TURNER+ASSOCIATES

RESIDENTIAL DEVELOPMENT

128 HERRING ROAD, MACQUARIE PARK

CONCEPT PLAN + PROJECT APPLICATION BUILDING A + PROJECT APPLICATION SUBDIVISION

ARCHITECTURAL STATEMENT INCORPORATING

- STATE ENVIRONMENTAL PLANNING POLICY NO. 65
  – DESIGN QUALITY OF RESIDENTIAL FLAT DEVELOPMENT STATEMENT
- RESIDENTIAL FLAT DESIGN CODE RULES-OF-THUMB SCHEDULE

8 SEPTEMBER 2010

PREFERRED PROJECT REPORT

01 INTRODUCTION

This architectural report covers both a Concept Plan and Project Application submission to the Department of Planning for five buildings at 128 Herring Road Macquarie Park (currently a portion of the Morling College site).

The Concept Plan incorporates five residential buildings constructed on a staged basis. The submission seeks approval for the building envelopes, FSR, and associated basement car parking – plans and elevations are shown for illustrative purposes only. Also included is a new road that will be dedicated to Council.

The Project Application includes details of the first stage – Building A. The proposal includes plan layouts, elevations, materials and investigates the relationship between this building and later stages. Only a portion of the new road is to be constructed in this initial phase.

Also included in the submission is a Project Application for staged subdivision of the land. This report does not directly address the subdivision details of this submission.

LOCATION

The development site is located within Macquarie Park upon land currently owned and used by Morling College. To the north is Macquarie University; the recent approved Concept Plan for this site includes future buildings adjacent to the subject site, rising in height as they progress towards the station. To the south east is Herring Road which will serve the new road (left in; left out). To the north west is University Creek that passes through the curtilage of the site. Beyond the creek is the new, commercial Cochlear Building, currently under construction.

The area is currently experiencing the expansion of both University and commercial facilities; however, there is some residential development within the campus being considered, mostly student accommodation to support the expanding University.

This proposal will provide a range of housing that will support the growth, and will provide students, staff and office workers the opportunity of living in close proximity to their place of work.

USES

The building uses are made up of residential, providing a total of 123 apartments in Building A, with a projected total of around 561 apartments across the five phases. There is a small café / retail unit in Building A on the corner of Herring Road and the new road. Also included in the first stage is a pool, gym, changing facilities and BBQ for use by the residents.

BUILT FORM

The buildings range from 9-storeys to 12-storeys to 15-storeys with some roof top plant. The topography of the site is sloping down towards the creek to the north west, away from Herring Road. These two features will provide a varied roof scape and street scape in terrms of varying levels.

The plans of the buildings vary in size; three of them larger, two smaller. This will add a grain to the development in terms of overall massing.

There are four buildings roughly in a line from Herring Road down to the creek, running parallel to the new road. The fifth building in the last phase is located back up on Herring Road on the south west side of the new road / boulevard.

The built form has been considered in relation to the proposed buildings within the Macquarie University approved Concept Plan. The future massing to the north east and north west uncovers a changing density and character for the area that is respected in the proposal on the subject site. Within the Macquarie University Concept Plan the highest building density occurs around the station at the junction of Herring Road and Waterloo Road, with buildings of varying height and profile radiating outwards from here. The typically smaller footprints of the residential proposal on the subject site provides a coherent transition between the scale of the University and that of the existing suburb.

CONCEPT

The overall design concept has been to provide an approach that considers both the detail of the building at the scale of an individual person interacting with their immediate environment, as well as to consider the overall building form at the city scale, and how the material and formal treatment of the elements give character and definition in the context of Macquarie Park.

The buildings have been broken down vertically into a base, middle and top. This expression is represented by both plane changes in the elevation as well as changes in material from a more solid base to a lighter materiality above.

The composition is further broken down horizontally with vertical recesses in the building facade that not only gives the form clear definition, but also offers opportunity for cross ventilation of the apartments.

Materials used include painted precast and glazing.

A further, detailed commentary on the design philosophy and material selection is given later in the SEPP 65 section 10 of the report on aesthetics.

ESD

The development has been designed to respond to, and respect, the requirements of both BASIX and the Residential Flat Design Code, as well as addressing the requirements of a four star Green Star rating.

Passive environmental considerations include the frequent number of corner apartments, through the implementation of deep recesses that provide a high availability of dual-aspect, cross-ventilated apartments.

Water reuse is implemented through the use of retention tanks.

Refer to the ESD report by Cundall for further detail.

LANDSCAPING

We have developed a considered landscape strategy for the site that takes into consideration the public domain (both existing and proposed) and the communal open space. Also included is an appreciation of, and respect for, the creek's riparian zone.

We have retained as many of the existing trees as possible, as well as providing large areas of uninterrupted, deep soil planting. Much of the existing site grading has been retained to ensure a seamless junction with the public domain as well as existing neighbouring sites.

All planters on slabs are designed to a minimum depth that allows for mature tree planting.

A single, new boulevard leads into the site. In the short term this will end with a turning circle / plaza, but is so located to allow for roads to connect from the southwest, should the future road network require it.

A new public through-site link is proposed between Building B and C, linking the new street with the University land behind.

For further background on the landscaping strategy, refer to the separate reports by Turf Design Studios, Total Earth Care and Treescan Urban Forest.

ALTERNATIVES

A number of alternatives for the overall site strategy were considered, including the implementation of four, as opposed to five, buildings, as well as alternative road configurations.

In terms of the buildings themselves, differing sizes on plan, as well as differing heights in storeys were tested.

Following these investigations, it was decided that the current configuration best related to the natural topography and gave the best overall urban form.

Further detail on all aspects of the design concept and its development are contained in the following report that responds to the 10 principles of SEPP 65.

02

SEPP 65 STATEMENT

AERIAL VIEW

PRINCIPLE	DESIGN QUALITY	PROPOSAL
1	**CONTEXT**	
	Good design responds and contributes to its context. Context can be defined as the key natural and built features of an area. Responding to context involves identifying the desirable elements of a location's current character or in the case of precincts undergoing a transition, the desired future character as stated in planning and design policies. New buildings will thereby contribute to the quality and identity of the area.	• The development site is located within Macquarie Park upon land currently owned and used by Morling College. • To the north is Macquarie University; the recent approved masterplan for this site includes future buildings adjacent to the site, rising in height as they progress towards the station. • To the south east is Herring Road which will serve the new road (left in; left out). • To the north west is University Creek that lies within the curtilage of the site. Beyond this is the new, commercial Cochlear Building on Macquarie University land, currently under construction. • There is no existing predominant character as there is a variety of uses in the area including educational, commercial office, retail, and residential. • The character of adjacent future buildings is largely unknown as the neighbouring Concept Plan was an approval for envelopes only. • The new buildings in this proposal aim to use many natural materials to help respect the nature that immediately surrounds the site. • The proposal respects the creek and its associated riparian zone, both by keeping physically separated and by allowing low flow water run off to be cleansed before it reaches the watercourse.

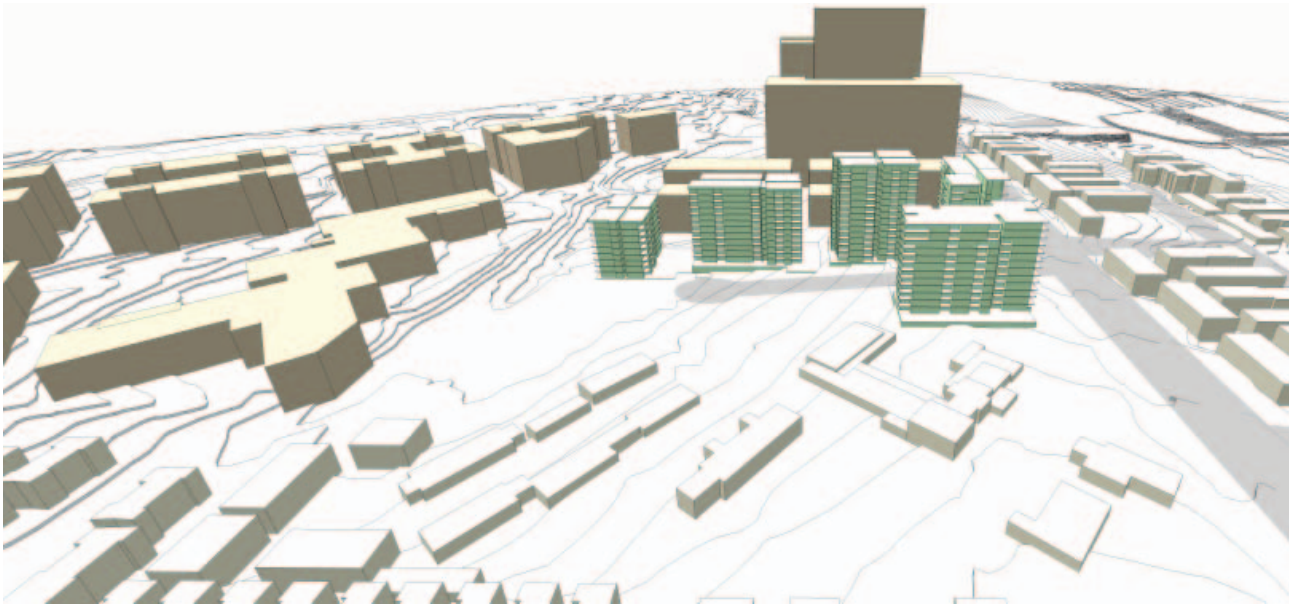
VIEW TOWARDS THE CBD

PRINCIPLE	DESIGN QUALITY	PROPOSAL
2	**SCALE**	
	Good design provides an appropriate scale in terms of bulk and height that suits the scale of the street and the surrounding buildings. Establishing an appropriate scale requires a considered response to the scale of existing development. In precincts undergoing a transition, proposed bulk and height needs to achieve the scale identified for the desired future character of the area.	• The proposed buildings heights respond to the proposed heights contained in the approved Macquarie University masterplan to the north east. These range from 4- to 27-commercial storeys (nominally 17 to 97 metres). Building A is 12- residential storeys (nominally 36 metres) (later stages vary from 9-storeys to 15-storeys). • The existing immediate context includes building heights ranging from single storey to 3-storeys. • The building design responds to both the existing and future scale of the area by using volumetric and surface design initiatives that reduce the perceived scale; this is achieved through implementing devices that tie together multiple storeys into single legible elements. • The topography of the site is sloping down to the north west, away from Herring Road. This has the effect of giving the buildings a varying roofscape as they step their way down towards the creek. • The large setbacks and retention of much of the existing topography and trees will ensure that the built form will sit well within the existing context.

SKETCH VIEW OF BUILDING BASE

PRINCIPLE	DESIGN QUALITY	PROPOSAL
3	**BUILT FORM**	
	Good design achieves an appropriate built form for a site and the building's purpose, in terms of building alignments, proportions, building type and manipulation of building's elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.	• The overall built form composition consists of five buildings generally of 9-storeys, 12-storeys and 15-storeys (three are an additional storey for a portion where the podium is exposed in part due to the topography as the slope allows in part for an additional level). The buildings step down the hill, giving a varied roof scape. • The footprints of the buildings vary in size; three of them larger, two smaller. This will add a grain to the development in terms of overall massing. • Gaps between the buildings of 15 to 23.5 metres gives the opportunity of vistas through the site, as well as maining the solar access to neighbouring buildings for a minimum of 2 hours a day. • The new street offers a continuous vista from Herring Road down to the riparian zone, as well as offering new pedestrian links to neighbouring areas. • The built form of Building A responds to both the existing and future surrounding buildings by the introduction of a clear 3-storey base when viewed from Herring Road; this gives a human scale to the street that helps the transition with the public domain and existing buildings. • The sloping topography allows for the car parks to be easily accessed, while being largely hidden within the hillside. The car park podium steps its way through the site, in deference to the topography. Some later buildings share car park entries to minimise the entries along the new boulevard. • All buildings are broken down in scale and form to give modulated surfaces and forms that give appropriate articulation and proportion to their constituent parts. • The built form has been considered in relation to the proposed buildings within the Macquarie University approved Concept Plan. The future massing to the north east and north west uncovers a changing density and character for the area that is respected in the proposal on the subject site. • All apartments have good views, taking advantage of vistas of the local area as well as towards the city.

PRINCIPLE	DESIGN QUALITY	PROPOSAL
4	**DENSITY**	
	Good design has a density appropriate for a site and its context, in terms of floor space yields (or number of units or residents). Appropriate densities are sustainable and consistent with the existing density in an area or, in precincts undergoing a transition, are consistent with the stated desired future density. Sustainable densities respond to the regional context, availability of infrastructure, public transport, community facilities and environmental quality.	• The overall FSR for the five buildings is 2.66:1, inclusive of roads, with a total GFA of 45,718sqm on 17,173sqm of land. • The Project Application for Building A reflects an **FSR of 2.4:1**, inclusive of roads. • There are 123 apartments within Building A with a total of around 561 across all five buildings. • The future surrounding developments will be of a comparative density. • There are existing facilities nearby to support the proposed densities, including the University, colleges, retail, the large shopping centre, parks, workplaces and rail station. • There is a good existing bus and rail network nearby.



MASSING IN ITS CONTEXT

PRINCIPLE	DESIGN QUALITY	PROPOSAL
5	**RESOURCE, ENERGY AND WATER EFFICIENCY**	
	Good design makes efficient use of natural resources, energy and water throughout its full life cycle, including construction. Sustainability is integral to the design process. Aspects include demolition of existing structures, recycling of materials, selection of appropriate and sustainable materials, adaptability and reuse of buildings, layouts and built form, passive solar design principles, efficient appliances and mechanical services, soil zones for vegetation and reuse of water.	• The development is designed to embrace ESD principles. The use of appropriate built form generates 72.4% cross-ventilated apartments for Building A. • The massing, internal layouts and orientation have been organised so as to provide good natural daylighting into the primary living spaces, external living areas and courtyards. • The north elevation of Building A incorporates sliding louvre panels for solar control and privacy. • Energy efficient appliances and water efficient devices will be specified to minimise water consumption of resources. • Gas boosted solar hot water will be utilised. • The development will include tanks for the retention of stormwater to be re-used for irrigation. • The low-flow stormwater runoff will be cleansed before it reaches the riparian zone and watercourse. • The development provides much needed housing for those who frequent the local university and colleges, as well as workplaces, thereby reducing the amount of transport required should those people be forced to live elsewhere. • Refer to ESD report and BASIX certificates by Cundall for further information.

PRINCIPLE	DESIGN QUALITY	PROPOSAL
6	**LANDSCAPE**	
	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in greater aesthetic quality and amenity for both occupants and the adjoining public domain. Landscape design builds on the existing site's natural and cultural features in responsible and creative ways. It enhances the development's natural environmental performance by coordinating water and soil management, solar access, microclimate, tree canopy and habitat values. It contributes to the positive image and contextual fit of development through respect for streetscape and neighbourhood character, or desired future character. Landscape design should optimise useability, privacy and social opportunity, equitable access and respect for neighbours' amenity, and provide for practical establishment and long-term management.	• There are many layers of open space, providing a hierarchy that responds to the need for a variety of different activities to occur within the site. • The public domain upgrade to the street frontages will benefit the wider community. The new street will provide connectivity through the site. A proposed through site link will give opportunity for public access between Building B and C from the new street into the University behind. • The communal courtyards will offer recreational space for residents, as well as providing a good outlook space for those living above. These courtyards will include amenities, such as pools, gyms and BBQ areas. • Existing mature trees on the sites will be retained, where possible. • Each apartment has a balcony of generous depth that has been located to maximise light and views while considering privacy. • Refer to reports and drawings by Turf Design Studios and Treescan Urban Forest for more detail.

PRINCIPLE	DESIGN QUALITY	PROPOSAL
7	**AMENITY**	
	Good design provides amenity through the physical, spatial and environmental quality of a development. Optimising amenity requires appropriate room dimensions and shapes, access to sunlight, natural ventilation, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts, outlook and ease of access for all age groups and degrees of mobility.	• The organisation of built form and open space is laid out in response to the existing and proposed urban morphology and the intrinsic opportunities and constraints of the sites. • We have developed a suite of apartment layouts that are efficient and maximise the amenity for residents and contain well-proportioned rooms with an appropriate relationship to one another. Furniture layouts have been considered to ensure that occupants can reasonably use the spaces in the manner intended. • Apartments provide a high degree of cross-ventilation with dual aspect orientation. 72.4% of apartments for Building A are cross-ventilated. • All units have primary living areas facing distant views or new communal open space. • The rooms to the apartments are well sized and of useable proportions. • Privacy is maintained between apartments through orientation, internal layouts and separation of balconies. • 10% of the apartments are provided as adaptable.

TYPICAL UNIT LAYOUTS

PRINCIPLE	DESIGN QUALITY	PROPOSAL
8	**SAFETY AND SECURITY**	
	Good design optimises safety and security, both internal to the development and for the public domain. This is achieved by maximising overlooking of public and communal spaces whilst maintaining internal privacy, avoiding dark and non visible areas, maximising activity on streets, providing clear, safe access points, providing quality public spaces that cater for desired recreational uses, providing lighting appropriate to the location and desired activities, and clear definition between public and private open space.	• Safe building access is achieved by providing clear pedestrian access points, visible from Herring Road and the new street. • The street-facing perimeters of the buildings are activated by entries to apartments, where the topography permits. • Passive surveillance of the street and communal areas is afforded by balconies and windows at the higher levels, taking in all aspects. • There will be appropriate lighting to all exterior areas, both public and communal. • The clear distinction between communal open space and public open space will provide security and a perception of ownership to residents. • The car parks are secured with roller shutters. Access between the units and the car park is possible directly via the lifts within the building.

BUILDING ENTRY

PRINCIPLE	DESIGN QUALITY	PROPOSAL
9	**SOCIAL DIMENSIONS**	
	Good design responds to the social context and needs of the local community in terms of lifestyles, affordability, and access to social facilities. New developments should optimise the provision of housing to suit the social mix and needs in the neighbourhood, or in the case of precincts undergoing transition, provide for the desired future community.	• The scheme provides 1-bed, 1-bed + study, 2-bed (owner/ occupier and investor), 2-bed + study, 3-bed and 4-bed typologies to support a wide variety of needs of the surrounding community. • The mix and unit typologies will vary from stage to stage to respond to the changing needs of the community as it develops. • The outdoor spaces are designed to engender community spirit for residents within the development by offering areas for congregation and activity, as well as pools, gyms and BBQ areas.

PRINCIPLE	DESIGN QUALITY	PROPOSAL
10	**AESTHETICS**	
	Quality aesthetics require the appropriate composition of building elements, textures, materials and colours and reflect the use, internal design and structure of the development. Aesthetics should also relate to the context, particularly responding to desirable elements of the existing streetscape or, in precincts undergoing transition, contribute to the desired future character of the area.	**SITE STRATEGY** • The buildings will differ in appearance as they are completely separate entities, but they shall have a language that is familial and are tied together by a similar palette of colours and materials. Descriptions of the detailed proposal for Building A is as follows.

BUILDING A

Building A is 12-storeys and contains 123 apartments.

The building serves as a marker to the entry of the precinct, located on the corner of Herring Road and the new street / boulevard. As such, it responds to this prime location by presenting considered and diverse compositions from all directions, and makes an entry statement with respect to the type and quality of the residential precinct.

The overall form is made up of a series of discrete elements. There is an overall shift in plan, giving an animated overall composition. These elements therefore read as discrete tower forms, connected by a base and a common architectural language. This shift also allows the internal corridor to be broken up into two halves, only being read as one half at a time.

The 3- to 4-storey solid base is formed in precast with integral colouring or a colour satain, which clearly grounds the building. This element portrays a human scale to transition from the public domain and lower, neighbouring buildings. To Herring Road this transition is also accompanied by a plane change, further accentuating the lower scale to the street.

Above the base are a series of framed elements that are either glazed or formed in painted precast. Slender framing elements help define the forms. The scale of the glazed areas is broken down by the use of a continuous spandrels / solid balustrades to a height of 500mm that unifies the facade.

The top of the building is separately highlighted by overhanging, floating roofs to the penthouses. The projecting roof with slender edges gives a lightness to the overall composition.

The different elements of the façade are accentuated by deep recesses that also offer the opportunity for cross ventilation to apartments, as well as providing glazing for light, view capturing and ventilation to the common areas.

Towards the courtyard there is a bank of sliding aluminium shutters for shading from the north west sun. This will give the elevation an animated, lively character.

A small, single-storey, glazed pavilion sits within the courtyard housing the gym and changing facility.

While the later buildings within the Concept Plan have not been detailed at this stage, it is intended that they be familial in form and material with Building A, but that they be differentiated in colouration, overall massing and in some of the detailing to give an individuality and grain to the urban context.

EXTERNAL MATERIALS SCHEDULE

CONC 1	Precast concrete with integral colour or colour stain
CONC 2	Precast concrete, painted
DWG	Clear glazed sliding door - grey powder coated aluminium frames
FWG	Clear glazed fixed window - grey powder coated aluminium frames
AWG	Clear glazed awning window - black powder coated aluminium frames
CBG	Colour backed glass fixed window - grey powder coated aluminium frames
ACP	Grey aluminium cover plates to slab edges
CONC	White painted concrete slab edge
PLS	Grey aluminium powder coated sliding louvre shutters
BAL 1	Aluminium framed balustrades with clear glass infill
BAL 2	Half height precast concrete, painted, with glass balustrade on top
LV	Dark grey aluminium powder coated louvres to plant areas
MRS	Powder coated metal roller shutter to car park entry, dark grey
TF	Timber fence

03

RULES-OF-THUMB FROM THE RESIDENTIAL FLAT DESIGN CODE

PROJECT APPLICATION – BUILDING A

PAGE	RECOMMENDATION	CURRENT
7	Relating to local context	**YES** The proposal relates to the existing and future context. The future surrounding context of the approved Macquarie University Concept Plan ranges from 4- to 27- commercial storeys. The building design responds to both the existing and future scale of the area by using volumetric and surface design initiatives that to reduce the perceived scale; this is achieved through implementing devices that tie together multiple storeys into single legible elements and dividing the overall mass up into distinguishable elements.
27	In general a depth of building 10-18m (glass-to-glass) wide is appropriate. If wider, demonstration of satisfactory daylighting and natural ventilation	**YES/NO, WITH QUALIFICATIONS** Typically 16m to 20.5 glass-to-glass. The building has deep recesses on plan, meaning that most units are on corners and are cross ventilated. The plan is essentially two point-form towers joined together, offering high daylight and ventilation amenity. The wet areas are generally positioned towards the centre of the plan, meaning that the habitable areas benefit from being closest to the external, glazed walls.
28	Distance between buildings: 9-storeys and above (over 25m) 24m between habitable / balconies 18m habitable / balconies to non-habitable 12m non-habitable to non-habitable	**YES/NO, WITH QUALIFICATIONS** Building A is orientated largely away from the future envelope of Building B. There are two units that look into the slender end of Building B. The distance between the buildings at this point ranges between 15m and 20m. Both of these apartments have oblique distant views due to the slenderness of the opposite façade. The rooms in Building B will only have secondary windows to this, opposing façade. The orientation of the site is also such that the solar access to these apartments is affected only later in the day, and Building B does not affect Building A's ability to achieve the rule-of-thumb requirements of the RFDC for solar access. Also, at these distances, acoustic privacy is not of concern as lower buildings are permitted to be very much closer, and acoustic privacy does not become a differing proposition with increased height.

PAGE	RECOMMENDATION	CURRENT
44	Minimum 25% open space area to be deep soil	**YES** The site (excluding the road) is 3,288 sqm. The total open space (communal, setbacks, private) is 2,255 sqm. There is approximately 825 sqm of deep soil. This is 25% of the total site; it is 37% of the open space. It is worth noting that while latter stages of the development may individually have a lower percentage of deep soil, the overall development of five buildings provides 36% deep soil relative to the developed sites (excluding roads). This is a very high proportion overall, and this Concept Plan application seeks approval for a reduced deep soil component for Building B and Building C as they are well balanced by the provision of other stages.
49	Communal open space to be 25-30% of site area	**YES** The site is 3,288 sqm. The communal open space constitutes an area of 1,165 sqm, which is 35.4% of the site area.
49	Minimum recommended area of private open space for each apartment at ground level or on a structure such as podium or car park is 25sqm; minimum preferred dimension in one direction is 4 metres.	**YES** All private open space at ground comply.
50-51	Site configuration – orientation	**YES** The relevant section of the RFDC relates to aligning with streets and maximising the number of units facing north; this proposal reflects both of these requirements.
56-57	Site amenity - safety	**YES** The RFDC requires secure ground level access, passive surveillance, reinforce the building boundary, orientating entrances to streets, providing clear lines of site from the lobbies to the street, provision of adequate illumination. The proposal responds positively to all of these requirements.

PAGE	RECOMMENDATION	CURRENT
58-59	Site amenity – visual privacy	**YES** The units that face towards Building B are located such that the receive oblique views and are located such that they face only secondary windows to habitable rooms in Building B. All other units are orientated such that there are no proximity issues with other windows and balconies.
69	8m max to rear of kitchen from glass. If more, demonstration of satisfactory daylighting and natural ventilation.	**YES**
69	8m maximum depth to single aspect units. If more, demonstration of satisfactory daylighting and natural ventilation.	**YES, WITH QUALIFICATIONS** Typically these are 7.5m to 9.5m; the deeper areas are where there are enclosed wet areas to the rear of the apartment.
69	Minimum unit sizes: 1 bed: 50sqm 2 bed: 70sqm 3 bed: 95sqm	**YES** 1 bed: 50 - 62 sqm 2 bed: 79 - 95 sqm 3 bed: 125 – 130 sqm
72	2m min balcony width, unless furniture layout can be demonstrated	**YES**
74	2.7m min ceiling height in habitable areas	**YES**
74	2.25-2.4m ceiling height in non-habitable	**YES**
78	Optimise the number of ground level units with separate entries.	**YES**
79	In general, maximum 8 apartments off of a double-loaded common area (except where amenity provided through crossover, dual aspect apartments)	**YES** The corridor is cranked so that only one half is perceived at any given time. The south western side contains 2 to 5 apartments; the north eastern side contains 4 to 8 apartments. All corridors have large amounts of glazing and natural ventilation.

PAGE	RECOMMENDATION	CURRENT
82	Storage provision – 1 bed: 6 cu m; 2 bed: 8 cu m; 3 bed: 10 cu m. Minimum 50% within unit	**YES** Storage provided at basement and within units. Some units have the full provision within them and do not require storage within the basement.
85	70% of units to receive 3 hours of direct sunlight in winter to living rooms and private open spaces. (In dense urban areas a minimum of 2 hours may be acceptable) **Units that receive solar access:** A0.3, A0.4, A0.5, A0.6 A1.4, A1.5, A1.6, A1.7, A1.8, A1.9, A1.10 A2.4, A2.5, A2.6, A2.7, A2.8, A2.9, A2.10 A3.4, A3.5, A3.6, A3.7, A3.8, A3.9, A3.10 A4.3, A4.4, A4.5, A4.6, A4.7, A4.8, A4.9 A5.3, A5.4, A5.5, A5.6, A5.7, A5.8, A5.9 A6.3, A6.4, A6.5, A6.6, A6.7, A6.8, A6.9 A7.3, A7.4, A7.5, A7.6, A7.7, A7.8, A7.9 A8.3, A8.4, A8.5, A8.6, A8.7, A8.8, A8.9 A9.3, A9.4, A9.5, A9.6, A9.7, A9.8, A9.9 A10.2, A10.3, A10.4, A10.5, A10.6 A11.2, A11.3, A11.4, A11.5 (76 units out of 123)	**NO, WITH QUALIFICATIONS** 61.8% of private open spaces and living rooms receive greater than 3 hours of sun in mid-winter (when not taking Building B into account). 61.8% of private open spaces and living rooms receive greater than 2 hours of sun in mid-winter (when taking Building B into account - ie a dense urban area). Note that over half of living rooms receive greater than 4 hours of sun and over a third of balconies receive 6 hours of sun. The south east and south west facing balconies give definition, character and safety (through surveillance) to the street elevation. The site orientation also makes it difficult for the building to present more than one long face and one short face towards the optimum directions. It is also worth noting that the southern views are towards the city, providing some of the most desirable locations being away from those faces receiving the highest solar access. Also, the market expectation within this area would not support the use of crossovers, the only typology that would be capable of improving on this figure. The high level of cross ventilation and deep soil provided by the proposal could be considered to balance relative to the 8.2% shortfall with the solar access rule-of-thumb. The residents are also able to avail of the north facing communal courtyard, which includes facilities such as pool, gym and BBQ area.
87	60% of units to be cross-ventilated	**YES** 72.4% of apartments are cross ventilated.