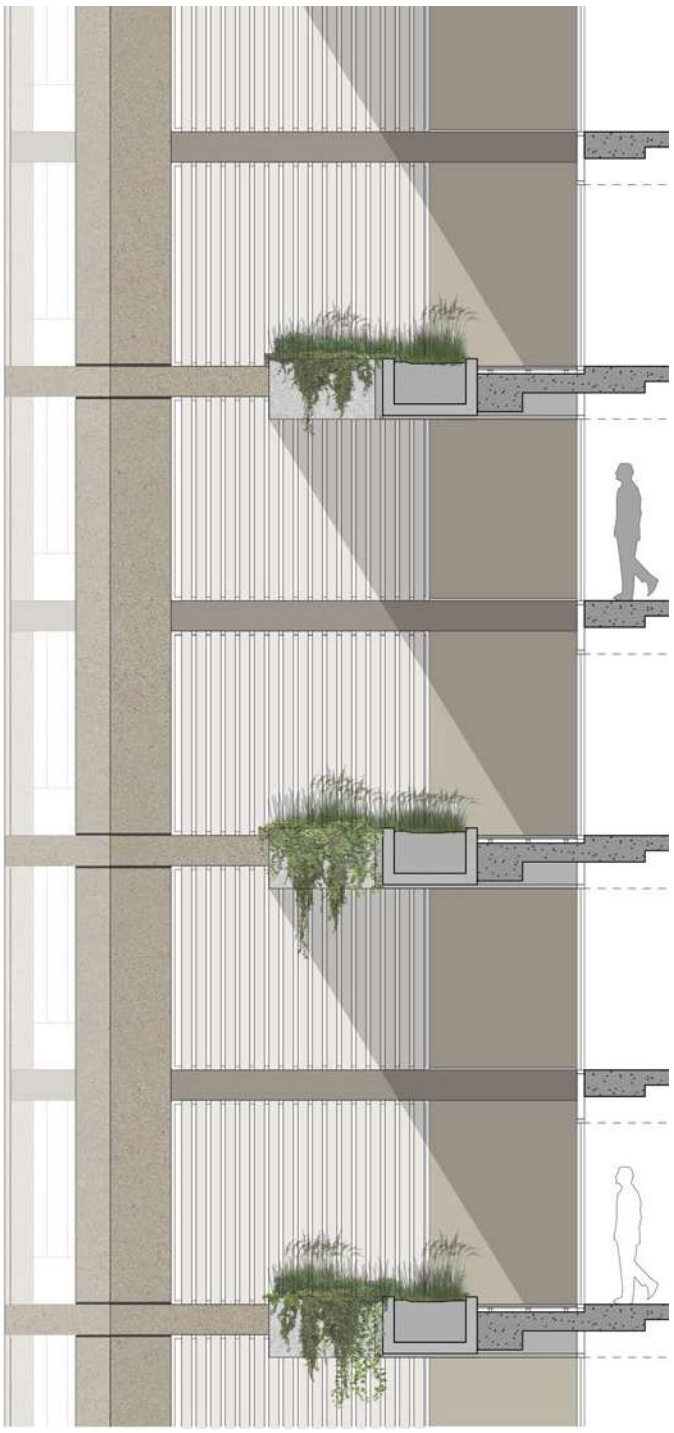
A/ COLOURBACK SPANDREL PANEL
B/ PRECAST CONCRETE
C/ LOW-E GLASS
D/ METAL BALUSTRADE
E/ HORIZONTAL SUN SHADING
F/ ANODISED ALUMINIUM LOUVRES

HIGH RISE FACADE DETAIL

7.6 GARDEN SLOTS

The garden slots are lined with fixed vertical aluminium louvres in a warm bronze colour which are oriented to direct apartment views outwards and restrict visibility into the adjacent apartments. Raised planting beds are provided every two floors which are accessed from the internal corridor for maintenance. The landscape planting provides a pleasant outlook from corridor areas while the two-storey scale maximises daylight penetration into the common corridors.





SECTION THROUGH VERTICAL SLOT

BATESSMART™

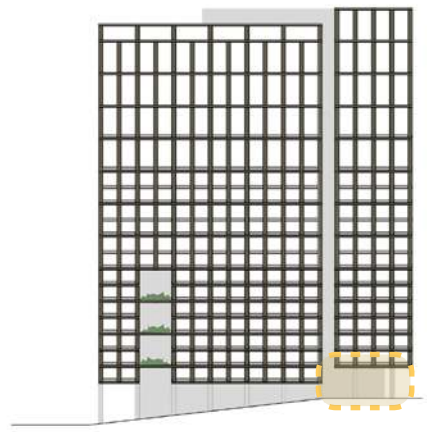
BATESSMART™

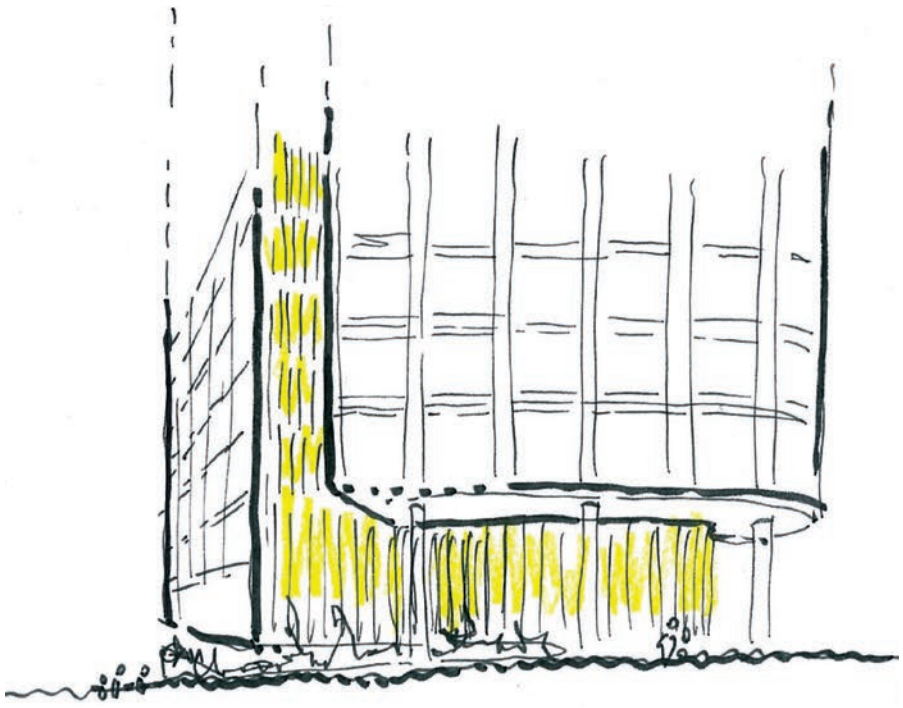
7.7 TOWER BASE - HERRING ROAD

A 2 storey lobby fronts Herring Road, set back 3 metres from the tower floorplate above.

Warm bronze coloured vertical aluminium fins continue downwards from the vertical 'crease' and wrap around the lobby to create a sinuous privacy screen which limits views into the lobby while also creating a warm and intimate interior for residents.

Immediately adjacent the residential lobby, a three-storey landscaped void opens to the childcare centre below. This void carries light and ventilation into the childcare centre, in addition to creating a generous external three-storey space at the point where the lobby and tower 'crease' intersect above enabling the two to flow seamlessly together.





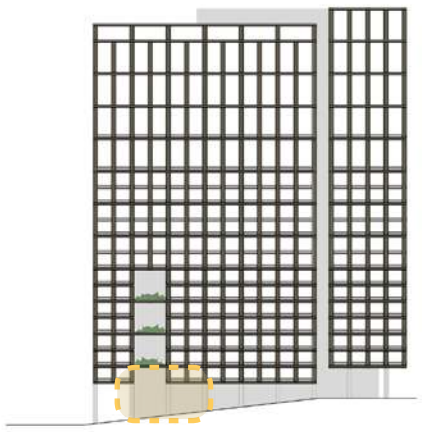
7.8 TOWER BASE - MAIN STREET

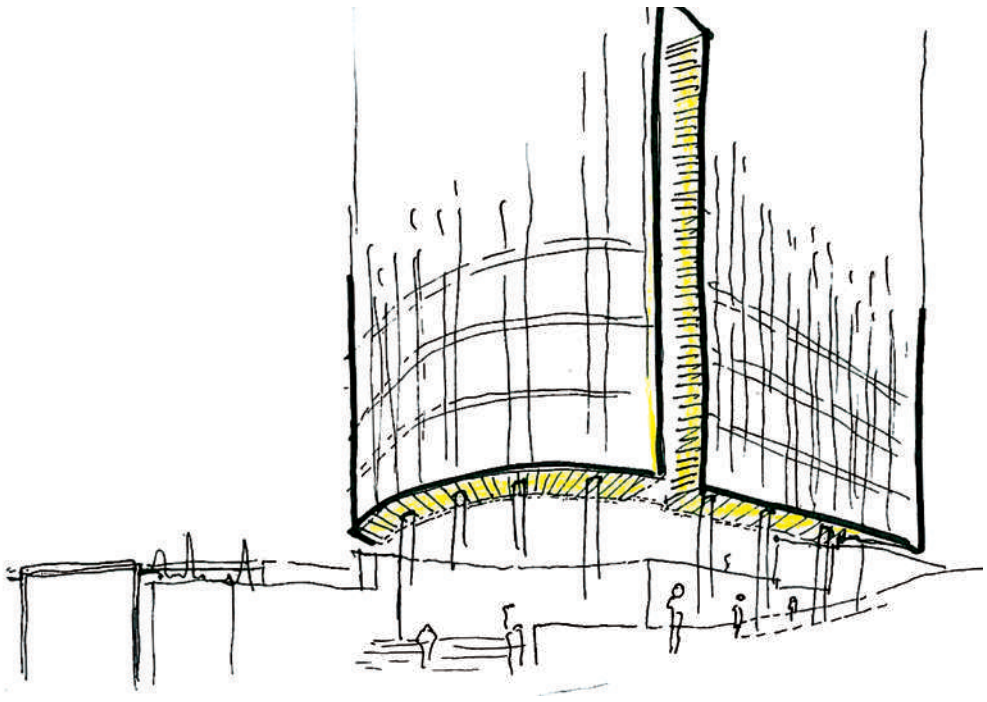
A 340 square metre landscaped forecourt forms the termination of Main Street. The residential tower floats 9 metres above.

A single-storey glazed residential lobby provides access to the main residential lift bank. A second glazed entrance lobby containing lift and stair also provides access to the childcare centre located on the upper ground floor.

A colonnade of 2.0 metres in width, set back from the tower above, fronts East towards the new entrance road. The colonnade enables additional footpath width to be achieved within the public domain, within which a series of gentle steps are proposed to facilitate pedestrian movement along the area with steepest gradient. The two-storey colonnade gradually tapers back in height as the footpath rises towards Herring Road.

Columns are expressed as off-form concrete to complement the earthy precast concrete tones of the tower facade. The podium facade is comprised of sandstone panels to achieve both solidity and warmth to the base of the building with a distinctive local and Sydney character. Warm bronze coloured vertical aluminium fins flow downwards from the vertical gardens and wrap around the soffit of level 01 to create a sinuous ribbon of metallic warmth which expresses the smooth flowing lines of the tower.





N-SW 22A

8.0 RESPONSE TO DESIGN GUIDELINES

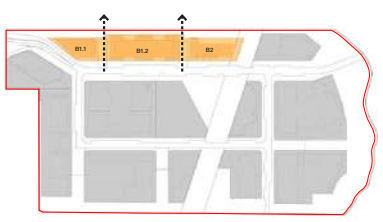
01. NORTH EAST DEVELOPMENT LOTS (B1-B2)

OBJECTIVES

A. To allow for a future pedestrian and cycle connection from Main Street to Peach Tree Avenue
B. To provide opportunities for solar access to Main Street
C. To balance privacy and visual amenity to neighbouring sites

PROVISIONS

1. Lot B1/B2 should be separated into three discrete buildings
2. Building separation should be of sufficient width to provide a pedestrian and cycle connection to Peach Tree Avenue
3. Avoid blank walls facing neighbouring sites
4. Where windows are proposed within 7m of the boundary, provide screening to mitigate overlooking of neighbouring sites



RESPONSE

Lot A1 is not impacted by this control. The proposed design of Lot A1 does not restrict future lots from complying with this control.

02. PUBLIC AND COMMUNAL OPEN SPACE

OBJECTIVES

A. To retain and enhance the existing publicly accessible open space along Shrimptons Creek corridor.
B. To connect new public spaces to the existing open space network.
C. To provide an adequate area of communal open space to enhance residential amenity and to provide opportunities for landscaping.

PROVISIONS

1. The Shrimptons Creek Corridor is to be embellished and dedicated to Council as public open space.
2. A Village Green should be provided between C1 and C3. A minimum of 3,300 sqm should be usable area. The remainder should be landscaped roof to building C2.
3. A Forest Playground of 3,900 sqm usable area should be provided between Lots D2 and D3.
4. Publicly accessible open spaces should connect Shrimptons Creek, the Village Green, Town Square, and Epping Road landscape corridor.
5. Each lot should provide a mix of public and communal open space with a combined minimum area equal to 25% of the lot area, except Lot A1 which is not required to provide public or communal open space.

RESPONSE

Lot A1 contains a large landscaped external terrace for use by the childcare centre. As such, under Provision 5 of this control, Lot A1 is not required to provide public or communal open space within the lot.

03. DEEP SOIL ZONES

OBJECTIVES

A. To retain existing mature trees and to support healthy tree growth.
B. To provide passive recreation opportunities.
C. To promote management of water and air quality.

PROVISIONS

1. The area of deep soil within site, excluding RE1 zoned land, should be no less than 17% of the site area
2. Deep soil zones should have a minimum dimension of 6m, except where they abut a side boundary or road reserve which also provides deep soil, where a minimum dimension of 2.5m is acceptable.

Deep Soil
Deep Soil in RE1 Zone

RESPONSE

The adjacent control diagram proposes a precinct-wide approach be adopted for deep soil planting given the large areas of public domain being delivered in future stages. The proposed design of Lot A1 does not contain deep soil planting , however does not prevent the masterplan from complying with this control.

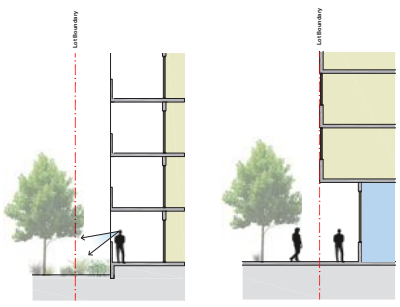
04. PUBLIC DOMAIN INTERFACE

OBJECTIVES

A. To transition between private and public domain without compromising safety and security.
B. To retain and enhance the amenity of the Shrimptons creek corridor.
C. To maximise the amenity of new streets and public open spaces.

PROVISIONS

1. Apartments, balconies and courtyards fronting Public Open Space such as Shrimptons Creek landscape corridor, Epping Road landscape corridor, Village Green and Forest playground should be provided with a landscaped buffer to separately define public and private space but maintain passive surveillance.
2. Community and retail uses should provide an active frontage to the Village Green.
3. Communal open space should be clearly defined and separate from the public domain.



Residential Community

RESPONSE

Non residential uses are proposed on the lower and upper ground floors in accordance with Design Guideline #5, Active Frontages, making direct access to residential apartments from the street unviable. The lowest residential floor, Level 01, ranges between 1.5 to 9 metres above the street level. The tower facade has been designed to enable passive surveillance of the streetscape to be achieved while also providing a physical separation and privacy to residents through use of solid upstands at lower levels. Further details are contained within section 7 of this report.

05. ACTIVE FRONTAGES

OBJECTIVES

A. To provide active frontages with a distinctive civic character to Main Street.
B. To ensure that public spaces and streets are activated along their edges.
C. To maximise street frontage activity where ground floor apartments are located.
D. To deliver amenity and safety for residents when designing ground floor apartments.

PROVISIONS

1. 1. Buildings A1 and B2 should accommodate a childcare centre at ground level
2. Buildings B1.2, C1, C2, C3 should accommodate retail and / or communal uses at ground level fronting Main Street and the Village Green
3. Building D3 should provide ground level office space for the community housing provider.
4. Direct street access should be provided to ground floor apartments
5. 2-4 storey residential typologies should be considered on street frontages of apartment buildings fronting neighbourhood streets.
6. Basement carparks are not be visible above ground level.

RESPONSE

Lot A1 accommodates a 75 space childcare centre on the upper ground floor fronting the new entry road, in compliance with this control. Direct access into the childcare centre is also provided from Main Street on the lower ground floor. Refer to section 4.2 of this report for further detail.

8.0 RESPONSE TO DESIGN GUIDELINES

06. PEDESTRIAN AND VEHICULAR ENTRY LOCATIONS

OBJECTIVES

A. To provide building entries and pedestrian access that connects to and addresses the public domain.
B. To provide accessible and easily identifiable building entries and pathways.
C. To minimise conflicts between vehicles and pedestrians
D. To create high quality streetscapes

PROVISIONS

1. Primary building entries should address the street.
2. Vehicle entries should avoid Main St where possible.
3. Internal loading docks will be shared wherever possible to limit the amount of driveways to improve public amenity and streetscapes.
4. Ensure loading docks are capable of accommodating vehicles for both garbage collection and move ins / move outs.
5. Where internal dedicated loading docks are not possible, onstreet loading zones will be discretely located near building entries.

Pedestrian Entry
Vehicular Entry

RESPONSE

Two pedestrian entries to lot A1 are provided in the locations shown on the adjacent control diagram. One fronting Herring Road on level 01, and a second fronting Main Street on the lower ground floor. Vehicular access is also located in the area proposed by the control, a section of Neighbourhood Street away from the intersection and Main Street. The A1 loading dock is designed to service future Lot A2 in accordance with Provision #3, and is also designed to accommodate both garbage collection and furniture move ins/outs in accordance with Provision #4.

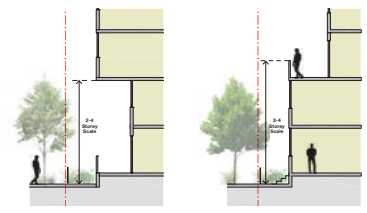
07. STREET WALL HEIGHT

OBJECTIVES

A. To provide buildings that positively contribute to the physical definition of the public domain.
B. To reduce the scale of buildings as perceived from the public domain.

PROVISIONS

1. On residential streets, buildings should express a 2-4 storey scale on the lowest levels of the building.



Neighbourhood Street Neighbourhood Street

RESPONSE

The proposed development expresses a two-storey scale to the residential street to the South, and a two-storey scale to Herring Road to the North in compliance with this control.

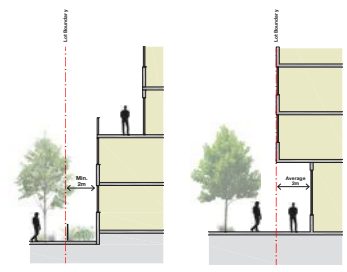
08. GROUND LEVEL STREET SETBACKS

OBJECTIVES

A. To provide buildings that positively contribute to the physical definition of the public domain
B. To transition between private and public domain without compromising safety and security
C. To provide a landscape design which contributes to the streetscape and residential amenity

PROVISIONS

1. On neighbourhood streets, the lower levels of buildings should be set back a minimum of 2m from the lot boundary.
2. On main street, the lower levels of buildings should have an average set back of 2m from the lot boundary.
3. On neighbourhood streets, setback zones should be landscaped to balance street activation and residential amenity.



Neighbourhood Street Main Street

RESPONSE

The lower ground and upper ground levels are set back by 2 metres to the East fronting the entrance road in compliance with the control identified for Main Street. A setback is also proposed to the south fronting Residential Street to create a landscaped pedestrian plaza at the northern termination of Main Street in accordance with the public domain design. Refer to section 4.2.1 and Public Domain Design Report for further detail.

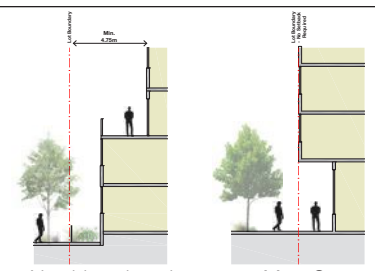
09. UPPER LEVEL SETBACKS

OBJECTIVES

A. To reduce the scale of buildings as perceived from the public domain.
B. To minimise the adverse wind impact of down drafts from tall buildings

PROVISIONS

1. On neighbourhood streets, upper floors of buildings should be set back a minimum of 4.75m from the lot boundary.
2. On Main Street, upper levels of buildings can be built to the lot boundary, subject to building separation requirements of SEPP65.



Neighbourhood Street Main Street

RESPONSE

The upper floors of the residential building are set back between 0.5m and 5.5 metres from the North and Eastern site boundaries. This setback is a) in excess of the setback required for Main Street, while also b) enables the adjacent building C1 to achieve solar access in accordance with ADG requirements. The proposed development is therefore deemed to be compliant with this control.

10. SETBACKS TO SHRIMPTONS CREEK

OBJECTIVES

A. To provide buildings that positively contribute to the physical definition of the public domain.
B. To reduce the scale of buildings as perceived from the public domain.
C. To minimise the adverse wind impact of down drafts from tall buildings.

PROVISIONS

1. Buildings fronting Shrimptons Creek should be set back a minimum of 5m from the edge of the Riparian Corridor.
2. Buildings fronting Shrimptons Creek should express a 2-4 storey scale on the lowest levels of the building.
3. Fronting Shrimptons Creek, upper levels of buildings should be set back a minimum of 8m from the edge of the Riparian Corridor.
4. Buildings fronting Shrimptons Creek should be articulated into multiple parts so that unbroken facades are no longer than 30m.
5. Refer to design guideline 4 regarding the interface of public and private space.

RESPONSE

Lot A1 is not impacted by this control. The proposed design of Lot A1 does not restrict future lots from complying with this control.

11. ROOFTOPS

OBJECTIVES

A. To maximise opportunities to use roof space for residential accommodation and open space.
B. To incorporate sustainability features into the roof design.
C. To minimise the visual impact of roof plant.

PROVISIONS

1. Private and communal roof terraces should be provided where possible.
2. Roofs that are overlooked by other buildings should provide either communal open space or landscape planting.
3. Plant areas should be screened from view.
4. Upper level roofs should accommodate solar panels.
5. Roof levels are to provide interesting silhouettes with no residential accommodation allowed above the maximum approved height.

RESPONSE

Private terraces are provided on level 23 in accordance with Provision #1. The roof is not overlooked by other buildings. Hot Water plant is located on level 23 where it is open to the sky and benefits from solar heat radiation, but it is screened from view in accordance with Provision #3. Solar Panels are also provided on the rooftop of level 23 in accordance with Provision #4.

12. FACADE EXPRESSION AND MATERIALS

OBJECTIVES

A. To define and reinforce a distinctive character within the masterplan precinct.
B. To express building functions.
C. To create buildings which will improve with age.

PROVISIONS

1. The lower levels of residential buildings should use masonry as the predominant facade material.
2. Render should be avoided as the primary facade material.
3. Façade materials should be self-finished, durable and low maintenance.
4. Use of colour in building façades should focus on warm, naturally occurring hues.

RESPONSE

The lower ground and upper ground floors are clad in sandstone to compliment the public domain palette and provide a warm, humane texture. White render is not used as a facade finish anywhere in the proposed development. Self-finished, off-form precast concrete is proposed as the primary facade material on residential floors and has adopted a warm earthy tone in compliance with provision #4. Refer to further detail in chapter 7 of this report.

13. DESIGN EXCELLEVNCE

OBJECTIVES

A. To ensure architectural diversity is achieved.
B. To achieve a high standard of architectural and urban design, materials and detailing appropriate to the building type and location.
C. To ensure the form and external appearance of the buildings improve the quality and amenity of the public domain.
D. To ensure buildings meet sustainable design principles in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency.

PROVISIONS

1. Buildings should be designed in accordance with the Ivanhoe Masterplan design excellence strategy prepared by Ethos Urban.

RESPONSE

/ Bates Smart is listed within the Government Architect's Pre-Qualification Scheme for Strategy and Design Excellence.

/ The building is the first within the proposed masterplan to be designed by Bates Smart.

/ The design has been developed in accordance with the principles outlined within 'Better Placed' , a planning initiative developed by the NSW Government,

/ The proposed residential building will achieve a 5 Star Green Star Design & As Built Rating. Refer to the Environmental report prepared by WSP for further information.

14. UNIVERSAL DESIGN

OBJECTIVES

A. Universal design features are included in apartment design to promote flexible housing for all community members.
B. A variety of apartments with adaptable designs are provided.

PROVISIONS

1. 100% of social dwellings should incorporate the Liveable Housing Guideline's silver level universal design features
2. 5% of market and affordable dwellings should be wheelchair adaptable to meet the requirements of AS4299 Class C.

RESPONSE

The proposed building in Lot A1 consists of market dwellings only. Hence 5% of dwellings are designed to be wheelchair adaptable to meet the requirements of AS 4299 Class C in accordance with Provision #2.

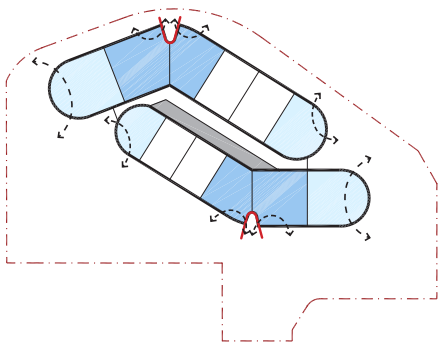
9.0 ENVIRONMENTALLY SENSITIVE DESIGN

Principle 4: Sustainability

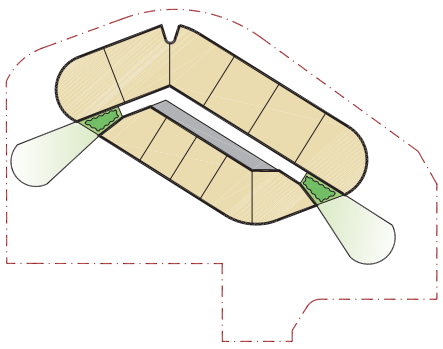
Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and livability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation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

Photo-voltaic panels are provided in the roof area as part of a site-wide commitment to environmental sustainability.

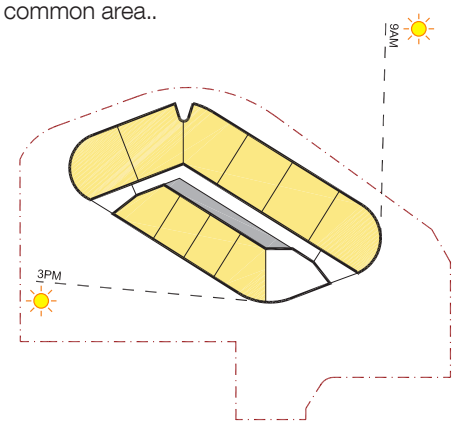
Protruded facade frame provides a balanced sun shading throughout the building to reduce heat load



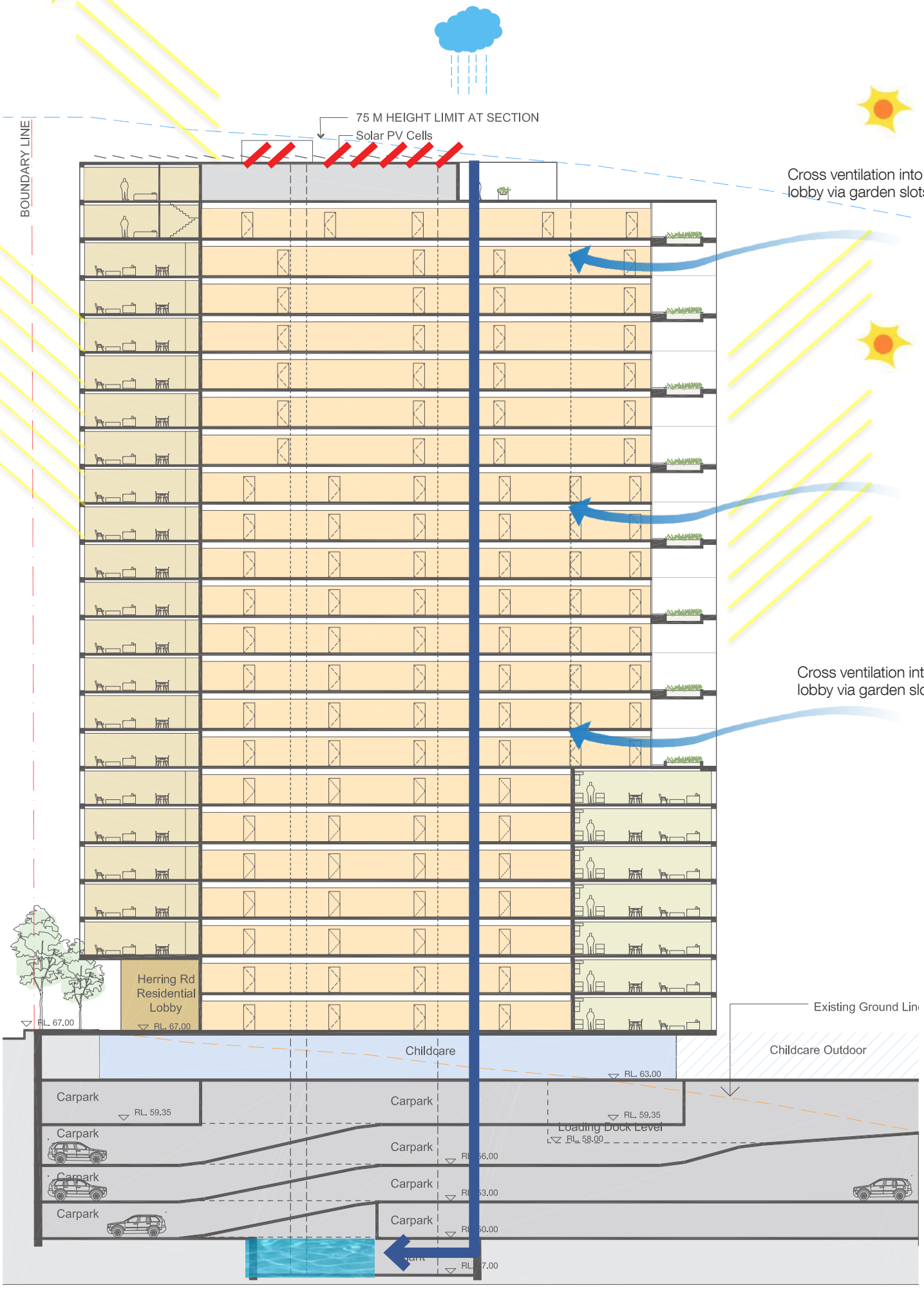
Cross ventilation into corner apartments.



Excellent amenity with Garden Slot views at the end of corridors to allow for daylight into common area..



Building orientation designed to maximize daylight into apartments.



10.0 DENSITY AND YIELD

Principle 3: Density
Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context.
Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.

Principle 8: Housing diversity and social interaction
Good design achieves a mix of apartment sizes, providing housing choice for different demographics, living needs and household budgets. Well designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people and providing opportunities for social interaction among residents.

11.1 DENSITY

The proposal forms part of the broader Ivanhoe Masterplan development with maximum GFA, height and uses being established at masterplan stage. The proposal considers the urban design principles and masterplan design guidelines to be appropriate to facilitate the overall success of this development and subsequent future developments within this masterplan.

Within close proximity of heavy rail infrastructure, and with access to large areas of future public open spaces, the proposed development will help to enhance liveability within the Macquarie University Station (Herring Road) Priority Precinct and emerge as a vibrant new community through design excellence on a number of high quality residential and mixed-use development.

11.2 DWELLING SIZE AND MIX

Residential Apartments;

Unit Type	Number	Mix
Studio	7	3%
1 Bed	111	41%
2 Bed	141	52%
3 Bed	10	4%
Total:	269	

The mix proposes a range of unit sizes and types to meet the needs of a diverse range of future temporary and permanent residents.

11.3 PARKING

All parking is provided within the basement of the proposed development with no at grade parking contained within this application. A total of 233 Parking spaces are provided within the basement, in compliance with the maximum rate described within the Ryde DCP. Further detail can be found in the accompanying traffic report.

11.4 APARTMENT MIX AND AFFORDABILITY

The proposal will provide an increase in the residential housing available in the Ryde Local Government Area, consistent with the vision set out by the Department of Planning for the Macquarie University Station (Herring Road) Priority Precinct and Ivanhoe Masterplan SSDA application. The building will contain a broad range of apartment types and sizes with the aim being to create a socially diverse neighbourhood. To cater for single occupiers, couples, sharers and families, the apartment mix includes studio, one, two and three bedroom units in addition to two-storey rooftop penthouses. While this building is Market in tenure, future stages of the masterplan development incorporate a substantial quantity of Social and Affordable dwellings to suit the existing and future social mix and create a vibrant and diverse community.

The development contributes to housing affordability by providing a range of different apartment sizes and configurations. Future stages of the masterplan envisage delivery of a vibrant mix of affordable, social and market dwellings in a tenure blind configuration which will deliver housing diversity and social interaction on a scale not yet seen within Australia.

10.5 MIXED USE

The proposed development contains a childcare centre of 75 places in accordance with the masterplan design guidelines which will help to develop a sense of local community, amenity and infrastructure within the precinct.

APPENDIX A: ARCHITECTURAL DRAWINGS

IVANHOE STAGE 1 - LOT A1 DEVELOPMENT APPLICATION

DRAWING SCHEDULE

Drawing No.	Drawing Title	Scale
DA00	Cover Sheet & Drawing Schedule	NTS
DA01 - Site Plans		
DA01.A1.001	Site Plan	1:200@A1 / 1:400@A3
DA03 - Floor Plans		
DA03.A1.B4	Basement 04	1:200@A1 / 1:400@A3
DA03.A1.B3	Basement 03	1:200@A1 / 1:400@A3
DA03.A1.B2	Basement 02	1:200@A1 / 1:400@A3
DA03.A1.B1	Basement 01	1:200@A1 / 1:400@A3
DA03.A1.000L	Lower Ground Floor Plan	1:200@A1 / 1:400@A3
DA03.A1.000U	Upper Ground Floor Plan	1:200@A1 / 1:400@A3
DA03.A1.001	Level 01 Plan	1:100@A1 / 1:200@A3
DA03.A.003	Level 03, 05, 07 Plan	1:100@A1 / 1:200@A3
DA03.A.004	Level 04, 06 Plan	1:100@A1 / 1:200@A3
DA03.A.008	Level 08, 10, 12, 14 Plan	1:100@A1 / 1:200@A3
DA03.A.009	Level 09, 11,13, 15 Plan	1:100@A1 / 1:200@A3
DA03.A1.016	Level 16, 18, 20 Plan	1:100@A1 / 1:200@A3
DA03.A1.017	Level 17, 19, 21 Plan	1:100@A1 / 1:200@A3
DA03.A1.022	Level 22 Plan	1:100@A1 / 1:200@A3
DA03.A1.023	Level 23 Plan	1:100@A1 / 1:200@A3
DA03.A1.024	Roof Level Plan	1:100@A1 / 1:200@A3
DA07 - Elevations		
DA07.A1.001	North Elevation	1:200@A1 / 1:400@A3
DA07.A1.002	East Elevation	1:200@A1 / 1:400@A3
DA07.A1.003	South Elevation	1:200@A1 / 1:400@A3
DA07.A1.004	West Elevation	1:200@A1 / 1:400@A3
DA08 - Sections		
DA08.A1.001	Section AA	1:200@A1 / 1:400@A3
DA08.A1.002	Section BB	1:200@A1 / 1:400@A3
DA12 - Adaptable Apartments		
DA12.A1.001	Adaptable Apartment - 1B	1 :50@A1 / 1 :100@A3
DA12.A1.002	Adaptable Apartment - 2B	1 :50@A1 / 1 :100@A3
DA12.A1.003	Adaptable Apartment - 3B	1:50@A1 / 1:100@A3
DA 50 - Area Schedule		
DA50.A1.001	Area Schedule GFA	1:750@A1 / 1:1500@A3

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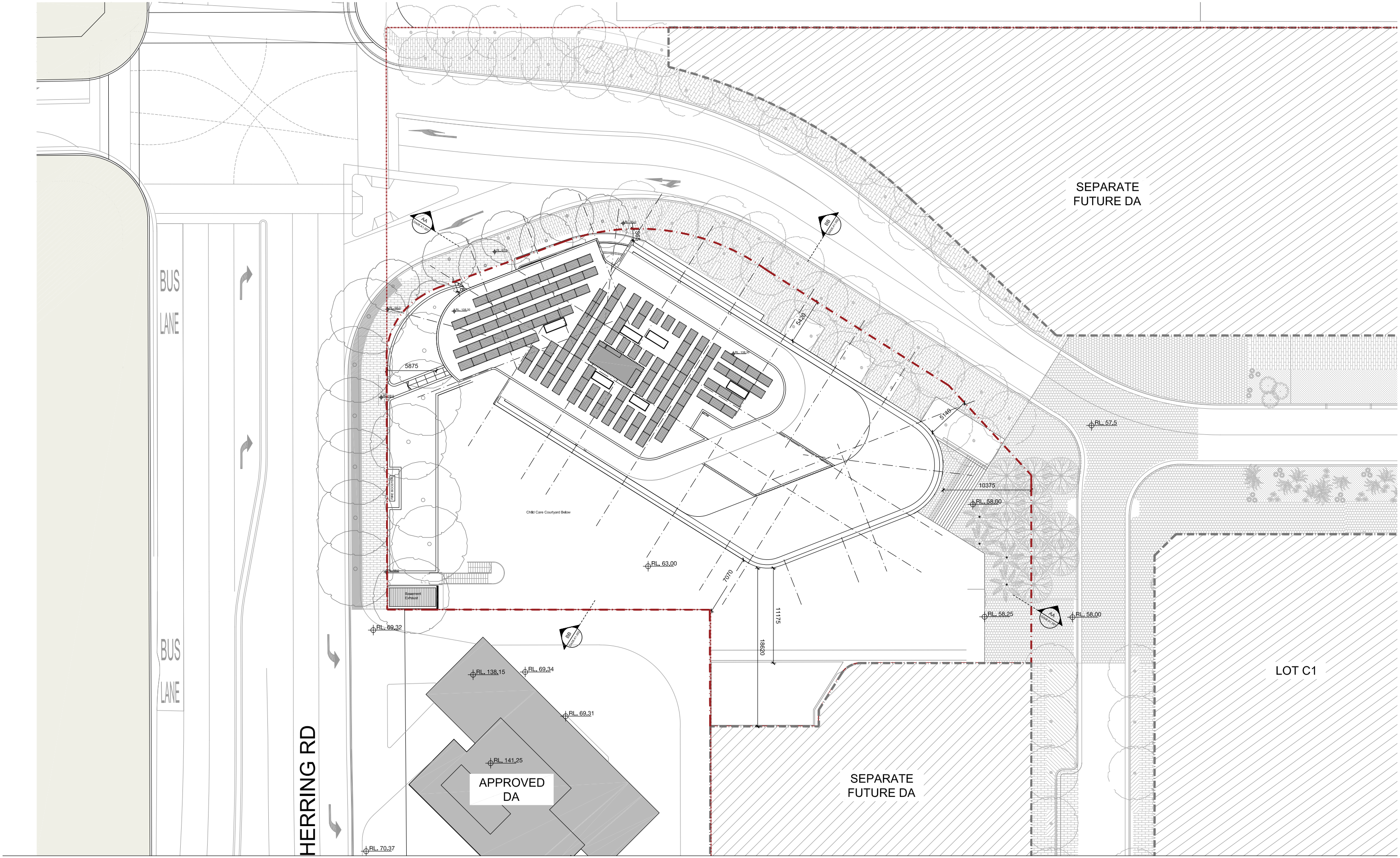
S12067.A FPA - IVANHOE ESTATE BUILDING A1



Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Site Plan

0 1 2 5 10 15 m

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.
All drawings to be read in conjunction with all architectural documents and all other consultants documents.
Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.
All drawings may not be reproduced or distributed without prior permission from the architect.

Scale	1:200@A1 / 1:400@A3
Drawn	Checked
Project No.	s12067.A
Status	DA
Plot Date	4/6/2018 8:21:34 PM
Plot File	S:\12000-12099\S12067.A_frasers_ivanhoe\70_CAD\Plots\DA\D ... ... A01.A1.001[D].dwg
Drawing No.	[Revision]

DA01.A1.001[D]

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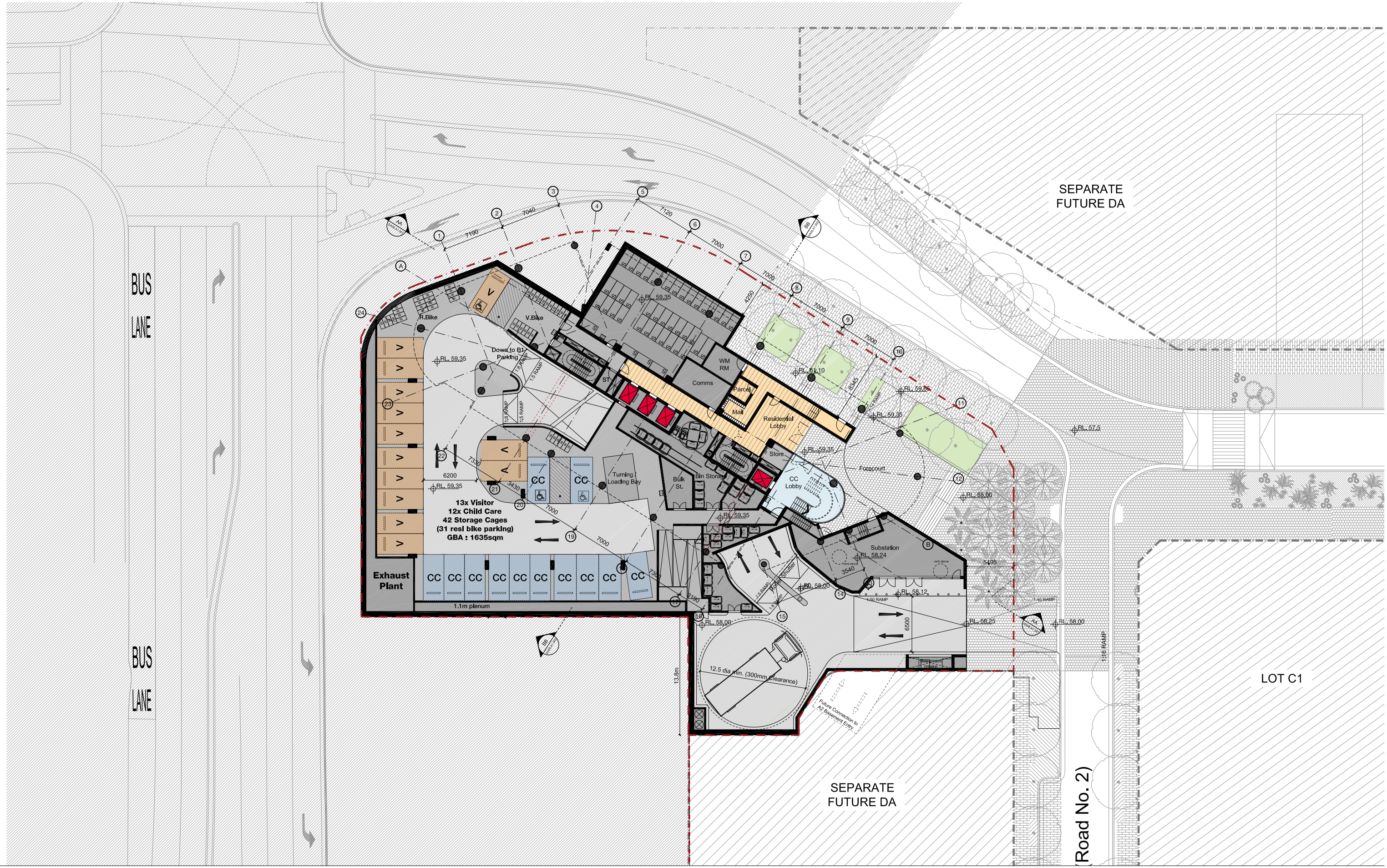

Revision	Date	Description	Initial	Checked
E	16.09.19	B1.1 Envelope revised	JC	MA
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Lower Ground Plan

0 1 2 5 10 15 m

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Project No.	s12067.A
Status	DA
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Drawing No.	[Revision]

DA03.A1.000L[E]

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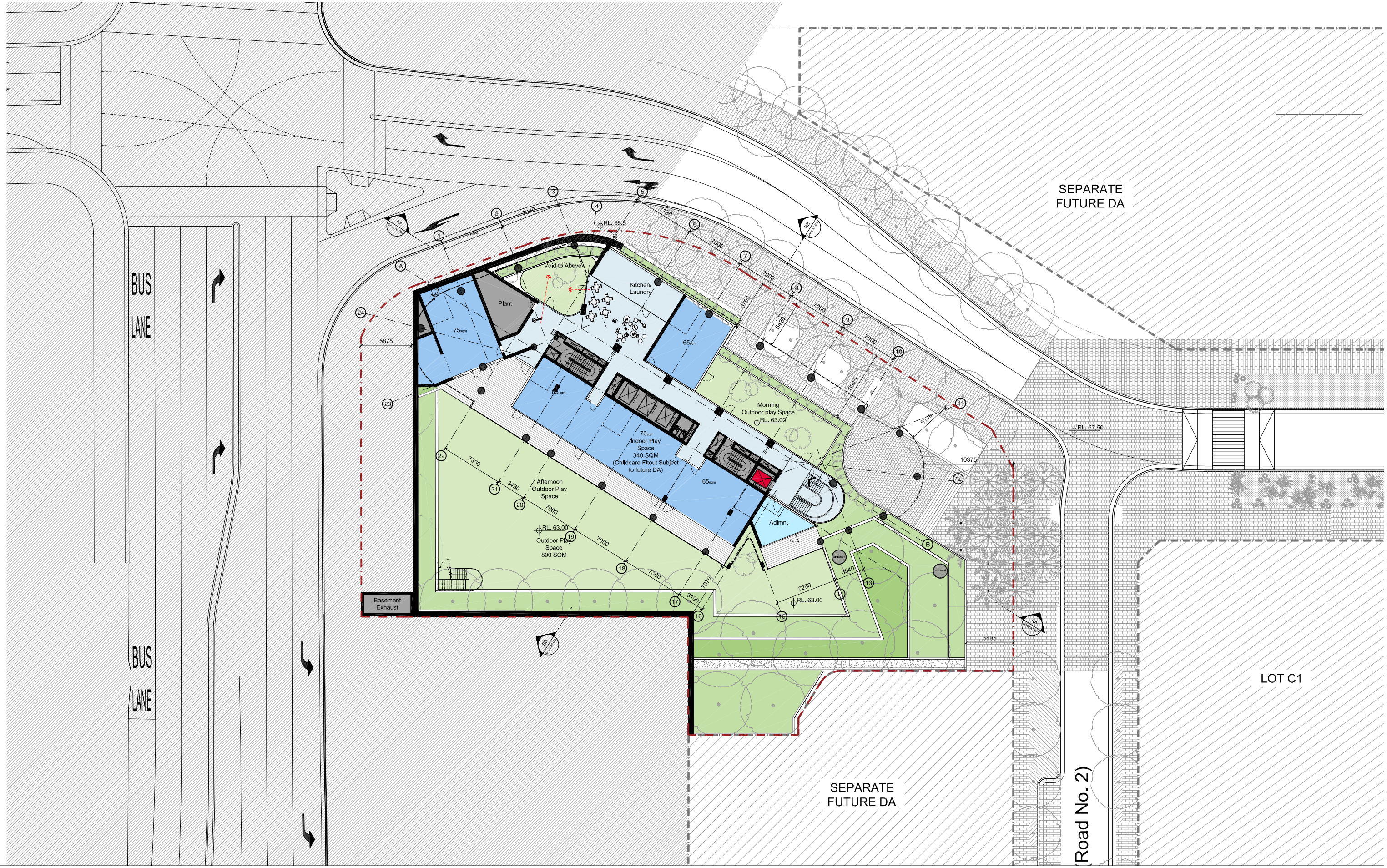

Revision	Date	Description	Initial	Checked
E	16.09.19	B1.1 Envelope revised	JC	MA
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Upper Ground Plan

0 1 2 5 10 15 m

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Revision	Date	Description	Initial	Checked
E	16.09.19	B1.1 Envelope revised	JC	MA
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 01 Plan

0 1 2 5 7.5 m

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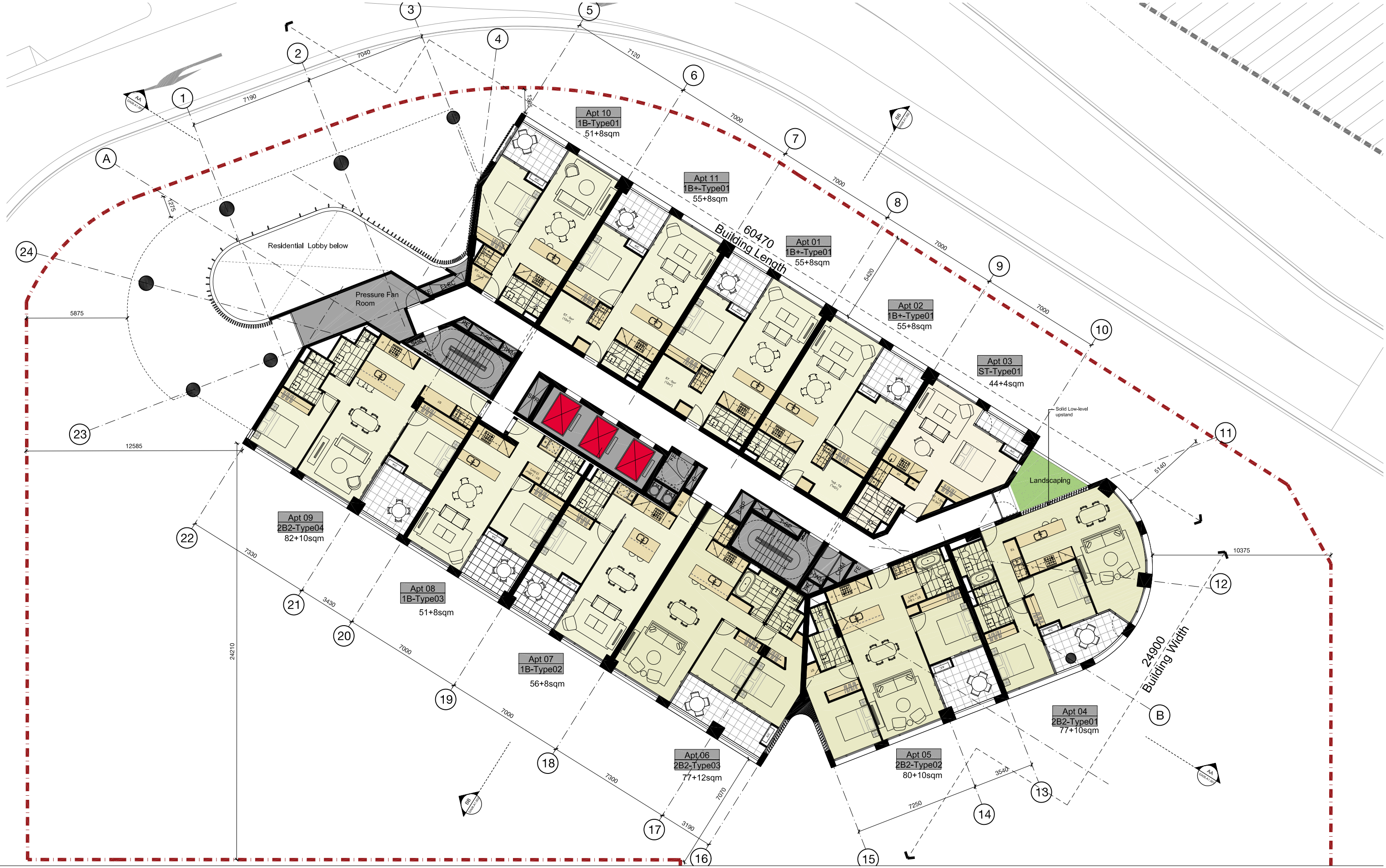

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Revision	Date	Description	Initial	Checked
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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 02 Plan

0 1 2 5 7.5 m

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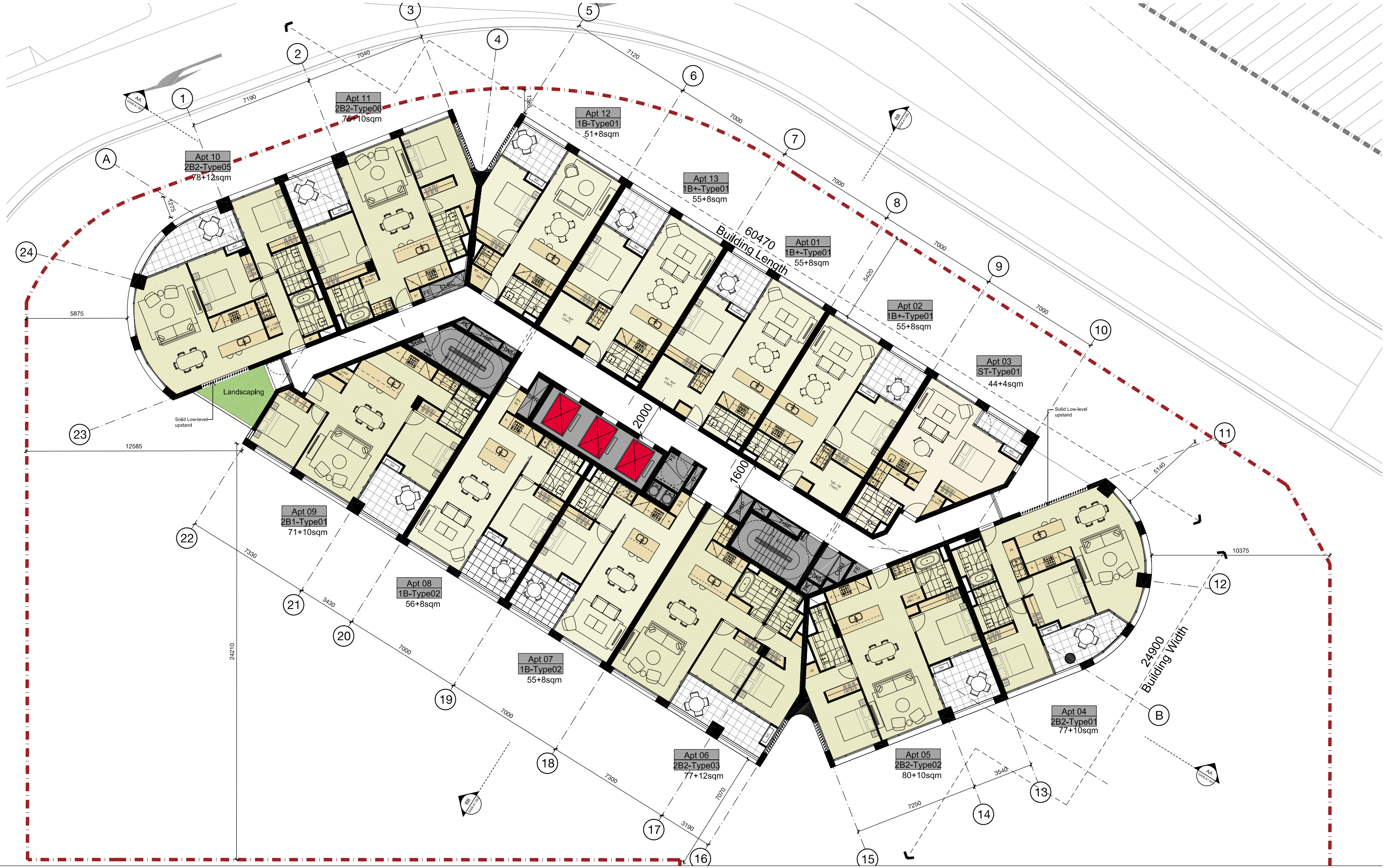

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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 03, 05 & 07 Plan

0 1 2 5 7.5 m

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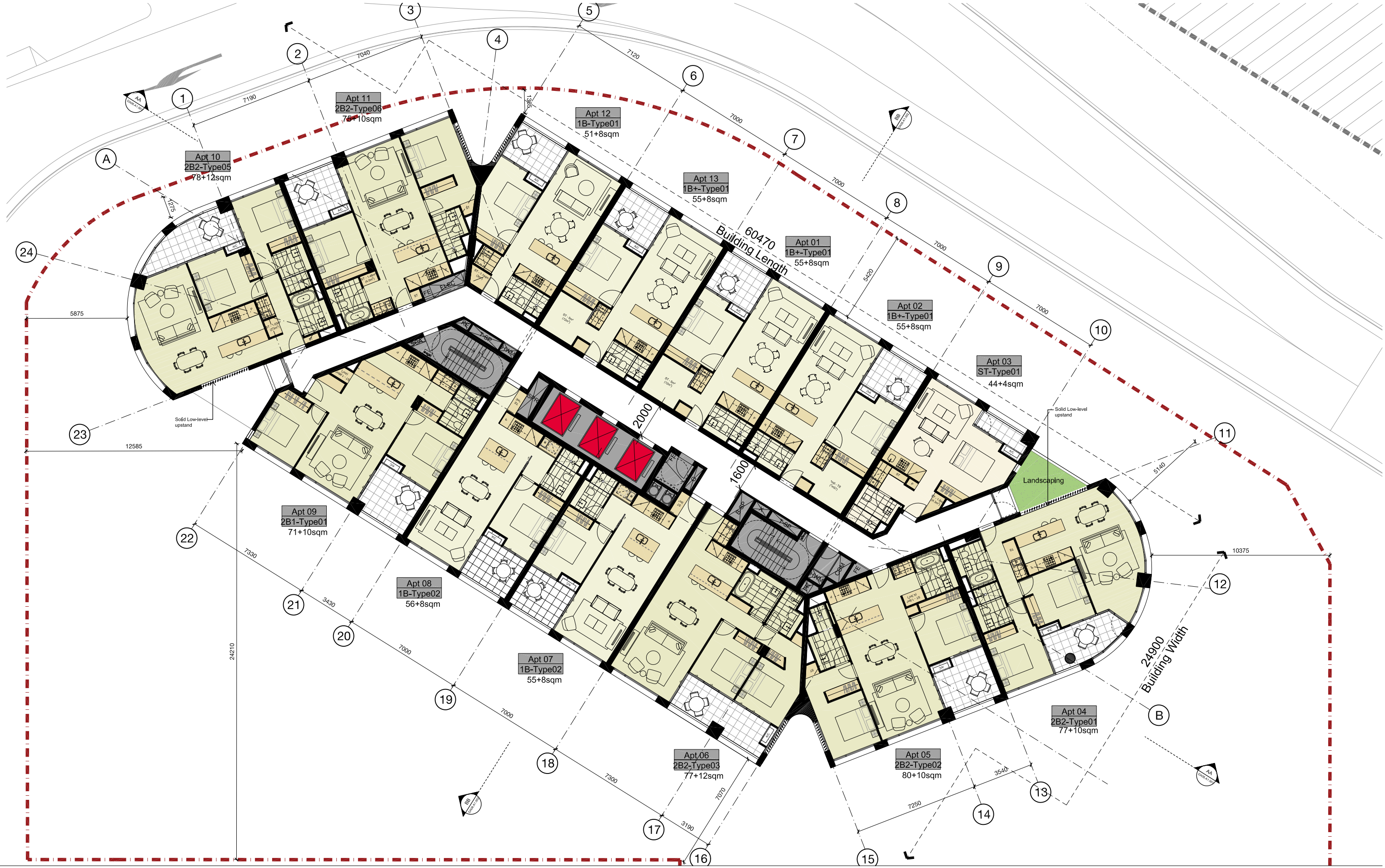

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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 04 & 06 Plan

0 1 2 5 7.5 m

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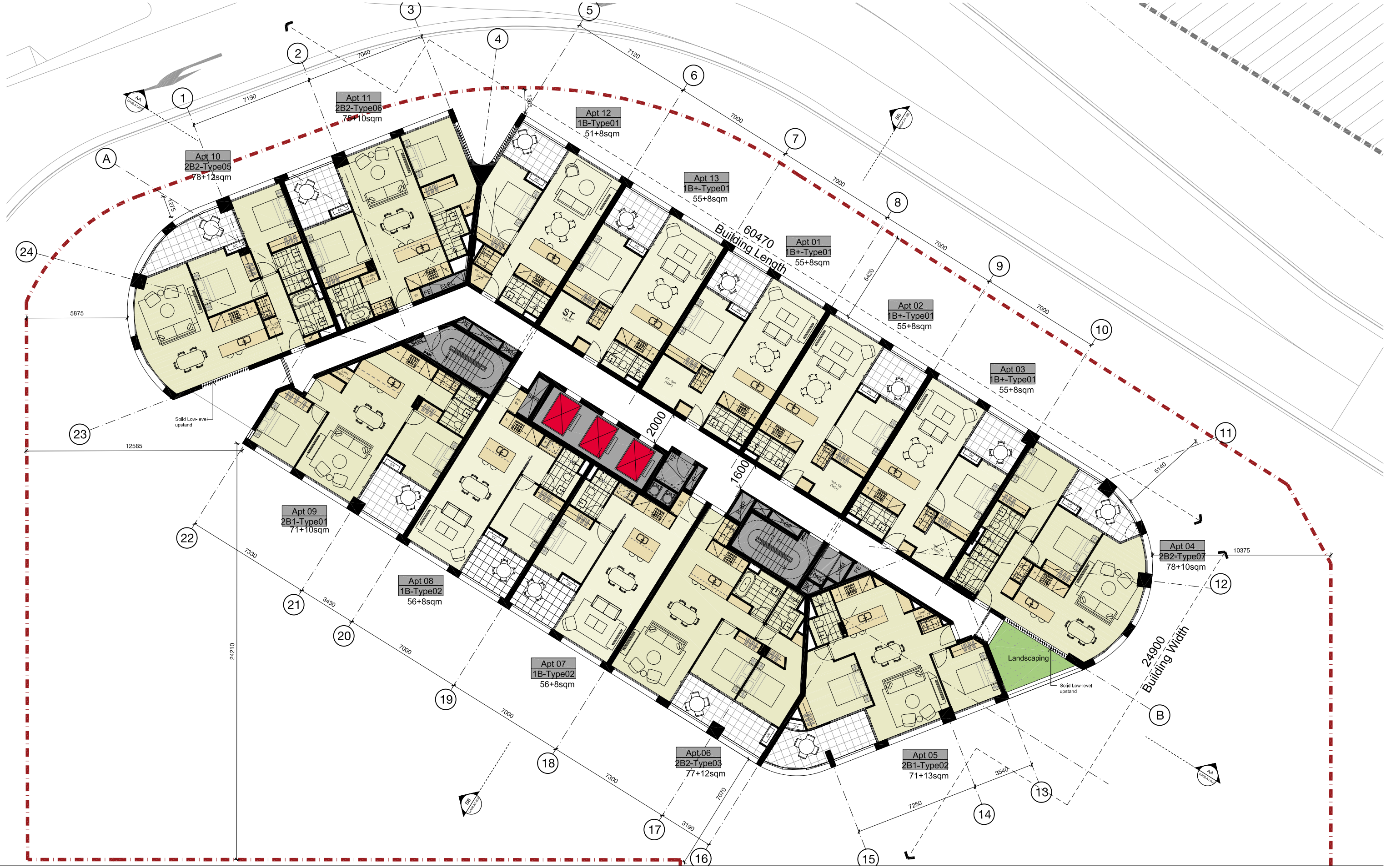

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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 08, 10 ,12 & 14 Plan

0 1 2 5 7.5 m

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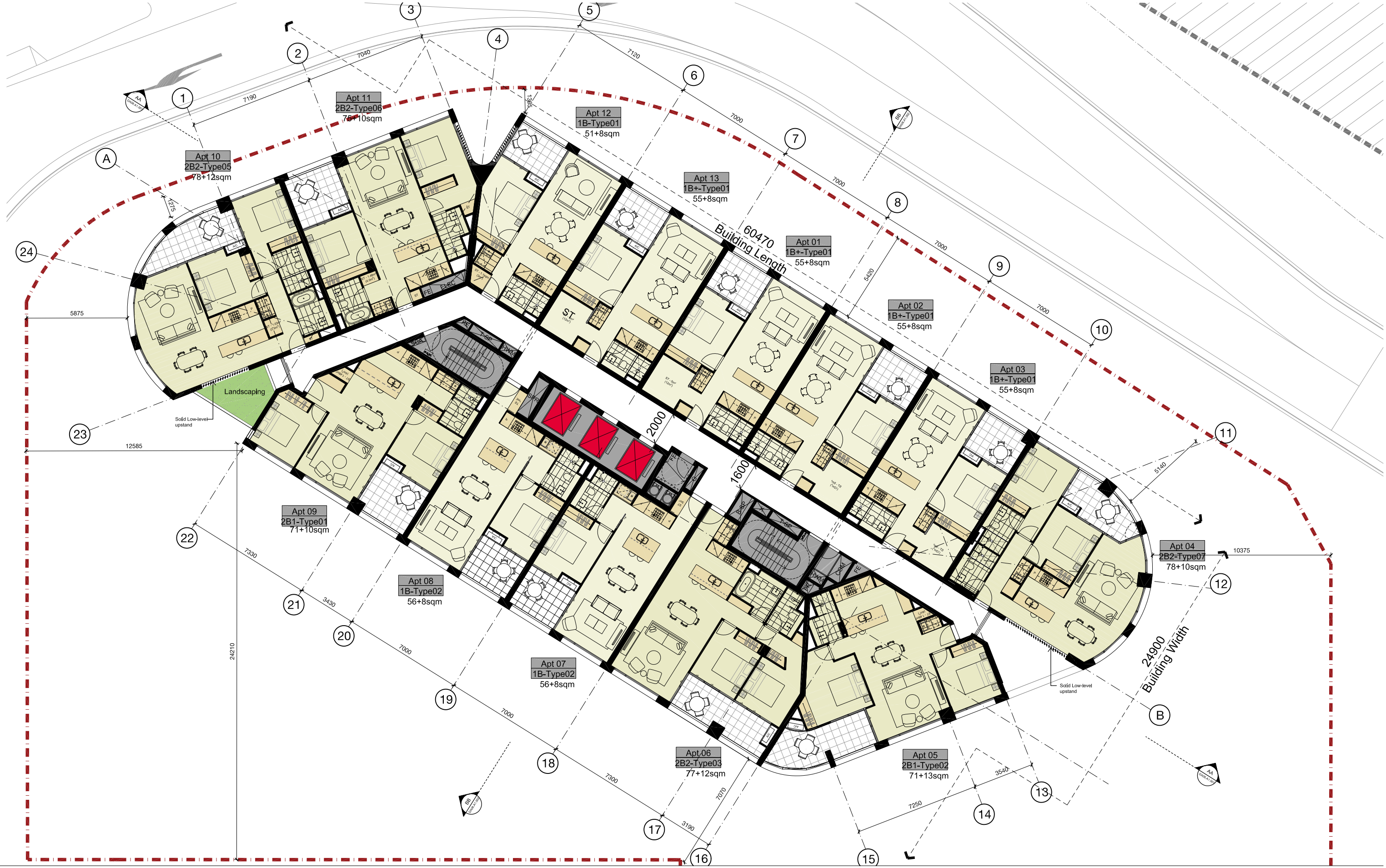

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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 09, 11, 13 & 15 Plan

0 1 2 5 7.5 m

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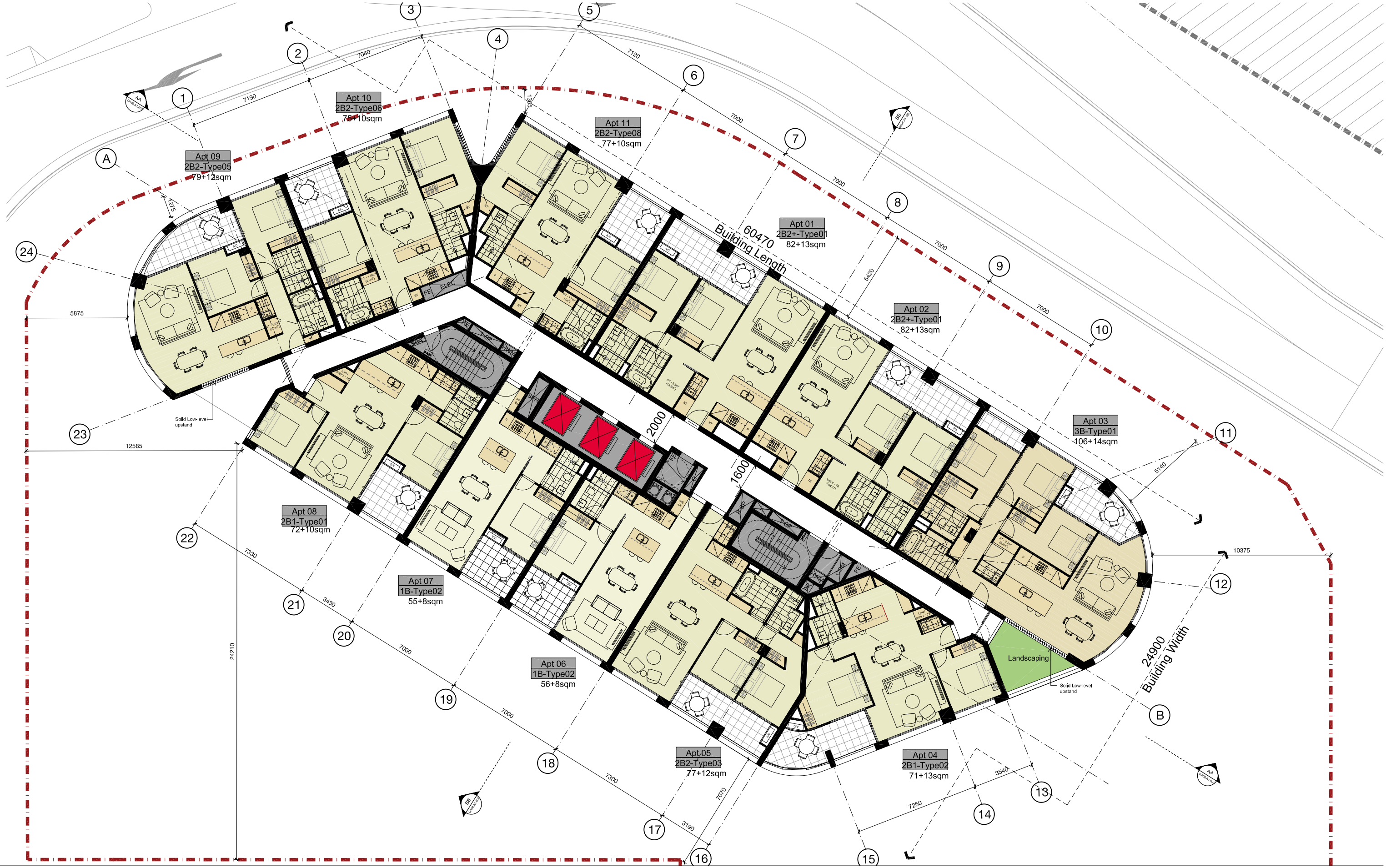

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E	16.09.19	B1.1 Envelope revised	JC	MA
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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 16, 18 & 20 Plan

0 1 2 5 7.5 m

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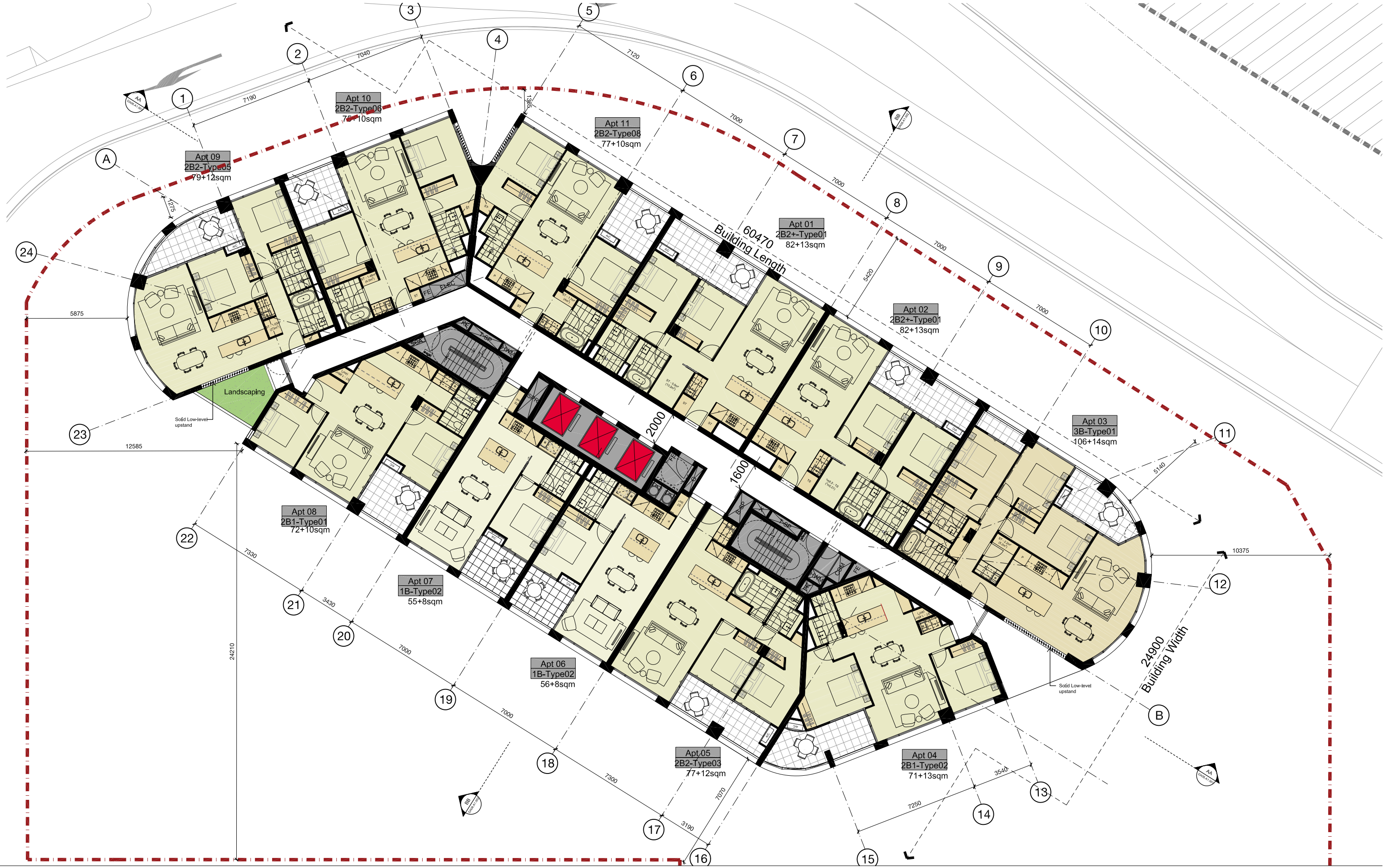

Revision	Date	Description	Initial	Checked
E	16.09.19	B1.1 Envelope revised	JC	MA
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Level 17, 19 & 21 Plan

0 1 2 5 7.5 m

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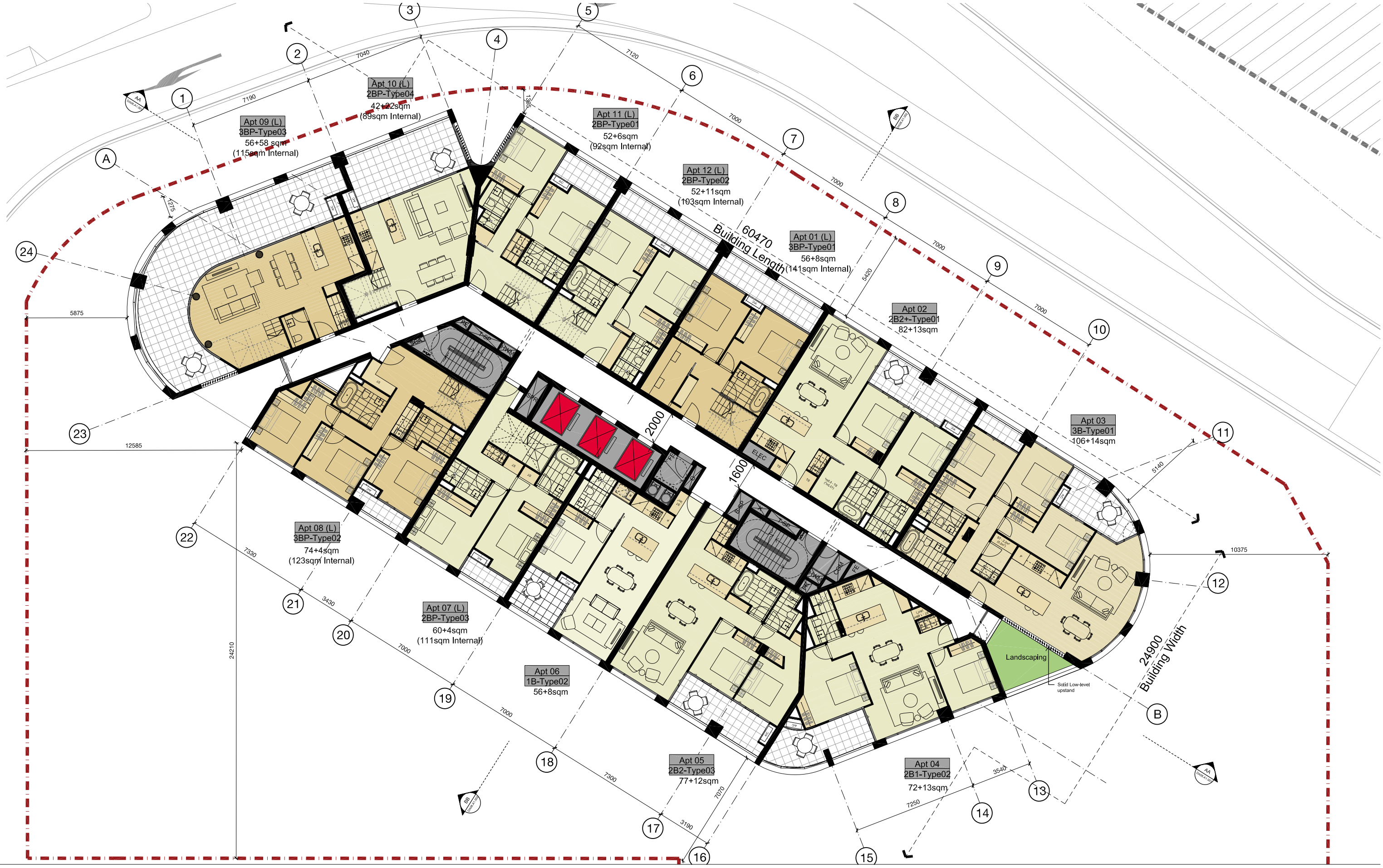

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Revision	Date	Description	Initial	Checked
E	16.09.19	B1.1 Envelope revised	JC	MA
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 22 Plan

0 1 2 5 7.5 m

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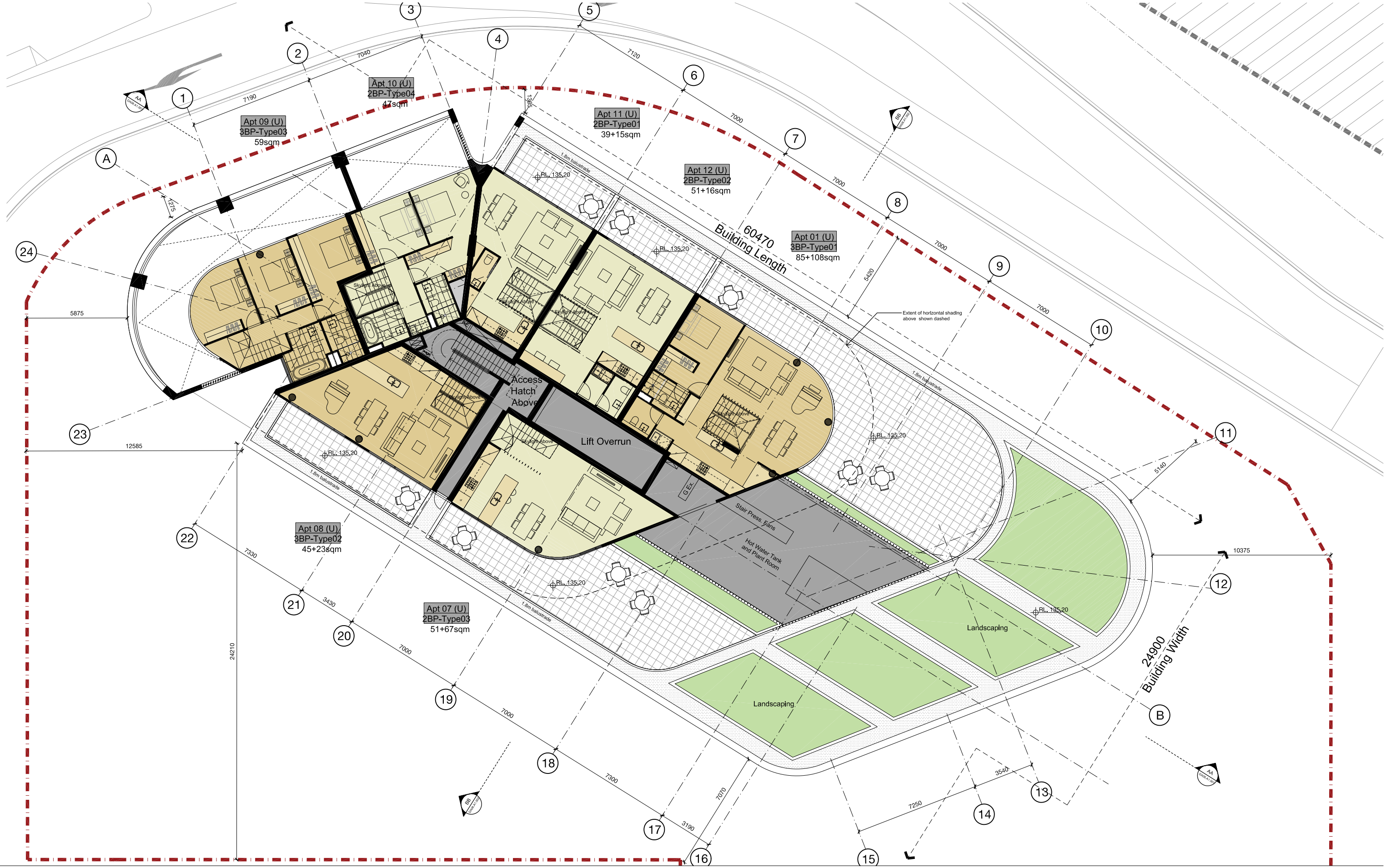

Revision	Date	Description	Initial	Checked
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C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park
Level 23 Plan

0 1 2 5 7.5 m

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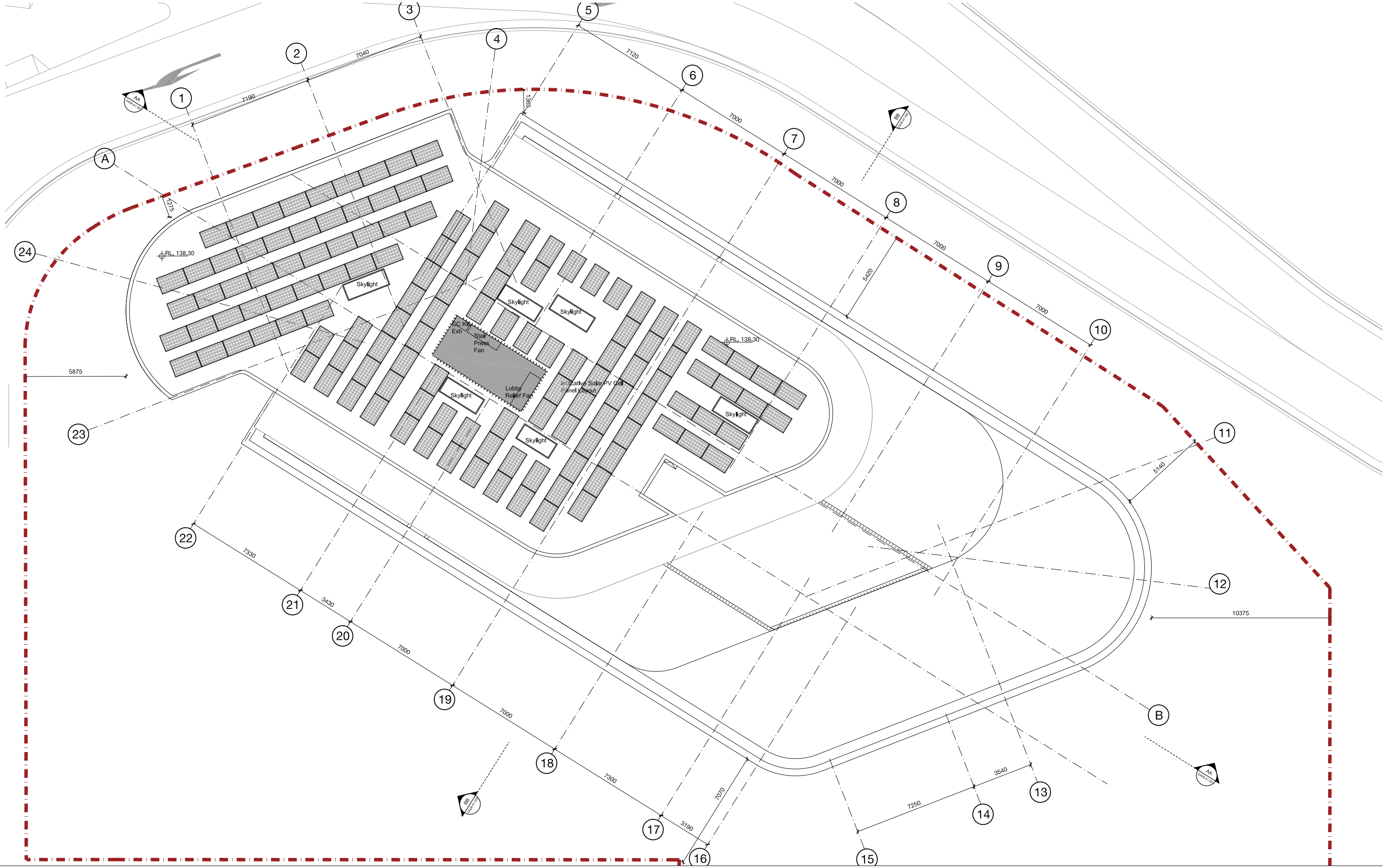

Revision	Date	Description	Initial	Checked

Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Roof Plan

0 1 2 5 7.5 m

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Drawing No.	[Revision]

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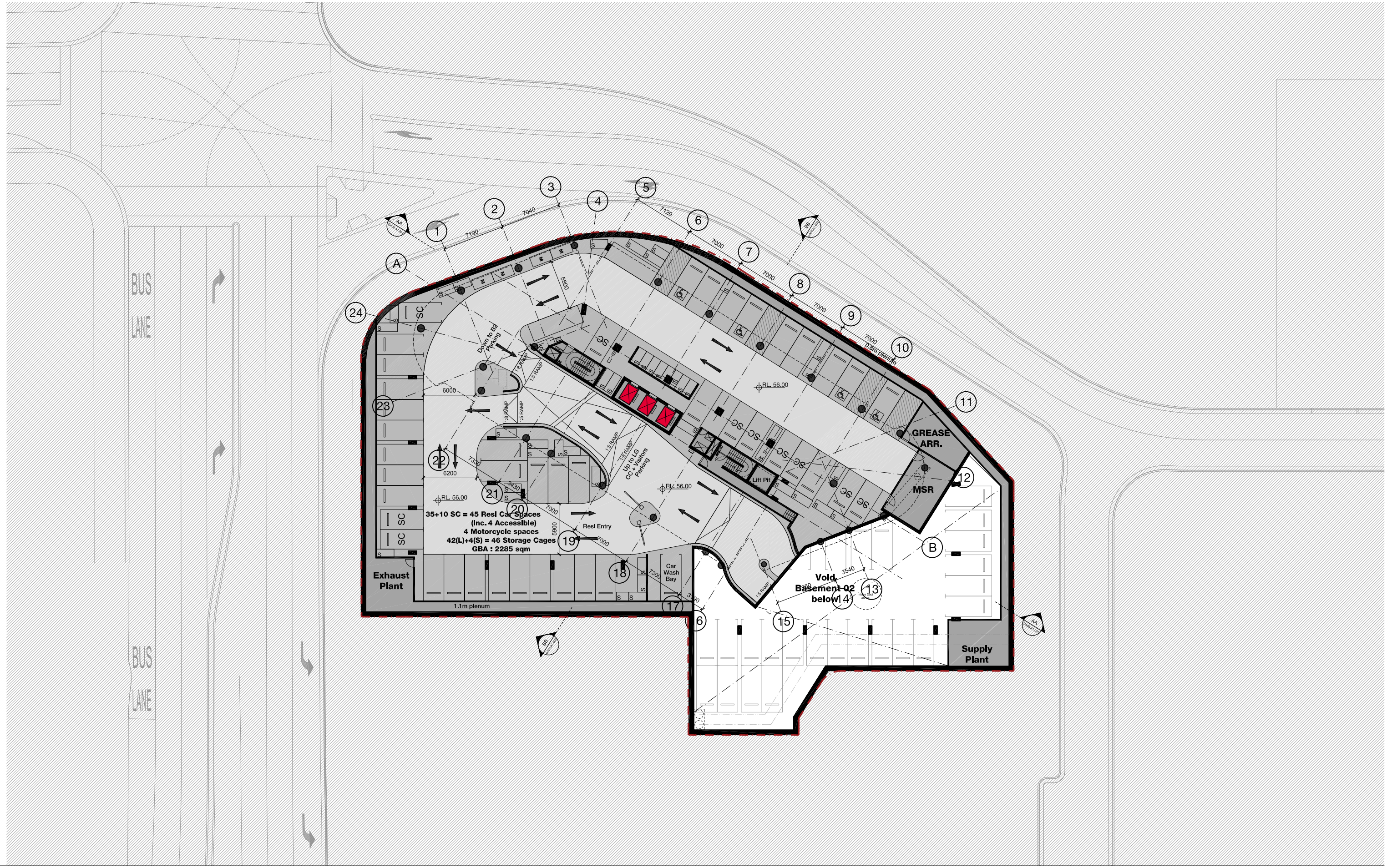

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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Basement 01 : Loading Dock / Childcare parking

0 1 2 5 10 15 m

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DA03.A1.B1[C]

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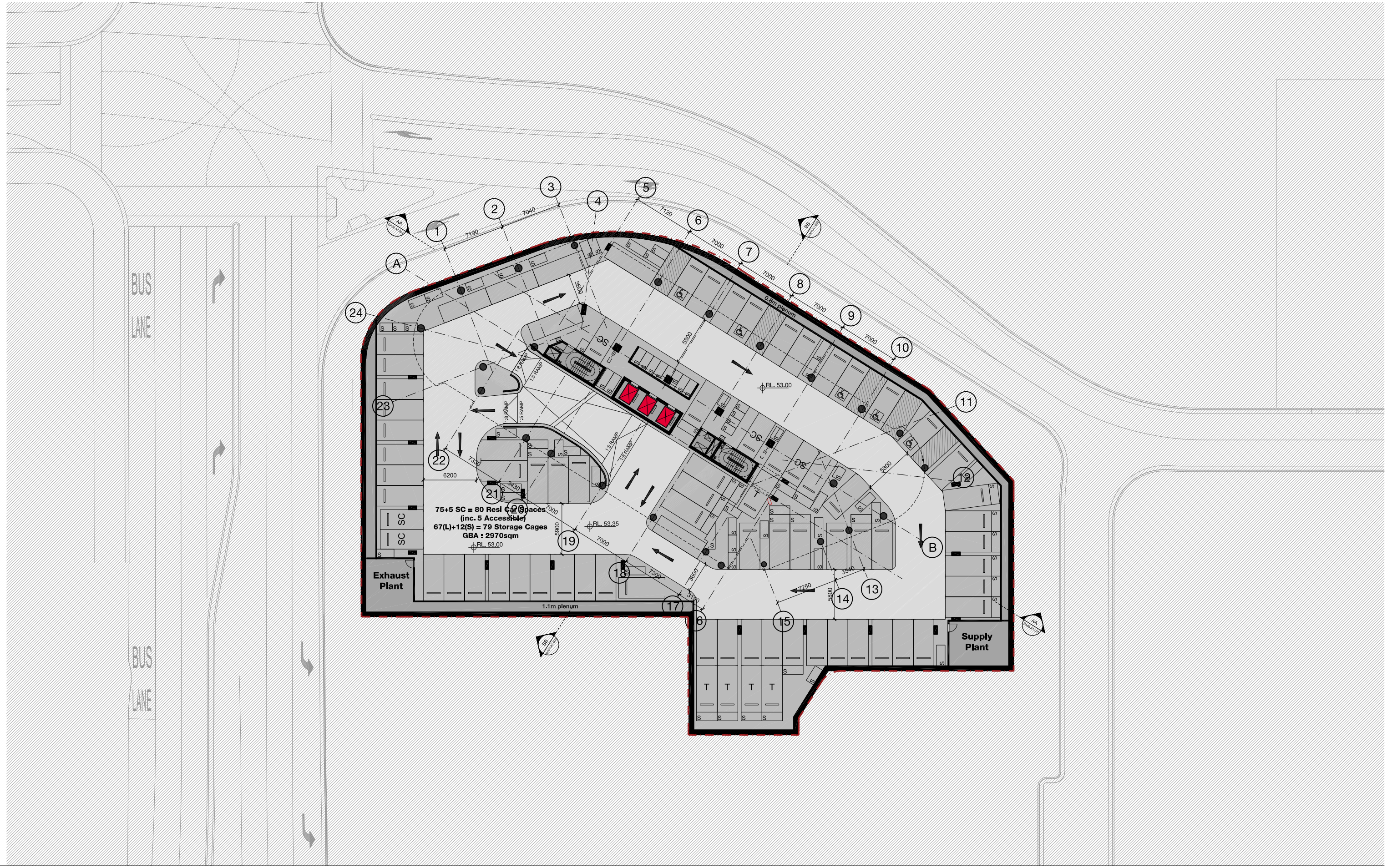

Revision	Date	Description	Initial	Checked
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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Basement 02 - Typical Carpark

0 1 2 5 10 15 m

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DA03.A1.B2[C]

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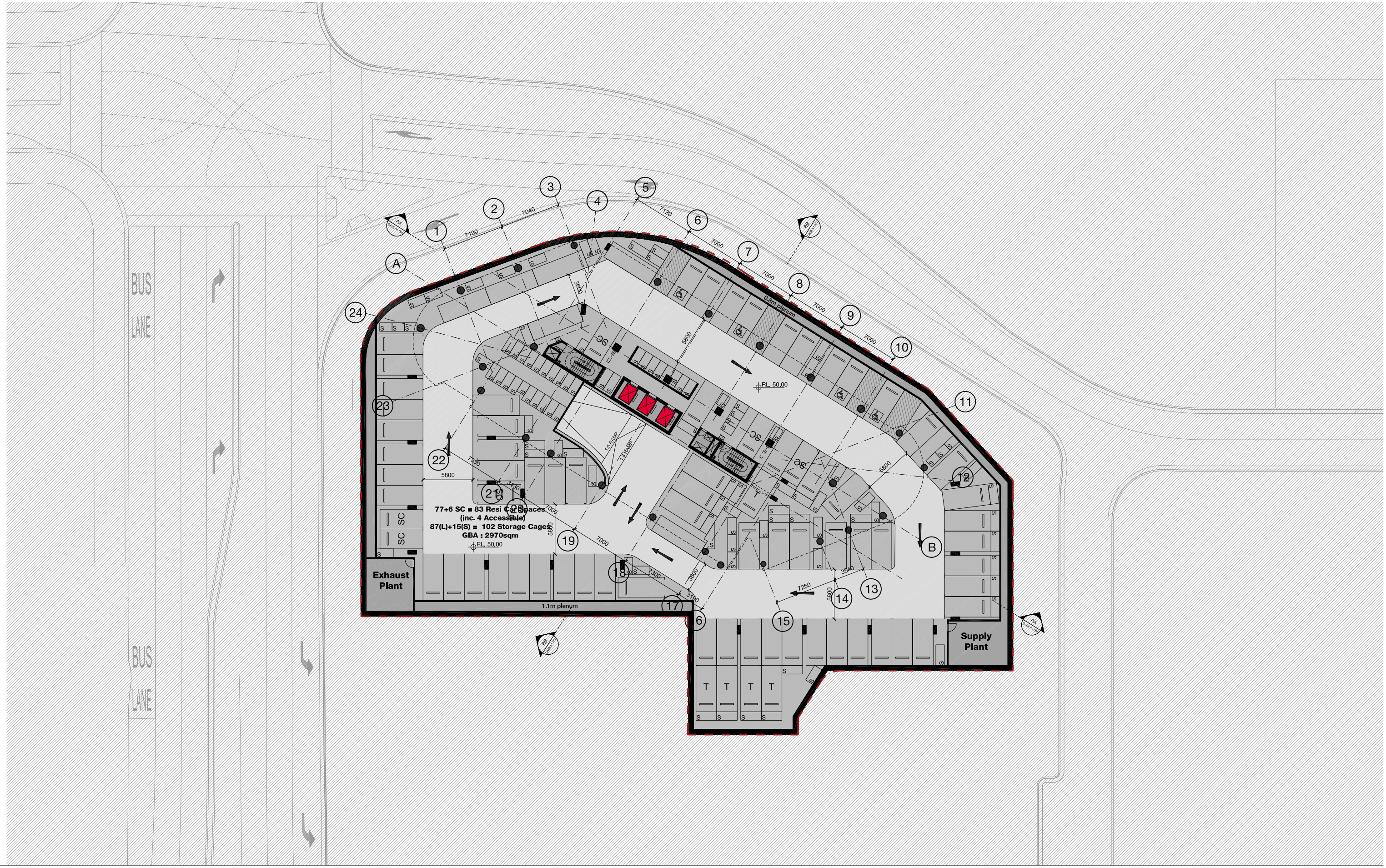

Revision	Date	Description	Initial	Checked
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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Basement 03- Carpark

0 1 2 5 10 15 m

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Scale	1:200@A1 / 1:400@A3
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Drawing No.	[Revision]

DA03.A1.B3[C]

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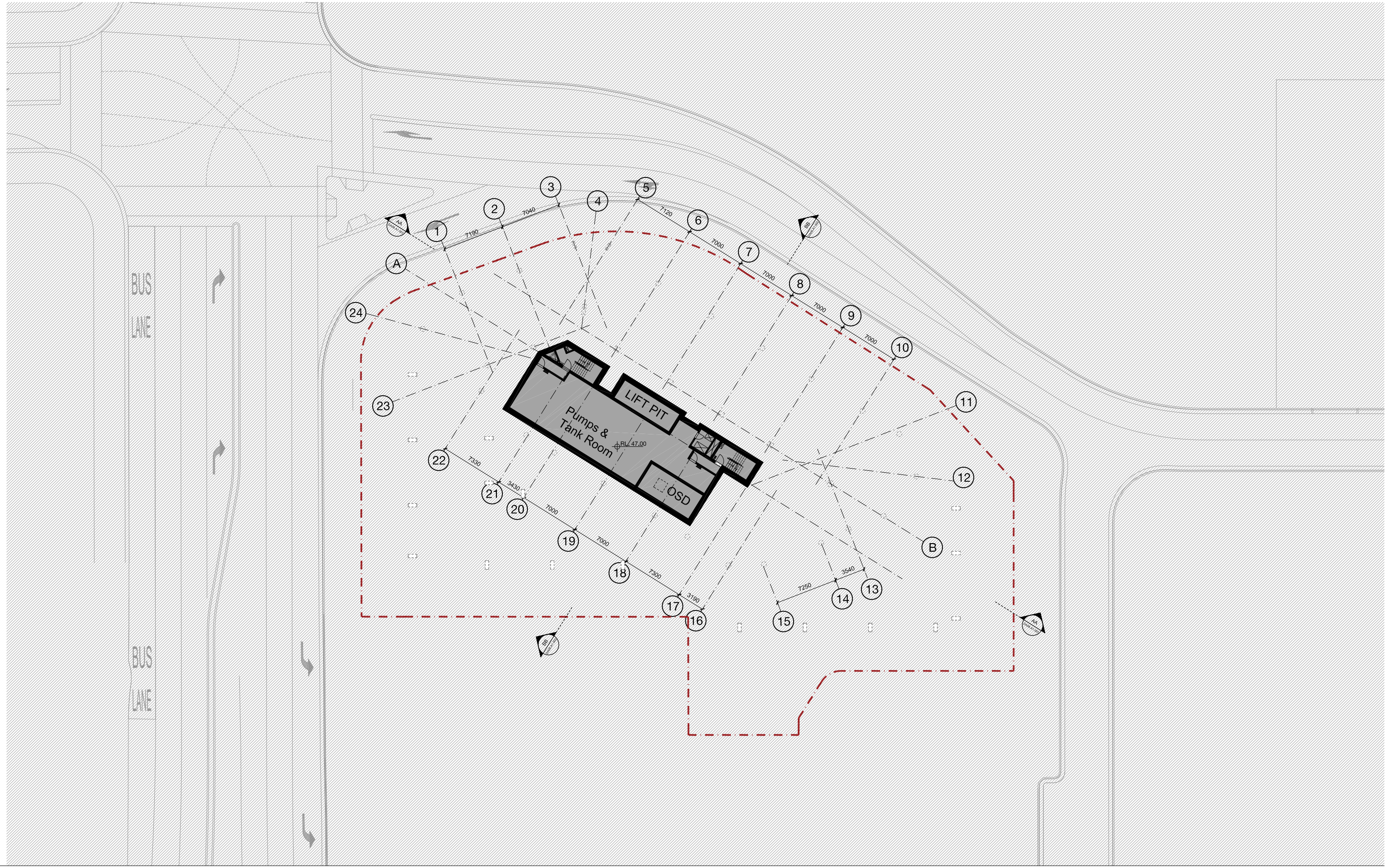

Revision	Date	Description	Initial	Checked
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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Basement 04- Carpark

0 1 2 5 10 15 m

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Scale	1:200@A1 / 1:400@A3
Drawn	Checked
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Status	DA
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Drawing No.	[Revision]

DA03.A1.B4[C]

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Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	DL	KM
A	18.02.09	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park

North Elevation

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Scale	1:200@A1 / 1:400@A3
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DA07.A1.001

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Revision	Date	Description	Initial	Checked
D	18.06.04	Stage 1 - Lot A1 DA updated	KM	KM
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	DL	KM
A	18.02.09	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park

East Elevation

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Drawing No.	[Revision]

DA07.A1.002

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Revision	Date	Description	Initial	Checked
A	18.06.04	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park

South Elevation

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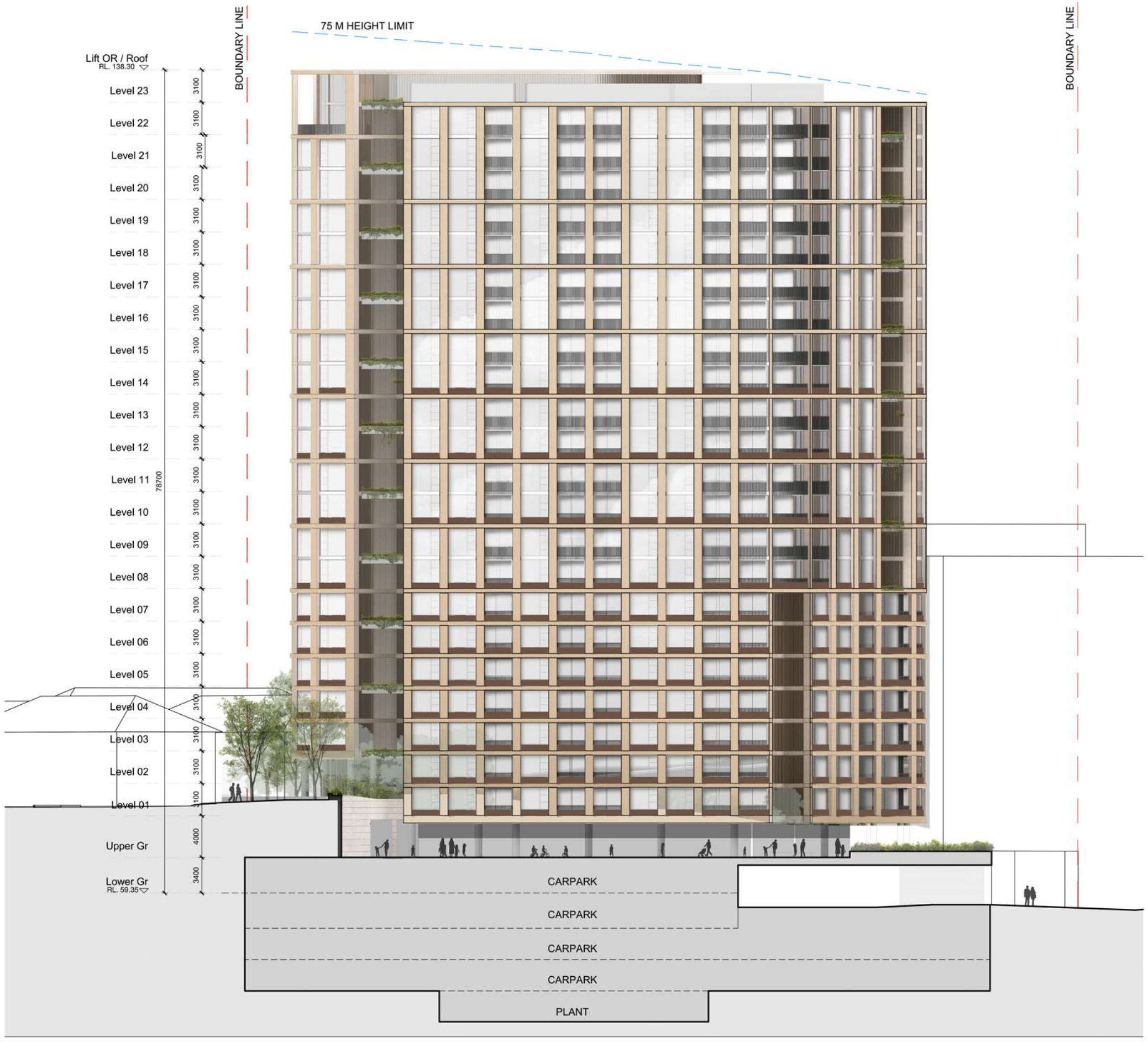

Revision	Date	Description	Initial	Checked
A	18.06.04	Stage 1 - Lot A1 DA	DL	KM

Building A1
Ivanhoe Estate, Macquarie Park

West Elevation

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Status	DA
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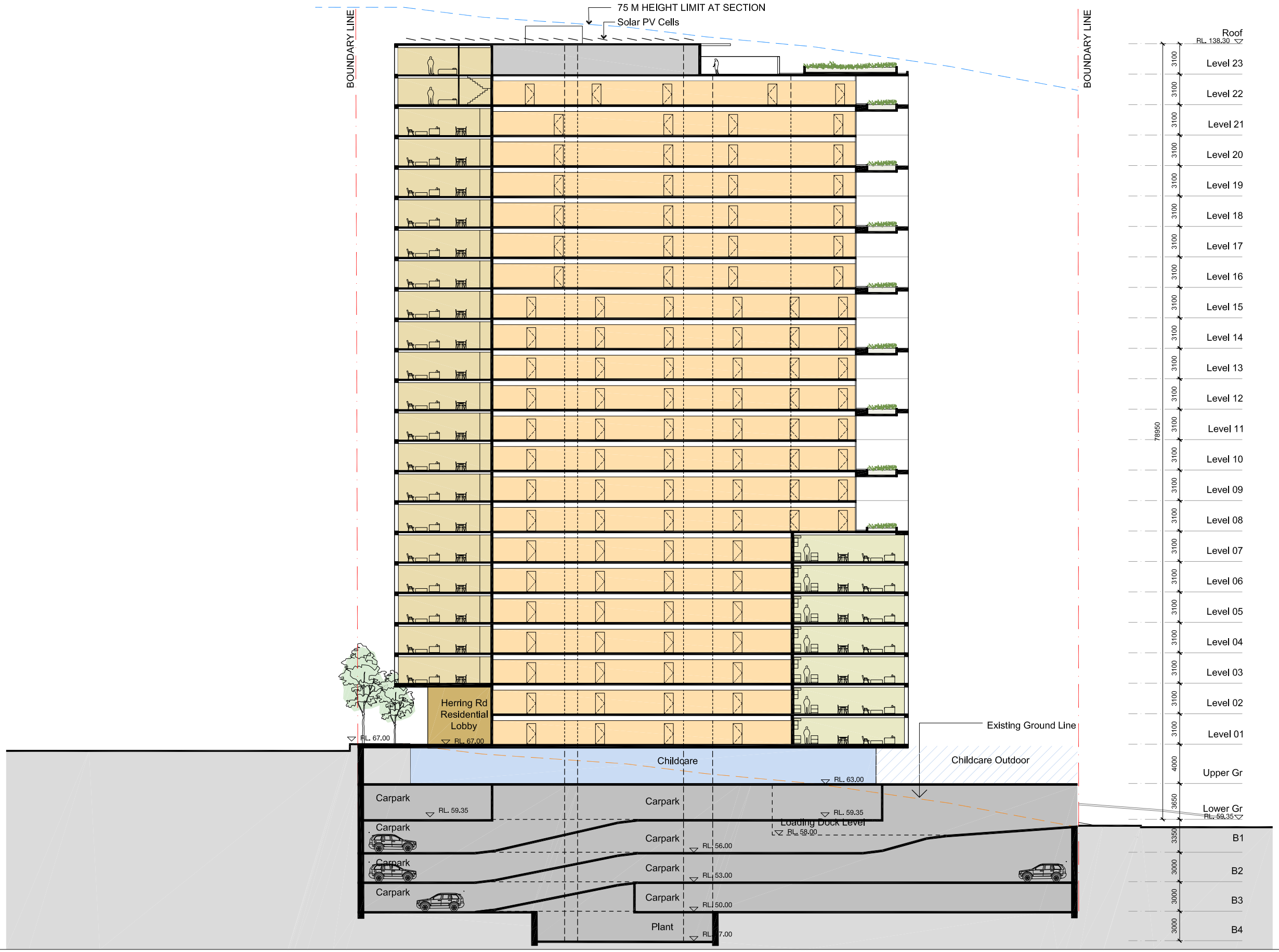

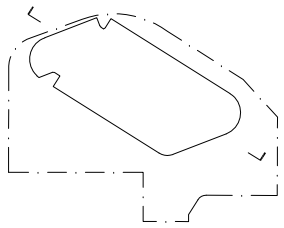

Revision	Date	Description	Initial	Checked
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Section AA

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Scale	1:200@A1 / 1:400@A3
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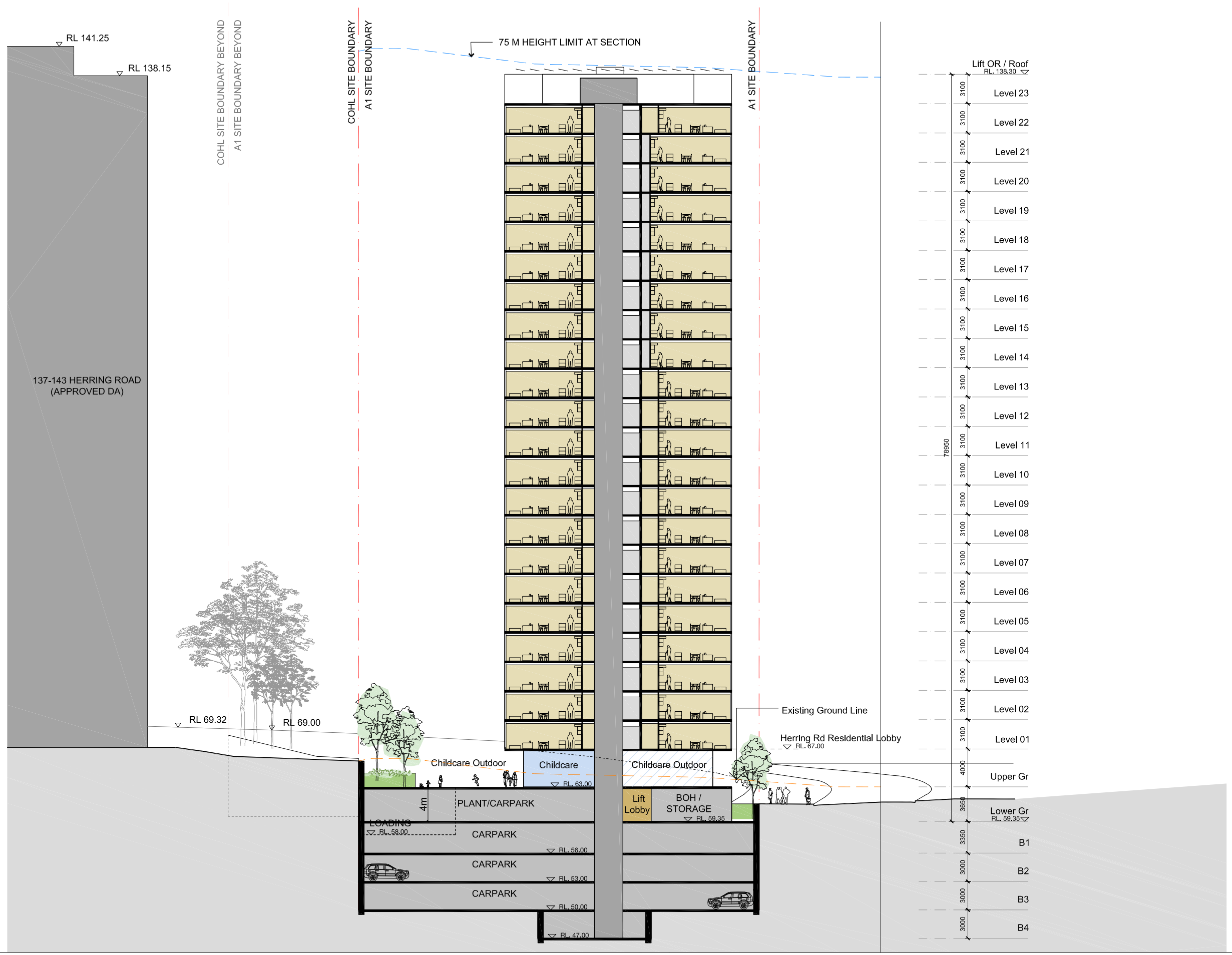

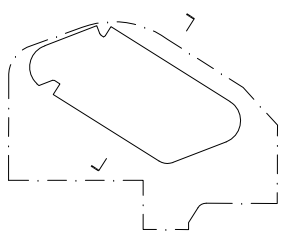

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B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Section BB

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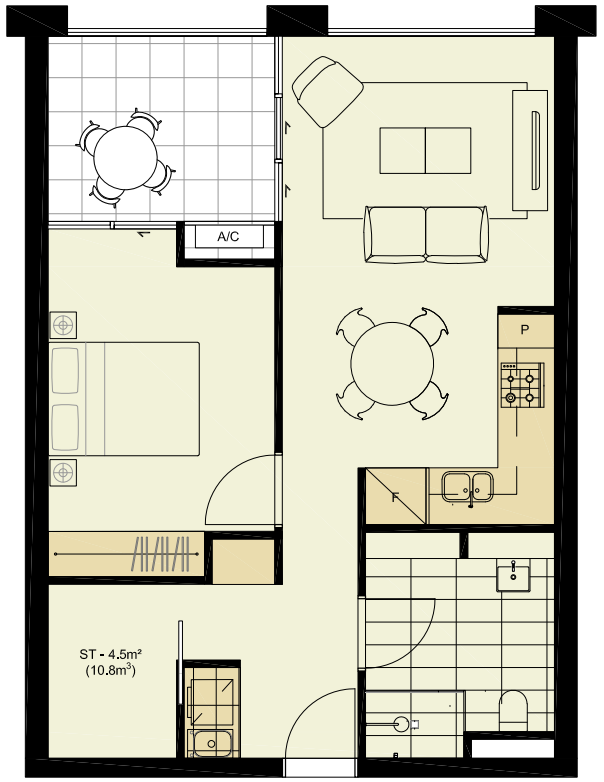
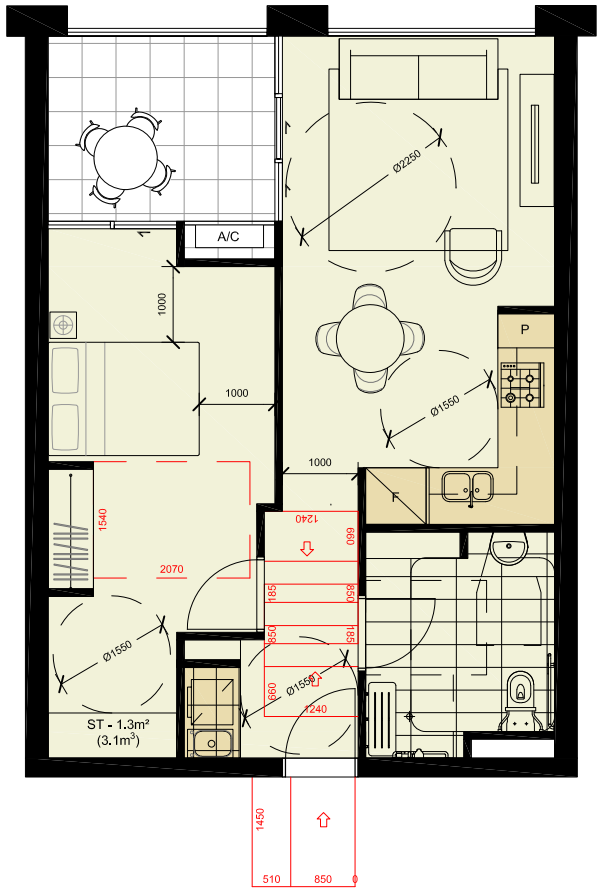
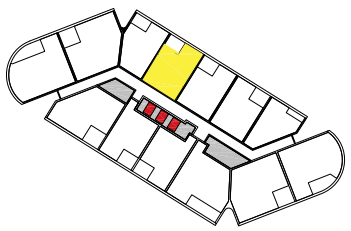


1-Bed Apartment
Pre-Adaption



1-Bed Apartment
Post-Adaption



7x Adaptable Apts
L01 to L07

Revision	Date	Description	Initial	Checked
			*	*

Revision	Date	Description	Initial	Checked
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Adaptable Apartments
1B (Pre and Post Adaption)

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Scale	1:50@A1 / 1:100@A3
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Project No.	s12067.A
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Drawing No.	[Revision]

DA12.A1.001[C]

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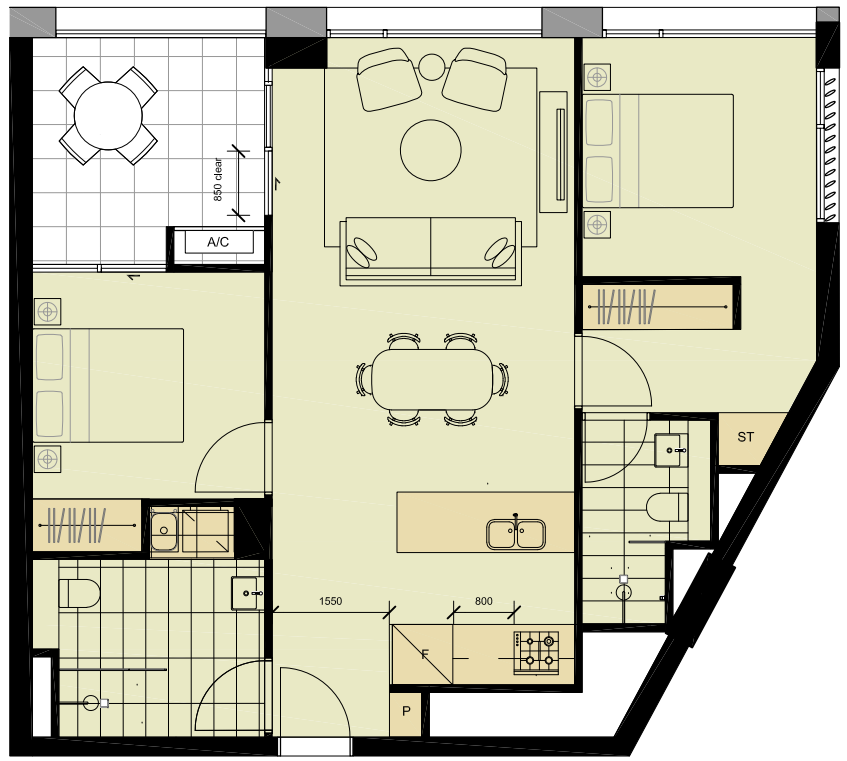
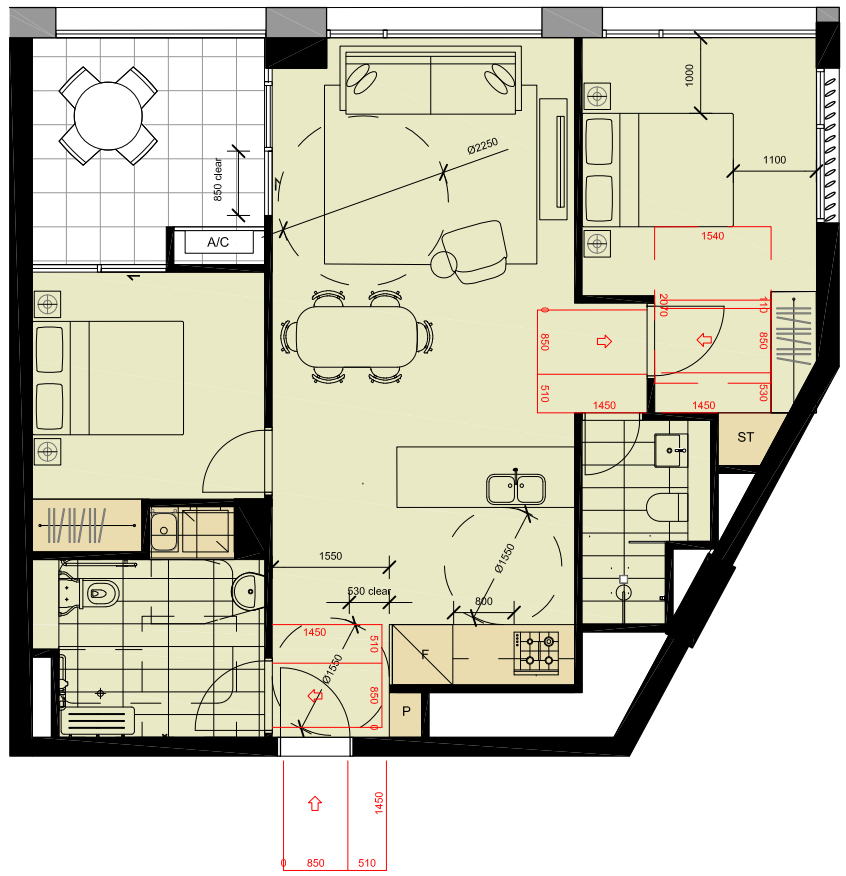
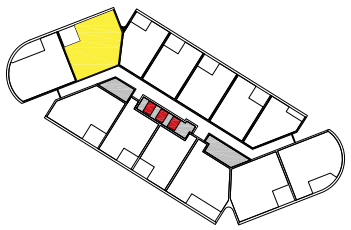


2-Bed Apartment
Pre-Adaption



2-Bed Apartment
Post-Adaption



4x Adaptable Apts
L03 to L07

Revision	Date	Description	Initial	Checked
			*	*

Revision	Date	Description	Initial	Checked
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	KM

Building A1
Ivanhoe Estate, Macquarie Park

Adaptable Apartments
2B (Pre and Post Adaption)

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Scale	1:50@A1 / 1:100@A3
Drawn	Checked
Project No.	s12067.A
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Drawing No.	[Revision]

DA12.A1.002[C]

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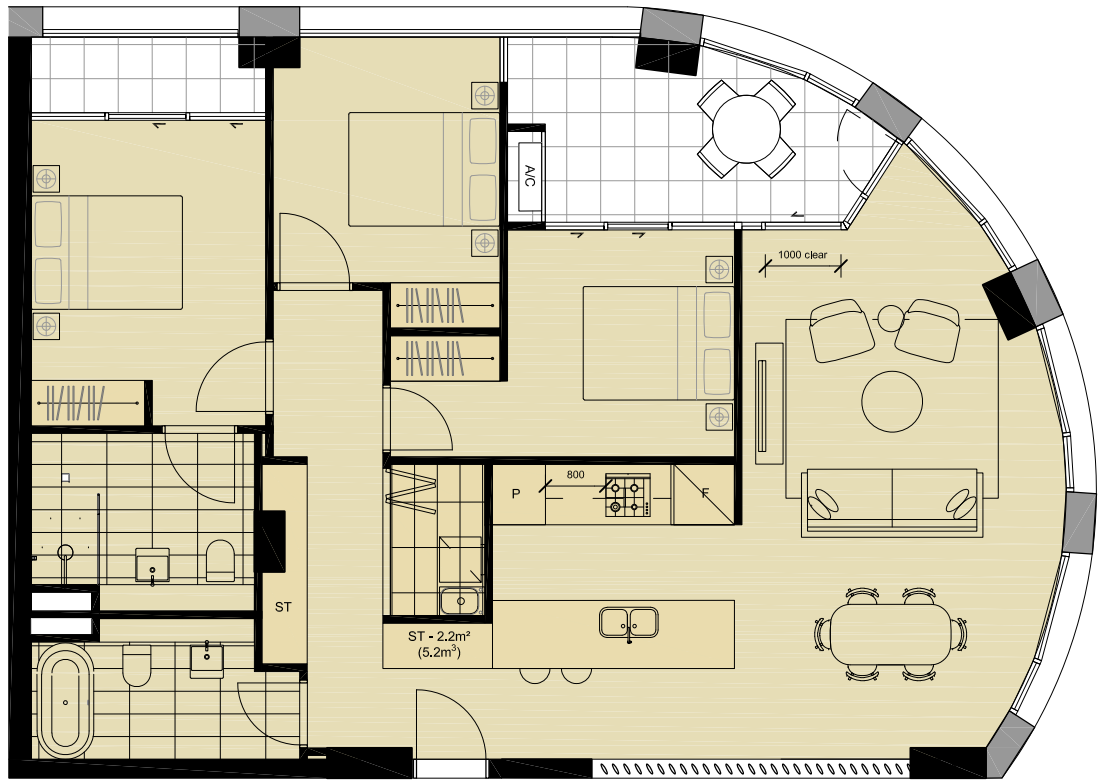

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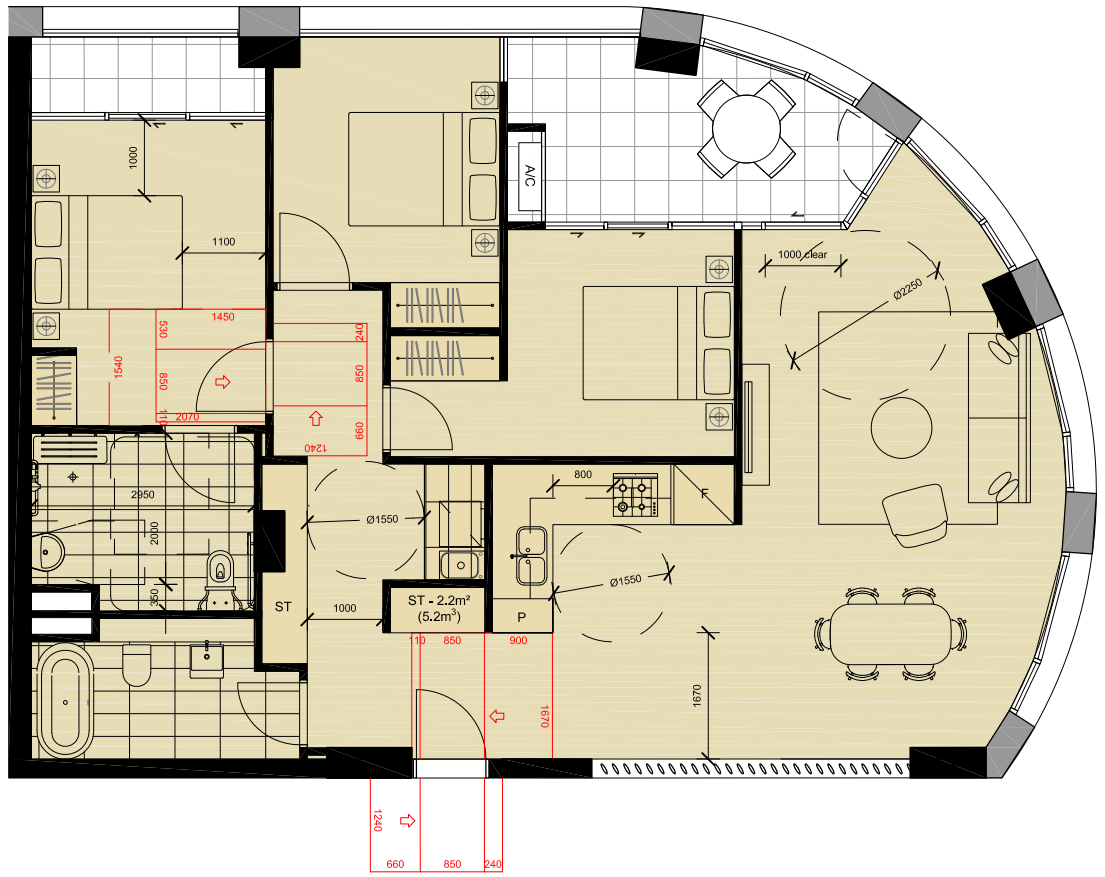
Pre-Adaption



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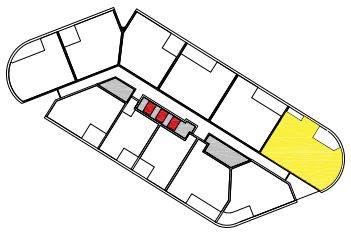

2x Adaptable Apts
L16 to L17

Revision	Date	Description	Initial	Checked
			*	*

Revision	Date	Description	Initial	Checked
C	18.03.25	Stage 1 - Lot A1 DA updated	KM	KM
B	18.03.12	Stage 1 - Lot A1 DA updated	CC	KM
A	18.02.09	Stage 1 - Lot A1 DA	CC	*KM

Building A1
Ivanhoe Estate, Macquarie Park

Adaptable Apartments
3B (Pre and Post Adaption)

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.
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DA12.A1.003[C]

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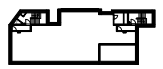

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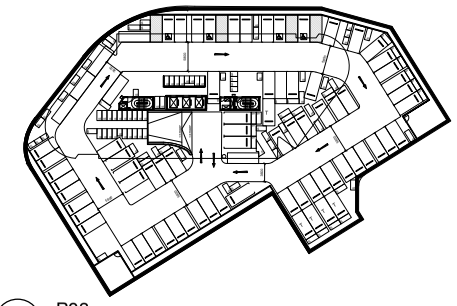

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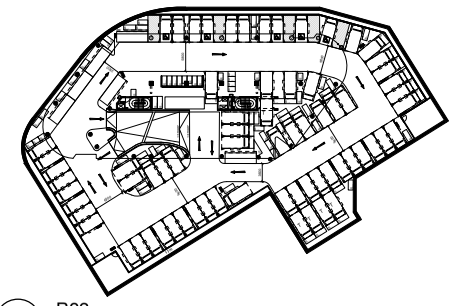

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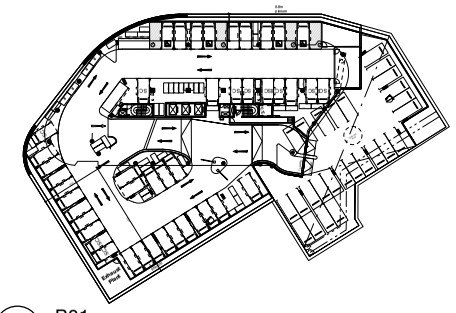

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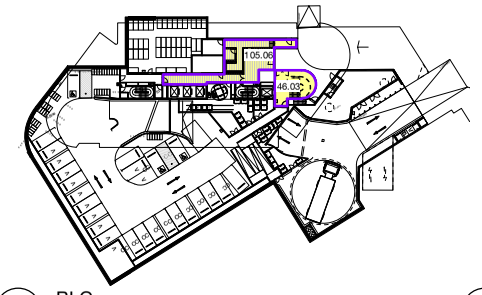

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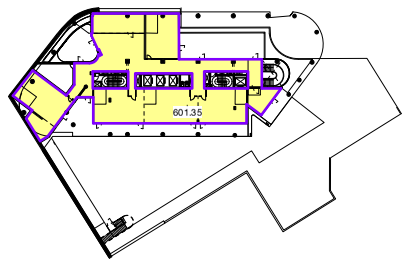

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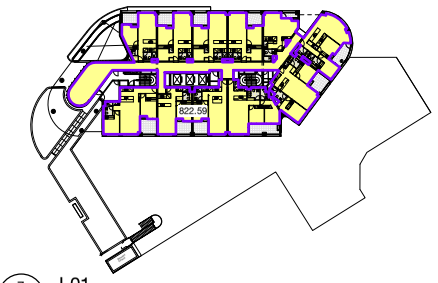

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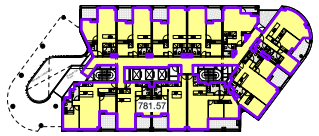

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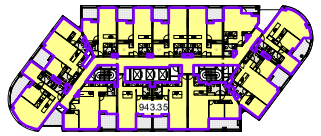

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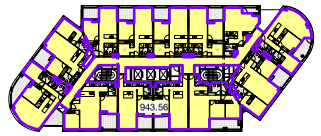

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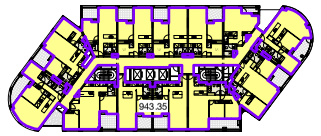

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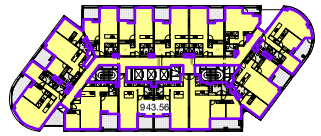

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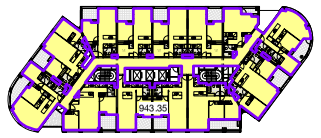

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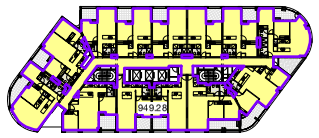

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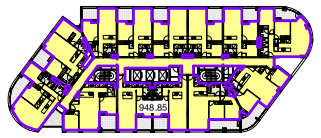

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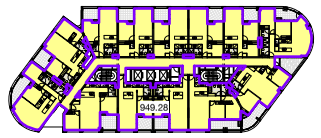

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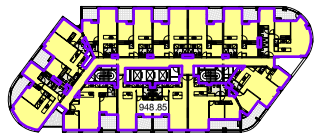

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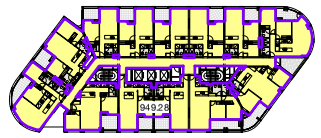

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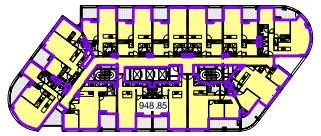

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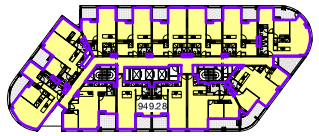

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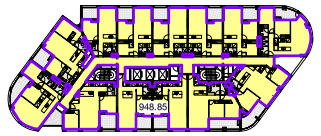

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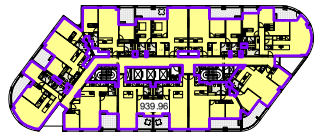

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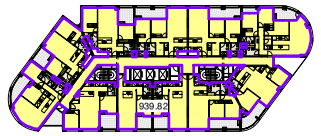

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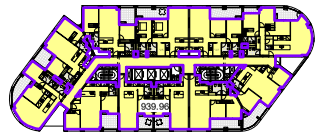

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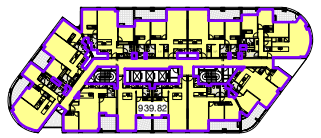

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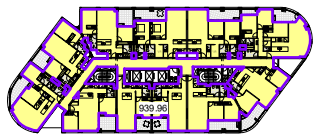

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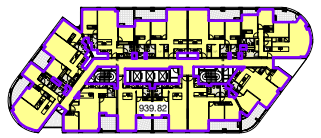

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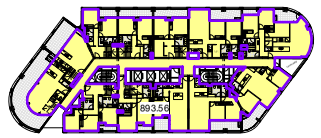

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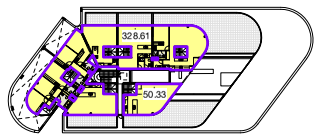

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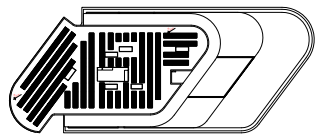

30 L24 1 : 750

FOR INFORMATION

Notes - GFA - Method of calculation

Gross Floor Area is measured in accordance with the standard instrument definition.
For the purpose of the master plan, please ensure that lift lobby areas are included in the GFA calculation

gross floor area means the sum of the floor area of each floor of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and includes:

(a) the area of a mezzanine, and
(b) habitable rooms in a basement or an attic, and
(c) any shop, auditorium, cinema, and the like, in a basement or attic,

but excludes:

(d) any area for common vertical circulation, such as lifts and stairs, and
(e) any basement:
  (i) storage, and
  (ii) vehicular access, loading areas, garbage and services, and
(f) plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
(g) car parking to meet any requirements of the consent authority (including access to that car parking), and
(h) any space used for the loading or unloading of goods (including access to it), and
(i) terraces and balconies with outer walls less than 1.4 metres high, and
(j) voids above a floor at the level of a storey or storey above.

Revision	Date	Description	Initial	Checked
A	26.08.19	For inclusion in updated DA report	BH	MA

Building A1
Ivanhoe Estate, Maquarie Park

Area Schedule - GFA

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Status	DD		
Plot Date	27/08/2019 5:31:57 PM		
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Drawing no.	DA50.A1.001	Revision	A

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APPENDIX B:

SEPP65 & ADG COMPLIANCE CHECKLIST

ADG Ref.	Item Description	Notes	Compliance
PART 3	**SITING THE DEVELOPMENT**		
3A	**SITE ANALYSIS**		
3A-1 p47	**Objective:** Site Analysis illustrates that design decisions have been based on opportunities & constraints of the site conditions & their relationship to the surrounding context.		✓
	Design Guidance		**Considered**
	Each element in the Site Analysis Checklist is addressed.		YES
3B	**ORIENTATION**		
3B-1 p49	**Objective:** Building types & layouts respond to the streetscape & site while optimising solar access within the development		✓
	Design Guidance		**Considered**
	Buildings along the street frontage define the street by facing it & incorporating direct access from the street	Proposed building accommodates a Child Care and Residential entry fronting the forecourt on Lower Ground Level and a main residential entry at Level 01 with direct access	YES
	Where the street frontage is to the east or west, rear buildings are orientated to the north	Street Frontage is to the north and south. Current rear buildings have northern and north-western aspect.	YES
	Where the street frontage is to the north or south, over-shadowing to the south is minimised & buildings behind the street frontage are orientated to the east & west	Only one building is within this development.	NA
3B-2 p49	**Objective:** Overshadowing of neighbouring properties is minimised during mid winter.		✓
	Design Guidance		**Considered**
	Living areas, private open space & communal open space receive solar access in accordance with section 3D Communal & Public Open Space and section 4A Solar & Daylight Access	Living areas achieve solar and daylight access in accordance with section 4A. No private or communal open space is provided within the proposed development. Public open space is provided with solar and daylight access.	YES
	Solar access to living rooms, balconies & private open spaces of neighbours are considered	Form and location of building considers the living rooms and balconies of adjacent development to the south, which also forms part of the Stage 1 of the masterplan SSDA.	YES
	Where an adjoining property does not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%	Adjoining properties will continue to receive the required hours of solar access.	NA
	If the proposal will reduce the solar access of neighbours, building separation is increased beyond minimums contained in 3F Visual Privacy	Proposed development has negligable impact on solar access received by neighbours.	NA
	Overshadowing is minimised to the south or downhill by increased upper level setbacks	The proposed building is fully contained within the envelope identified within the SSDA masterplan. The proposed building immediately to the South, building C1, forms part of this application and achieves complying levels of solar access.	YES
	Buildings are orientated at 90 deg to the boundary with neighbouring properties to minimise overshadowing & privacy impacts, particularly where minimum setbacks are used & where buildings are higher than the adjoining development		NA
	A minimum of 4 hours of solar access is retained to solar collectors on neighbouring buildings	No known solar collectors are located on the neighbouring buildings.	NA
3C	**PUBLIC DOMAIN INTERFACE**		
3C-1 p51	**Objective:** Transition between private & public domain is achieved without compromising safety & security.		✓
	Design Guidance		**Considered**
	Terraces, balconies and courtyard apartments have direct street entry, where appropriate		NA
	Changes in level between private terraces, front gardens & dwelling entries above the street level provide surveillance & improve visual privacy for ground level dwellings		NA
	Upper level balconies & windows overlook the public domain	Upper level windows and balconies provide extensive passive surveillance of the public domain in all orientations.	YES
	Front fences & walls along street frontages use visually permeable materials & treatments. Height of solid fences or walls is limited to 1m	Lower Ground Level is designed to allow residential entry and chid care entry to be permeable through the proposed forecourt area through floor to ceiling glass.	YES
	Length of solid walls is limited along street frontages	Solid walls fronting active streets are confined to the carpark entry wall fronting the new neighbourhood street and is necessary to screen the carpark, substation and waste collection areas from view.	YES
	Opportunities for casual interaction between residents & the public domain is provided for. Design solutions may include seating at building entries, near letter boxes & in private courtyards adjacent to streets	Thoroughly designed public forecourt area fronts the residential and child care entry and current design allows for fixed seating that enables casual interaction between residents. Refer to Landscape Design report.	YES
	In developments with multiple buildings and/or entries, pedestrian entries & spaces associated with individual buildings/entries are differentiated to improve legibility for residents, using the following design solutions: · Architectural detailing · Changes in materials · Plant Species · Colours · Opportunities for people to be concealed are minimised	Level 01 esidential lobby entry is distinctively legible from arriving residents along Herring Road. and Lower Ground Level. Lower Ground Level entry for Residents and Child Care is differentiated by setting back the residential secondary lobby further back in the building and allowing the form of the child care entry and a two-storey like volume to be legible from the exterior.	YES
3C-2 p53	**Objective:** Amenity of the public domain is retained & enhanced.		✓
	Design Guidance		**Considered**
	Planting is used to soften the edges of any raised terraces to the street, for example above sub-basement car parking	No raised terraces are proposed in this development.	NA
	Mail boxes are located in lobbies, perpendicular to the street alignment or integrated into front fences where individual street entries are provided		YES
	The visual prominence of underground car park vents is minimised & located at a low level where possible	Intake Vents are setback within the basement driveway with louvres.	YES

ADG Ref.	Item Description	Notes	Compliance
	Substations, pump rooms, garbage storage areas & other service requirements are located in basement car parks or out of view	Substation room designed to accommodate a surface chamber substation but tucked in under the child care courtyard and concealed with sandstone walls external to the room, which forms the edges of the forecourt area.	YES
	Ramping for accessibility is minimised by building entry location & setting ground floor levels in relation to footpath levels	Accessible path of travel is provided from within the Lot A1 boundary through a 1:14 ramp at RL59.65m to the Forecourt Level (Lower Ground Level) at RL59.35m. A considered accessible path of travel from the Main Street to the outside of Lot A1 boundary is designed as part of the masterplan SSDA.	YES
	Durable, graffiti resistant & easily cleanable materials are used	Refer to the accompanied Landscape DA drawings, Report and materials schedule .	YES
	Where development adjoins public parks, open space or bushland, the design positively addresses this interface & uses the following design solutions: · Street access, pedestrian paths & building entries are clearly defined · Paths, low fences & planting are clearly delineate between communal/private open space & the adjoining public open space · Minimal use of blank walls, fences & ground level parking	No adjoining parks, bushlands or open space.	NA
	On sloping sites protrusion of car parking above ground level is minimised by using split levels to step underground car parking	Proposed car parking is below ground level.	NA
	COMMUNAL & PUBLIC OPEN SPACE		
3D-1 p55	**Objective:** An adequate area of communal open space is provided to enhance residential amenity & to provide opportunities for landscaping.		✓
	Design Criteria		
1	Communal open space has a minimum area equal to 25% of the site	In accordance with masterplan design guidelines provision #5 of guideline 2, Lot A1 development is not required to provide public or communal open space.	NO
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)		✓
	Design Guidance		**Considered**
	Communal open space is consolidated into a well designed, easily identified & usable area		YES
	Communal open space have a minimum dimension of 3m. Larger developments should consider greater dimensions		YES
	Communal open space are co-located with deep soil areas	Deep soil zones are not achievable within the lot boundary. The masterplan proposes a precinct-wide approach be adopted for deep soil planting given the large areas of public domain being delivered in future stages.	NO
	Direct, equitable access are provided to communal open space areas from common circulation areas, entries & lobbies		YES
	Where communal open space cannot be provided at ground level, it is provided on a podium or roof		N/A
	Where developments are unable to achieve the design criteria, such as on small lots, sites within business zones, or in a dense urban area, they need to: · Provide communal spaces elsewhere such as a landscaped roof top terrace or a common room · Provide larger balconies or increased private open space for apartments · Demonstrate good proximity to public open space & facilities and/or provide contributions to public open space	Larger balconies and increased private open space for apartments are proposed. Proposed development will be within close proximity to a large area of public domain being delivered in future stages.	YES
3D-2 p57	**Objective:** Communal open space is designed to allow for range of activities, respond to site conditions & be attractive & inviting		✓
	Design Guidance		**Considered**
	Facilities are provided within communal open spaces & common spaces for a range of age groups (see 4F Common Circulation & Spaces), incorporating the following: · Seating for individuals or groups · Barbeque areas · Play equipment or play areas · Swimming pools, gyms, tennis courts or common rooms		YES
	Location of facilities responds to microclimate & site conditions with access to sun in winter, shade in summer & shelter from strong winds & down drafts	25% Communal Open space is sheltered and weather protected.	YES
	Visual impacts of services are minimised, including location of ventilation duct outlets from basement car parks, electrical substations & detention tanks	All services are located within the basement, with the exception of hot water plant and a number of fan rooms located and set back at the roof level.	YES
3D-3 p57	**Objective:** Communal open space is designed to maximise safety.		✓
	Design Guidance		**Considered**
	Communal open space & public domain should be readily visible from habitable rooms & private open space areas while maintaining visual privacy. Design solutions include: · Bay windows · Corner windows · Balconies		YES
	Communal open space is well lit		YES
	Communal open space/facilities that are provided for children & young people are safe and contained		YES
3D-4 p59	**Objective:** Public open space, where provided, responds to the existing pattern & uses of the neighbourhood.		✓
	Design Guidance		**Considered**

ADG Ref.	Item Description	Notes	Compliance
	Public open space is well connected with public streets along at least one edge	Public open space is designed as part of the public domain in the masterplan SSDA, and will be delivered in the future stages.	YES
	POS is connected with nearby parks & other landscape elements		YES
	POS is linked through view lines, pedestrian desire paths, termination points & the wider street grid		YES
	Solar access is provided year round along with protection from strong winds		YES
	Opportunities for a range of recreational activities is provided for people of all ages		NA
	Positive street address & active street frontages are provided adjacent to POS		YES
	Boundaries are clearly defined between POS & private areas		YES
3E	**DEEP SOIL ZONES**		
3E-1 p61	**Objective:** Deep soil zones are suitable for healthy plant & tree growth, improve residential amenity and promote management of water and air quality.		
	Design Criteria		
1	Deep soil zones are to meet the following minimum requirements:	Refer to Chapter 8 of this report, Response to Masterplan Design Guideline no.3. The guideline stipulate a precinct -wide approach be adopted. The proposed design of Lot A1 does not contain deep soil planting, however does not prevent the masterplan from complying with this control in future.	NO

Site Area (sqm)	Minimum Dim. (m)	Deep Soil Zone (% of site area)
less than 650	-	7
650-1500	3	
greater than 1500	6	
greater than 1500 with significant existing tree cover	6	

Design Guidance		Considered
On some sites it may be possible to provide larger deep soil zones, depending on the site area & context: · 10% of the site as deep soil on sites with an area of 650sqm - 1,500sqm · 15% of the site as deep soil on sites greater than 1,500sqm		NA
Deep soil zones are located to retain existing significant trees & to allow for the development of healthy root systems, providing anchorage & stability for mature trees. Design solutions may include: · Basement & sub-basement car park design that is consolidated beneath building footprints · Use of increased front & side setbacks · Adequate clearance around trees to ensure long term health · Co-location with other deep soil areas on adjacent sites to create larger contiguous areas of deep soil		NA
Achieving the design criteria may not be possible on some sites including where: · location & building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres) · there is 100% site coverage or non-residential uses at ground floor level Where a proposal does not achieve deep soil requirements, acceptable stormwater management is achieved & alternative forms of planting provided		NA
3F	**VISUAL PRIVACY**		
3F-1 p63	**Objective:** Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external & internal visual privacy.		✓
	Design Criteria		
1	Separation between windows & balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side & rear boundaries are as follows:	Building Separation is in accordance with the ADG minimum requirements and compliant with the envelopes established under the SSDA masterplan. The proposed building envelope achieves complying building separation to the western boundy by providing a 24 metre separation from a complying future envelope if constructed on the adjacent site.	✓

Building Height (m)	Habitable Rooms & Balconies. (m)	Non-Habitable Rooms (m)
up to 12 4 storeys)	6	3
up to 25 (5-8 storeys)	9	4.5
over 25 (9+ storeys)	12	6

Note: Separation distances between buildings on the same site should combine required building separations depending on the type of room.

Gallery access circulation should be treated as habitable space when measuring privacy separation distances between neighbouring properties.

Design Guidance		Considered
Generally as the height increases, one step in the built form is desirable due to building separations. Any additional steps do not to cause a 'ziggurat' appearance	Buildings do not step but complies with the minimum building separation as described above.	NA
For residential buildings next to commercial buildings, separation distances are measured as follows: · Retail, office spaces & commercial balconies use the habitable room distances · Service & plant areas use the non-habitable room distances		NA

ADG Ref.	Item Description	Notes	Compliance
	New development are located & oriented to maximise visual privacy between buildings on site & for neighbouring buildings. Design solutions include: · site layout & building are orientated to minimise privacy impacts (see 3B Orientation) · on sloping sites, apartments on different levels have appropriate visual separation distances (see pg 63 figure 3F.4)		NA
	Apartment buildings have an increased separation distance of 3m (in addition to 3F-1 Design Criteria) when adjacent to a different zone that permits lower density residential development, to provide for a transition in scale & increased landscaping (pg 63 figure 3F.5)		NA
	Direct lines of sight are avoided for windows & balconies across corners	Vertical screens are designed to restrict visibility into neighbouring apartments.	YES
	No separation is required between blank walls		NA
3F-2 p65	**Objective:** Site & building design elements increase privacy without compromising access to light & air and balance outlook & views from habitable rooms & private open space.		✓
	Design Guidance		**Considered**
	Communal open space, common areas & access paths are separated from private open space & windows to apartments, particularly habitable room windows. Design solutions include: · setbacks · solid or partially solid balustrades on balconies at lower levels · fencing and/or trees and vegetation to separate spaces · screening devices · bay windows or pop out windows to provide privacy in one direction & outlook in another · raising apartments or private open space above the public domain or communal open space · planter boxes incorporated into walls & balustrades to increase visual separation · pergolas or shading devices to limit overlooking of lower apartments or private open space · on constrained sites where it can be demonstrated that building layout opportunities are limited, fixed louvres or screen panels on windows and/or balconies	Pergolas are designed on Child Care outdoor play areas as means of privacy measures to lower level apartments facing west. Detail design on pergolas to be described in a future separate DA.	YES
	Bedrooms, living spaces & other habitable rooms are separated from gallery access & other open circulation space by the apartment's service areas		YES
	Balconies & private terraces are located in front of living rooms to increase internal privacy		YES
	Windows are offset from the windows of adjacent buildings		YES
	Recessed balconies and/or vertical fins are used between adjacent balconies	Adjacent balconies are generally defined and separated by the proposed veritcal pre-cast concrete facade external to the party wall.	YES
3G	**PEDESTRIAN ACCESS & ENTRIES**		
3G-1 p67	**Objective:** Building entries & pedestrian access connects to and addresses the public domain.		✓
	Design Guidance		**Considered**
	Multiple entries (including communal building entries & individual ground floor entries) activate the street edge		YES
	Entry locations relate to the street & subdivision pattern, and the existing pedestrian network	Two Entry locations are designed to provide access into the building from Macquarie Station, University and Shopping Area on Herring Road, as well as the future precinct located approximately 9m lower than Herring Road Level.	YES
	Building entries are clearly identifiable. Communal entries are clearly distinguishable from private entries		YES
	Where street frontage is limited, a primary street address should be provided with clear sight lines and pathways to secondary building entries		YES
3G-2 p67	**Objective:** Access, entries & pathways are accessible & easy to identify.		✓
	Design Guidance		**Considered**
	Building access areas including lift lobbies, stairwells & hallways are clearly visible from the public domain & communal spaces		YES
	The design of ground floors & underground car parks minimise level changes along pathways & entries		YES
	Steps & ramps are integrated into the overall building & landscape design		YES
	For large developments 'way finding' maps are provided to assist visitors & residents		NA
	For large developments electronic access & audio/video intercom are provided to manage access		YES
3G-3 p67	**Objective:** Large sites provide pedestrian links for access to streets & connection to destinations.		✓
	Design Guidance		**Considered**
	Pedestrian links through sites facilitate direct connections to open space, main streets, centres & public transport		YES
	Pedestrian links are direct, have clear sight lines, are overlooked by habitable rooms or private open spaces of dwellings, are well lit & contain active uses, where appropriate		YES
3H	**VEHICLE ACCESS**		
3H-1 p69	**Objective:** Vehicle access points are designed & located to achieve safety, minimise conflicts between pedestrians & vehicles and create high quality streetscapes.		✓

ADG Ref.	Item Description	Notes	Compliance
	Design Guidance		**Considered**
	Car park access is integrated with the building's overall facade. Design solutions include: · materials & colour palette minimise visibility from street · security doors/gates minimise voids in the facade · where doors are not provided, visible interiors reflect facade design, and building services, pipes & ducts are concealed	The proposed loading and car park entry is considered as part of the podium overall design. Sandstone facade material is the primary element stretching the full length of the southern elevation of the forecourt and basement entry.	YES
	Car park entries are located behind the building line	Carpark entry is setback from the building line.	YES
	Vehicle entries are located at the lowest point of the site, minimising ramp lengths, excavation & impacts on the building form and layout	The vehicular entry has been provided in the location required by the SSDA masterplan, away from Main Street and discreetly located between buildings A1 and A2 such that it may serve both developments in future and minimise the number of basement entry points within the precinct. The lowest point of the site is not suitable as it contains a landscaped plaza.	NA
	Car park entry & access are located on secondary streets or lanes where available		YES
	Vehicle standing areas that increase driveway width & encroach into setbacks are avoided		YES
	Access point is located to avoid headlight glare to habitable rooms		YES
	Adequate separation distances are provided between vehicle entries & street intersections	Approximate 30m into the Lower Ground Plan is the vehiclular entry point.	YES
	The width & number of vehicle access points are limited to the minimum		YES
	Visual impact of long driveways is minimised through changing alignments & screen planting		YES
	The need for large vehicles to enter or turn around within the site is avoided	Council DCP requires garbage vehicles enter and depart the site in a forwards direction. Given the compact basement footprint and the unusual geometry of the site, the most efficient way of achieving this requirement has been to adopt a turntable.	YES
	Garbage collection, loading & servicing areas are screened	Garbage collection, loading and servicing areas are located within the basement and are therefore screened from view.	YES
	Clear sight lines are provided at pedestrian & vehicle crossings		YES
	Traffic calming devices, such as changes in paving material or textures, are used where appropriate	Refer to Landscape Architect's proposed finishes and materials schedule.	YES
	Pedestrian & vehicle access are separated & distinguishable. Design solutions include: · Changes in surface materials · Level changes · Landscaping for separation	As mentioned above.	YES
3J	**BICYCLE & CAR PARKING**		
3J-1 p71	**Objective:** Car parking is provided based on proximity to public transport in metropolitan Sydney & centres in regional areas.		✓
	Design Criteria		
1	For development in the following locations: · on sites that are within 800m of a railway station or light rail stop in the Sydney Metropolitan Area; or · on land zoned, and sites within 400m of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre the minimum car parking requirement for residents & visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less. Car parking needs for a development must be provided off street.	Aspire's commitment to Land and Housing Corporation is to provide a minimum of 1 bicycle space per apartment. This has been achieved through all basement levels with primary use of large storage cages to accommodate bikes, and also dedicated bicycle spaces located only on Lower Ground Level.	✓
	Design Guidance		**Considered**
	Where a car share scheme operates locally, car share parking spaces are provided within the development.	Car share parking spaces are located within the Ivanhoe masterplan and not within the Lot A1 Basement.	YES
	Where less car parking is provided in a development, council do not provide on street resident parking permits		NA
3J-2 p71	**Objective:** Parking & facilities are provided for other modes of transport.		✓
	Design Guidance		**Considered**
	Conveniently located & sufficient numbers of parking spaces are provided for motorbikes & scooters	4 spaces are currently provided at the highest Basement Level.	YES
	Secure undercover bicycle parking is provided & easily accessible from both public domain & common areas		YES
	Conveniently located charging stations are provided for electric vehicles, where desirable		NA
3J-3 p73	**Objective:** Car park design & access is safe and secure.		✓
	Design Guidance		**Considered**
	Supporting facilities within car parks, including garbage, plant & switch rooms, storage areas & car wash bays can be accessed without crossing car parking spaces	Car wash bay is located on Basement L01 adjacent to the residential parking entry. All other garbage and plant rooms are located on Lower Ground Level which is easily accessible.	YES
	Direct, clearly visible & well lit access is provided into common circulation areas	The lifts are centrally located within the carpark in a highly prominent and visible location offering both straightward wayfinding and high a high degree of visibility in accordance with CPTED principles.	YES
	Clearly defined & visible lobby or waiting area is provided to lifts & stairs		YES
	For larger car parks, safe pedestrian access is clearly defined & circulation areas have good lighting, colour, line marking and/or bollards	Also, refer to traffic engineer report.	YES

ADG Ref.	Item Description	Notes	Compliance
3J-4 p73	**Objective:** Visual & environmental impacts of underground car parking are minimised.		✓
	Design Guidance		**Considered**
	Excavation minimised through efficient car park layouts & ramp design		YES
	Car parking layout is well organised, using a logical, efficient structural grid & double loaded aisles	Car parking layout is configured within an atypical basement footprint due to its site and the orientation of the residential building above. Careful consideration was provided to the layout to ensure the most efficient car parking layout is achieved within a logical structural grid. Double loaded aisles are used where appropriate.	YES
	Protrusion of car parks do not exceed 1m above ground level. Solution include stepping car park levels or using split levels on sloping sites	Car parking located below ground.	NA
	Natural ventilation is provided to basement & sub-basement car parking	Basement is mechanically ventilated.	NO
	Ventilation grills or screening devices for car parking openings are integrated into the facade & landscape design	Grilles for exhaust is integrated into the Upper Ground Landscape Design. Grilles for intake is considered within the setback basement entry.	YES
3J-5 p75	**Objective:** Visual & environmental impacts of on-grade car parking are minimised.		✓
	Design Guidance		**Considered**
	On-grade car parking is avoided	With exception of Child Care parking, which will be located external to Lot A1 Boundary.	YES
	Where on-grade car parking is unavoidable, the following design solutions are used: · Parking is located on the side or rear of the lot away from the primary street frontage · Cars are screened from view of streets, buildings, communal & private open space areas · Safe & direct access to building entry points is provided · Parking is incorporated into the landscape design, by extending planting & materials into the car park space · Stormwater run-off is managed appropriately from car parking surfaces · Bio-swales, rain gardens or on site detention tanks are provided, where appropriate · Light coloured paving materials or permeable paving systems are used. Shade trees are planted between every 4-5 parking spaces to reduce increased surface temperatures to large areas of paving	Cars are located to the neighbouring streets away from the key junction of the Forecourt Area, Main Street and Neighbouring Street.	YES
3J-6 p75	**Objective:** Visual & environmental impacts of above ground enclosed car parking are minimised.		✓
	Design Guidance		**Considered**
	Exposed parking is not located along primary street frontages		YES
	Screening, landscaping & other design elements including public art are used to integrate the above ground car parking with the facade. Design solutions include: · Car parking that is concealed behind facade, with windows integrated into the overall facade design (limited to developments where larger floor plate podium is suitable at lower levels) · Car parking that is 'wrapped' with other uses, such as retail, commercial or two storey Small Office/Home Office (SOHO) units along the street frontage		NA
	Positive street address & active frontages are provided at ground level		YES
PART 4	**DESIGNING THE BUILDING**		
4A	**SOLAR & DAYLIGHT ACCESS**		
4A-1 p79	**Objective:** To optimise number of apartments receiving sunlight to habitable rooms, primary windows & private open space.		✓
	Design Criteria		
1	Living rooms & private open spaces of at least 70% of apartments in a building receive a minimum of 2 hrs direct sunlight between 9am - 3pm at mid winter in Sydney Metropolitan Area and in Newcastle and Wollongong local government areas	71% of residential apartments receive 2hr of sunlight between 9am - 3pm at mid winter. Refer to solar access schedule in section 4.3.1 of this report.	✓
2	In all other areas, living rooms & private open spaces of at least 70% of apartments in a building receive a minimum of 3 hrs direct sunlight between 9 am - 3 pm at mid winter		NA
3	A maximum of 15% of apartments in a building receive no direct sunlight between 9 am - 3 pm at mid winter	8% of residential apartments receive no direct sunlight between 9am - 3pm at mid winter, significantly below the maximum permissable.	✓
	Design Guidance		**Considered**
	The design maximises north aspect. The number of single aspect south facing apartments is minimised		YES
	Single aspect, single storey apartments have a northerly or easterly aspect	This has been achieved where possible, however due to the site orientation and geometry four single aspect apartments per floor face west, and one apartment faces south. 4 of the 4 west facing apartments still achieve 2 hours solar access from above half way up the building and have a favourable outlook far beyond.	NO
	Living areas are located to the north and service areas to the south & west of apartments	Living areas are generally located in areas where the highest level of amenity through solar access or view outlook is achieved.	NO

ADG Ref.	Item Description	Notes	Compliance
	To optimise direct sunlight to habitable rooms & balconies a number of the following design features are used: · Dual aspect apartments · Shallow apartment layouts · Two storey &mezzanine level apartments · Bay windows	71% of all apartments achieve 2 hours of solar access in accordance with ADG requirements. Solar access has been maximised through a number of design features: / Corner apartments offer dual aspect to solar access and views / Two storey apartments are provided at the rooftop, and / The 'creases' within floors below level 9 allow natural lignt to penetrate deeper into the floorplate.	YES
	To maximise the benefit to residents of direct sunlight within living rooms & private open spaces, a minimum of 1sqm of direct sunlight, measured at 1m above floor level, is achieved for at least 15 minutes		YES
	Achieving the design criteria may not be possible where: · greater residential amenity can be achieved along a busy road or rail line by orientating the living rooms away from the noise source · on south facing sloping sites · significant views are oriented away from the desired aspect for direct sunlight Design drawings need to demonstrate how site constraints & orientation preclude meeting Design Criteria & how the development meets the objective.	Design Criteria achieved.	NA
4A-2 p81	**Objective:** Daylight access is maximised where sunlight is limited.		✓
	Design Guidance		**Considered**
	Courtyards, skylights & high level windows (with sills of 1,500mm or greater) are used only as a secondary light source in habitable rooms		NA
	Where courtyards are used: · Use is restricted to kitchens, bathrooms & service areas · Building services are concealed with appropriate detailing & materials to visible walls · Courtyards are fully open to the sky · Access is provided to the light well from communal area for cleaning & maintenance · Acoustic privacy, fire safety & minimum privacy separation distances (see 3F Visual Privacy) are achieved		NA
	Opportunities for reflected light into apartments are optimised through: · Reflective exterior surfaces on buildings opposite south facing windows · Positioning windows to face other buildings or surfaces (on neighbouring sites or within site) that will reflect light · Integrating light shelves into the design · Light coloured internal finishes		YES
4A-3 p81	**Objective:** Design incorporates shading & glare control, particularly for warmer months.		✓
	Design Guidance		**Considered**
	A number of the following design features are used: · Balconies or sun shading that extend far enough to shade summer sun, but allow winter sun to penetrate living areas · Shading devices such as eaves, awnings, balconies, pergolas, external louvres & planting · Horizontal shading to north facing windows · Vertical shading to east & particularly west facing windows · Operable shading to allow adjustment & choice · High performance glass that minimises external glare off windows, with consideration given to reduce tint glass or glass with a reflectance level below 20% (reflective films are avoided)	The facade has been designed with a continuous protruding pre-cast concrete vertical and horizontal frame that acts as a shading device to balconies, living spaces and bedrooms. Generally, Double-Glazed units are proposed throughout the building for consistency in the facade color as well as thermal performance.	YES
4B	**NATURAL VENTILATION**		
4B-1 p83	**Objective:** All habitable rooms are naturally ventilated.		✓
	Design Guidance		**Considered**
	The building's orientation maximises capture & use of prevailing breezes for natural ventilation in habitable rooms		YES
	Depths of habitable rooms support natural ventilation		YES
	The area of unobstructed window openings should be equal to at least 5% of the floor area served		YES
	Light wells are not the primary air source for habitable rooms		YES
	Doors & openable windows maximise natural ventilation opportunities by using the following design solutions: · Adjustable windows with large effective openable areas · Variety of window types that provide safety & flexibility such as awnings & louvres · Windows that occupants can reconfigure to funnel breezes into apartment, such as vertical louvres, casement windows & externally opening doors		YES
4B-2 p83	**Objective:** The layout & design of single aspect apartments maximises natural ventilation.		✓
	Design Guidance		**Considered**
	Apartment depths limited to maximise ventilation & airflow	All apartment depths are within maximum ADG allowable requirements. The proposed development achieves 60% crossflow in the first nine-storeys in compliance with the ADG requirements.	YES

ADG Ref.	Item Description	Notes	Compliance
	Natural ventilation to single aspect apartments is achieved with the following design solutions: · Primary windows are augmented with plenums and light wells (generally not suitable for cross ventilation) · Stack effect ventilation, solar chimneys or similar used to naturally ventilate internal building areas or rooms such as bathrooms & laundries · Courtyards or building indentations have a width to depth ratio of 2:1 or 3:1 to ensure effective air circulation & avoid trapped smells	Single aspect units are not being counted as cross ventilated.	NO
4B-3 p85	**Objective:** Number of apartments with natural cross vent is maximised to create comfortable indoor environments for residents.		✓
	Design Criteria		
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	The first nine storeys of the building achieve 60% cross ventilated apartments in compliance with the ADG requirements. Athough not required by ADG, a further 93 apartments at ten storeys and above achieve cross-ventilation due to its position adjacent to the building slots and creases.	✓
2	Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line		✓
	Design Guidance		**Considered**
	The building includes dual aspect apartments, cross through apartments & corner apartments, and limited apartment depths		NA
	In cross-through apartments, external window & door opening sizes/ areas on one side of an apartment (inlet side) are approximately equal to the external window & door opening sizes/areas on the other side of the apartment (outlet side)		NA
	Apartments are designed to minimise the number of corners, doors & rooms that might obstruct airflow		YES
	Apartment depths, combined with appropriate ceiling heights, maximise cross ventilation & airflow	Majority of apartment depths and ceiling heights are designed to maximize ventilation and airflow. Typically on an apartment level, 5 apartments facing west exceed the maximum permissable depth of 8m between window and kitchen bench by 300-500mm, however 3 out of these 5 apartments are compensated with natural ventilation.	YES
4C	**CEILING HEIGHTS**		
4C-1 p87	**Objective:** Ceiling height achieves sufficient natural ventilation & daylight access.		✓
	Design Criteria		
1	Measured from finished floor level to finished ceiling level, minimum ceiling heights are: **Minimum Ceiling Height for apt and mixed-used buildings (m)** Habitable rooms: 2.7 Non-habitable rooms: 2.4 For 2 storey apts: 2.7 for main living area floor; 2.4 for second floor, where its area does not exceed 50% of the apt area Attic spaces: 1.8 at edge of room with 30deg minimum ceiling slope If located in mixed-used areas: 3.3 for ground and first floor to promote future flexibility of use These minimums do not preclude higher ceilings if desired		✓
	Design Guidance		**Considered**
	Ceiling height accommodates use of ceiling fans for cooling & heat distribution	Habitable rooms with 2.7m ceiling height can accommodate use of ceiling fans providing a ceiling zone of up to 600mm for future owners to install a ceiling fan in accordance with BCA requirements if desired.	NO
4C-2 p87	**Objective:** Ceiling height increases the sense of space in apartments & provides for well proportioned rooms.		✓
	Design Guidance		**Considered**
	A number of the following design solutions are used: · Hierarchy of rooms in apartment is defined using changes in ceiling heights & alternatives such as raked or curved ceilings, or double height spaces · Well proportioned rooms are provided, for example, smaller rooms feel larger & more spacious with higher ceilings · Ceiling heights are maximised in habitable rooms by ensuring that bulkheads do not intrude. The stacking of service rooms from floor to floor & coordination of bulkhead location above non-habitable areas, such as robes or storage, can assist		YES/NO/NA
4C-3 p87	**Objective:** Ceiling heights contribute to the flexibility of building use over the life of the building.		✓
	Design Guidance		**Considered**
	Ceiling heights of lower level apartments should be greater than the minimum required by Design Criteria allowing flexibility & conversion to non-residential uses	Ceiling heights are increased from typical residential level of 3.1m floor to floor to 4.0m floor to floor height on the Child Care Upper Ground Level.	NA
4D	**APARTMENT SIZE & LAYOUT**		
4D-1 p89	**Objective:** The layout of rooms within apartment is functional, well organised & provides a high standard of amenity.		✓
	Design Criteria		

ADG Ref.		Item Description	Notes	Compliance
	1	Apartments have the following minimum internal areas: Apartment Type – Minimum Internal Area (sqm) Studio – 35 1 Bedroom – 50 2 Bedroom – 70 3 Bedroom – 90 The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5sqm each. A fourth bedroom & further additional bedrooms increase the minimum internal area by 12sqm each	All apartments comply with the adjacent table of minimum apartment areas.	✓
	2	Every habitable room has 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 & air is not borrowed from other rooms		✓
		Design Guidance		**Considered**
		Kitchens is not located as part of the main circulation space in larger apartments (such as hallway or entry space)		YES
		A window is visible from any point in a habitable room		YES
		Where minimum areas or room dimensions are not met, apartments demonstrate that they are well designed and demonstrate the usability & functionality of the space with realistically scaled furniture layouts & circulation areas.		YES
4D-2 p89		**Objective:** Environmental performance of the apartment is maximised.		✓
		Design Criteria		
	1	Habitable room depths are limited to a maximum of 2.5 x the ceiling height		✓
	2	In open plan layouts (living, dining & kitchen are combined) maximum habitable room depth is 8m from a window	Maximum habitable room depth, defined as Living/ Dining and Kitchen areas combined, is within 8m of a window in all apartments.	✓
		Design Guidance		**Considered**
		Greater than minimum ceiling heights allow for proportional increases in room depth up to the permitted max depths	All habitable room ceilings are designed to 2.7m ceilings height.	NA
		All living areas & bedrooms are located on the external face of building		YES
		Where possible: · bathrooms & laundries have external openable window · main living spaces are oriented toward the primary outlook & aspect and away from noise sources	All laundries and bathrooms are mechanically ventilated in order to maximize available frontage for habitable rooms.	NO
4D-3 p91		**Objective:** Apartment layouts are designed to accommodate a variety of household activities & needs.		✓
		Design Criteria		
	1	Master bedrooms have a minimum area of 10sqm & other bedrooms 9sqm (excluding wardrobe space)		✓
	2	Bedrooms have a minimum dimension of 3m (excluding wardrobe space)	Majority of bedrooms have a minimum depth and width of 3m. In some occasions bedroom corners are slightly angled to provide an average width of 3m. In some apartments, an integrated approach to air conditioning units which is adopted to maximize usability of balconies, results in a 1m wide zone of bedroom which is 2.9m in width. The remaining 2m of bedroom width is however compensated by achieving a minimum depth of 3.4m, ensuring an average of 3m is provided. This configuration achieves an integrated building services solution which maximizes design quality and amenity.	✓
	3	Living rooms or combined living/dining rooms have a minimum width of: · 3.6m for studio & 1 bedroom apartments · 4m for 2 & 3 bedroom apartments		✓
		Design Guidance		**Considered**
		Access to bedrooms, bathrooms & laundries is separated from living areas minimising direct openings between living & service areas		YES
		All bedrooms allow a minimum length of 1.5m for robes	One apartment type has a second bedroom with a wardrobe length of 1.3 metres, 13% shorter than the 1.5 metres required. This incursion is necessary in order to accomodate a column.	NO
		Main bedroom of apartment or studio apartment is provided with a wardrobe of minimum 1.8m L x 0.6m D x 2.1m H		YES
		Apartment layouts allow flexibility over time, design solutions include: · Dimensions that facilitate a variety of furniture arrangements & removal · Spaces for a range of activities & privacy levels between different spaces within the apartment · Dual master apartments · Dual key apartments Note: dual key apartments which are separate but on the same title are regarded as two sole occupancy units for the purposes of the BCA & for calculating mix of apartments · Room sizes & proportions or open plans (rectangular spaces 2:3 are more easily furnished than square spaces 1:1) · Efficient planning of circulation by stairs, corridors & through rooms to maximise the amount of usable floor space in rooms		YES
4E		**PRIVATE OPEN SPACE & BALCONIES**		

ADG Ref.	Item Description	Notes	Compliance
4E-1 p93	**Objective:** Apartments provide appropriately sized private open space & balconies to enhance residential amenity.		✓
	Design Criteria		
1	All apartments are required to have primary balconies as follows: Apartment Type / Minimum Area (sqm) / Minimum Depth (m) Studio / 4 / - 1 Bedroom / 8 / 2 2 Bedroom / 10 / 2 3+ Bedroom / 12 / 2.4 The minimum balcony depth to be counted as contributing to the balcony area is 1m	All apartments are provided with a balcony size in accordance with the ADG minimum area and depth requirements.	✓
2	For apartments at ground level or on podium or similar, a private open space is provided instead of a balcony. It must have minimum area of 15sqm & minimum depth of 3m		✓
	Design Guidance		**Considered**
	Increased communal open space are provided where the number or size of balconies are reduced		NA
	Storage areas on balconies is additional to the minimum balcony size	No Storage provided on balconies.	NA
	Balcony use may be limited in some proposals where: · consistently high wind speeds at 10 storeys & above · close proximity to road, rail or other noise sources · exposure to significant levels of aircraft noise · heritage & adaptive reuse of existing buildings In these situations, · juliet balconies, · operable walls, · enclosed wintergardens · bay windows are appropriate. Other amenity benefits for occupants are provided in the apartments or in the development or both. Natural ventilation is also demonstrated	Balcony use is not limited anywhere in this development.	NA
4E-2 p93	**Objective:** Primary private open space & balconies are appropriately located to enhance liveability for residents		✓
	Design Guidance		**Considered**
	Primary open space & balconies are located adjacent to the living room, dining room or kitchen to extend the living space		YES
	POS & balconies predominantly face north, east or west	One apartment balcony per floorplate has a southern orientation.	YES
	POS & balconies are orientated with the longer side facing outwards or be open to the sky to optimise daylight access into adjacent rooms		YES
4E-3 p95	**Objective:** Private open space & balcony design is integrated into & contributes to the overall architectural form & detail of the building		✓
	Design Guidance		**Considered**
	Solid, partially solid or transparent fences & balustrades are selected to respond to the location. They are designed to allow views & passive surveillance of the street while maintaining visual privacy & allowing for a range of uses on the balcony. Solid & partially solid balustrades are preferred	Partially solid vertical steel palisade balustrades are provided on all balconies as part of the design in conjunction with dark window frames to complement the overall facade design with lighter coloured pre-cast concrete frames.	YES
	Full width full height glass balustrades alone are generally not desirable	Only location proposed with 1.8m high glass balustrades is at the rooftop to mitigate high wind pressures.	YES
	Projecting balconies are integrated into the building design. The design of soffits are considered		YES
	Operable screens, shutters, hoods & pergolas are used to control sunlight & wind		NA
	Balustrades are set back from the building or balcony edge where overlooking or where safety is an issue		NA
	Downpipes & balcony drainage are integrated with the overall facade & building design		YES
	Air-conditioning units are located on roofs, in basements, or fully integrated into the building design	Air-conditioning condensers are located on balconies and integrated into the design of apartment layouts, covered with vertical louvred screens flush with the apartment sliding windors, such that use of balconies are not impacted.	YES
	Where clothes drying, storage or air conditioning units are located on balconies, they are screened & integrated in the building design	As described above.	YES
	Ceilings of apartments below terraces are insulated to avoid heat loss		YES
	Water & gas outlets are provided for primary balconies & private open space	No Gas outlets are provided in this development.	NA
4E-4 p95	**Objective:** Private open space & balcony design maximises safety		✓
	Design Guidance		**Considered**
	Changes in ground levels or landscaping are minimised		NA
	Balcony design & detailing avoids opportunities for climbing & falling		YES
4F	**COMMON CIRCULATION & SPACES**		
4F-1 p97	**Objective:** Common circulation spaces achieve good amenity & properly service the number of apartments		✓
	Design Criteria		

ADG Ref.		Item Description	Notes	Compliance
	1	The maximum number of apartments off a circulation core on a single level is eight	A typical low and mid level apartment floorplate consists of 13 apartments per floor. A typical high-rise level apartment floorplate consists of 11 apartments per floor, providing an average of 12.2 apartments per level over twenty-two storeys. Outstanding amenity is provided within all residential corridors. Please refer to lift performance memo provided by WSP.	NO
	2	For buildings of 10 storeys & over, the maximum number of apartments sharing a single lift is 40	The lift core contains 3 lift shafts and therefore there are no apartments in the building sharing a single lift. Vertical transport studies have been undertaken which demonstrate that the 3 residential lifts serving all levels provide a high level of residential service and at a speed of 2.5m/s, with each able to carry a maximum of 17 persons at any one time.	NA
		Design Guidance		**Considered**
		Greater than minimum requirements for corridor widths and/or ceiling heights allow comfortable movement & access particularly in entry lobbies, outside lifts & at apartment entry doors	2.0m provided external to lift lobbies, elsewhere along common corridors, 1.6m is provided throughout.	YES
		Daylight & natural ventilation are provided to all common circulation spaces that are above ground	Daylight and Natural ventilation is achieved at either end of the common corridors.	YES
		Windows are provided in common circulation spaces & are adjacent to the stair or lift core or at the ends of corridors	Windows are provided adjacent to the garden slots.	YES
		Longer corridors greater than 12m in length from the lift core are articulated. Design solutions include: · Series of foyer areas with windows & spaces for seating · Wider areas at apartment entry doors & varied ceiling heights	Common corridors are widened at the end outside the building to become natural landscaped gardens and raised planters.	YES
		Common circulation spaces maximise opportunities for dual aspect apartments, including multiple core apartment buildings & cross over apartments		NA
		Achieving Design Criteria for the number of apartments off a circulation core may not be possible. Where development is unable to achieve this, a high level of amenity for common lobbies, corridors & apartments is demonstrated, including: · Sunlight & natural cross ventilation in apartments · Access to ample daylight & natural ventilation in common circulation spaces · Common areas for seating & gathering · Generous corridors with greater than minimum ceiling heights · Other innovative design solutions that provide high levels of amenity	The geometry of the site leads to a central core arrangement achieving apartments of the greatest internal amenity. The cirulcation corridor is designed to face both easterly and westerly, such that natural light is brought in at the ends of the circulation corridor via a 1.6m wide garden "slot" that opens up to 4m on the building face. The southern "slot" is located from Level 08 to the last residential level such that views to and from the lift core helps to provide better amenity for the common corridor. The "slot" is expressed at a two-storey scale with garden planters at the base of the two-storey so that increased natural light is brought in further into the lower garden slot level.	YES
		Where Design Criteria 1 is not achieved, no more than 12 apartments should be provided off a circulation core on a single level	An average of 12.2 apartments are provided per level over twenty-two storeys with excellent amenity provided in all common corridors as described above.	NO
		Primary living room or bedroom windows do not open directly onto common circulation spaces, open or enclosed. Visual & acoustic privacy from common circulation spaces to any other rooms are carefully controlled		YES
4F-2 p99		**Objective:** Common circulation spaces promote safety & provide for social interaction between residents		✓
		Design Guidance		**Considered**
		Direct & legible access are provided between vertical circulation points & apartment entries by minimising corridor or gallery length to give short, straight, clear sight lines		YES
		Tight corners & spaces are avoided		YES
		Circulation spaces are well lit at night		YES
		Legible signage are provided for apartment numbers, common areas & general wayfinding		YES
		Incidental spaces, eg space for seating in a corridor, at a stair landing, or near a window are provided		NA
		In larger developments, community rooms for activities such as owners corporation meetings or resident use, are provided & are co-located with communal open space		NA
		Where external galleries are provided, they are more open than closed above the balustrade along their length		NA
4G		**STORAGE**		
4G-1 p101		**Objective:** Adequate, well designed storage is provided in each apartment		✓
		Design Criteria		
	1	In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided: Apartment Type / Storage Size Volume (cubic m) Studio: 4 1 Bedroom: 6 2 Bedroom: 8 3+ Bedroom: 10 At least 50% of required storage is to be located within apartment	211 apartments out of 269 achieve the minimum requirement to provide 50% storage within apartments in compliance with the ADG requriements. 58 apartments fall short of the 50% requirement, however, have been compensated with over-sized storage cages in the basement ensuring that the minimum storage size volume (as described on the left) for those apartments are either equalled or exceeded. Refer to Storage Schedule for details.	-

ADG Ref.	Item Description	Notes	Compliance
	Design Guidance		**Considered**
	Storage is accessible from either circulation or living areas		YES
	Storage provided on balconies (in addition to the minimum balcony size) is integrated into the balcony design, weather proofed & screened from view from the street		NA
	Left over space such as under stairs is used for storage	Only applicable to Penthouse apartments.	YES
4G-2 p101	**Objective:** Additional storage is conveniently located, accessible & nominated for individual apartments		✓
	Design Guidance		**Considered**
	Storage not located in apartments is secure and clearly allocated to specific apartments		YES
	Storage is provided for larger & less frequently accessed items		YES
	Storage space in internal or basement car parks is provided at the rear or side of car spaces or in cages, such that allocated car parking remains accessible	A total of 269 Storage cages are provided. 1 storage cage per apartment.	YES
	If communal storage rooms are provided they are accessible from common circulation areas of the building	Accessible from Lower Ground Level secondary lobby.	YES
	Storage not located in apartment is integrated into the overall building design & not visible from public domain		YES
4H	**ACOUSTIC PRIVACY**		
4H-1 p103	**Objective:** Noise transfer is minimised through the siting of buildings & building layout		✓
	Design Guidance		**Considered**
	Adequate building separation is provided within the development & from neighbouring buildings/adjacent uses (see 2F Building Separation & 3F Visual Privacy)	The floorplate geometry and orientation is derived from respecting the site setbacks and building separation.	YES
	Window & door openings are orientated away from noise sources		YES
	Noisy areas within buildings including building entries & corridors are located next to or above each other while quieter areas are located next to or above quieter areas		YES
	Storage, circulation areas & non-habitable rooms are located to buffer noise from external sources		NA
	The number of party walls (shared with other apartments) are limited & are appropriately insulated		YES
	Noise sources such as garage doors, driveways, service areas, plant rooms, building services, mechanical equipment, active communal open spaces & circulation areas should be located at least 3m away from bedrooms		YES
4H-2 p103	**Objective:** Noise impacts are mitigated within apartments through layout & acoustic treatments		✓
	Design Guidance		**Considered**
	Internal apartment layout separates noisy spaces from quiet spaces, using a number of the following design solutions: · Rooms with similar noise requirements are grouped together · Doors separate different use zones · Wardrobes in bedrooms are co-located to act as sound buffers		YES
	Where physical separation cannot be achieved, noise conflicts are resolved using the following design solutions: · Double or acoustic glazing · Acoustic seals · Use of materials with low noise penetration properties · Continuous walls to ground level courtyards where they do not conflict with streetscape or other amenity requirements		YES
4J	**NOISE & POLLUTION**		
4J-1 p105	**Objective:** In noisy or hostile environments impacts of external noise & pollution are minimised through careful siting & layout		✓
	Design Guidance		**Considered**
	To minimise impacts the following design solutions are used: · Physical separation between buildings & the noise or pollution source · Residential uses are located perpendicular to the noise source & where possible buffered by other uses · Non-residential buildings are sited to be parallel with the noise source to provide a continuous building that shields residential uses & communal open spaces · Non-residential uses are located at lower levels vertically separating residential component from noise or pollution source. Setbacks to the underside of residential floor levels are increased, relative to traffic volumes & other noise sources · Buildings respond to both solar access & noise. Where solar access is away from noise source, non-habitable rooms will provide a buffer · Where solar access is in the same direction as the noise source, dual aspect apartments with shallow building depths are preferred · Landscape design reduces the perception of noise & acts as a filter for air pollution generated by traffic & industry	Child Care level is located 4m below the lowest residential level. Acoustic measures have been put in place for child care operating hours so that residential amenity impact is minimized. In addition, pergolas are proposed within the child care courtyard such that any activities that can generate slightly larger decibel levels are then mitigated and controlled.	YES
	Where developments are unable to achieve Design Criteria, alternatives are considered in the following areas: · Solar & daylight access · Private open space & balconies · Natural cross ventilation		NA
4J-2 p105	**Objective:** Appropriate noise shielding or attenuation techniques for building design, construction & choice of materials are used to mitigate noise transmission		✓
	Design Guidance		**Considered**

ADG Ref.	Item Description	Notes	Compliance
	Design solutions to mitigate noise include: · Limiting the number & size of openings facing noise sources · Providing seals to prevent noise transfer through gaps · Using double or acoustic glazing, acoustic louvres or enclosed balconies (wintergardens) · Using materials with mass and/or sound insulation or absorption properties eg solid balcony balustrades, external screens & soffits		YES
4K	**APARTMENT MIX**		
4K-1 p107	**Objective:** A range of apartment types & sizes is provided to cater for different household types now & into the future		✓
	Design Guidance		**Considered**
	A variety of apartment types is provided		YES
	The apartment mix is appropriate, taking into consideration: · Distance to public transport, employment & education centres · Current market demands & projected future demographic trends · Demand for social & affordable housing · Different cultural & socioeconomic groups		YES
	Flexible apartment configurations are provided to support diverse household types & stages of life including single person households, families, multi-generational families & group households		YES
4K-2 p107	**Objective:** The apartment mix is distributed to suitable locations within the building		✓
	Design Guidance		**Considered**
	Different apartment types are located to achieve successful facade composition & to optimise solar access		YES
	Larger apartment types are located on ground or roof level where there is potential for more open space, and on corners where more building frontage is available		YES
4L	**GROUND FLOOR APARTMENTS**		
4L-1 p109	**Objective:** Street frontage activity is maximised where ground floor apartments are located		NA
4L-2 p109	**Objective:** Design of ground floor apartments delivers amenity & safety for residents		✓
	Design Guidance		**Considered**
	Privacy & safety are provided without obstructing casual surveillance. Design solutions include: · Elevating private gardens & terraces above the street level by 1-1.5m (see pg 109 Figure 4L.4) · Landscaping & private courtyards · Window sill heights minimise sight lines into apartments · Integrating balustrades, safety bars or screens with exterior design	Northern most apartment on Ground level is elevated at approximately 1.5-1.8m from street level, which is situated on a steep gradient ramp where street activity is unlikely. Privacy measures is considered in the facade design to retain a good level of privacy and security within the apartment.	YES
	Solar access is maximised through: · High ceilings & tall windows · Trees & shrubs allow solar access in winter & shade in summer		YES
4M	**FACADES**		
4M-1 p111	**Objective:** Building facades provide visual interest along the street while respecting the character of the local area		✓
	Design Guidance		**Considered**
	Design solutions for front building facades include: · Composition of varied building elements · Defined base, middle & top of buildings · Revealing & concealing certain elements		YES
	Building services are integrated within the overall facade		YES
	Building facades are well resolved with appropriate scale & proportion to streetscape & with consideration of human scale. Solutions include: · Well composed horizontal & vertical elements · Variation in floor heights to enhance the human scale · Elements that are proportional & arranged in patterns · Public artwork or treatments to exterior blank walls · Grouping of floors or elements such as balconies & windows on taller buildings		YES
	Building facades relate to key datum lines of adjacent buildings through upper level setbacks, parapets, cornices, awnings or colonnade heights		YES
	Shadow is created on the facade throughout the day with building articulation, balconies & deeper window reveals		YES
4M-2 p111	**Objective:** Building functions are expressed by the facade		✓
	Design Guidance		**Considered**
	Building entries are clearly defined		YES
	Important corners are given visual prominence through change in articulation, materials or colour, roof expression or changes in height		YES
	Apartment layout is expressed externally through facade features such as party walls & floor slabs		YES
4N	**ROOF DESIGN**		
4N-1 p113	**Objective:** Roof treatments are integrated into the building design & positively respond to the street		✓
	Design Guidance		**Considered**
	Roof design relates to the street. Design solutions include: · Special roof features & strong corners · Use of skillion or very low pitch hipped roofs · Breaking down the massing of the roof by using smaller elements to avoid bulk · Using materials or pitched form complementary to adjacent buildings	Roof design allows for setback level penthouse apartments accessed from level below. Footprint of the roof level relates to the steep gradient of the site with 8-9m drop and the maximum height plane of 75m.	YES

ADG Ref.	Item Description	Notes	Compliance
	Roof treatments are integrated with the building design. Design solutions include: · Roof design is in proportion to the overall building size, scale & form · Roof materials compliment the building · Service elements are integrated		YES
4N-2 p113	**Objective:** Opportunities to use roof space for residential accommodation & open space are maximised		✓
	Design Guidance		**Considered**
	Habitable roof space are provided with good levels of amenity. Design solutions include: · Penthouse apartments · Dormer or clerestory windows · Openable skylights		YES
	Open space is provided on roof tops subject to acceptable visual & acoustic privacy, comfort levels, safety & security considerations		YES
4N-3 p113	**Objective:** Roof design incorporates sustainability features		✓
	Design Guidance		**Considered**
	Roof design maximises solar access to apartments during winter & provides shade during summer. Design solutions include: · Roof lifts to the north · Eaves & overhangs shade walls & windows from summer sun	North facing penthouse apartments are setback with a roof top overhang which provide shading during summer.	YES
	Skylights & ventilation systems are integrated into the roof design	Roof level allows for Photovoltaic panels to be installed as part of a sustainability measure for the precinct wide straetgy. Skylights are also aligned to penthouse stairs to bring light into the back of the apartments.	YES
4O	**LANDSCAPE DESIGN**		
4O-1 p115	**Objective:** Landscape design is viable & sustainable		✓
	Design Guidance		**Considered**
	Landscape design is environmentally sustainable & can enhance environmental performance by incorporating: · Diverse & appropriate planting · Bio-filtration gardens · Appropriately planted shading trees · Areas for residents to plant vegetables & herbs · Composting · Green roofs or walls		YES
	Ongoing maintenance plans are prepared		NA
	Microclimate is enhanced by: · Appropriately scaled trees near the eastern & western elevations for shade · Balance of evergreen & deciduous trees to provide shading in summer & sunlight access in winter · Shade structures such as pergolas for balconies & courtyards		YES
	Tree & shrub selection considers size at maturity & the potential for roots to compete.		YES
4O-2 p115	**Objective:** Landscape design contributes to streetscape & amenity		✓
	Design Guidance		**Considered**
	Landscape design responds to the existing site conditions including: · Changes of levels · Views · Significant landscape features including trees & rock outcrops	Signficant consideration has been put on the landscape design to this site as it naturally steps down 8m from Herring Road. The Landscape design responses inherently to the steep nature of the site and provides views in and out of the forecourt area on the Lower Ground Level through the changing of levels.	YES
	Significant landscape features are protected by: · Tree protection zones · Appropriate signage & fencing during construction		NA
	Plants selected are endemic to region & reflect local ecology	Refer to Landscape DA report.	YES
4P	**PLANTING ON STRUCTURES**		
4P-1 p117	**Objective:** Appropriate soil profiles are provided		NA
	Design Guidance		**Considered**
4P-2 p117	**Objective:** Plant growth is optimised with appropriate selection & maintenance		✓
	Design Guidance		**Considered**
	Plants are suited to site conditions, considerations include: · Drought & wind tolerance · Seasonal changes in solar access · Modified substrate depths for a diverse range of plants · Plant longevity	Plant typologies have been carefully considered and designed as part of the landscape design proposed in the following four locations within the site. - Lower Ground Level on Forecourt Area facing the public domain. - Level 01 Herring Road adjacent to residential lobby entry and interface with public pedestrian walkway. - Garden slots within the building at the ends of the common corridor. - Level 23 where a roof landscape design helps with the increased level of amenity and helps to balance the scale of plant bulk required on the roof top. Plant longevity is an important part of all plant locations due to its interface with the public and wind conditions.	YES
	A landscape maintenance plan is prepared		NA

ADG Ref.	Item Description	Notes	Compliance
	Irrigation & drainage systems respond to: · Changing site conditions · Soil profile & planting regime · Whether rainwater, stormwater or recycled grey water is used		NA
4P-3 p117	**Objective:** Planting on structures contributes to the quality & amenity of communal & public open spaces		✓
	Design Guidance		**Considered**
	Building design incorporates opportunities for planting on structures. Design solutions include: · Green walls with specialised lighting for indoor green walls · Wall design that incorporates planting · Green roofs, particularly where roofs are visible from the public domain · Planter boxes Note: structures designed to accommodate green walls should be integrated into the building facade & consider the ability of the facade to change over time	Planter boxes are considered on the garden slots within the building as part of an architectural feature, as well as increased amenity for the common corridors for residents.	YES
4Q	**UNIVERSAL DESIGN**		
4Q-1 p119	**Objective:** Universal design features are included in apartment design to promote flexible housing for all community members		✓
	Design Guidance		**Considered**
	Developments achieve a benchmark of 20% of the total apartments incorporating the Livable Housing Guideline's silver level universal design features	The proposal is compliant with Masterplan Guideline #13, Universal Access which nominates a site wide strategy for this criteria. 100% of social dwellings are to be designed to achieve universal housing standard of silver which equates to 30% of total future masterplan dwellings. As a result, 0% of market dwellings are required to meet this criteria.	NA
4Q-2 p119	**Objective:** A variety of apartments with adaptable designs are provided		✓
	Design Guidance		**Considered**
	Adaptable housing should be provided in accordance with the relevant council policy	As part of the masterplan design guidelines, 5% of market dwellings within this development should be designed so that they can be converted into wheelchair adaptable aparmtents to meet requirements of AS4299 Class C. 5% of a total 269 apartments, equivalent to 13 apartments, have been designed to be easily adapted as adaptable apartment.	YES
	Design solutions for adaptable apartments include: · Convenient access to communal & public areas · High level of solar access · Minimal structural change & residential amenity loss when adapted · Larger car parking spaces for accessibility · Parking titled separately from apartments or shared car parking arrangements		YES
4Q-3 p119	**Objective:** Apartment layouts are flexible & accommodate a range of lifestyle needs		✓
	Design Guidance		**Considered**
	Flexible design solutions include: · Rooms with multiple functions · Dual master bedroom apartments with separate bathrooms · Larger apartments with various living space options · Open plan 'loft' style apartments with only a fixed kitchen, laundry & bathroom		YES
4R	**ADAPTIVE REUSE**		
4R-1 p121	**Objective:** New additions to existing buildings are contemporary, complementary & enhance area's identity & sense of place		NA
	Design Guidance		**Considered**
4R-2 p121	**Objective:** Adapted buildings provide residential amenity but does not precluding future adaptive reuse		NA
	Design Guidance		**Considered**
4S	**MIXED USE**		
4S-1 p123	**Objective:** Mixed use developments are provided in appropriate locations & provide active street frontages that encourage pedestrian movement.		✓
	Design Guidance		**Considered**
	Mixed use development are concentrated around public transport & centres	Child Care Centre is proposed on Upper Ground Level and easily accessible to and from public transport both on Lower Ground Level and Level 01.	YES/
	Mixed use developments positively contribute to the public domain. Design solutions include: · Development addresses the street · Active frontages provided · Diverse activities & uses · Avoiding blank walls at the ground level · Live/work apartments on the ground floor level, rather than commercial	Child Care Centre courtyard design proposes courtyard spaces and outdoor unencumbered spaces on the east and west, both bringing activation to street edges and the public domain.	YES
4S-2 p123	**Objective:** Residential levels of the building are integrated within the development. Safety & amenity is maximised.		✓
	Design Guidance		**Considered**

ADG Ref.	Item Description	Notes	Compliance
	Residential circulation areas are clearly defined. Solutions include: · Residential entries separated from commercial entries & directly accessible from the street · Commercial service areas separated from residential components · Residential car parking & communal facilities separated or secured · Security at entries & safe pedestrian routes are provided · Concealment opportunities are avoided		YES
	Landscaped communal open space are provided at podium or roof		YES
4T	**AWNING & SIGNAGE**		
4T-1 p125	**Objective:** Awnings are well located and complement & integrate with the building design.	No awnings are required in this development as the base build design is complemented well with the proposed facade design and ground level setback for both Lower Ground and Level 01.	NA
	Design Guidance		**Considered**
4T-2 p125	**Objective:** Signage responds to context & desired streetscape character.	No signage is proposed as part of this development.	NA
	Design Guidance		**Considered**
4U	**ENERGY EFFICIENCY**		
4U-1 p127	**Objective:** Development incorporates passive environmental design.		✓
	Design Guidance		**Considered**
	Adequate natural light is provided to habitable rooms (see 4A Solar & Daylight Access)		YES
	Well located, screened outdoor areas are provided for clothes drying	External clothes drying not encouraged, however solid upstand of 700mm from finished floor level is provided up to Level 14, enables screening of washing and/or drying from Ground / Street Level.	YES
4U-2 p127	**Objective:** Passive solar design is incorporated to optimise heat storage in winter & reduce heat transfer in summer.		✓
	Design Guidance		**Considered**
	A number of the following design solutions are used: · Use of smart glass or other on north & west elevations · Thermal mass maximised in floors & walls of north facing rooms · Polished concrete floors, tiles or timber rather than carpet · Insulated roofs, walls & floors. Seals on window & door openings · Overhangs & shading devices such as awnings, blinds & screens		YES
	Provision of consolidated heating & cooling infrastructure is located in a centralised location (eg basement)	Individual air-conditioning condensers are proposed on balconies for easy access and maintenance.	NO
4U-3 p127	**Objective:** Adequate natural ventilation to minimise the need for mechanical ventilation.		✓
	Design Guidance		**Considered**
	A number of the following design solutions are used: · Rooms with similar usage are grouped together · Natural cross ventilation for apartments is optimised · Natural ventilation is provided to all habitable rooms & as many non-habitable rooms, common areas & circulation spaces as possible		YES
4V	**WATER MANAGEMENT & CONSERVATION**		
4V-1 p129	**Objective:** Potable water use is minimised.		✓
	Design Guidance		**Considered**
	Water efficient fittings, appliances & wastewater reuse are incorporated		YES
	Apartments are individually metered		YES
	Rainwater is collected, stored & reused on site		YES
	Drought tolerant, low water use plants are used within landscaped areas		NA
4V-2 p129	**Objective:** Urban stormwater is treated on site before being discharged to receiving waters.		✓
	Design Guidance		**Considered**
	Water sensitive urban design systems are designed by a suitably qualified professional		YES
	A number of the following design solutions are used: · Runoff is collected from roofs & balconies in water tanks and plumbed into toilets, laundry & irrigation · Porous & open paving materials is maximised · On site stormwater & infiltration, including bio-retention systems such as rain gardens or street tree pits		YES
4V-3 p129	**Objective:** Flood management systems are integrated into site.		✓
	Design Guidance		**Considered**
	Detention tanks are located under paved areas, driveways or in basement car parks	On site detention tank provided within the basement.	YES
	On large sites, parks or open spaces are designed to provide temporary on site detention basins		NA
4W	**WASTE MANAGEMENT**		
4W-1 p131	**Objective:** Waste storage facilities are designed to minimise impacts on streetscape, building entry & amenity of residents.		✓
	Design Guidance		**Considered**
	Adequately sized storage areas for rubbish bins are located discreetly away from the front of the development or in basement car park	Setback within the Lower Ground level basement entry.	YES
	Waste & recycling storage areas are well ventilated	Mechanically ventilated.	YES
	Circulation design allows bins to be easily manoeuvred between storage & collection points		YES

ADG Ref.	Item Description	Notes	Compliance
	Temporary storage are provided for large bulk items such as mattresses	10m³ bulky goods storage is provided adjacent to the bin storage room.	YES
	Waste management plan is prepared		YES
4W-2 p131	**Objective:** Domestic waste is minimised by providing safe & convenient source separation & recycling.		✓
	Design Guidance		**Considered**
	All dwellings have a waste & recycling cupboard or temporary storage area of sufficient size to hold two days worth of waste & recycling		YES
	Communal waste & recycling rooms are in convenient & accessible locations related to each vertical core	A dual waste and recycling chute is provided at each floor and positioned within the core. The domestic waste and recyclable waste are sorted through the use of linear track and carousal on Lower Ground Level.	YES
	For mixed use developments, residential waste & recycling storage areas & access is separate & secure from other uses		YES
	Alternative waste disposal methods such as composting is provided		NO
4X	**BUILDING MAINTENANCE**		
4X-1 p133	**Objective:** Building design detail provides protection from weathering.		✓
	Design Guidance		**Considered**
	A number of the following design solutions are used: · Roof overhangs to protect walls · Hoods over windows & doors to protect openings · Detailing horizontal edges with drip lines to avoid staining surfaces · Methods to eliminate or reduce planter box leaching · Appropriate design & material selection for hostile locations		YES
4X-2 p133	**Objective:** Systems & access enable ease of maintenance.		✓
	Design Guidance		**Considered**
	Window design enables cleaning from the inside of the building	Due to the building height, provision for an external window cleaning has been allowed for.	NO
	Building maintenance systems are incorporated & integrated into the design of the building form, roof & facade	Storage for a temporary swingstage and davot arms will be provided at roof level in consultation with input from facade maintenance specialists.	YES
	Design does not require external scaffolding for maintenance access		YES
	Manually operated systems such as blinds, sunshades & curtains are used in preference to mechanical systems		YES
	Centralised maintenance, services & storage are provided for communal open space areas within the building		YES
4X-3 p133	**Objective:** Material selection reduces ongoing maintenance costs.		✓
	Design Guidance		**Considered**
	A number of the following design solutions are used: · Sensors to control artificial lighting in common circulation & spaces · Natural materials that weather well & improve with time, such as face brickwork · Easily cleaned surfaces that are graffiti resistant · Robust & durable materials & finishes in locations which receive heavy wear & tear such as common circulation areas & lift interiors		YES

APPENDIX C: MATERIALS SAMPLES BOARD

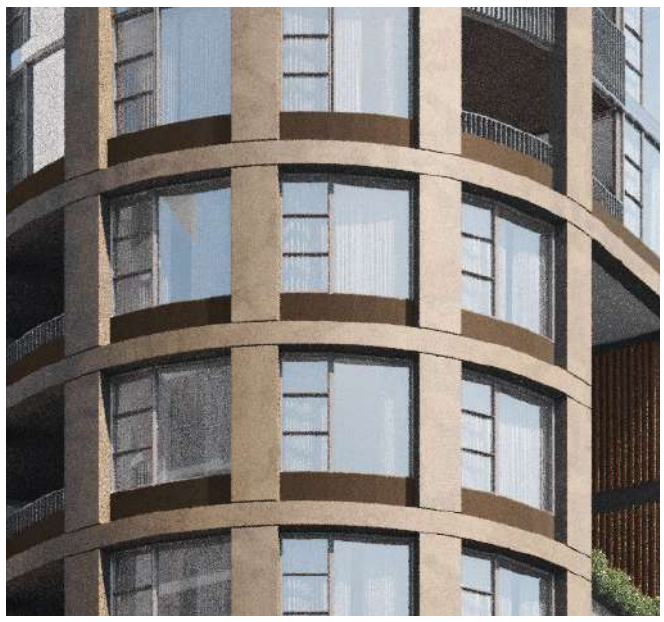
MATERIAL SAMPLES BOARD

1 **OXIDIZED OFF-FORM CONCRETE**

-Horizontal & Vertical Protruded Facade Frame

5 **SANDSTONE**

-Ground Level External Wall Cladding



2 CONCRETE
CHARCHOAL PAINT FINISH

-Concrete Upstands

3 CLEAR GLASS LOW-E

-Windows

4 COLOURBACK GLASS

-Spandrels
-Mid-rise Windows

6 ANODISED ALUMINIUM
DARK BRONZE

-Metal Louvres
-Vertical Fins in Lobby

7 ANODISED ALUMINIUM
LIGHT GREY ALUMINIUM

-Metal Balustrades
-Window Frames
-Horizontal Sunshading

8 OFF FORM CONCRETE

-Vertical Slot Planters

APPENDIX D: SCHEDULES

AREA SCHEDULE

Ivanhoe Lot A1
Area Schedule

Building A1
MARKET
Bates Smart

Use	Level	Height (RL)	Height (m)	Resi. NSA	Resi. GFA	Non-R. GFA	GBA	Apts
Roof	**24**	138.3						
Penthouse	**23**	135.2	3.1	408	379		502	
Penthouse	**22**	132.1	3.1	778	894		1,228	12
Resi High-Rise	**21**	129	3.1	832	940		1,224	11
Resi High-Rise	**20**	125.9	3.1	832	940		1,228	11
Resi High-Rise	**19**	122.8	3.1	832	940		1,224	11
Resi High-Rise	**18**	119.7	3.1	832	940		1,228	11
Resi High-Rise	**17**	116.6	3.1	832	940		1,224	11
Resi High-Rise	**16**	113.5	3.1	832	940		1,228	11
Resi Mid-Rise	**15**	110.4	3.1	831	949		1,225	13
Resi Mid-Rise	**14**	107.3	3.1	831	949		1,227	13
Resi Mid-Rise	**13**	104.2	3.1	831	949		1,225	13
Resi Mid-Rise	**12**	101.1	3.1	831	949		1,227	13
Resi Mid-Rise	**11**	98	3.1	831	949		1,225	13
Resi Mid-Rise	**10**	94.9	3.1	831	949		1,227	13
Resi Mid-Rise	**9**	91.8	3.1	831	949		1,225	13
Resi Mid-Rise	**8**	88.7	3.1	831	949		1,227	13
Resi Low-Rise	**7**	85.6	3.1	837	943		1,215	13
Resi Low-Rise	**6**	82.5	3.1	837	944		1,217	13
Resi Low-Rise	**5**	79.4	3.1	837	943		1,215	13
Resi Low-Rise	**4**	76.3	3.1	837	944		1,217	13
Resi Low-Rise	**3**	73.2	3.1	837	943		1,215	13
Resi Low-Rise	**2**	70.1	3.1	688	782		1,040	11
Resi Entry	**1**	67	3.1	685	823	-	1,084	11
Child Care	**Upper Ground**	63	4	-	-	601	764	
Resi / Basement Entry/ CC, Visitor Parking	**Lower Ground**	59.35	3.65	-	106	46	260	
Above Ground Totals				**18,392**	**20,931**	**647**	**28,120**	**269**
Efficiency				68.4%	87.9%			

Use	Level	Height (RL)	Height (m)	GBA	Parking No.
Resi Parking	**Lower Ground**	59.35		1,626	25
Resi Parking	**B01**	56.00		2,396	45
Resi Parking	**B02**	53.00		3,110	80
Resi Parking	**B03**	50.00		3,112	83
Plant	**B04**	47.00		283	
				10,526	**233**

	Gross Building Area	Resi. Car Parking Bays	Small Parking Bays (within total)	Accessible Parking Bays (within total)	Visitor Car Parking Bays (1 per 20)	Access. Visitor Car Parking Bays (within visitor total)	Child Care Parking Bays	Storage Cages (includes Bicycle Parking within Larger Storage Cages)	Resi Bicycle Parking	Visitor Bicycle Parking Spaces	Child Care Bicycle Parking Spaces	Motorbike spaces	
Lower Ground	1,635	-	-	-	12	1	12	42	31	8	6		
B01	2,300	31	10	4				46	-	-	-	4	
B02	2,970	70	5	5		-	-	79	-	-	-	-	
B03	2,970	73	6	4		-	-	102	-	-	-	-	
B04	235			-		-	-	-	-	-	-	-	
Total	**10,110**	**174**	**21**	**13**	**12**	**1**	**12**						**233**

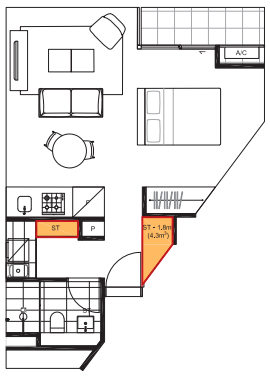
UNIT SCHEDULE

Ivanhoe Lot A1
Unit Mix Schedule

Building A1
MARKET
Bates Smart

Use	Level	ST	1B	1B+	2B1	2B2	2B2+	3B2	Apts
Roof	**24**								
Penthouse	**23**								
Penthouse	**22**	-	1			5	2	4	12
Resi High-Rise	**21**		2		2	4	2	1	11
Resi High-Rise	**20**	-	2		2	4	2	1	11
Resi High-Rise	**19**	-	2		2	4	2	1	11
Resi High-Rise	**18**	-	2		2	4	2	1	11
Resi High-Rise	**17**	-	2		2	4	2	1	11
Resi High-Rise	**16**	-	2		2	4	2	1	11
Resi Mid-Rise	**15**	-	3	4	2	4	-	-	13
Resi Mid-Rise	**14**	-	3	4	2	4	-	-	13
Resi Mid-Rise	**13**	-	3	4	2	4	-	-	13
Resi Mid-Rise	**12**	-	3	4	2	4	-	-	13
Resi Mid-Rise	**11**	-	3	4	2	4	-	-	13
Resi Mid-Rise	**10**	-	3	4	2	4	-	-	13
Resi Mid-Rise	**9**	-	3	4	2	4	-	-	13
Resi Mid-Rise	**8**	-	3	4	2	4	-	-	13
Resi Low-Rise	**7**	1	3	3	1	5	-	-	13
Resi Low-Rise	**6**	1	3	3	1	5	-	-	13
Resi Low-Rise	**5**	1	3	3	1	5	-	-	13
Resi Low-Rise	**4**	1	3	3	1	5	-	-	13
Resi Low-Rise	**3**	1	3	3	1	5	-	-	13
Resi Low-Rise	**2**	1	3	3	-	4	-	-	11
Resi Entry	**1**	1	3	3	1	3	-	-	11
Child Care	**Upper Ground**								
Resi / Basement Entry/ CC, Visitor Parking	**Lower Ground**	-	-	-	-	-	-	-	
Above Ground Totals		**7**	**58**	**53**	**34**	**93**	**14**	**10**	**269**
		3%	22%	20%	13%	35%	5%	4%	

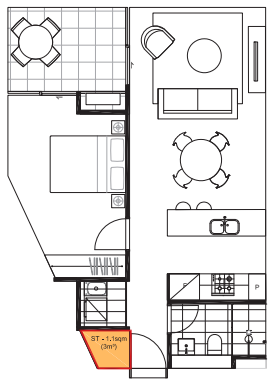
STORAGE SCHEDULE



Studio

Storage volume provided within apartment - 4.3m³
Storage cage provided within basement - 3m³

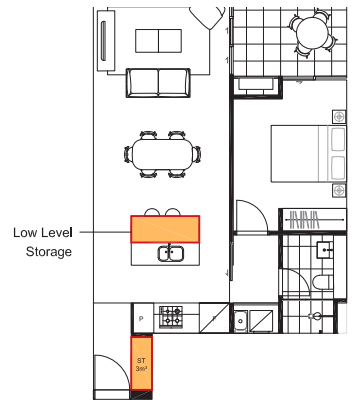
Total Storage volume compliant - with SEPP65 / ADG (4.0m³) YES



1B - Type 01

Storage volume provided within apartment - 3m³
Storage cage provided within basement - 3m³

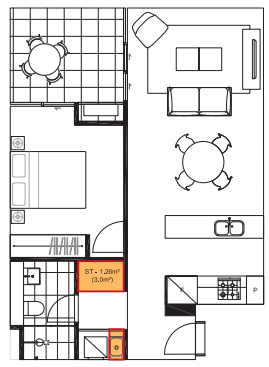
Total Storage volume compliant - with SEPP65 / ADG (6.0m³) YES



1B - Type 02

Storage volume provided within apartment - 3m³
Storage cage provided within basement - 3m³

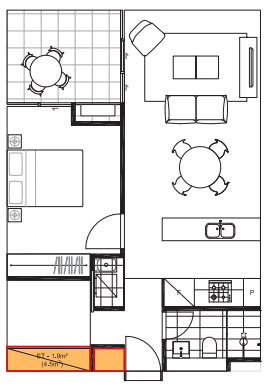
Total Storage volume compliant - with SEPP65 / ADG (6.0m³) YES



1B - Type 03

Storage volume provided within apartment - 3m³
Storage cage provided within basement - 3m³

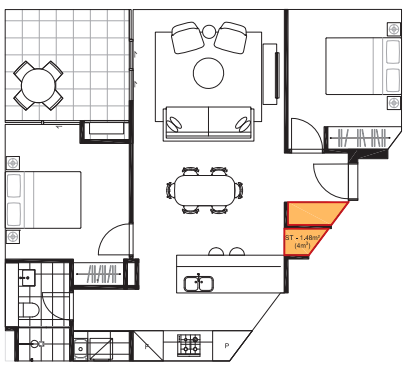
Total Storage volume compliant - with SEPP65 / ADG (6.0m³) YES



1B+ - Type 01

Storage volume provided within apartment - 4.5m³
Storage cage provided within basement - 5m³

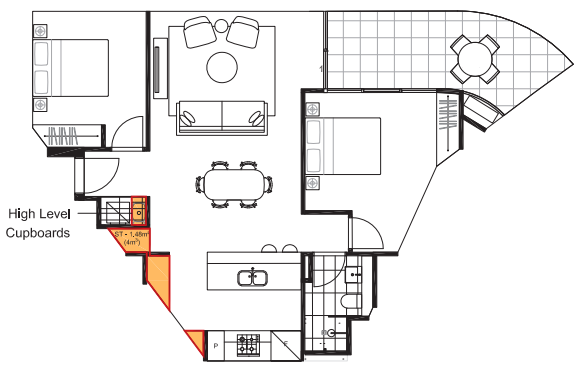
Total Storage volume compliant - with SEPP65 / ADG (6.0m³) YES



2B1 - Type 01

Storage volume provided within apartment - 4m³
Storage cage provided within basement - 5m³

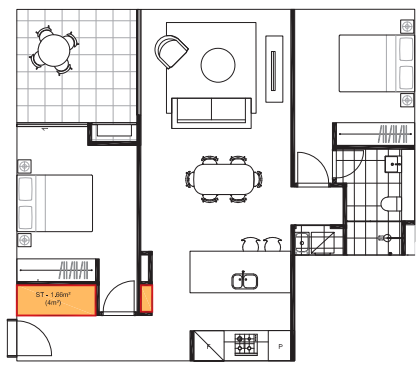
Total Storage volume compliant - with SEPP65 / ADG (8.0m³) YES



2B1 - Type 02

Storage volume provided within apartment - 4m³
Storage cage provided within basement - 5m³

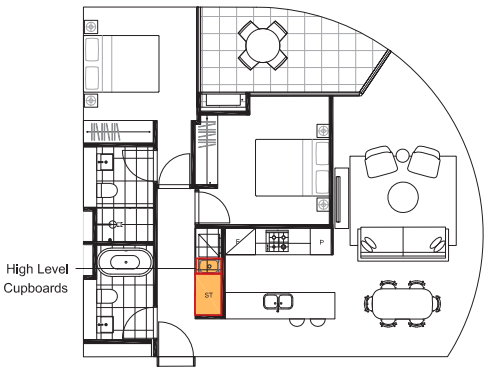
Total Storage volume compliant - with SEPP65 / ADG (8.0m³) YES



2B1 - Type 03

Storage volume provided within apartment - 4m³
Storage cage provided within basement - 5m³

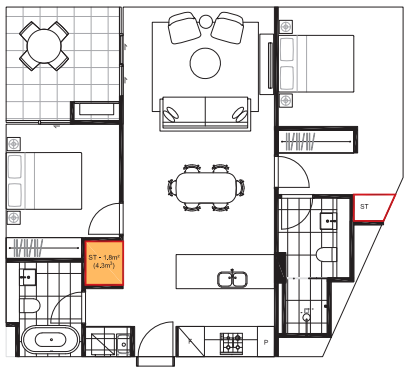
Total Storage volume compliant - with SEPP65 / ADG (8.0m³) YES



2B2 - Type 01

Storage volume provided within apartment - 2.5m³
Storage cage provided within basement - 6m³

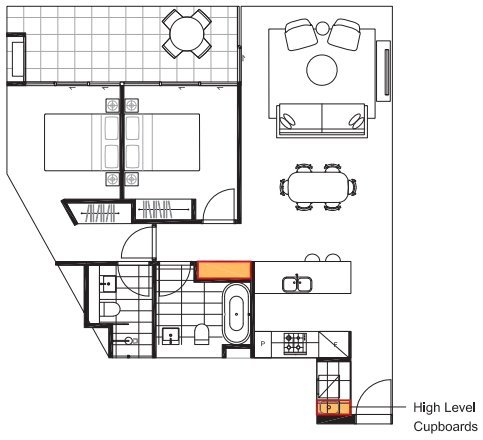
Total Storage volume compliant - with SEPP65 / ADG (8.0m³) YES



2B2 - Type 02

Storage volume provided within apartment - 4.3m³
Storage cage provided within basement - 5m³

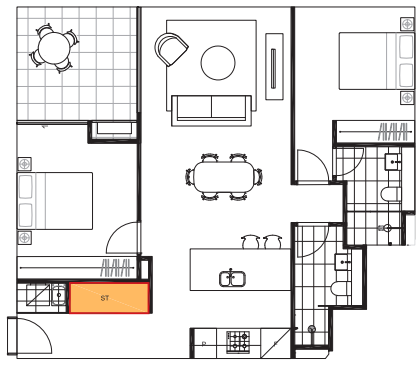
Total Storage volume compliant - with SEPP65 / ADG (8.0m³) YES



2B2 - Type 03

Storage volume provided within apartment - 2.5m³
Storage cage provided within basement - 5m³

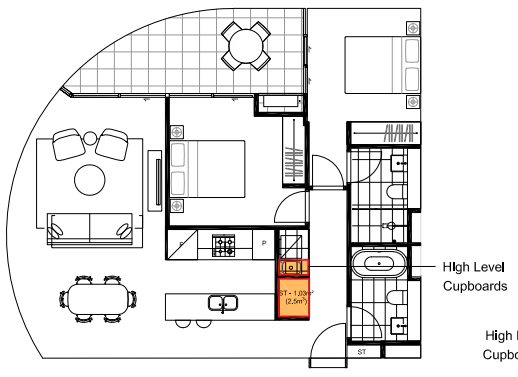
Total Storage volume compliant - with SEPP65 / ADG (8.0m³) YES



2B2 - Type 04

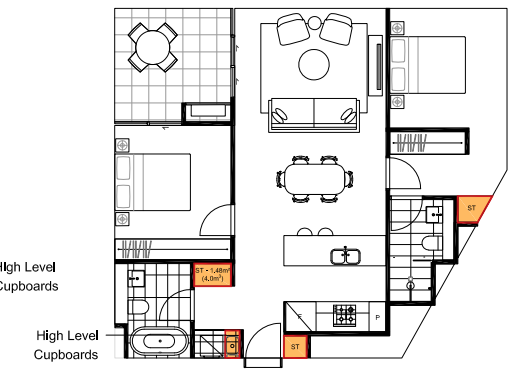
Storage volume provided within apartment - 4m³
Storage cage provided within basement - 5m³

Total Storage volume compliant - with SEPP65 / ADG (8.0m³) YES



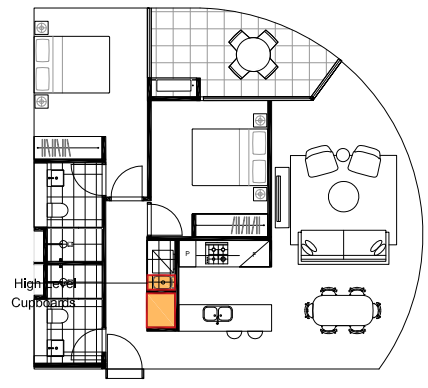
2B2 - Type 05

Storage volume provided within apartment -	2.5m³
Storage cage provided within basement -	6m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



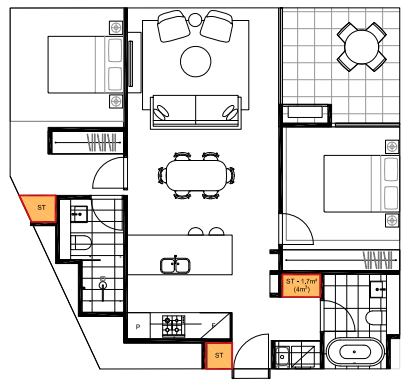
2B2 - Type 06

Storage volume provided within apartment -	4.4m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



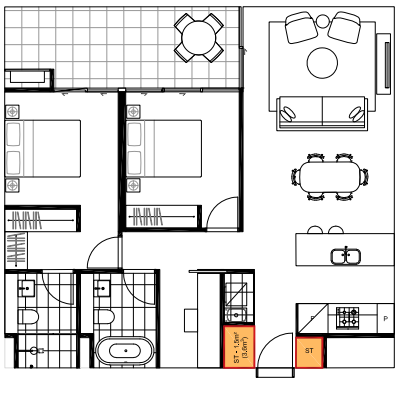
2B2 - Type 07

Storage volume provided within apartment -	2.5m³
Storage cage provided within basement -	6m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



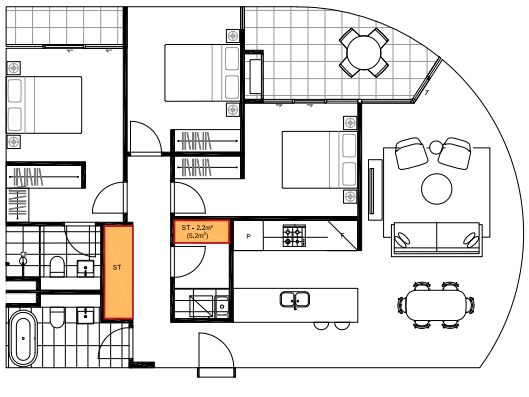
2B2 - Type 08

Storage volume provided within apartment -	4m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



2B2+ - Type 01

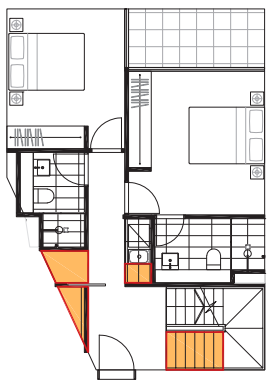
Storage volume provided within apartment -	4m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



3B2 - Type 01

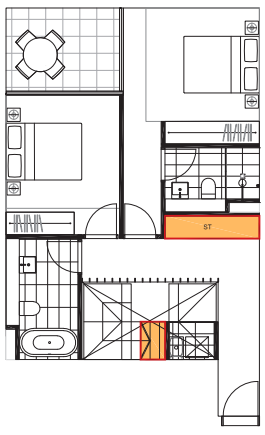
Storage volume provided within apartment -	5.2m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (10.0m³)	YES

STORAGE SCHEDULE



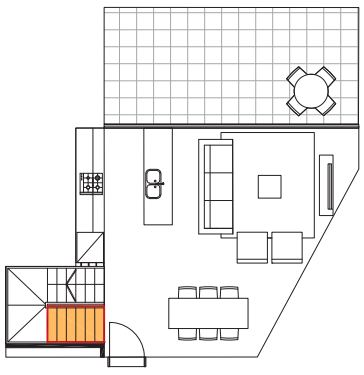
2B Penthouse (Low) - Type 01

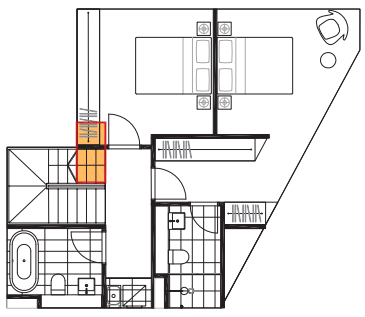
Storage volume provided within apartment -	7.8m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



2B Penthouse (Low) - Type 03

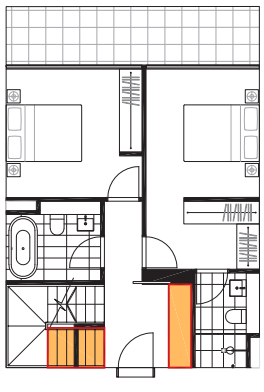
Storage volume provided within apartment -	5m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES





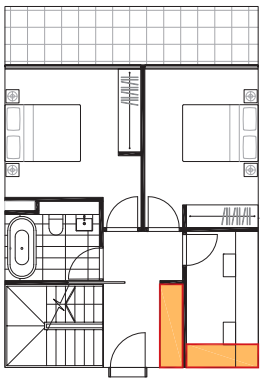
2B Penthouse (Low&High) - Type 04

Storage volume provided within apartment -	5m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



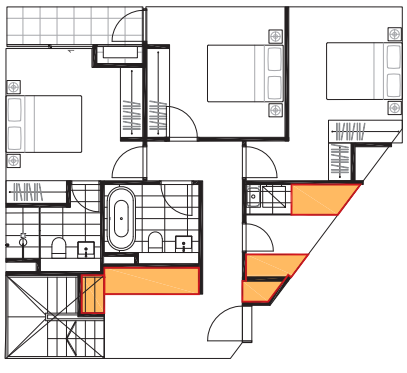
2B Penthouse (Low) - Type 02

Storage volume provided within apartment -	6m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (8.0m³)	YES



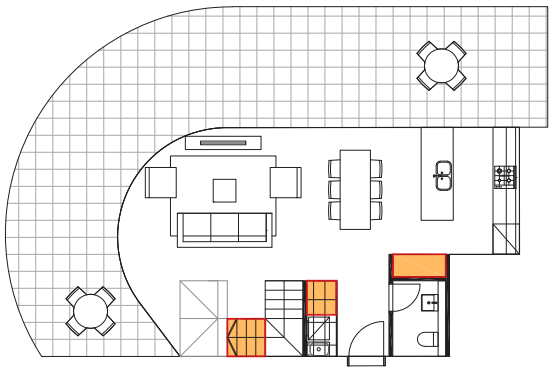
3B Penthouse (Low) - Type 01

Storage volume provided within apartment -	6.5m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (10.0m³)	YES



3B Penthouse (Low) - Type 02

Storage volume provided within apartment -	11m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (10.0m³)	YES



3B Penthouse (Low) - Type 03

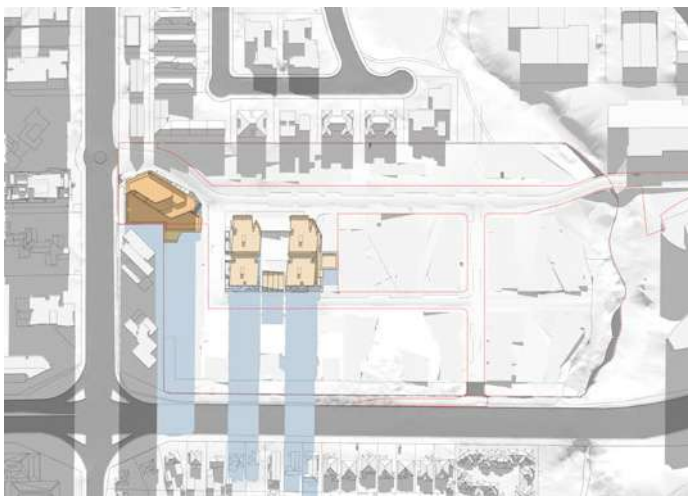
Storage volume provided within apartment -	5m³
Storage cage provided within basement -	5m³
Total Storage volume compliant - with SEPP65 / ADG (10.0m³)	YES

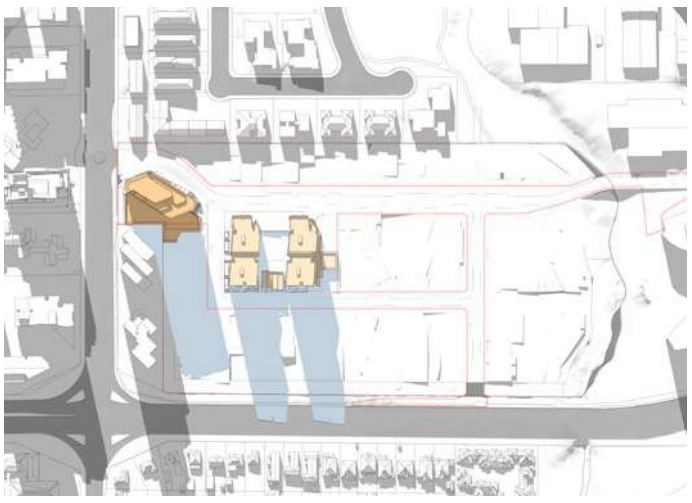
APPENDIX E:
SHADOW STUDIES

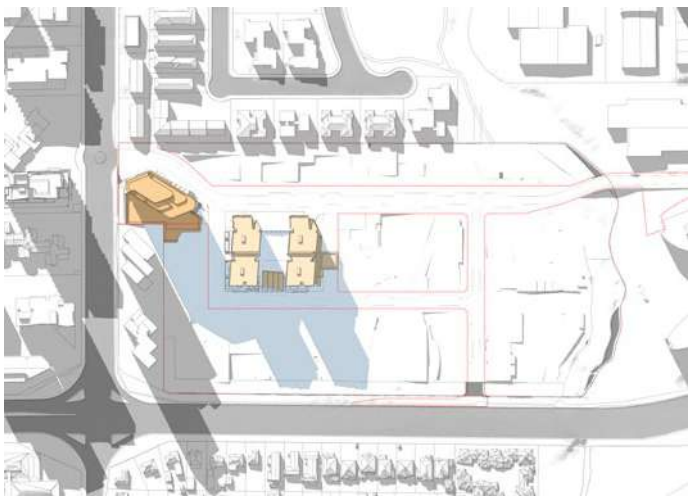
SHADOW STUDIES
JUNE 21ST

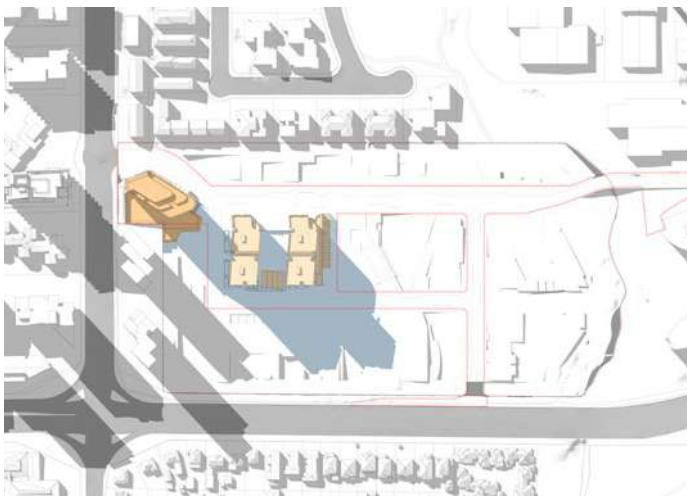
Proposed building

Lot Boundaries for Future Buildings

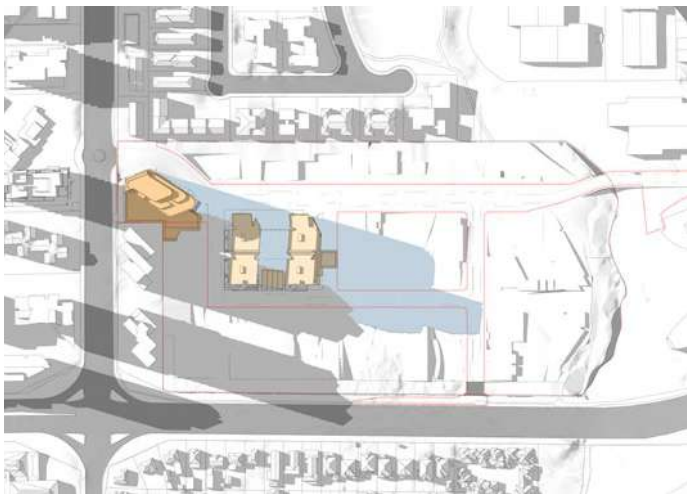

Winter Solstice 9am

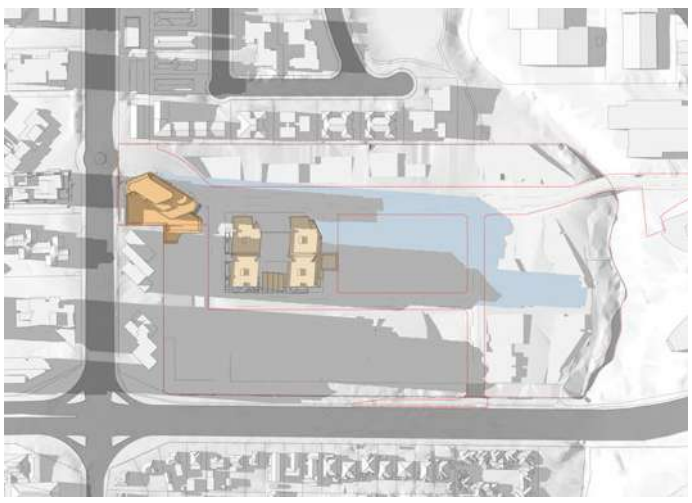

Winter Solstice 10am


Winter Solstice 11am


Winter Solstice 12pm

Winter Solstice 1pm


Winter Solstice 2pm


Winter Solstice 3pm

APPENDIX F:

RESPONSE TO DESIGN EXCELLENCE REVIEW PANEL

RESPONSE TO DESIGN EXCELLENCE REVIEW PANEL

As part of the Design Excellence Strategy for the Ivanhoe Estate, an independent Design Review Panel was established to comment on the Stage 1 works.

The following items were identified in relation to Lot A1 through this process. The review panel responded positively to the scheme presented.

STAGE 1 DESIGN EXCELLENCE REVIEW DATED 2018.02.27

ITEM NO.	DESIGN REVIEW PANEL COMMENTS	RESPONSE
11.	Mathieu Le Sueur presented the concept of building A1 and the design development process of A1 addressing the gateway nature of building A1 and the building being the entry to the precinct. Bates Smart also presented how the final building form has addressed the Ivanhoe Estate Design Guideline.	Note.
12.	Due to site orientation and surround development, building A1 requires high solar performance at upper level to ensure ADG compliance. The proposed built form will achieve the 9-11am sun parallel to Herring Road and at 1-3pm afternoon sun parallel to Epping Road.	This design approach is received positively by the design panel.
13.	The panel discussed the facade design and the proposed precast curved edge. Brian Zulaihka suggested colour variations between the spandrels and the slab edge element to differentiate the different elements.	Following the design review, we have undertaken a comprehensive review of each of the façade components. Several colour studies including a) different shades of precast concrete, b) different colours for spandrel elements, and c) alternating finishes for vertical and horizontal elements were tested. A summary of options and the recommended proposal was presented to the DRP on March 27 and is now included in the Development Application submission.
14.	The panel has briefly discussed general façade maintenance. The project team responded that Ivanhoe project aim to adopt façade materials with less maintenance, such as precast with oxide colour finish and off-form concrete.	The proposal was received positively by the review panel and will be further refined during the Design development phase.
15.	The panel also raised that the extensive glass façade appeared more commercial like and suggested the architect to adopt some façade elements, such as louvres and sun shading to soften the façade.	The review of façade components described above included testing of additional sunshading: specifically, the addition of a vertical fin between operable and fixed glazed element. The client team agreed that the additional sunshades provided marginal improvement to environmental performance but detracted significantly from the aesthetic simplicity of the façade.

STAGE 1 DESIGN EXCELLENCE REVIEW DATED 2018.02.27

ITEM NO.	DESIGN REVIEW PANEL COMMENTS	RESPONSE
16.	The panel queried about the height of the spandrel which Bates confirmed to be 600mm from internal floor finishes. The panel suggested the spandrel height to be reviewed and suggested that 750mm may be more appropriate.	The spandrel height has been increased to 765mm to not facilitate climbing in accordance with the NCC requirements.
17.	Stephanie Ballango asked the architect which street entry is considered the main entry for building A1. It is agreed between the panel and the project team that the residents is likely to use the lower ground entry as the main access to the retail and the park. It is also agreed that the Herring road entry is appropriate as it needed to address the Herring Road and passer-by.	Noted. The design of the lobbies will be further developed during the Design Development phase.
23.	The panel is of the opinion that the creases in Lot A1 building may not bring much light/ ventilation into the apartment. The panel also suggested to create more interest to A1 façade with protruding elements, such as balconies.	A package of material which demonstrates the amenity benefits offered by the tower 'creases' in bringing light and ventilation deeper into the floorplates on level 9 was put forward to the DRP on Friday 13th April. In response to protruding elements such as balconies, please refer to item #15
24.	The panel queried the noise level of Herring Road and the usability of the balconies facing Herring Road. The panel suggested winter gardens in lieu of balconies.	Noted. The feasibility and applicability of wintergardens will be further investigated during the design development phase.