## APPENDIX B

APARTMENT DESIGN GUIDE - DESIGN OBJECTIVES AND DESIGN CRITERIA

## APARTMENT DESIGN GUIDE - DESIGN OBJECTIVES AND DESIGN CRITERIA PART 3 - SITING THE DEVELOPMENT

OBJECTIVE		DESIGN CRITERIA			PROPOSED	COMMENT
3A Site Analysis	Objective 3A-1 Site analysis illustrates that design decis the site conditions and the relationship	isions have been based on opportunities and constraints of to the surrounding context			Complies	The site analysis illustrates that design decisions have been made based on the opportunities of the site, such as land formation, location between the busy Norwest boulevard and the quiet residential dwellings to the south and particularly the location of the site adjacent to the new Norwest Metro railway station and the impact that will have on the activation and densification of the subject site.
3B Orientation	Objective 3B-1 Building types and layouts respond to the development	and layouts respond to the street and site while optimizing solar access within the				The proposed building formation has been designed to accentuate the prominence of the Norwest Boulevard street frontage as well as optimising the apartment layouts in the towers above to make the most of the northern aspect of this development.
	Objective 3B-2 Overshadowing of neighbouring proper					The shape of the proposed development has been specifically designed to maintain 4 hours of sunlight in mid-winter to all residential dwellings to the south of the site.
3C Public Domain Interface	Objective 3C-1 Transition between private and public d security	omain is achieved wi	thout compromi	sing safety and	Complies	The residential site will have separate entry access from the Commercial use areas.
	Objective 3C-2 Amenity of the public domain is retaine	ned and enhanced			Complies	The public domain amenity is provided in this proposed development at the ground floor plane. Starting with a public activated landscaped plaza at the corner of Norwest Boulevard and Brookhollow Avenue, across the road from the new Norwest Metro railway station, then through the site to an internal activated landscaped path which runs through the length of the site and links back to Norwest Boulevard through a series of permeable lanes.
3D Communal and Public Open Space	Objective 3D-1 And adequate area of communal open space is provided to enhance	<ol> <li>Communal open space has a minimum area equal to 25% of the site</li> <li>Developments achieve a minimum of 50% direct</li> </ol>			Complies	The proposed development includes 25% of the site as communal open space, including a 15m wide strip of landscaped parkland to the south of the Site.
- Charles	residential amenity and to provide opportunities for landscaping	sunlight to the open space for	principal usable	e part of the communal 2 hours between 9am	Complies	More than 50% of the principal usable communal open space, being the plaza at the corner of Norwest Boulevard and Brookhollow Ave will receive more than 2 hours of sunlight between 9am and 3pm in mid-winter.
	Objective 3D-2 Communal open space is designed to all be attractive and inviting	ce is designed to allow for a range of activities, respond to site conditions and iting			Complies	Communal open space provided allows for a variety of outdoor seating types, such as outdoor dining for café/ restaurant, outdoor seating to pub and communal seating around planter retaining walls.
	Objective 3D-3 Communal open space is designed to maximize safety				Complies	Activation of the communal spaces as major thoroughfares through the site provide safety and security through a high level of pedestrian movement and lighting, making these spaces safe for use both during and after hours.
	Objective 3D-4 Public open space, where provided, is reneighbourhood	esponsive to the exist	ing pattern and	uses of the	Complies	The activated open space is provided along major pedestrian thoroughfares through the site, and is lined with dining, retail and commercial use frontages that reflect the future usage patterns of the site once the adjacent Norwest Metro railway is complete.
3E Deep Soil Zone	Objective 3E-1 Deep soil zone provide areas on the site that allow for and support healthy plant and tree growth. They improve	Deep soil zones are to meet the following minimum requirements:  t allow for and support healthy  Site Area Min Deep Soil Zone		Deep Soil Zone		
	residential amenity and promote management of water and air quality		Dimensions	(% of the site area)		Site Area: 15,960m <sup>2</sup>
		Less than 650m <sup>2</sup> 650m <sup>2</sup> - 1500m <sup>2</sup>	- 3m	7%	Complies	Required Deep Soil Area 7% = 1,117m <sup>2</sup>
		Greater than 1500m <sup>2</sup>	6m	7%		Proposed Deep Soil Area 20% = 3205m <sup>2</sup>
		Greater than 1500m <sup>2</sup> with significant tree cover	6m	7%		

OBJECTIVE		DESIGN CRITERIA			PROPOSED	COMMENT
3F Visual Privacy	Objective 3F-1  Adequate building separation distances are shared equitably between neighbouring sites, to  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:			The residential podium and tower on site A is capable of providing adequate visual privacy between the proposed development and neighbouring property.		
	achieve reasonable levels of external and internal visual privacy.	Building Height	Habitable rooms and balconies	Non- habitable rooms	Complies	
	Note: Separation distance's between buildings on the same site should combine required building separations depending on the type of room.	Over to 25m (9+	6m 9m	3m 4.5m		
		storeys) 12m 6m  ective 3F-2  and building design elements increase privacy without compromising access to light and air and note outlook and views from habitable rooms and private open space.			Complies	Façade articulations and vertical blades provide separation whilst enhancing living environments.
3G Pedestrian Access and Entries	Objective 3G-1			Complies	Pedestrian access from the new Norwest metro railway station across the street has beer a major determining factor in the circulation and landscape design of the ground floor plane of this development. A landscaped activated pedestrian plaza is the main pedestrian entry point to the proposed development from the railway station. This plaza entry leads pedestrians through the site to an internal landscaped street that forms the circulation spine to the development.	
	Objective 3G-2 Access, entries and pathways are acce	essible and easy to identify			Complies	All pedestrian paths through the site are of a gradient shallower than 1:20, providing accessible access through the site.
	Objective 3G-3 Large sites provide pedestrian links fo	r access to streets and con	nection to destinations	;	Complies	An internal pedestrian street running the length of the site forms an activated circulation spine through the site, interconnected to Norwest Boulevard by a series of permeable pedestrian laneways.
3H Vehicle Access	Objective 3H-1 Vehicle access points are designed and located to achieve safety, minimize conflicts between pedestrians and vehicles and create high quality streetscapes.				Complies	The vehicle access points have been located to the rear of the site through an internal street, away from the main Norwest Boulevard streetscape. It has been designed to provide easy access to the building for residents and visitors.
3J Bicycle and Car Parking	Objective 3J-1 For development in the following locations:		Complies	Car and bicycle parking spaces comply with requirements for developments within 800m of a railway station. Please refer to the traffic report prepared by Stantec Consultants issued as part of this submission.		
	Objective 3J-2 Parking and facilities are provided for	other modes of transport			Complies	Bicycle and motorcycle spaces will be provided
	Objective 3J-3 Car park design and access is safe and	secure			Complies	Secure underground car park with lift access to all residential levels.
		Visual and environmental impacts of underground car parking are minimised				Underground car parking structure designed to minimize visual and environmental impacts above ground.
	Objective 3J-5 Visual and environmental impacts of on-grade car parking are minimised				N/A	No on-grade parking provided.
Objective 3J-6 Visual and environmental impacts of above ground enclosed parking are m			king are minimised		N/A	No above ground parking provided.

## PART 4 - DESIGNING THE BUILDING

OBJECTIVE		DESIGN CRITERIA	Α	PROPOSED	COMMENT
4A Solar and Daylight Access	To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space.  1. Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours of direct sunlight between 9am and 3pm at mid-winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local governmen areas  2. In all other areas, living rooms and private open			Complies	Living rooms and private open spaces of at least 70% of apartments receive a minimum of 2 hours of direct sunlight between 9am and 3pm at mid-winter.
		spaces of at receive a m between 9a 3. A maximum	least <b>70%</b> of apartments in a building inimum of 3 hours direct sunlight im and 3pm at mid winter of <b>15%</b> of apartments in a building	N/A	
		receive no o mid winter.	direct sunlight between 9am and 3pm	Complies	Less than of 15% of apartments in a building receive no direct sunlight between 9am and 3pm mid winter.
	Objective 4A-2 Daylight access is maximized where sunlight is limited  Objective 4A-3 Design incorporates shading and glare control, particularly for warmer months			Complies	Full height balcony windows/ doors to maximize daylight access.
				Complies	Strategic built-form, screening and balcony overhangs will also assist with diffusing glare and providing shade.
4B Natural Ventilation	Objective 4B-1 All habitable rooms are naturally ventilated		Complies	All habitable rooms are naturally ventilated.	
	Objective 4B-2 The layout and design of single aspen	ct apartments maximize	es natural ventilation	Complies	Openings in single aspect apartments have full height operable doors and windows to a balcony to allow maximum natural ventilation. Living and bedroom rooms are offset to create difference in pressure regions and promote airflow.
	Objective 4B-3 The number of apartments with natural cross ventilation is maximized to create a comfortable indoor environment for residents	number of apartments with ventilated in the first nine storeys of the building.  Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the		Complies	A minimum of <b>60%</b> of apartments are naturally cross ventilated.
	Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line		N/A	There are no cross-through apartments in this proposed development.	
4C Ceiling Heights	Objective 4C-1  Ceiling height achieves sufficient natural ventilation and daylight access  Measured from finished floor level to finished ceiling level, minimum ceiling heights are:  Minimum ceiling height for apartment and mixed use buildings			A 2.7m high habitable space can be achieved in the proposed 3.2m floor-to-floor height with 200mm concrete slab.  A minimum of 2.4m high ceiling can be achieved to all non-habitable rooms.	
		Habitable Rooms	2.7m		
		Non-Habitable	2.4m		
		For 2 Storey Apartments	2.7m for main living area floor 2.4m for second floor, where its area does not exceed 50% of the apartment area	Complies	
		Attic Spaces  If located in mixed	1.8m at edge of room with a 30 degree minimum ceiling slope     3.3m for ground and first floor to		
		use areas	promote future flexibility		

OBJECTIVE		DESIGN CRITER	IA	PROPOSED	COMMENT
	Objective 4C-2 Ceiling height increases the sense of		and provides for well-proportioned rooms	Complies	Kitchens attached to living spaces have a lowered ceiling to express a larger volume of living space.
	Objective 4C-3 Ceiling heights contribute to the flex	ibility of building use o	over the life of the building	N/A	The development is designed as residential accommodation situated in a residential area.
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  Objective 4D-2 Environmental performance of the apartment is maximised  Objective 4D-3 Apartment layouts are designed to	minimum internal areas:    Apartment Type		Complies  Complies  Complies  Complies	All apartments comply with minimum internal areas.  All habitable room have a minimum glass area of 10% of the floor area of the room.  The depth of all habitable rooms comply with the maximum 2.5x the ceiling height ratio.  For open plan living with combined living, dining and kitchens, the maximum habitable room depth is 8m from a window.  Master bedrooms have a minimum area of 10m2 and other bedrooms 9m2 (excluding
	accommodate a variety of household activities and needs	2. Bedroom (excludir 3. Living roo have a m    3 a  4  4. The widt apartme	<ul> <li>(excluding wardrobe space)</li> <li>3. Living rooms or combined living/dining rooms have a minimum width of: <ul> <li>3.6m for studio and 1 bedroom apartments</li> <li>4m for 2 &amp; 3 bedroom apartments</li> </ul> </li> </ul>		wardrobe space). Detailed apartment internal layouts to be provided at DA stage.  Bedrooms have a minimum dimension of 3m (excluding wardrobe space). Detailed apartment internal layouts to be provided at DA stage.  Living rooms or combined living/dining rooms have a minimum width of:  • 3.6m for studio and 1 bedroom apartments  • 4m for 2 & 3 bedroom apartments  Detailed apartment internal layouts to be provided at DA stage.  There are no cross-through apartments in this proposed development.

OBJECTIVE		DESIGN CRITER	IIA		PROPOSED	COMMENT
4E	Objective 4E-1		nents are required to have	primary		All primary balconies in this development comply with the ADG minimum depth and
Private Open Space and	Apartments provide appropriately	1	as follows:			relevant minimum areas.
Balconies	sized private open space and	Dwelling Type Minimum Area Minimum		Minimum	Complies	
	balconies to enhance residential			Depth		
	amenity	Studio	4m <sup>2</sup>	-		
		Apartments				
		1 Bedroom	8m²	2m		
		Apartments				
		2 Bedroom	10m <sup>2</sup>	2m		
		Apartments				
		3+ Bedroom	12m²	2.4m		
		Apartments				
		1	ny depth to be counted as	s contributing to	<b>.</b> "	
		the balcony area is			Complies	Ground and podium level private open space to apartments in this development comply
			ments at ground level or o			with the ADG minimum depth and relevant minimum areas.
		similar structure, a private open space is provided instead of a balcony. It must have a minimum area				
			a balcony. It must have a and a minimum depth of 3			
		01 131112 a	ina a minimum depun or 5	"		
	Objective 4E-2					Private open space opens directly onto a living space, orientated to allow for maximized
	Primary private open space and balc	onies are annronriate	ly located to enhance live:	ahility for	Complies	solar access and ventilation
	residents	ornes are appropriate	ry located to enhance lives		Compiles	Solal access allu velitilation
	Objective 4E-3				Complies	Balconies and private open spaces are integrated with the building form and facade
	Private open space and balcony design	gn is integrated into a	nd contributes to the ove	rall architectural		balcomes and private open spaces are integrated with the ballang form and racade
	form and detail of the building	8				
	Objective 4E-4					Balustrades to private open space and balconies have been designed to comply with BCA
	Private open space and balcony design	gn maximises safety			Complies	balustrade heights, restrictions to climbability and fall safety. Detail to be provided at DA stage.
4F Common Circulation and	Objective 4F-1 Common circulation spaces	circulation	num number of apartmen	eight	Complies	The maximum number of apartments off a lift core in this development is 6.
Spaces	achieve good amenity and properly service the number of		ngs of 10 storeys and over f apartments sharing a sin			
	apartments				Complies	
	Objective 4F-2				Commilian	Centralized lift lobby encourages social interaction and provides amenity for doing so.
	Common circulation spaces promote	e safety and provide it	or social interaction betwe	en residents	Complies	
4G	Objective 4G-1	In addition to storage	ge in kitchens, bathrooms	and bedrooms.		Apartment storage requirements will comply with ADG requirements. Detailed apartment
Storage	Adequate, well designed storage is	1	In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided:			internal layouts to be provided at DA stage.
	provided in each apartment		·	Volume		
		Dwelling Type	Storage Size			
		Studio apartments				
		1 bedroom	6m <sup>2</sup>		Complies	
		apartments	0.3			
		2 bedroom	8m <sup>2</sup>			
		apartments				
		3+ bedroom 10m <sup>2</sup> apartments  At least 50% of the required storage is to be lessted with				
				ocated within	Complies	Apartment storage requirements will comply with ADG requirements. Detailed apartment
		At least 50% of the required storage is to be located within the apartment			Compiles	internal layouts to be provided at DA stage.
	Objective 4G-2	the apartment				Additional storage where provided is directly accessed on lower ground floor and
	Additional storage is conveniently lo	cated, accessible and	nominated for individual :	apartments.	Complies	basement carpark levels.
	and the same state of the same	, Eddadalaic alla			Compiles	

Acoustic Privacy  Ob No  AJ  Noise and Pollution  Ob Ap	DESIGN CRITERIA  Objective 4H-1 Noise transfer is minimised through the siting of buildings and building layout  Objective 4H-2 Noise impacts are mitigated within apartments through layout and acoustic treatments  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	Complies  Complies	The residential tower is located away from traffic noise and spaced a sufficient distance from the other towers. It does not require noise attenuation.  Appropriate acoustic measure will be undertaken at CC stage. Provisions have been made for wall thicknesses and floor to floor heights for construction methodology.
Acoustic Privacy  Ob No  AJ  Noise and Pollution  Ob Ap	Noise transfer is minimised through the siting of buildings and building layout  Dbjective 4H-2  Noise impacts are mitigated within apartments through layout and acoustic treatments  Dbjective 4J-1  In noisy or hostile environments the impacts of external noise and pollution are minimised through	Complies	from the other towers. It does not require noise attenuation.  Appropriate acoustic measure will be undertaken at CC stage. Provisions have been made for wall thicknesses and floor to floor heights for construction methodology.
AJ Noise and Pollution In the	Noise impacts are mitigated within apartments through layout and acoustic treatments  Objective 4J-1  n noisy or hostile environments the impacts of external noise and pollution are minimised through	<u> </u>	for wall thicknesses and floor to floor heights for construction methodology.
Noise and Pollution In the Ok	n noisy or hostile environments the impacts of external noise and pollution are minimised through	Committee	Apartments have been distanced from point or heatile equipments by the stain a of the
Ap		Complies	Apartments have been distanced from noisy or hostile environments by the siting of the building and by using a landscaped buffer zones.
	Objective 4J-2 Appropriate noise shielding or attenuation techniques for the building design, construction and choice of materials are used to mitigate noise transmission	Complies	Residential apartments are located away from traffic noise and spaced a sufficient distance apart not to require noise attenuation.
Apartment Mix A	Objective 4K-1 A range of apartment types and sizes is provided to cater for different household types now and into the future	Complies	Unit types cater to the household types in the area. In addition, some of the 2 and 3 bedroom apartments have the flexibility for the second or third bedroom to turned into a family room/ study/ Media room/ etc.
	Objective 4K-2 The apartment mix is distributed to suitable locations within the building	Complies	The apartment mix complies with The Hills Shire DCP apartment mix requirements.
	Objective 4L-1 Street frontage activity is maximised where ground floor apartments are located	Complies	Ground floor apartments have an external courtyard facing the pedestrian area to promote activity along the front.
	Objective 4L-2 Design of ground floor apartments delivers amenity and safety for residents	Complies	Private open spaces are landscaped with integrated fencing for additional safety
<b>Facades</b> Bu	Objective 4M-1 Building facades provide visual interest along the street while respecting the character of the local area	Complies	The façade has been carefully designed to provide a human scale to the proposed development as well as providing solar access control using vertical blade louvres that also provide interest to the building facades. The curved sinuous building corners have been designed to allow for softer transitioning to the adjacent buildings.
	Objective 4M-2 Building functions are expressed by the facade	Complies	Building entry is identified by curving geometry in the façade, raised planter boxes and the landscape design.
	Objective 4N-1 Roof treatments are integrated into the building design and positively respond to the street	Complies	Podium level roof terraces are landscaped with planting overhanging the building facade to integrate them with the landscape on the lower levels.
	Objective 4N-2 Opportunities to use roof space for residential accommodation and open space are maximised	Complies	Roof space has been activated to maximise open space. Podium level roof space is designed to accommodate sky gardens and an outdoor pool.
	Objective 4N-3 Roof design incorporates sustainability features	Complies	Continuous lightweight awning, as well as balcony slabs over windows and doors to habitable spaces to control sunlight.
	Objective 40-1  Landscape design is viable and sustainable	Complies	Canopy size and landscape soil depths and maintenance access have been adequately allowed for. Landscape detail design to be provided at DA stage.
	Objective 40-2  Landscape design contributes to the streetscape and amenity	Complies	Landscape design is an essential element in the design of the proposed development, contributing to the ground plane streetscape. This is demonstrated in the landscaped plaza, internal pedestrian street as well as the 15m wide landscaped buffer zone between the proposed development and the residential dwellings to the south of the site.

OBJECTIVE	DESIGN CRITERIA	PROPOSED	COMMENT
Р	Objective 4P-1		Sufficient soil depths have been allowed for. Landscape detail design to be provided at DA
Planting on Structures	Appropriate soil profiles are provided	Complies	stage.
	Objective 4P-2 Plant growth is optimised with appropriate selection and maintenance	Complies	Appropriate maintenance systems via access paths and BMUs have been allowed for. Plant selection to be made at DA stage.
	Objective 4P-3 Planting on structures contributes to the quality and amenity of communal and public open spaces	Complies	Planting on building structures is a key feature of the design which incorporates sky gardens, hanging planters on all building facades as well as roof gardens.
4Q Universal Design	Objective 4Q-1 Universal design features are included in apartment design to promote flexible housing for all community members	Complies	Apartments have been designed to allow for flexible housing. Detailed apartment internal layouts to be provided at DA stage.
	Objective 4Q-2 A variety of apartments with adaptable designs are provided	Complies	Apartments have been designed to allow for adaptability. Detailed apartment internal layouts to be provided at DA stage.
	Objective 4Q-3 Apartment layouts are flexible and accommodate a range of lifestyle needs	Complies	All apartments have open plan living allowing flexibility on the use.
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	N/A	Brand new development
	Objective 4R-2 Adapted buildings provide residential amenity while not precluding future adaptive reuse	N/A	Brand new development
4S Mixed Use	Objective 4S-1  Mixed use developments are provided in appropriate locations and provide active street frontages that encourage pedestrian movement	Complies	Located adjacent to the new Norwest Metro railway station, this development has focused on providing pedestrian friendly activated street frontages as well as urban community spaces such as the plaza at the corner of Norwest Boulevard and Brookhollow Avenue.
	Objective 4S-2 Residential levels of the building are integrated within the development, and safety and amenity is maximised for residents	Complies	Residential levels are integrated with the development and will have their own dedicated lifts and secure access to the ground level and basement parking.
4T Awnings and Signage	Objective 4T-1 Awnings are well located and complement and integrate with the building design	Complies	Awnings are located along street frontages to activate streetscape by providing shaded a weather proof pedestrian friendly spaces and form an integral feature of the building design.
	Objective 4T-2 Signage responds to the context and desired streetscape character	Complies	Signage to future detail to be integrated to entries, façade and lobby design.
4U Energy Efficiency	Objective 4U-1 Development incorporates passive environmental design	Complies	Apartment layouts specifically designed to maximise natural light and ventilation to all habitable rooms
	Objective 4U-2 Development incorporates passive solar design to optimise heat storage in winter and reduce heat transfer in summer	Complies	Apartments designed to maximise orientation to the north to optimise heat storage, in compliance with ADG solar access requirements. External louvred sun shading devices designed to reduce heat transfer in summer.
	Objective 4U-3 Adequate natural ventilation minimises the need for mechanical ventilation	Complies	Apartments designed with appropriate depths, ceiling heights and planning to promote airflow and natural ventilation.

OBJECTIVE	DESIGN CRITERIA	PROPOSED	COMMENT
4V Water Management and	Objective 4V-1 Potable water use is minimised	Complies	Water reducing fixtures and low water usage landscaping implemented.
Conservation	Objective 4V-2 Urban storm-water is treated on site before being discharged to receiving waters	Complies	Hydraulics engineer report will be submitted with Development Application.
	Objective 4V-3 Flood management systems are integrated into site design	N/A	Site not subject to flooding.
4W Waste Management	Objective 4W-1 Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents	Complies	Waste storage is located on the ground floor level at the rear of the site accessed from Brookhollow Avenue. Secured and unobtrusive to the streetscape.
	Objective 4W-2  Domestic waste is minimised by providing safe and convenient source separation and recycling	Complies	Waste management report will be submitted with Development Application.
4X Building Maintenance	Objective 4X-1 Building design detail provides protection from weathering	Complies	Building detailing will provide protections to opening and control leaching etc.
	Objective 4X-2 Systems and access enable ease of maintenance	Complies	Majority of the windows and doors can be maintained within the balcony. Other windows will be design and specified be easily maintained and cleaned.
	Objective 4X-3 Material selection reduces on-going maintenance costs	Complies	The proposed material is considered durable which may be easily cleaned.