Revision
08 October 2019

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SEPP 65 DESIGN VERIFICATION STATEMENT

Project No 5800

Ivanhoe Estate
Lot C1

Prepared on behalf of

Aspire Consortium
Frasers Property Ivanhoe
Mission Australia Housing

Prepared by

CANDALEPAS
ASSOCIATES

309 SUSSEX STREET
SYDNEY NSW 2000

www.candalepas.com.au
info@candalepas.com.au

+61 2 9283 7755

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SECTION 1.0 SUMMARY

Introduction

This report supports a Development Application for Stage 1 of the Ivanhoe Estate redevelopment, a State Significant Development (SSD) submitted to the Department of Planning and Environment (DPE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It has been prepared for Aspire Consortium on behalf of NSW Land and Housing Corporation.

Background

In September 2015 the Ivanhoe Estate was rezoned by DPE as part of the Macquarie University Station (Herring Road) Priority Precinct, 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.

The Ivanhoe Estate is currently owned by NSW Land and Housing Corporation and comprises 259 social housing dwellings. The redevelopment of the Ivanhoe Estate is part of the NSW Government Communities Plus program, which seeks to deliver new communities where social housing blends with private and affordable housing, with good access to transport, employment, improved community facilities and open space.

The Communities Plus program seeks to leverage the expertise and capacity of the private and non-government sectors. As part of this program, Aspire Consortium, comprising Frasers Property Australia, Citta Property Group and Mission Australia Housing, was selected as the successful proponent to develop the site in July 2017.

In September 2017, DPE issued the Secretary's Environmental Assessment Requirements for a comprehensive Masterplan application that will establish the framework for the staged redevelopment of the site. This Development Application for Stage 1 of the Ivanhoe Estate redevelopment represents the first stage of detailed works pursuant to the Ivanhoe Estate Masterplan.

Site Description

The Ivanhoe Estate site is located in Macquarie Park near the corner of Epping Road and Herring Road within the Ryde Local Government Area (LGA). The site is approximately 8.2 hectares and currently accommodates 259 social housing dwellings, comprising a mix of townhouse and four storey apartment buildings set around a cul-de-sac street layout. An aerial photo of the site is provided at Figure 1 below.

Immediately to the north of the site are a series of four storey residential apartment buildings. On the north-western boundary, the site fronts Herring Road and a lot that is currently occupied by four former student accommodation buildings and is likely to be subject to redevelopment. Epping Road runs along the south-western boundary of the site and Shrimptons Creek, an area of public open space, runs along the south-eastern boundary. Vehicle access to the site is via Herring Road.

Ivanhoe Estate comprised of 17 individual lots owned and managed by the NSW Land and Housing Corporation. The Masterplan site also incorporates adjoining land, being a portion of Shrimptons Creek and part of the commercial site at 2-4 Lyonpark Road. This land is included to facilitate a bridge crossing and road connection to Lyonpark Road.

Figure 1 – Ivanhoe Estate site

Overview of the Proposed Development

The proposed Stage 1 Development Application seeks consent for the first stage of detailed works within the Ivanhoe Estate, pursuant to the Ivanhoe Estate Masterplan under Section 4.22 of the EP&A Act. The Masterplan establishes the planning and development framework against which this Stage 1 Development Application will be assessed.

The Stage 1 Development Application seeks approval for:

- site preparation works and earthworks across the Ivanhoe Estate;
- the provision and augmentation of utilities and services infrastructure across the Ivanhoe Estate;
- the construction of all internal roads including public domain within the road reserves, and the bridge crossing and road connection to Lyonpark Road;
- the consolidation of existing lots and subdivision of the Ivanhoe Estate to reflect the revised road layout, open space, and provide superblocks corresponding to the Masterplan;
- the construction and use of Buildings A1 and C1 comprising residential uses (including social housing), a childcare centre, and retail tenancies.

An image of the Masterplan, identifying Buildings A1 and C1 and illustrating the road network, is provided at Figure 2 below.

Figure 2 – Ivanhoe Estate Masterplan

The proposed development for Lot C1 may be summarised as follows:

- Construction of 2x residential towers comprising of 14 storeys of social housing and 20 storeys of market housing.
- Provision of a total of 259 social apartments (including 25 dual key apartments and 45 Independent Living Units) and 212 market apartments (including 4 standalone terraces).
- Ground floor retail tenancy at the base of Tower 2.
- 3 levels of basement carparking for residents, staff and visitors.
- Landscaping to the central communal open space, public domain and Level 13 rooftop as documented by Hassell.

We confirm that Mr Angelo Candalepas of Candalepas Associates directed the design of the enclosed development application, which is represented by drawings DA 1000, 1050, 1100-1113, 1150, 1200-1202, 1300-1305, 1600-1602, 1850, and 1851. Further Mr Candalepas is registered as an architect in accordance with the NSW Architects Act 2003.

We confirm that the enclosed documentation achieves the design principles set out in *State Environmental Planning Policy 65 - Design Quality of Residential Flat Development* ('SEPP65') and has been designed with regard to the publication *Apartment Design Guide* ('ADG').

SECTION 2.0 DESIGN QUALITY PRINCIPLES

PRINCIPLE NO. 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.

The development is located at towards the Northern corner of the Ivanhoe Estate, and will be one of the initial buildings fronting the proposed Main Street upon entry from Herring Road. The site is also bound by two neighbourhood streets and a public park as shown in Figure 3.

The site is approximately 6,218 square metres in area, with a cross fall of up to 9m. The proposal consists of two tower forms, to ensure maximum solar access is available to the development. There is a 45m / 65m height limit across the centre of the site, which determines the 14 / 20 storey split between the towers. To accommodate the site fall, the tower forms are split over four level changes across the site.

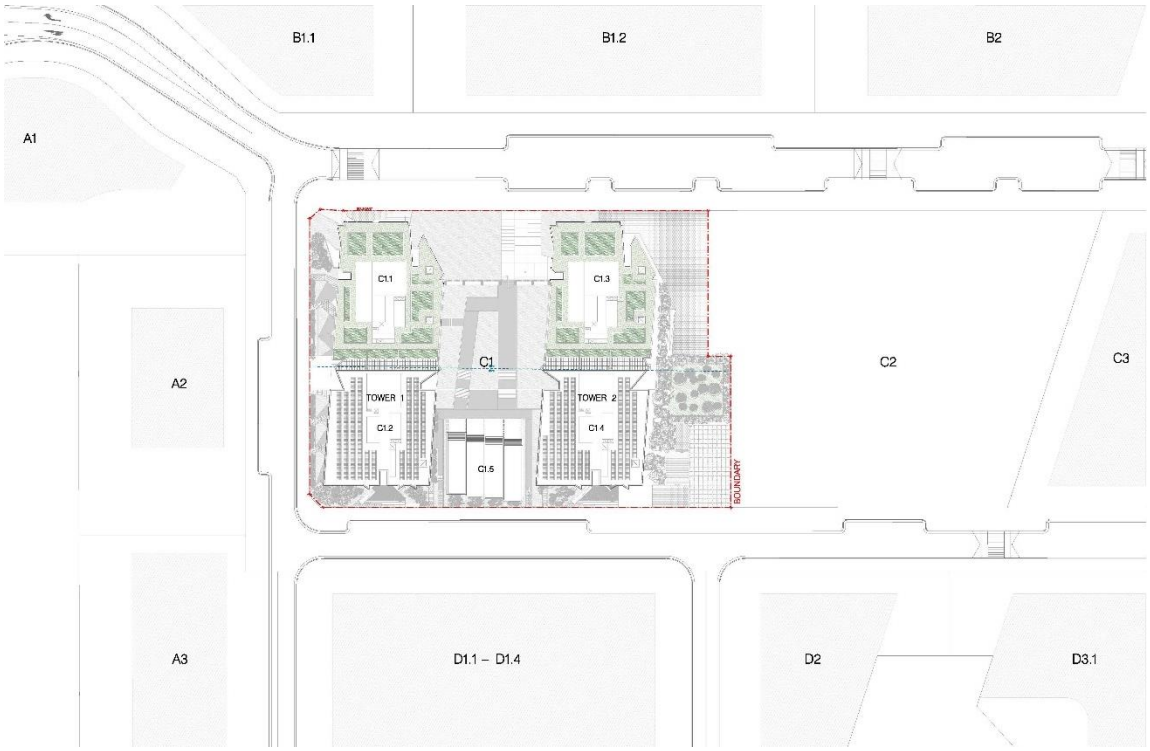


Figure 3 – C1 Site plan

The proposed siting allows for a generous landscaped communal open space between the towers. This area is also occupied by four standalone market terraces fronting the neighbourhood street to the South. Refer to landscaping documentation by Hassell for further details of the communal open space.

PRINCIPLE NO. 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 and the manipulation of building elements.

The building massing responds directly to the height limits and solar access available to the development. The slight 'tilt' of the two tower forms ensure that 2 hours of direct sunlight (between 9am-11am) are available to the Northern and Eastern facades at midwinter as shown in Figure 4. Solar analysis has been based on the current indicative design of the Ivanhoe Masterplan. Proposed setbacks from boundaries ensure compliance with ADG separation to neighbouring developments.

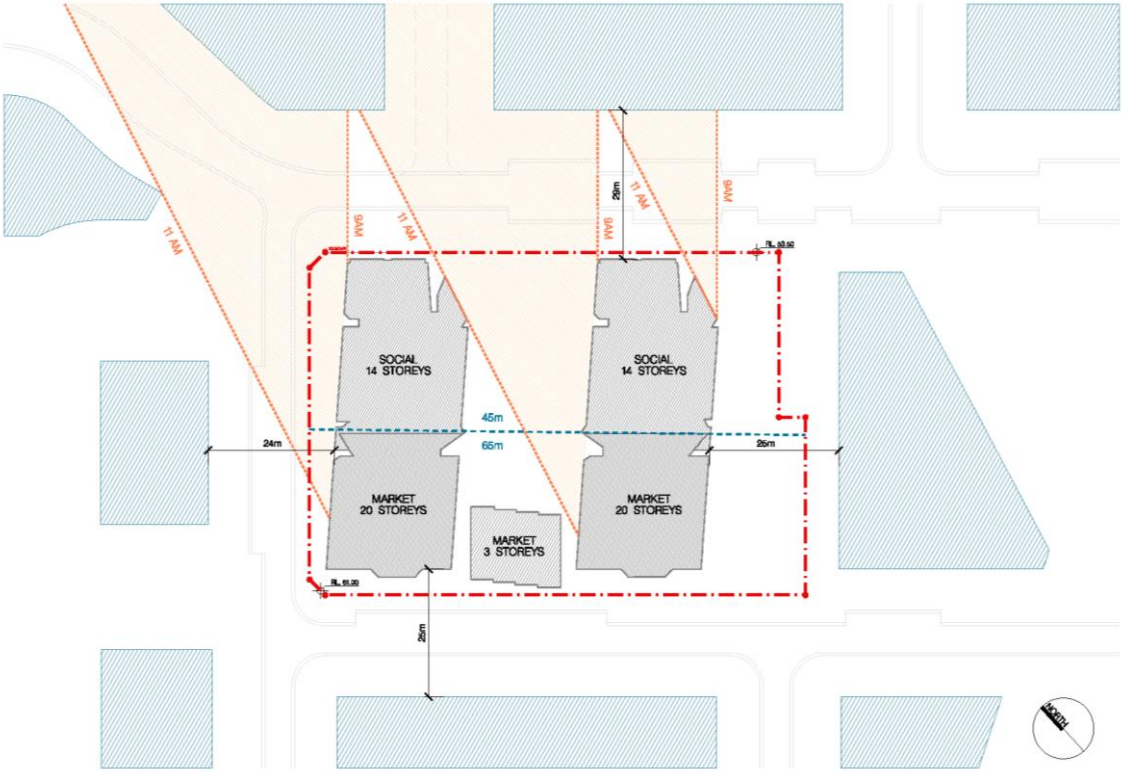


Figure 4 – Site controls

Scale has been largely driven by the 45m / 65m height limit through the centre of the site. Figure 5 shows how the tower forms are shaped by this control. Market housing has been located within the 65m (20 storey) height zone, with social housing located within the 45m (14 storey) height zone.

The 3 storey standalone terraces located between the towers respond to the townhouses proposed in adjacent lots along the Neighbourhood Street. These terraces will establish a precedent for subsequent stages.

The tower massing is consistent with the proposed built form envelopes of the Masterplan as shown in Figure 6.

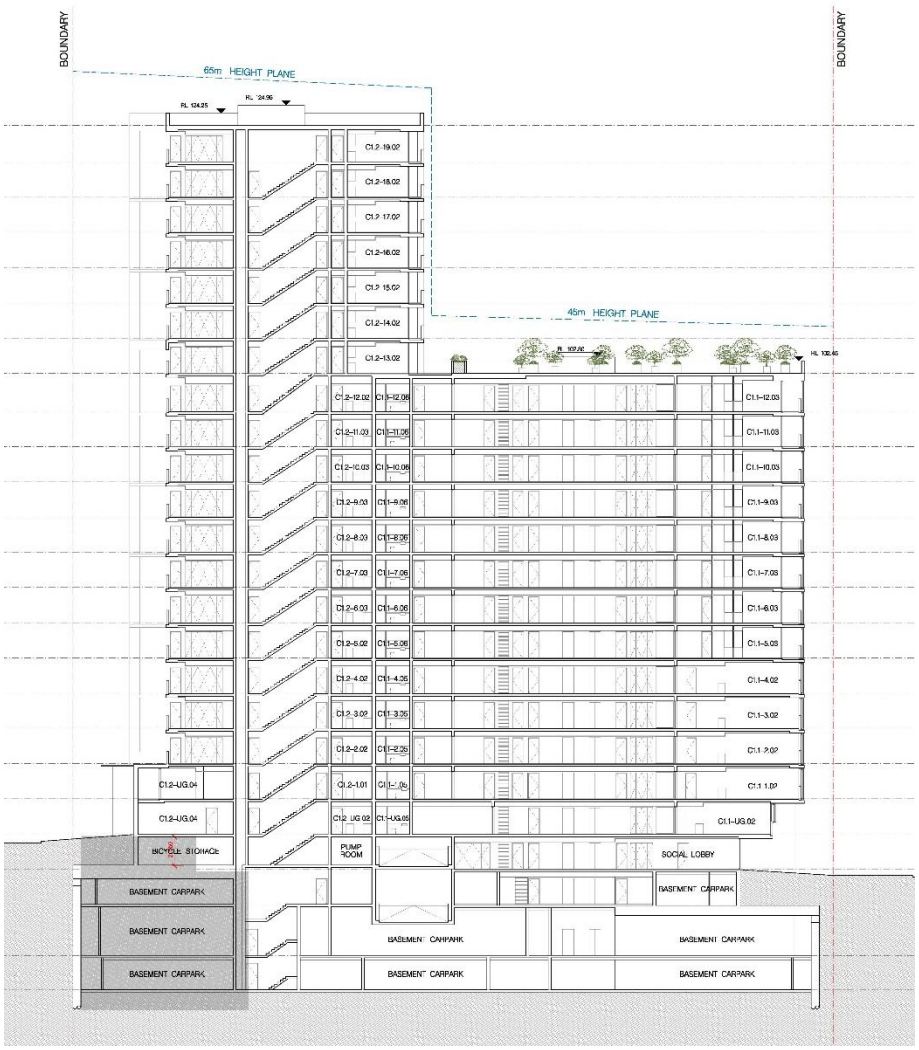


Figure 5 – Tower 1 Section and height plane controls

Figure 6 – Site massing diagram prepared by Bates Smart

PRINCIPLE NO. 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.

The proposed development consists of 2x residential towers providing a total of 259 social apartments (including 25 dual key apartments and 45 ILUs) and 212 market apartments (including 4 standalone terraces) over 14 and 20 storeys respectively. The total gross floor area proposed is 33,596 square metres, which results in a density consistent with the overall Ivanhoe Masterplan.

The proposal seeks to ensure that the increase in scale and density on the site achieves a positive outcome for the precinct, and provides a human scale at street level. This aligns with the desired future character of the Ivanhoe Estate.

Refer to Principle No. 6 for further information regarding amenity.

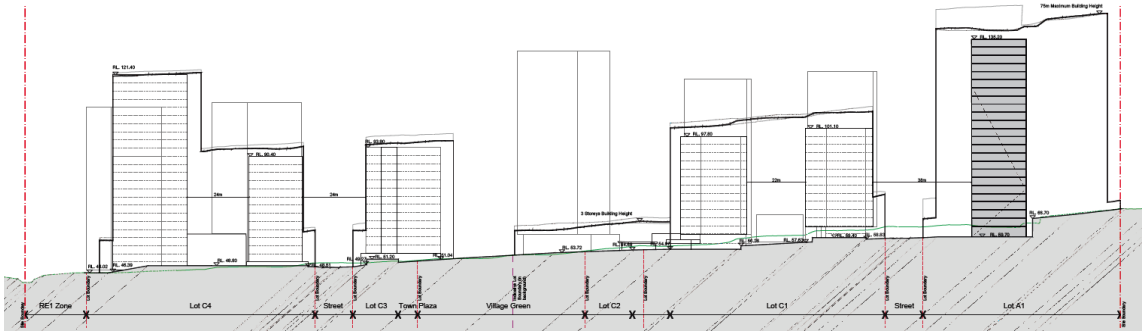


Figure 7– Main Street elevation prepared by Bates Smart

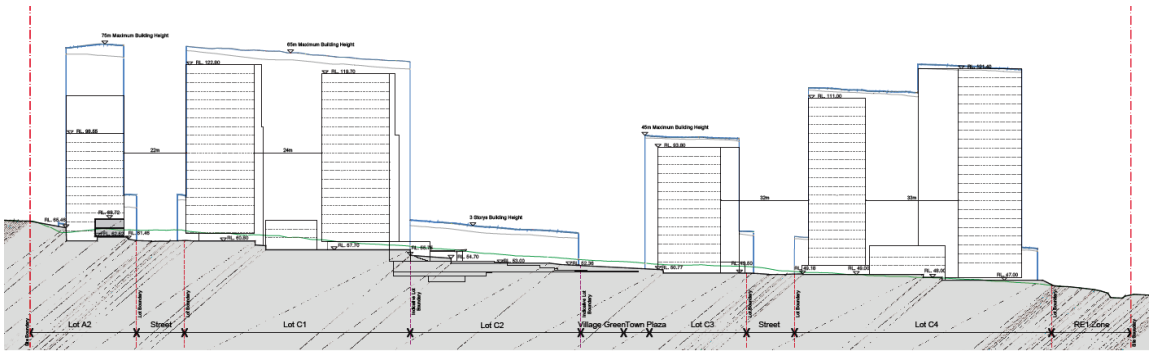


Figure 8– Neighbourhood Street elevation prepared by Bates Smart

PRINCIPLE NO. 4: SUSTAINABILITY

Good design combines positive environmental, social and economic outcomes.

Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs.

The proposed development includes numerous initiatives that contribute to the efficient use of resources, through sustainable design measures and actively managed systems. These can be summarised as follows:

- Orientation of the tower forms to maximise solar access to the development.
- Minimum of 70% of apartments receiving 2 hours of direct sunlight to the main living spaces at midwinter.
- Minimum of 60% of apartments receiving natural cross ventilation to main living spaces.
- Operable glazing to allow natural ventilation and reduce heating and cooling requirements.
- Screened elements and deep recesses on the façade to reduce excessive solar gain and moderate occupant privacy, whilst also allowing for natural ventilation and daylight to the adjacent living space.
- Selection of low maintenance materials.

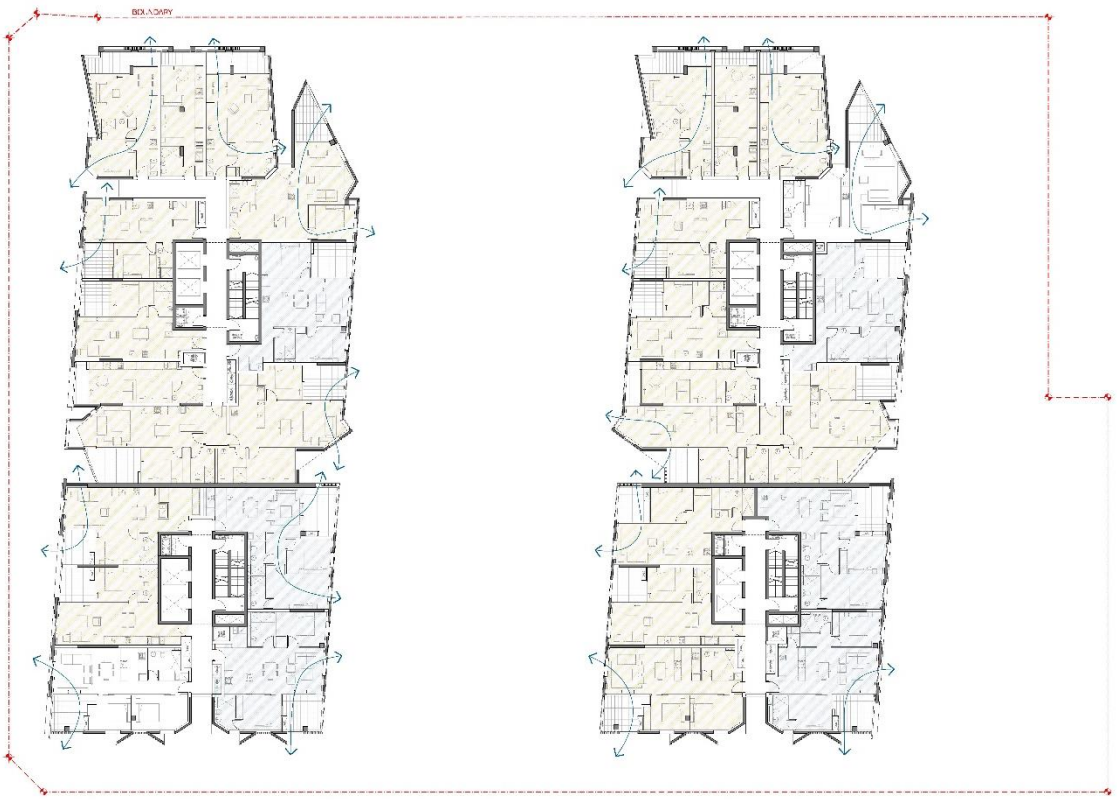


Figure 9 – Solar access and cross ventilation for a typical floorplate

The proposal meets the targets set out in the Building & Sustainability Index (BASIX), as documented in the Environment Report prepared by WSP.

PRINCIPLE NO. 5: LANDSCAPE

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity.

The proposal includes a number of areas dedicated to landscaping, which have been integrated into the overall building design.

The central communal open space between the towers provides a generous offering to the residents. Various level changes are accommodated within the podium to assist with the significant cross site fall.

Each entrance lobby for both social and market housing has been recessed into the façade, providing further opportunity for landscaped elements as part of the building approach for residents. Private open spaces located along neighbourhood streets include a landscaping buffer to the public domain. This not only creates privacy for residents, but also offers further 'greening' of the streetscape.

The rooftops of the social housing at Level 13 are also proposed to be landscaped. This will provide an attractive outlook for neighbouring dwellings, assist in shielding rooftop plant and mitigate the urban heat island effect.

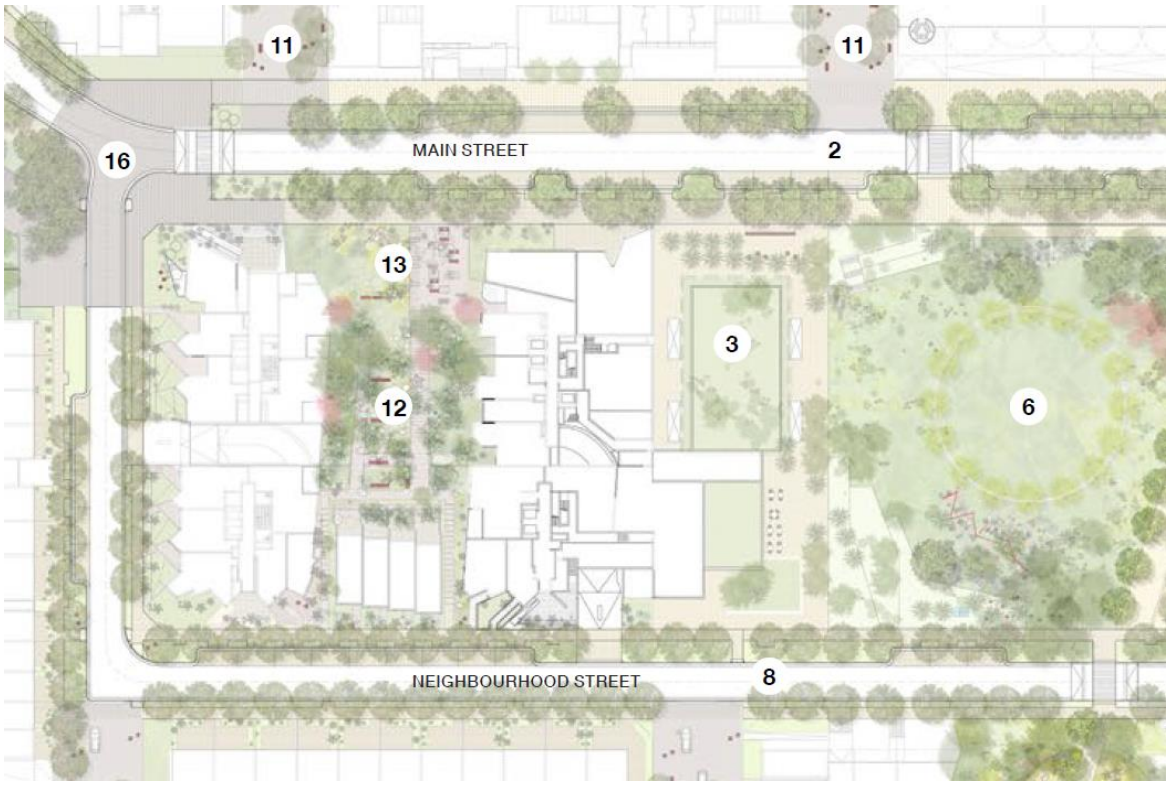


Figure 10 – Landscaping plan prepared by Hassell

Refer to associated documentation by Hassell for further landscaping details.

PRINCIPLE NO. 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.

Residential apartments within the proposed development have been planned to maximise amenity. This has been considered in relation to solar access, visual privacy, cross ventilation and outlook, and ensures consistency with ADG requirements.

The overall building massing and placement on the site has been largely driven by opportunity for solar access. As such, a minimum of 70% of dwellings receive 2 hours of direct sunlight to living areas in midwinter. The use of inset balconies ensures the private open space offered is usable, particularly within a tower typology where additional protection from the surrounding environment is necessary.

The façade utilises screens, precast panels and deep recesses to enhance resident well being. These elements have been carefully placed to prevent overlooking and shield excessive solar gain, whilst allowing daylight penetration. Openings are maximised where living areas and balconies are located, with reduced openings to bedrooms offering increased privacy. The result is an articulated composition which carefully considers the amenity offered to apartments. Refer to Principle No. 9 for further detail.

There are two separate entrances to the basement carpark designated for social and market residents as shown in Figure 11. The ramp off the Neighbourhood Street to the North-West of the site provides access to Basement Levels 1 and 2 for 134 x social car spaces (including 4 x visitor spaces). The ramp located in the Southern corner of the site provides access to Basement Levels 2 and 3 for 3 x retail / community centre staff car spaces and 209 x market car spaces (including 11 x visitor spaces). A total of 346 x car spaces are provided in the development.

Figure 11 – Basement carpark entry locations

471 x bicycle spaces are provided throughout the basement levels (1 per dwelling). This is achieved through a combination of designated bicycle storage areas, and storage cages located directly adjacent to car spaces which are able to accommodate bicycles.

Waste chutes for both garbage and recycling are provided at each residential level, and are conveniently located adjacent to lift cores. Temporary waste rooms are located at the base of each chute and at lower ground level at the Southern corner, where a loading dock is also provided for garbage collection.

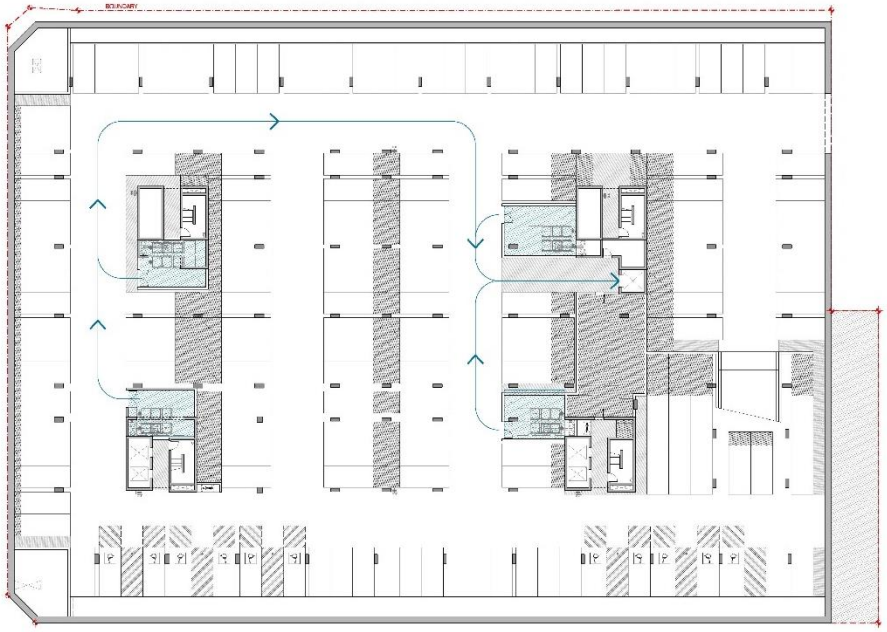


Figure 12.1 – Basement Level 3 plan showing waste strategy

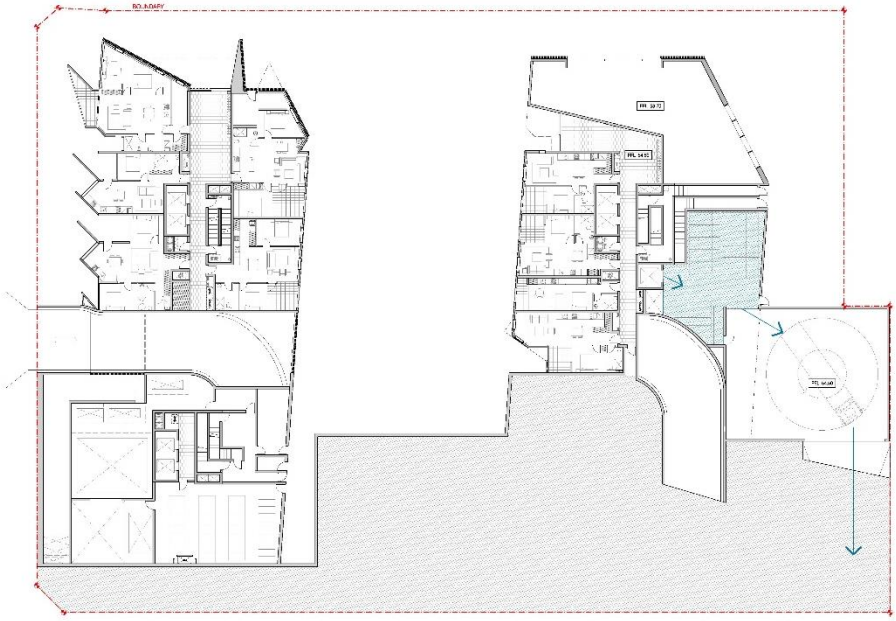


Figure 13.2 – Lower Ground plan showing waste strategy

PRINCIPLE NO. 7: SAFETY

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

The design proposes the following security measures to restrict and control communal access in and around the proposed development:

- Residential entry points and circulation areas are clearly identified and securable.
- Ground floor units with street frontages have private front gardens and direct access into their units. This offers passive surveillance of the adjoining public domain as shown in Figure 13.
- Central location of the communal open space allows passive surveillance from neighbouring towers. Access is controlled via gates at both entry points from the public domain.
- Screened windows at lower levels offer privacy whilst allowing for passive surveillance.
- High quality architectural lighting throughout the development will assist in securing the area at night.

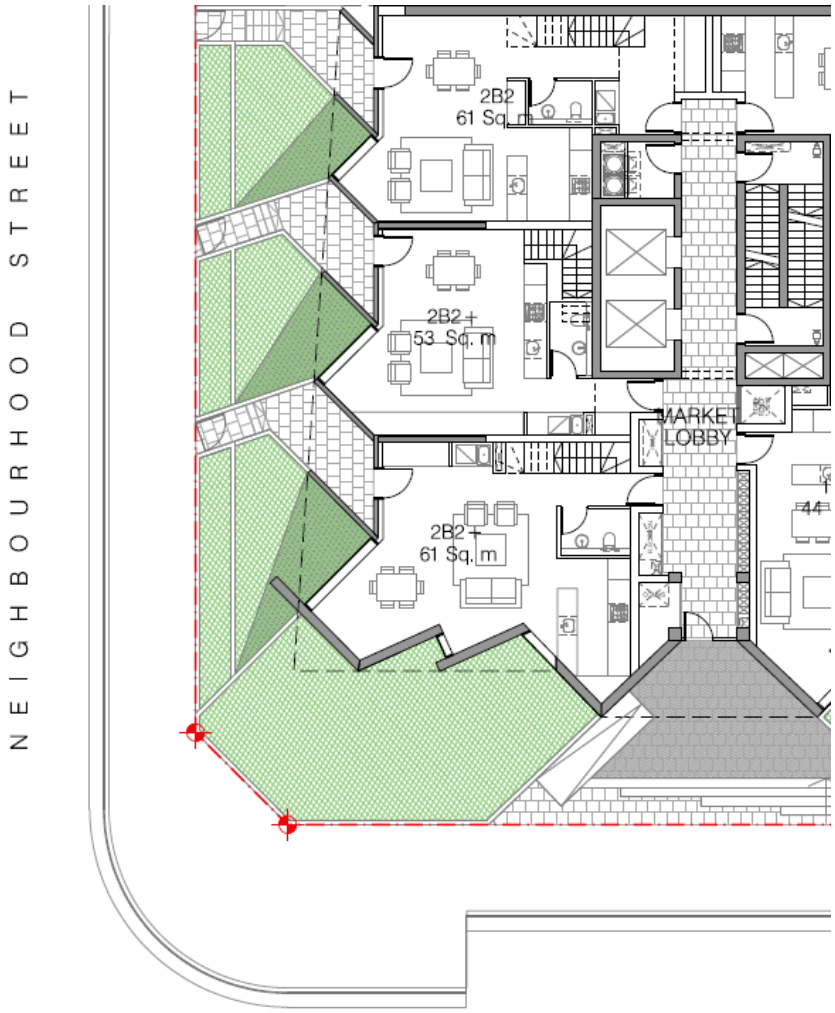


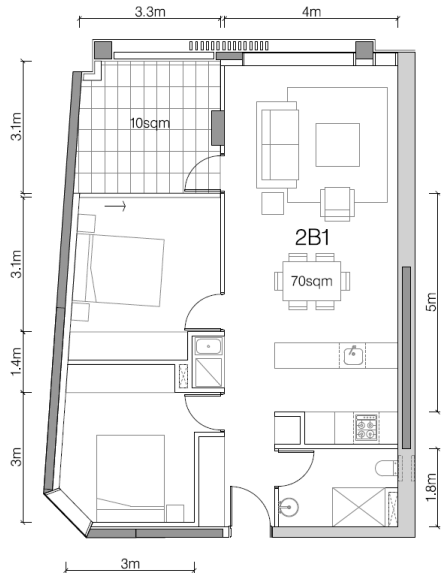
Figure 14 – Ground floor apartments and entry lobbies offer passive surveillance of the public domain

Refer to CPTED Report prepared by Ethos Urban for further information.

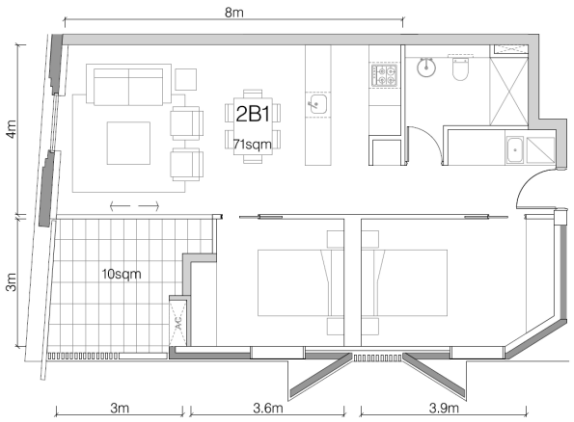
PRINCIPLE NO. 8: HOUSING DIVERSITY AND SOCIAL INTERACTION

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

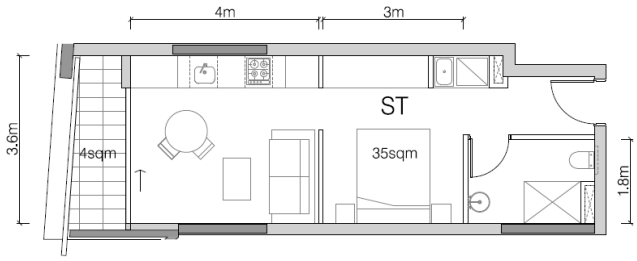
Apartment planning has been carefully considered throughout the development, to ensure layouts remain universal and flexible to provide for a range of occupants. Solar access has played a significant role, with living rooms generally located on the façade with adjoining inset balconies. Internal apartment areas and room sizes have been designed in accordance with ADG requirements.



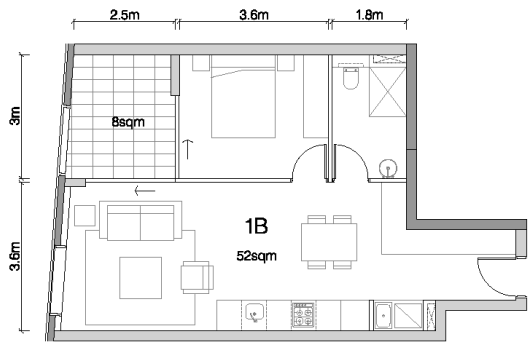
2B Social



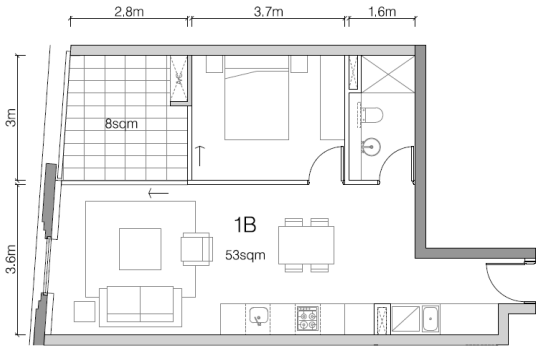
2B Market



ST Social



1B Social



1B Market

Figure 15 – Typical apartment types

Sample furniture arrangements of typical apartment types are shown in Figure 14. Storage is conveniently located adjacent to open plan living areas, with supplementary storage located within the basement levels. Island benches have been provided to kitchens in 2 and 3 bedroom apartments where possible. Studio apartments have been designed to ensure privacy is offered to areas where beds are located. Refer to Appendix A for further information regarding ADG compliance.

The development provides both social and market housing within each tower. The resulting scheme sets a precedent for combining tenures across the Ivanhoe Masterplan, with a focus on achieving 'tenure blindness'. The proposal ensures the same amenity is offered to residents across all housing types, enabling a diverse range of occupants to co-exist equally.

Tenure	***Dwelling Type***	***Number***	***Mix***
Social	Studio	42	16%
	1B	118	46%
	2B	99	38%
Total		259 (including 25 dual key and 45 ILUs)	
Market	Studio	14	6.5%
	1B	61	29%
	2B	119	56%
	3B	14	6.5%
	4B	4	2%
Total		212	

All social apartments incorporate the Livable Housing Guideline's silver level universal design features, and 5% of market apartments are designed to be wheelchair adaptable.

A variety of housing types are also offered within the development, including terraces and maisonette style apartments as shown in Figure 15. This provides a choice to appeal to varying demographics, and ensure future demands of the area are met.

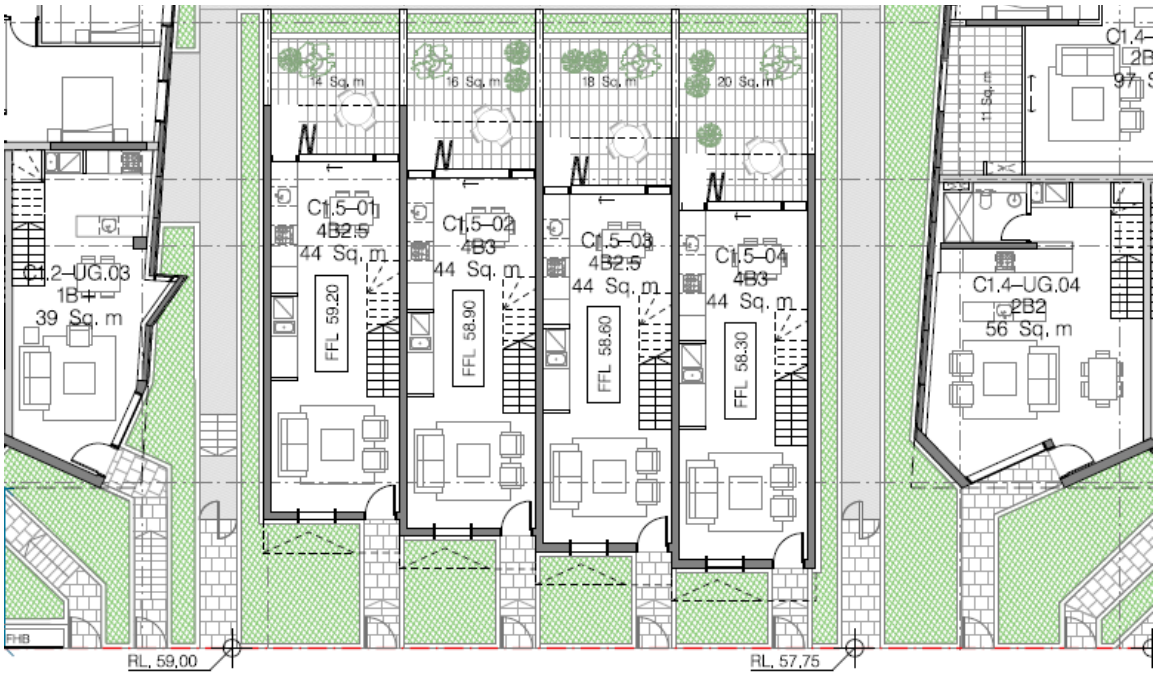


Figure 16 – Terrace and maisonette style apartments offered within the development

PRINCIPLE NO. 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 proposed development is intended to set a precedent for quality design with respect to the future built environment of the Ivanhoe Estate.

Façade articulation has been carefully considered as a means of breaking down the scale of the towers, as well as providing a balanced composition which responds to internal apartment planning. A detailed layering of precast panels, screens, façade recesses and colour have been used to ensure a high quality architectural expression, and offer amenity to apartments as described in Principle No. 6.

Materials including a combination of coloured precast and off-form concrete, aluminium and timber louvres, painted steel and glazing offer a variety of textures and colours which contribute to the overall façade articulation as shown in Figure 17. Warm pink and sandstone hues have been selected as a response to the Masterplan Design Guidelines. These materials are considered appropriate for the local climate, are durable and require low maintenance.

The result is a considered overall building design which responds to the principles of scale, proportion and composition. The façade detail and proposed finishes will offer a positive contribution to the desired future character of the area.

Figure 17 – Perspective view prepared by Doug & Wolf

Off-form concrete

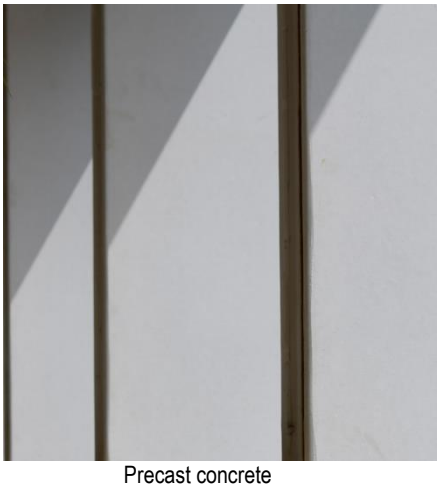
Steel window boxes

Timber louvres

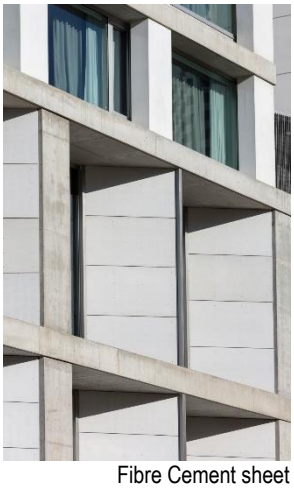
Coloured concrete

Aluminium framed glazing

Aluminium louvres



Precast concrete



Fibre Cement sheet

Coloured concrete

Painted concrete balustrades

Figure 18 – Proposed material palette

North-East (Main Street) Elevation

The Main Street Elevation has been developed in line with the Masterplan Design Guidelines, with the façade protruding above Level 1 and a reduced setback to the lot boundary. The result is a more civic expression fronting Main Street, with generous ground floor entrances.


A – Precast concrete


B – Timber louvres


C – Painted concrete balustrades


D – Aluminium framed glazing


E – Coloured precast concrete

Figure 19 – North-East elevation material palette

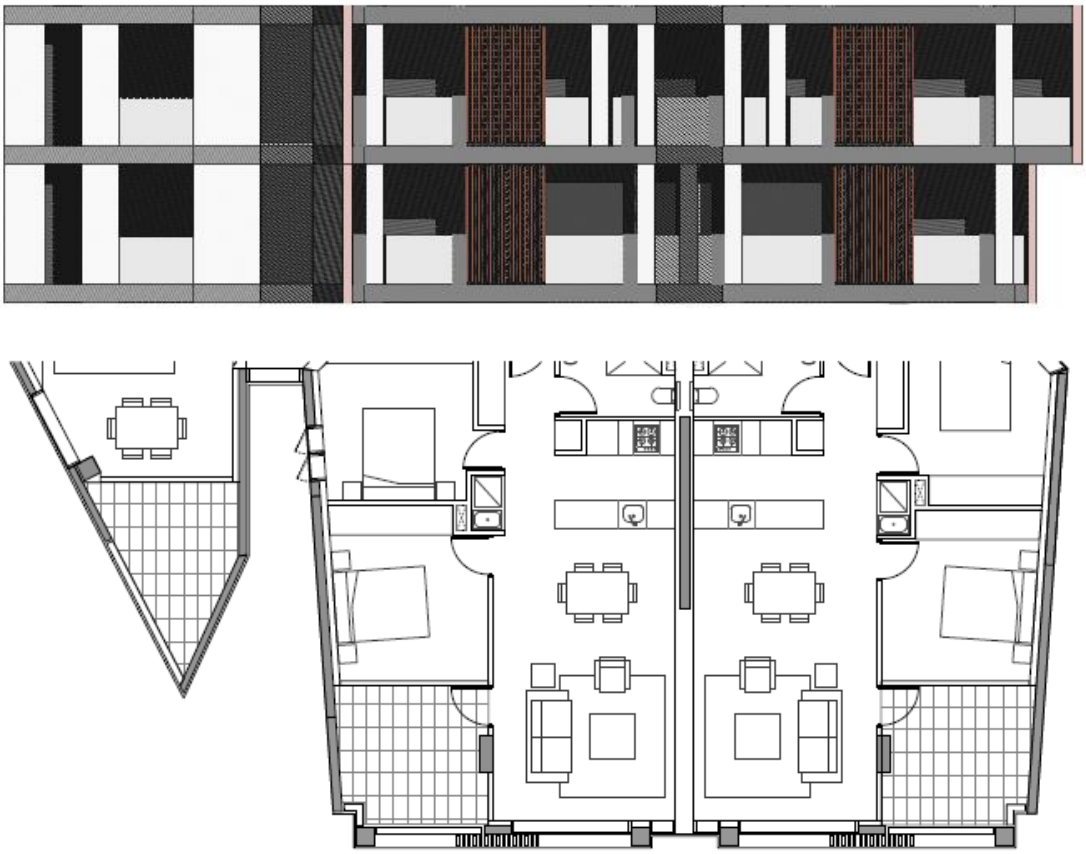


Figure 20 – North-East façade detail

Timber screens are proposed along this façade, to assist with privacy and shading from excess solar gain. There is a subtle shift above Level 5 where the floorplate changes, with an additional 'pop-out' window opening up the corners of the towers to capture the Northern aspect as shown in Figure 19. A dramatic recess between apartments creates opportunity for cross ventilation, with an angled façade designed to capture the critical hours of sunlight between 9am and 11am in midwinter.

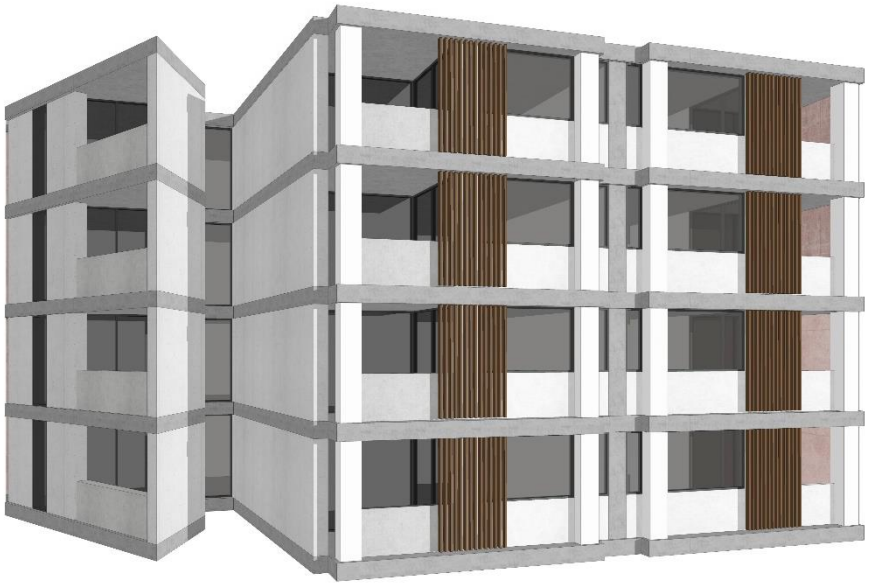


Figure 21 – North-East façade detail

North-West and South-East Elevations

The Eastern and Western elevations facing the Neighbourhood Street and Town Square establish a system of overlapping precast panels to create façade articulation. The use of double height panels on the areas spanning 20 storeys help to mitigate the perceived height of the towers. The resulting composition is of balanced proportions, which carefully reduces the apparent scale of the development.


A – Coloured precast concrete


B – Aluminium framed glazing


C – Painted concrete balustrades


D – Steel window boxes


E – Coloured precast concrete

Figure 22 – North-West elevation material palette

A series of coloured precast panels are layered across these facades, which directly relate to the apartment planning beyond. Openings are maximised to living areas and balconies, with a stepped detail introduced to frame areas of glazing as shown in Figure 22. The result is a façade which appears more solid and private where bedrooms are located, and opens up to enhance outlook to living areas.

Figure 23 – North-West façade detail

Deep recesses are also used on these elevations, as a means of breaking down the massing of the towers. From an amenity perspective, these recesses also allow for cross-ventilating apartments, and offer an external outlook to the ends of common corridors. Steel 'pop-out' window boxes are proposed within the recesses, which project from the apartment to capture sunlight as shown in Figure 23.

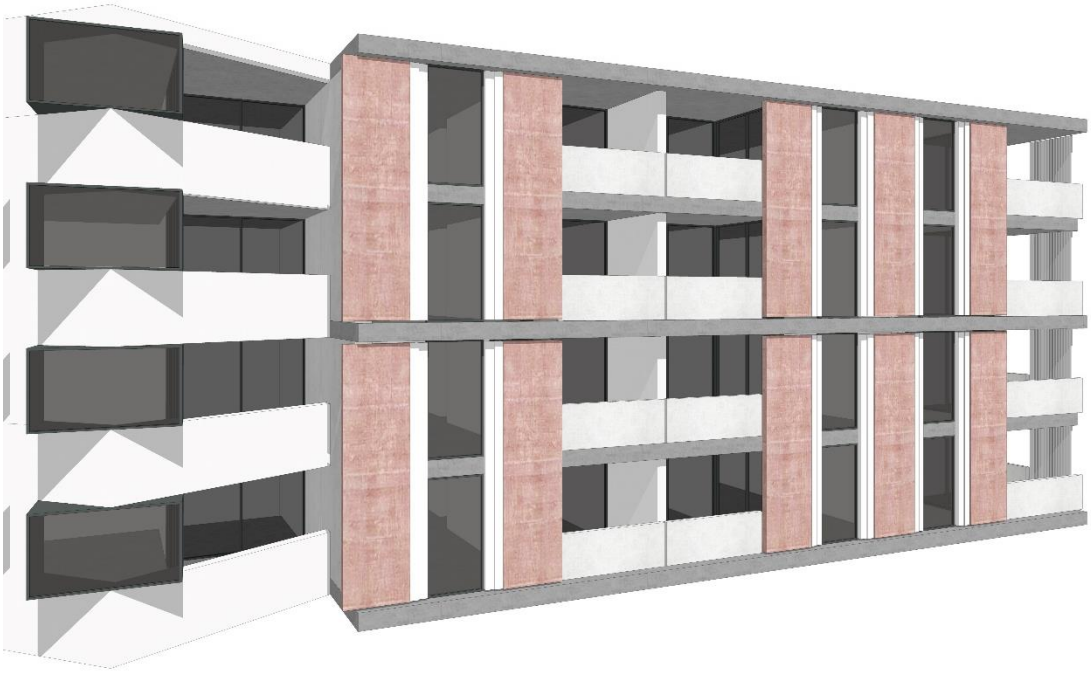


Figure 24 – North-West façade detail

Figure 25– South-East elevation

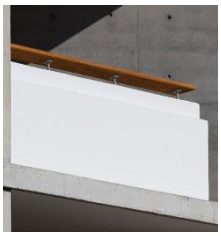
The South-East elevation has more areas of solid panels due to the Southern aspect and a greater number of bedrooms located on the facade.

South-West (Neighbourhood Street) Elevation

The Southern elevation adopts a similar system of two-storey precast panels. The approach is more playful, with various elements projecting and turning across the height of the façade. Being predominantly South facing, the composition is more solid in appearance with façade articulation playing a greater role.


A – Coloured precast concrete


B – Aluminium framed glazing


C – Painted concrete balustrade


D – Aluminium louvres


E – Coloured precast concrete

Figure 26 – South-West elevation material palette

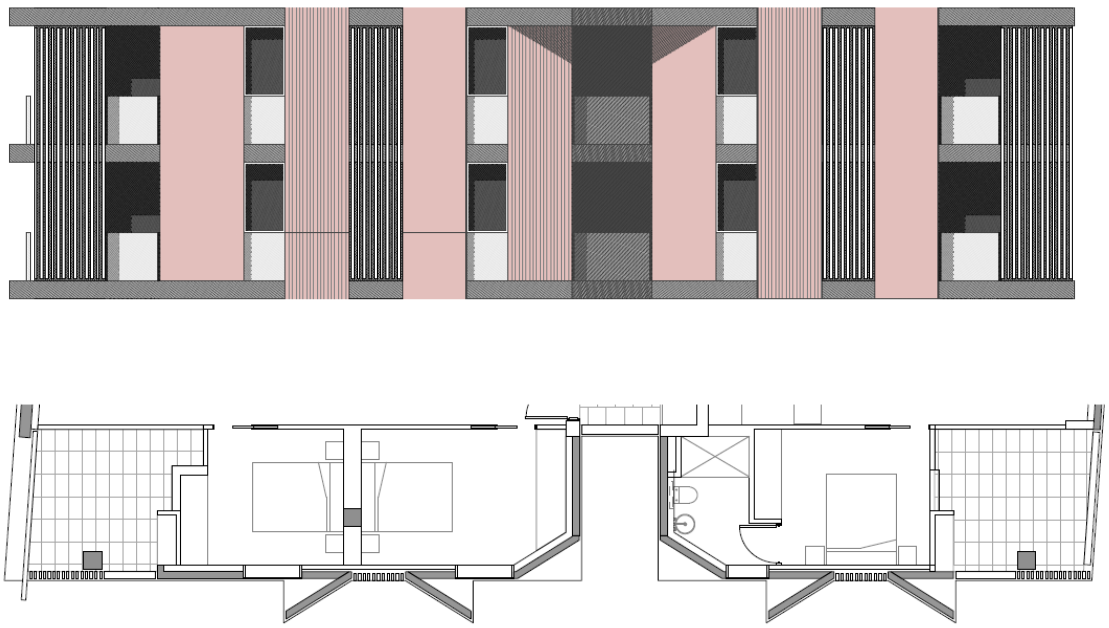


Figure 27 – South-West façade detail

Aluminium louvres have been introduced on this façade to offer privacy as shown in Figure 26. The central deep 'slots' provide an external outlook for common corridors, and align with the expressed entry lobbies at ground. Due to the orientation towards the Neighbourhood Street, a 5m setback to the lot boundary has been respected in line with the Masterplan Design Guidelines.

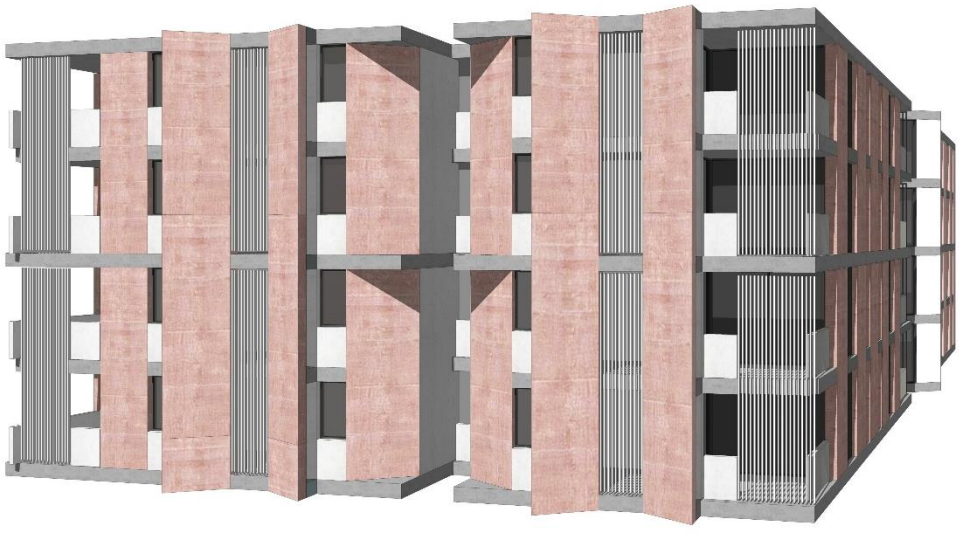
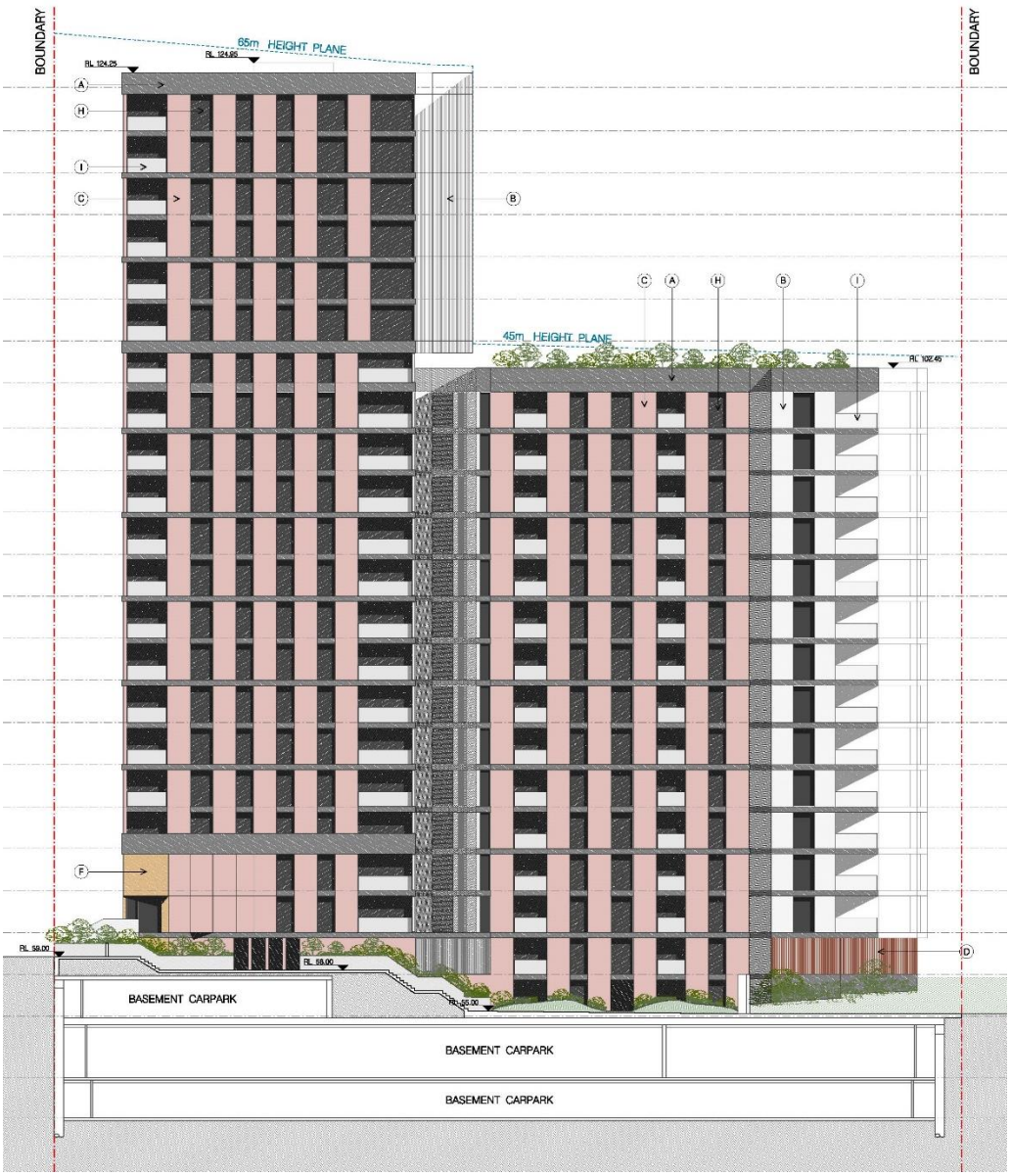


Figure 28 – South-East façade detail

South-East and North-West Internal Elevations

As a result of the massing approach for this particular lot, the internal elevations have been considered in a slightly different manner to the perimeter elevations. An ordered system of coloured precast panels are arranged according to use beyond, and extend to the base of the towers.




B – Precast concrete


C – Coloured precast concrete


D – Timber louvres


H – Aluminium framed glazing

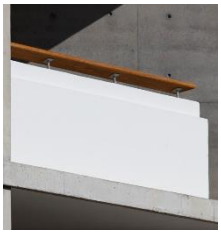

I – Painted concrete balustrades

Figure 29– South-East Internal elevation material palette

Similar to the Eastern and Western elevations, openings are larger to living and balcony areas to maximise outlook. Double storey panels have also been used to break down the scale of the towers. These facades are designed to provide a consistent enclosure framing the communal open space.

Podium

As per the Masterplan Design Guidelines, a two-storey podium expression has been introduced at ground level, to assist the interface between the tower forms and public domain. Landscaping has also been carefully integrated into the design to provide a softening of building edges, as well as offering further amenity to the development.

The façade fronting Main Street is of a more civic nature, with a generous neighbourhood garden and garden wall to the communal open space beyond. Timber louvres are used to add texture and frame recessed entry lobbies.

Figure 30 – Garden wall and entry lobby to the North-East elevation

The podium expression is continued around the West and South elevations fronting Neighbourhood Streets, in the form of maisonette and terrace style apartments. Projecting blade walls channel views and offer outlook down the street, whilst also assisting with privacy as shown in Figure 30. Sandstone coloured precast is used as a 'solid' masonry base, consistent with objectives of the Masterplan Design Guidelines. This also ties in with the sandstone base proposed at neighbouring Lot A1.

Figure 31 – Blade walls and sandstone hues along the North-West elevation

Direct street access is offered to ground level apartments on these frontages, with landscaped planting buffers to offer privacy and amenity. The standalone terraces located between the towers are stepped in both plan and elevation, to deal with level changes and break down massing as shown in Figure 31. As opposed to the Main Street façade, the Neighbourhood Street facades tend to project beyond the principle building line above. The result is a more intimate and human scale suited to the predominantly residential area.

Figure 32 – Terraces and maisonette apartments along the South-West elevation

At the base of the South-eastern boundary, a future community centre outline - which will be subject to further design development and approval - is shown adjacent to the public park. Therefore, the design for this area takes this future development into consideration, where a temporary fibre cement cladding will be applied where the future development will be placed – as shown in figure 32. Planter boxes and extensive planting where considering at the roof of the loading dock and in front of Upper Ground units to minimise heat island effects and improve the amenity of these units.

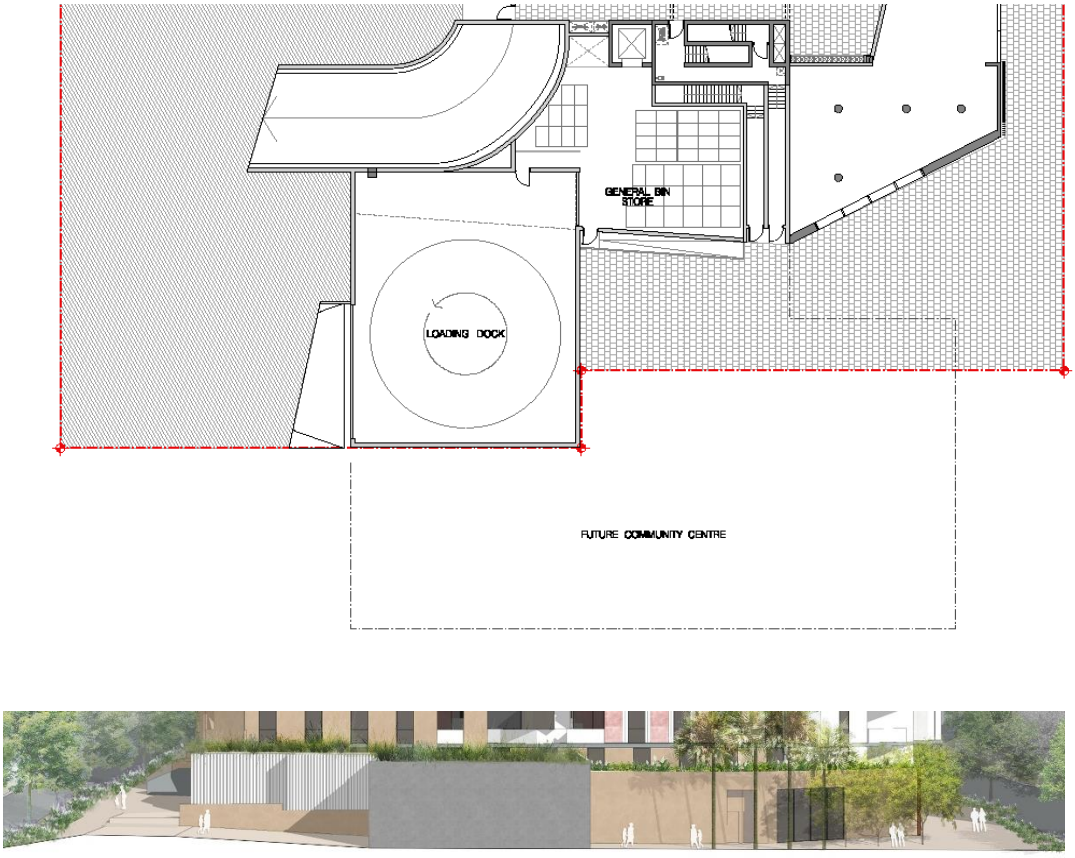


Figure 33 –South-East elevation

The two substations are proposed to be located in the Southern corner of the development, which will be separated from the residential towers, adjacent to the loading dock and carpark entries. Carpark entries have also been carefully integrated into the façade design to ensure they do not adversely impact the public domain.

APPENDIX A: COMPLIANCE TABLE | SEPP 65 APARTMENT DESIGN GUIDE

ADG CRITERIA	COMPLIANCE
Part 3: SITING THE DEVELOPMENT	
3A Site Analysis	
Objective 3A-1 *Site analysis illustrates that design decisions have been based on opportunities and constraints of the site conditions and their relationship to the surrounding context.*	Complies. Refer to Principle No. 1 within this report.
3B Orientation	
Objective 3B-1 *Building types and layouts respond to the streetscape and site while optimising solar access within the development.*	Complies. Refer to Principle No. 2 within this report.
Objective 3B-2 *Overshadowing of neighbouring properties is minimised during mid-winter.*	Complies. Overall massing has been coordinated across the Masterplan to minimise impacts of overshadowing.
3C Public Domain Interface	
Objective 3C-1 *Transition between private and public domain is achieved without compromising safety and security.*	Complies. Refer to Principle No. 7 within this report.
Objective 3C-2 *Amenity of the public domain is retained and enhanced.*	Complies.
3D Communal & Public Open Space	
Objective 3D- 1 *An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping.* *Design Criteria* *1. Communal open space has a minimum area equal to 25% of the site.* *2. Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9am and 3pm on 21 June (mid winter).*	Variation. 864sqm of communal open space is provided at ground level which has controlled access for use by residents. A minimum of 2 hours of sunlight is available to 50% of this area during mid winter. When the public communal open space is considered as per the Masterplan Design Guidelines (including the Neighbourhood Garden facing Main Street), a total of 1716sqm of communal open space is provided. This equates to 28% of the site area.
Objective 3D-2 *Communal open space is designed to allow for a range of activities, respond to site conditions and be attractive and inviting.*	Complies. Refer to documentation prepared by Hassell.

ADG CRITERIA	COMPLIANCE
Objective 3D-3 *Communal open space is designed to maximise safety.*	Complies. Access is controlled via gates to the main communal open area.
Objective 3D-4 *Public open space, where provided, is responsive to the existing pattern and uses of the neighbourhood.*	Complies. Responds to proposed neighbourhood uses as part of the Ivanhoe Masterplan.
3E Deep Soil Zones	
Objective 3E-1 *Deep soil zones provide areas on the site that allow for and support healthy plant and tree growth. They improve residential amenity and promote management of water and air quality.* *Design Criteria* *1. Deep soil zones for sites >1500sqm are to meet a minimum dimension of 6m at 7% of the site area.*	Variation. Deep soil zones are provided in alternative locations around the Ivanhoe Masterplan to meet site-wide requirements.
3F Visual Privacy	
Objective 3F-1 *Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy.* *Design Criteria* *1. Separation between windows and balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows: over 25m (9+ storeys)* *12m between habitable rooms and balconies* *6m between non-habitable rooms.*	Complies. 24m building separation is maintained to neighbouring Lots B1 and D1 to the North and South respectively. Variation. Average building separation distances of 24m are maintained to neighbouring Lot A2 to the West. Adjacent buildings in future stages are to incorporate privacy screens to address building separation distances.
Objective 3F-2 *Site and building design elements increase privacy without compromising access to light and air and balance outlook and views from habitable rooms and private open space.*	Complies. Screens and blade walls are utilised on the façade to achieve this. Refer to Principle No. 6 within this report.
3G Pedestrian Access and Entries	
Objective 3G-1 *Building entries and pedestrian access connects to and addresses the public domain.*	Complies.
Objective 3G-2 *Access, entries and pathways are accessible and easy to identify.*	Complies.
Objective 3G-3 *Large sites provide pedestrian links for access to streets and connection to destinations.*	Complies. An access controlled through site link is available for residents via the communal open space.

ADG CRITERIA	COMPLIANCE
3H Vehicle Access	
Objective 3H-1 *Vehicle access points are designed and located to achieve safety, minimise conflicts between pedestrians and vehicles and create high quality streetscapes.*	Complies. Carpark entries are integrated into the ground level façade.
3J Bicycle and Car Parking	
Objective 3J-1 *Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas.*	Complies. Based on Ryde Council DCP rates.
Objective 3J-2 *Parking and facilities are provided for other modes of transport.*	Complies. Bicycle storage is incorporated in the basement.
Objective 3J-3 *Car park design and access is safe and secure.*	Complies.
Objective 3J-4 *Visual and environmental impacts of underground car parking are minimised.*	Complies.
Objective 3J-5 *Visual and environmental impacts of on-grade car parking are minimised.*	Not applicable. No on-grade car parking provided.
Objective 3J-6 *Visual and environmental impacts of above ground enclosed car parking are minimised.*	Not applicable. No above ground car parking provided.
Part 4: DESIGNING THE BUILDING	
4A Solar and Daylight Access	
Objective 4A-1 *To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space.* *Design Criteria* *1. Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9am and 3pm at midwinter.* *3. A maximum of 15% of apartments in a building receive no direct sunlight between 9am and 3pm at midwinter.*	1. Complies. 70% of apartments receive a minimum of 2 hours of direct sunlight between 9am and 3pm at midwinter. 3. Variation. 21% of apartments receive no direct sunlight between 9am and 3pm at midwinter. The building orientation was prioritised to maximise the number of apartments receiving a minimum 2 hours of sunlight midwinter. This resulted in an increased number of apartments receiving no sunlight midwinter. This requirement at the winter solstice represents the 'worst case' scenario. For the remainder of the year, the solar performance of the building will improve significantly.
Objective 4A-2 *Daylight access is maximised where sunlight is limited.*	Complies. Glazing is increased to living areas to ensure adequate daylight access is available.

ADG CRITERIA	COMPLIANCE
Objective 4A-3 *Design incorporates shading and glare control, particularly for warmer months.*	Complies. Façade includes use of screening, recesses and louvres to assist with shading. Refer to Principle No. 6 within this report.
4B Natural Ventilation	
Objective 4B-1 *All habitable rooms are naturally ventilated.*	Complies.
Objective 4B-2 *The layout and design of single aspect apartments maximises natural ventilation.*	Complies.
Objective 4B-3 *The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents.*	Complies.
4C Ceiling Heights	
Objective 4C-1 *Ceiling height achieves sufficient natural ventilation and daylight access.* *Design Criteria* *1. Measured from finished floor level to finished ceiling level, minimum ceiling heights are:* *Habitable rooms 2.7m* *Non-habitable 2.4m* *Mixed use 3.3m for ground and first floor*	Complies. 2.7m and 2.4m ceiling heights are provided for habitable and non-habitable rooms respectively. Variation. 3.3m is not provided for ground and first floor which consists largely of social housing. The likelihood of social housing being converted to an alternative use is very low. Areas provided for retail tenancy at ground level have an increased ceiling height.
Objective 4C-2 *Ceiling height increases the sense of space and provides for well proportioned rooms.*	Complies.
Objective 4C-3 *Ceiling heights contribute to the flexibility of building use over the life of the building.*	Complies.
4D Apartment Size and Layout	
Objective 4D-1 *The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity.* *Design Criteria* *1. Apartments are required to have the following minimum internal areas:* *Studio 35sqm* *1B 50sqm* *2B 70sqm* *3B 90sqm* *The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5sqm each.*	Complies.

ADG CRITERIA	COMPLIANCE
2. Every habitable room must have a window in an external wall with a total minimum glass area of not less than 10% of the floor area of the room. Daylight and air may not be borrowed from other rooms.	Complies.
Objective 4D-2 *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 (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window.*	Complies.
Objective 4D-3 *Apartment layouts are designed to accommodate a variety of household activities and needs.* *Design Criteria* *1. Master bedrooms have a minimum area of 10sqm and other bedrooms 9sqm (excluding wardrobe space).* *2. Bedrooms have a minimum dimension of 3m (excluding wardrobe space).* *3. Living rooms or combined living/dining rooms have a minimum width of:* *3.6m for studio and 1B* *4m for 2B and 3B* *4. The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts.*	Complies.
4E Private Open Space and Balconies	
Objective 4E-1 *Apartments provide appropriately sized private open space and balconies to enhance residential amenity.* *Design Criteria* *1. All apartments are required to have primary balconies as follows:* *Studio 4sqm* *1B 8sqm min. depth 2m* *2B 10sqm min. depth 2m* *3B+ 12sqm min. depth 2.4m* *2. For apartments at ground level or on a podium or similar structure, a private open space is provided instead of a balcony. It must have a minimum area of 15sqm and a minimum depth of 3m.*	Variation. Podium level social apartments facing the communal open space do not have 15sqm of private open space. There is ample borrowed amenity for these apartments as a result of the outlook available to the communal open space. All balconies have been carefully integrated into the façade design of the building. Further all balconies can meet the appropriate functional requirements for an outdoor living area.
Objective 4E-2 *Primary private open space and balconies are appropriately located to enhance liveability for residents.*	Complies. All private open space is located directly adjacent to living areas.

ADG CRITERIA	COMPLIANCE
Objective 4E-3 *Private open space and balcony design is integrated into and contributes to the overall architectural form and detail of the building.*	Complies. Inset balconies contribute to overall façade articulation.
Objective 4E-4 *Private open space and balcony design maximises safety.*	Complies.
4F Common Circulation and Spaces	
Objective 4F-1 *Common circulation spaces achieve good amenity and properly service the number of apartments.* *Design Criteria* *1. The maximum number of apartments off a circulation core on a single level is eight.* *2. For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40.*	Complies. All common corridors and lobbies offer an external outlook. Variation. 59 social apartments share a single lift in Tower 1. 58 social apartments share a single lift in Tower 2. 52 market apartments share a single lift in Tower 1. 52 market apartments share a single lift in Tower 2. No more than 12 apartments are provided off a circulation core on a single level. Refer to letter CA-V01 prepared by WSP dated 19/2/18.
Objective 4F-2 *Common circulation spaces promote safety and provide for social interaction between residents.*	Complies.
4G Storage	
Objective 4G-1 *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:* *Studio 4cbm* *1B 6cbm* *2B 8cbm* *3B 10cbm* *At least 50% of the required storage is to be located within the apartment.*	Complies.
Objective 4G-2 *Additional storage is conveniently located, accessible and nominated for individual apartments.*	Complies. Additional storage located in basement levels adjacent to carspaces or in dedicated storage areas.
4H Acoustic Privacy	
Objective 4H-1 *Noise transfer is minimised through the siting of buildings and building layout.*	Complies.
Objective 4H-2 *Noise impacts are mitigated within apartments through layout and acoustic treatments.*	Complies. Habitable areas are generally buffered from wet areas through the use of joinery.

ADG CRITERIA	COMPLIANCE
4J Noise Pollution	
Objective 4J-1 *In noisy or hostile environments the impacts of external noise and pollution are minimised through the careful siting and layout of buildings.*	Not applicable.
Objective 4J-2 *Appropriate noise shielding or attenuation techniques for the building design, construction and choice of materials are used to mitigate noise transmission.*	Refer to Acoustic Assessment prepared by Acoustic Logic.
4K Apartment Mix	
Objective 4K-1 *A range of apartment types and sizes is provided to cater for different household types now and into the future.*	Complies. Refer to Principle No. 8 within this report.
Objective 4K-2 *The apartment mix is distributed to suitable locations within the building.*	Complies. Each typical floorplate contains a varied apartment mix.
4L Ground Floor Apartments	
Objective 4L-1 *Street frontage activity is maximised where ground floor apartments are located.*	Complies. Ground floor apartments have direct access to neighbourhood streets or overlook the communal open area.
Objective 4L-2 *Design of ground floor apartments delivers amenity and safety for residents.*	Complies. Street access is controlled by gates and planting buffers. Passive surveillance of the public domain is also available.
4M Facades	
Objective 4M-1 *Building facades provide visual interest along the street while respecting the character of the local area.*	Complies. Refer to Principle No. 9 within this report.
Objective 4M-2 *Building functions are expressed by the façade.*	Complies.
4N Roof Design	
Objective 4N-1 *Roof treatments are integrated into the building design and positively respond to the street.*	Complies. Planting on roofs provides a 'softening' of the building edge, in addition to providing visual interest from the public domain.
Objective 4N-2 *Opportunities to use roof space for residential accommodation and open space are maximised.*	Complies. Landscaped roofs are visually accessible to apartments above Level 13 and above loading dock and along Lower Ground roof along South-Eastern boundary.

ADG CRITERIA	COMPLIANCE
Objective 4N-3 *Roof design incorporates sustainability features.*	Complies. Planting is accommodated at the Level 13 roof to mitigate the urban heat island effect, and PV cells are proposed for the roofs over the Market towers.
4O Landscape Design	
Objective 4O-1 *Landscape design is viable and sustainable.*	Complies. Refer to documentation prepared by Hassell.
Objective 4O-2 *Landscape design contributes to the streetscape and amenity.*	Complies. Refer to documentation prepared by Hassell.
4P Planting on Structures	
Objective 4P-1 *Appropriate soil profiles are provided.*	Complies. Refer to documentation prepared by Hassell.
Objective 4P-2 *Plant growth is optimised with appropriate selection and maintenance.*	Complies. Refer to documentation prepared by Hassell.
Objective 4P-3 *Planting on structures contributes to the quality and amenity of communal and public open spaces.*	Complies. Refer to documentation prepared by Hassell.
4Q Universal Design	
Objective 4Q-1 *Universal design features are included in apartment design to promote flexible housing for all community members.*	Complies. All social housing meets Silver Level standards of Livable Housing Australia Design Guidelines and adaptable apartments are provided within market housing.
Objective 4Q-2 *A variety of apartments with adaptable designs are provided.*	Complies. Refer to Principle No. 8 within this report.
Objective 4Q-3 *Apartment layouts are flexible and accommodate a range of lifestyle needs.*	Complies. Refer to Principle No. 8 within this report.
4R Adaptive Reuse	
Objective 4R-1 *New additions to existing buildings are contemporary and complementary and enhance an area's identity and sense of place.*	Not applicable.
Objective 4R-2 *Adapted buildings provide residential amenity while not precluding future adaptive reuse.*	Not applicable.

ADG CRITERIA	COMPLIANCE
4S Mixed Use	
Objective 4S-1 *Mixed use developments are provided in appropriate locations and provide active street frontages that encourage pedestrian movement.*	Complies.
Objective 4S-2 *Residential levels of the building are integrated within the development, and safety and amenity are maximised for residents.*	Complies.
4T Awnings and Signage	
Objective 4T-1 *Awnings are well located and complement and integrate with the building design.*	Complies.
Objective 4T-2 *Signage responds to the context and desired streetscape character.*	Complies.
4U Energy Efficiency	
Objective 4U-1 *Development incorporates passive environmental design.*	Complies. Refer to Principle No. 4 within this report.
Objective 4U-2 *Development incorporates passive solar design to optimise heat storage in winter and reduce heat transfer in summer.*	Complies. Refer to Principle No. 4 within this report.
Objective 4U-3 *Adequate natural ventilation minimises the need for mechanical ventilation.*	Complies. Mechanical ventilation is provided to market apartments only. Social apartments to have mechanical ventilation provision.
4V Water Management and Conservation	
Objective 4V-1 *Potable water use is minimised.*	Refer to Environment Report prepared by WSP.
Objective 4V-2 *Urban stormwater is treated on site before being discharged to receiving waters.*	Refer to Stormwater and Drainage Assessment prepared by ADW Johnson.
Objective 4V-3 *Flood management systems are integrated into site design.*	Refer to Flood Impact Assessment prepared by BMT WBM.
4W Waste Management	
Objective 4W-1 *Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents.*	Complies. Temporary waste rooms are provided at the basement level 3 and a residential bin storage is provided at Lower Ground level adjacent to the loading dock for Council garbage truck collection.

ADG CRITERIA	COMPLIANCE
	Refer to Waste Management plan prepared by Elephants Foot.
Objective 4W-2 *Domestic waste is minimised by providing safe and convenient source separation and recycling.*	Complies. Waste chutes located conveniently adjacent to lift cores. Refer to Waste Management plan prepared by Elephants Foot.
4X Building Maintenance	
Objective 4X-1 *Building design detail provides protection from weathering.*	Complies. Recesses within the façade, as well as screening and blade walls assist with weather protection.
Objective 4X-2 *Systems and access enable ease of maintenance.*	Complies.
Objective 4X-3 *Material selection reduces ongoing maintenance costs.*	Complies.

APPENDIX B: RESPONSE TO MASTERPLAN DESIGN GUIDELINES

OBJECTIVES	PROVISIONS	RESPONSE
01 North East Development Lots (B1-B2)		
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.*	*1. Lot B1 / B2 should be separated into three discrete buildings.* *2. Building separation should be sufficient width to provide a pedestrian and cycle connection to Peach Tree Avenue.*	Lot C1 is not impacted by this control. The proposed design of Lot C1 does not restrict future lots from complying with this control.
02 Public and Communal Open Space		
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.*	*1. The Shrimptons Creek Corridor is to be embellished and dedicated to Council as public open space.* *2. A Village Green of 3,300sqm usable area should be provided between Lots C1 and C3. The remainder should be landscaped roof to building C2.* *3. A Forest Playground of 3,900sqm 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 Lots A1 and B3 which are not required to provide public or communal open space.*	Retail is provided at the base of Lot C1 at tower 2 adjoining the main street. Approximately 1716sqm is offered as both public and communal open space between the towers. This equates to 28% of the site area.
03 Deep Soil Zones		
A. To retain existing mature trees and support healthy tree growth. *B. To provide passive recreation opportunities.* *C. To promote management of water and air quality.*	*1. The area of deep soil within site, excluding RE1 zoned land, should be no less than 15%.* 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 3m is acceptable.*	Lot C1 is unable to achieve deep soil planting within the lot boundary. A precinct-wide approach has been adopted for deep soil planting given the large areas of public domain being delivered in future stages. The proposed design of Lot C1 does not prevent the masterplan from complying with this control.
04 Public Domain Interface		
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.*	*1. When fronting streets: terraces, balconies and courtyard apartments should have direct street entry, wherever possible.* *2. Apartments, balconies and courtyards fronting the Shrimptons Creek landscape corridor, Epping Road landscape corridor, or Village Green*	Ground floor apartments are provided with direct street entries. The proposed communal open space has controlled access from the public domain. The setback of the C1 communal open space offers a

OBJECTIVES	PROVISIONS	RESPONSE
C. To maximise the amenity of new streets and public open spaces.	*should be physically separated but provide passive surveillance.* *3. Community and retail uses should provide an active frontage to the Village Green.* *4. Communal open space should be clearly defined and separate from the public domain.*	higher amenity to the public domain along Main Street, allowing for the introduction of a Neighbourhood Garden.
05 Active Frontages		
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.*	*1. Buildings A1 and B3 should accommodate a childcare centre at ground level.* *2. Buildings B2 and C3 should provide community 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. Two-storey residential typologies should be considered on street frontages of apartment buildings fronting neighbourhood streets.*	Retail tenancies are provided along the base of C1 fronting the Town Square. Ground floor apartments are provided with direct street entries. 2-3 storey maisonette and terrace style apartments are offered at ground levels activating Neighbourhood streets and providing passive surveillance.
06 Pedestrian and Vehicular Entry Locations		
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.*	*1. Primary building entries should address the street.* *2. Vehicle entries should avoid Main Street where possible.* *3. Internal loading docks will be shared wherever possible to limit the amount of driveways to improve public amenity and streetscapes.* *4. Loading docks will be used for both garbage collection and move ins / move outs where possible.* *5. Where internal dedicated loading docks are not possible, on-street loading zones will be discretely located near building entries.*	The entry lobbies to C1 face Main Street to the North and the Neighbourhood Street to the South. Vehicular entries have been located off Neighbourhood Streets to the West and South.
07 Street Wall Height		
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.*	*1. On residential streets, buildings should express a 2-4 storey scale on the lowest levels of the building.*	A 2 storey podium expression has been introduced around the base of the C1 towers fronting the public domain. Refer to Principle No. 9 within this report for further detail.
08 Ground Level Street Setbacks		
A. To provide buildings that positively contribute to the physical definition of the public domain.	*1. On residential streets, the lower levels of buildings can be built to the lot boundary.*	The standalone terraces fronting Neighbourhood Street have been brought forward towards the lot boundary to the

OBJECTIVES	PROVISIONS	RESPONSE
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.*	*2. On Main Street, the lower levels of buildings should be setback a minimum of 2m from the lot boundary on average.* *3. On residential streets, any setback zone should be landscaped to balance street activation and residential amenity.*	South. Landscaped planting buffers are proposed between ground floor apartments and the public domain. On average, a 2m setback is maintained facing Main Street.
09 Upper Level Setbacks		
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.*	*1. On residential streets, upper floors of buildings should be setback 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.*	Upper floors have an average setback of 5m to the lot boundary to the South and West fronting Neighbourhood Streets. A reduced setback is proposed fronting Main Street to the North, whilst maintaining SEPP65 building separation requirements.
10 Rooftops		
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.*	*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.*	The roof space of Level 13 is utilised as an inaccessible landscaped roof. The landscaping will assist to shield rooftop plant, and mitigate the urban heat island effect. PV cells are proposed on the upper level roofs above the Market towers.
11 Façade Expression and Materials		
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.*	*1. The lower levels of residential buildings should use masonry as the predominant façade material.* *2. White render should be avoided as the primary façade material.* *3. Façade materials should be self-finished, durable and low maintenance.* *4. Use of colour in building facades should focus on warm, naturally occurring hues.*	Precast concrete is proposed as the predominant façade material, featuring warm sandstone and pink hues. Refer to Principle No. 9 within this report for further detail.
12 Design Excellence		
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.*	*1. Architects should be selected from the Government Architect's 'Pre-qualification Scheme for Strategy and Design Excellence' or collaborate with a pre-qualified Architect.* *2. No architect can design more than five blocks.* *3. All detailed development applications should be designed in accordance with the principles of 'Better Placed'.*	Candalepas Associates is listed under the Government Architect's Pre-Qualification Scheme for Strategy and Design Excellence. The design has been developed in accordance with the principles outlined in 'Better Placed'.

OBJECTIVES	PROVISIONS	RESPONSE
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.	*4. Each residential building will be designed to achieve a 5 Star Green Star Design & As Built rating.*	The building will achieve a 5 Star Green Star Design & As Built Rating. Refer to Environment Report prepared by WSP for further detail.
13 Universal Design		
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.*	*1. 100% of social dwellings should incorporate the Livable 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.*	All social dwellings in C1 meet silver level standard of the Livable Housing Guideline. 5% of market dwellings are designed to be wheelchair adaptable.

APPENDIX C: RESPONSE TO DESIGN EXCELLENCE REVIEW

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 C1 through this process. The review panel responded positively to the scheme presented.

ITEM NO.	DESIGN REVIEW PANEL COMMENTS	RESPONSE
Lot C1		
1	*Angelo Candalepas presented the concept of building C1 and the design development process of C1 addressing the challenges of the density, solar and mixed tenures. Angelo also presented how the building design has addressed the Ivanhoe Estate Design Guidelines.*	Note.
2	*The architect has maximised the solar access to the North Western facades by adopting the 9am to 11am solar angle to generate the built form.*	Proposal was received positively by the review panel and will be further developed during the Design Development phase.
3	*Georgia from Hassell has presented the communal open space for building C1 and its interface with C1 building.*	Proposal was received positively by the review panel and will be further developed with Hassell during the Design Development phase.
4	*The panel queried about deep soil zones and the quality of planting in the communal open space. The panel recommended the project team to review the soil depth to allow for trees to mature in the future.*	Mounding has been utilised within the communal open space to ensure adequate soil depths are provided for mature trees. This will be further developed with Hassell during the Design Development phase.
5	*The panel queried the level changes within the communal open space. The panel suggested more definition between the public and private spaces.*	The standalone market terraces have been raised above the surrounding communal open space. Planter boxes have also been used to mediate between public and private open spaces. This will be further developed with Hassell during the Design Development phase.
6	*All attendees commended the architect's choice of the earthy pink colour of C1 façade, the proposed materials palette and façade detailing.*	Proposal was received positively by the review panel and will be further developed during the Design Development phase.
7	*The panel noted that rooftop gardens on Level 13 of the social buildings will not be accessible by residents due to operational preference from Mission Australia Housing and Land and Housing Corporation.*	This approach was accepted by the review panel.
8	*The panel chair queried about bicycle storage and storage cages for all residents. The architect explained that most residents will get a storage cage which doubles up as bicycle storage or they will have separate access to bicycle storage.*	This approach was accepted by the review panel.