6 Director General's Environmental Assessment Requirements

6.1 Relevant EPIs, Policies and Guidelines to be Addressed

Director General's Environmental Assessment Requirement No. 1

Planning provisions applying to the site, including permissibility and the provisions of:

- *Objects of the EP&A Act 1979;*
- *NSW State Plan 2010;*
- *Draft Inner North Subregional Strategy;*
- *Metropolitan Transport Plan 2010, Integrating Land Use and Transport – A Planning Policy Package 2001 and Planning Guidelines for Walking and Cycling 2004 and Ryde City Council's Macquarie Park Traffic Study – Final Report;*
- *Ryde Planning Scheme Ordinance 1979, Ryde LEP 137 – Macquarie Park, Draft Ryde LEP 2010, relevant Development Control Plans, Ryde Bicycle Strategy and Master Plan 2007, Macquarie Park Pedestrian Movement Study 2009 and Macquarie Park Public Domain Technical Manual;*
- *SEPP 55 - Remediation of Land;*
- *SEPP 65 - Design Quality of Residential Flat Development and the Residential Flat Design Code (RFDC);*
- *SEPP (Infrastructure) 2007; and,*
- *Nature and extent of any non-compliance with relevant environmental planning instruments, plans and guidelines and justification for any non-compliance, including a consideration of the accessibility and traffic/transport principles detailed in the Ryde DCP 2006 and draft LEP 2009, including the "Ryde Bicycle Strategy and Master Plan 2007.*

6.1.1 Environmental Planning and Assessment Act 1979

The objects of the Act are provided in Table 3 along with an assessment of the proposal against them:

Table 4 – Assessment of the Proposal against the Objects of the Act

Object	Project
a) to encourage: i. *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*	The project represents good urban management as it will provide additional dwellings which can utilise existing transport infrastructure (in particular spare capacity on the Epping to Chatswood rail line), leverage off the employment opportunities presented by Macquarie Park and make use of existing utilities and facilities.

Object		Project
ii.	*the promotion and co-ordination of the orderly and economic use and development of land,*	The project will facilitate the development of much needed housing in close proximity to public transport and the Macquarie Park Specialised Centre.
iii.	*the protection, provision and co-ordination of communication and utility services,*	The project is in an existing urban area and as such will utilise existing services. If necessary, the project will provide for the augmentation of these services.
iv.	*the provision of land for public purposes,*	The project will provide for the upgrade of an existing public reserve[4]
v.	*the provision and co-ordination of community services and facilities, and*	Given the site's proximity to a range of local services and facilities including schools, parklands, medical and shopping the additional population will be adequately catered for.
vi.	*the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*	The project will not result in any adverse impacts to native animals, plants, populations, ecological communities, or their habitats.
vii.	*ecologically sustainable development, and*	The project will provide best practice ESD measures as discussed in Section 6.6
viii.	*the provision and maintenance of affordable housing, and*	The project will contribute to the diversity and availability of housing stock in an accessible and well-connected location.
b)	*to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*	The project represents a Major Project and as such is assessed by the Minister. Ryde Council will be consulted as part of the community consultation program.
c)	*to provide increased opportunity for public involvement and participation in environmental planning and assessment*	A community consultation program will be carried out during the Minister's consideration of the application as discussed in Section 6.10

6.1.2 NSW State Plan 2010

The NSW State Plan 2010 replaces The State Plan, A New Direction for NSW 2006 as a set of priorities for the NSW Government. The NSW State Plan 2010 provides targets for creating 'better transport and liveable cities'. Relevant priorities and targets are outlined below.

Improve Public Transport System

"Increase share of commuter trips made by public transport to and from the Sydney CBD within peak hours to 80% by 2016"

By providing for 269 dwellings within close walking distance to the Macquarie Park train station and regional bus services, this project will positively contribute to the government's target.

Increase the number of jobs closer to home

"Increase the percentage of population living within 30 minutes by public transport of a city or major centre."

The proposal satisfies this target given its proximity to the Macquarie Park corridor and metropolitan rail services linking the site to Chatswood and the CBD within 30 minutes travel time.

---

[4] It is noted that the reserve is owned by Ryde City Council. While the proponent therefore commits to implement these works, such implementation will be at the discretion of Ryde City Council.

Grow cities and centres as functional and attractive places to live, work and visit

The proposal is entirely consistent with this priority as the proposal provides for housing adjacent to the Macquarie Park Corridor, where future additional housing growth opportunities are limited. The inclusion of new residents in the locality will add to the vibrancy of the area .

6.1.3 Draft Inner North Subregional Strategy

The site falls within the Inner North Subregion of the Metro Strategy. The Subregional Strategy provides the intended outcomes and specific parameters for the development of the subregion.

The Subregional Strategy identifies four key directions for its housing component as follows:

- *To provide more housing opportunities to support a diverse workforce and population.*
- *To increase housing choice as part of the housing targets.*
- *Plan for 30,000 new dwellings.*
- *Enable communities to 'age in place'.*

Specifically, the Housing Strategy component of the Subregional Strategy provides the following actions:

- *C1 – Ensure adequate supply of land and sites for residential development through:*
- *C2 – Plan for a housing mix near jobs, transport and services by:*
- *C5 – Improve the quality of new development and urban renewal through:*

The project will contribute to the outcome of these actions by:

- Providing a range of dwelling types offering between 1 and 3 bedroom dwellings responding to the average household size.
- Responding to the site's close proximity to major new rail infrastructure.
- Providing new housing product within the LGA which benefit from the site's strategic location.
- Expanding the housing supply within a walkable distance form the train station, bus routes, education facilities, medical services and shopping opportunities.
- Maximising the potential for the site to contribute to the housing supply within the subregion and assist Council in identifying appropriate sites to achieve its target dwelling growth of 12,000 new homes by 2031.
- Providing residential development within an existing serviced area directly adjacent to other residential land.
- Providing high quality architectural design with high quality materials and finishes.
- Incorporating a cohesive landscape concept for the project and public domain.
- Designing each residential apartment building in accordance with the SEPP 65 and the RFDC.
- Providing a logical approach to housing diversity in a highly serviced existing urban area.

The subregional strategy is further discussed in Section 3.2.

6.1.4 Metropolitan Transport Plan 2010

The Metropolitan Transport Plan is to be fully integrated within the NSW Metropolitan Strategy. The Plan presents a 10 year funding guarantee in order to achieve four ideal transport qualities:

- Commuting to work easily and quickly.
- Transport and services accessible to all members of our community.
- An efficient, integrated and customer focused public transport system.
- Revitalised neighbourhoods with improved transport hubs.

Of relevance to the proposal is the implementation of the North West Rail Link. It is anticipated to connect regional commuter car parks and bus interchanges and offer a fast direct route connecting population centres and strategic locations between the north west of Sydney, Macquarie Park and the CBD.

The Plan's current estimates indicate that by 2024 the North West Line will carry 18.7 million passengers each year. By creating greater linkages to Macquarie Park, this area may be expected to increase in population. In this way, the provision of multi-unit housing near employment and a recently constructed train station will complement the Metropolitan Transport Plan.

6.1.5 Integrating Land Use and Transport – A Planning Policy Package 2001

Integrating Land Use and Transport – A Planning Policy Package 2001 seeks to reduce private vehicle use and promote active and public transport options instead. The site's proximity to both a range of public transport options and local facilities is directly consistent with the intent of the policy package.

6.1.6 Planning Guidelines for Walking and Cycling 2004

The Planning Guidelines for Walking and Cycling 2004 aim to ensure the provision of pedestrian and cycle access locations within close proximity to major crossings and desire lines. The proposal is appropriately placed to ensure this, allowing access from three street frontages and providing ease of connectivity given it's location immediately adjacent to a regional cycle route (see Figure 10) It is also within walking distance of a range of local services and facilities and is adjacent to a major cycleway network.

6.1.7 Ryde City Council's Macquarie Park Traffic Study – Final Report

A Paramics micro simulation assessment has been undertaken as part of the Traffic Report (Appendix K). This modelling has been conducted in accordance with the Macquarie Park Traffic Study. As outlined in the Traffic Report this modelling determined that;

> *"… the queues and average delays at key intersections as a result of the development would remain at existing levels and would continue to operate as currently occurs."*

Figures 23 to 25 are extracted from the Traffic Report and demonstrate that with the exception of the Wicks Road and Epping Road intersection, each of the intersections analysed as part of the Traffic Report will remain generally unchanged in regards to their Level of Service[1]:

---

[5] *Level of Service: a comparative measure which provides an indication of the operating performance of an intersection.*

Figure 23 – Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

Figure 24 – Existing Intersection Performance: AM and PM Peak Periods

Intersection Description	Period	Control Type	Degree of Saturation	Intersection Delay	Level of Service
LCR & Epping Rd	AM	Signal	1.10	80.6	F
	PM		0.93	59.2	E
Wicks Rd & Epping Rd	AM	Signal	0.96	59.4	E
	PM		1.03	70.3	E
Allengrove Cr & LCR	AM	Priority	0.09	22.9	B
	PM		0.15	33.2	C
Wicks Road & Barr St	AM	Priority	0.21	29.2	C
	PM		0.20	22.7	B

Figure 25 – Future Intersection Performance: AM and PM Peak Hour

Intersection Description	Period	Control Type	Degree of Saturation	Intersection Delay	Level of Service
LCR & Epping Rd	AM	signal	1.10	81.9	F
	PM		0.93	58.7	E
Wicks Rd & Epping Rd	AM	signal	1.00	63.9	E
	PM		1.04	73.2	F
Allengrove Cr & LCR	AM	priority	0.41	28.2	C
	PM		0.34	34.2	C
Barr Street & Wicks Rd	AM	priority	0.34	29.2	C
	PM		0.34	34.4	C

6.1.8 Ryde LEP 2010

Ryde Local Environmental Plan 2010 (the LEP) is the consolidating plan for the City of Ryde. It translated existing provisions under Ryde Planning Scheme Ordinance, LEP 173 (Macquarie Park) and some development controls contained in Ryde Development Control Plan 2006 into the State Government's Standard LEP Instrument. It was gazetted on the 30 June 2010.

Under the LEP, the site is zoned R2 Low Density Residential. One of the key objectives of the zone is:

> *"To ensure that the general low density nature of the zone is retained and that development for the purposes of dual occupancy (attached) and multi dwelling housing (attached) do not significantly alter the character of a location or neighbourhood."*

Development for the following purposes is permitted in the R2 zone:

> *Home-based child care; Home occupations Bed and breakfast accommodation; Boarding houses; Business identification signs; Child care centres; Community facilities; Dual occupancies (attached); Dwelling houses; Educational establishments; Group homes; Health consulting rooms; Hospitals; Multi dwelling housing (attached); Places of public worship; Recreation areas; Residential care facilities; Roads*

All other development is prohibited.

As the proposed use is defined as a residential flat building[2] under the LEP, it is prohibited in the R2 zone. However, pursuant to Section 75O and 75R of the Act, in deciding whether or not to give approval for a Concept Plan, the Minister may (but is not required to) take into account the provisions of any environmental planning instrument, other than State Environmental Planning Policies (SEPPs). While the above LEP prohibition, and the following development standards, must be 'considered', they are not strictly applicable to the proposed Concept Plan.

In terms of land use, the site is clearly zoned for predominantly residential purposes. The prohibition of residential flat buildings therefore relates to density, not underlying use. The proposed residential use is therefore not inconsistent with the underlying purpose of the zoning, notwithstanding its increased density, and the stated objective of not significantly altering the existing character of the location.

Development standards under the LEP that are applicable to the site include:

- Floor Space Ratio – Maximum 0.5:1 (2.25:1 proposed).
- Building Height – Maximum building height of 9.5m (31.85m proposed).

However, pursuant to Clause 4.4A of the LEP, the maximum floor space ratio shown for a building on land in Zone R2 Low Density Residential only applies to development for the purposes of a dwelling house or attached dual occupancy, not to 'residential flat buildings', as is proposed.

Notwithstanding, the project clearly exceeds the underlying development standards. However, the project is proposed on the basis of the strategic context of the site relative to the Macquarie Park Corridor and railway station. The height and FSR of the project has therefore been established with reference to the underlying standards within the corridor.

Around Macquarie Park railway station, an FSR of 3.0:1 applies, reducing to 2:1 along major roads, including Lane Cove Road, and down again to 1:1 along Epping Road away from the intersection of Lane Cove Road. Similarly a maximum height standard of 44.5 metres applies around the railway station, reducing to 37 along major roads, including Lane Cove Road, and down again to 20 metres along Epping Road away from the intersection of Lane Cove Road.

---

[6] *Pursuant to the LEP "**Residential flat building** means a building containing 3 or more dwellings, but does not include an attached dwelling or multi dwelling housing."*

The project has a maximum height of 31.85 metres, stepping down considerably to adjoining low density development. This maximum height reflects a stepping down from the underlying 37 metre height standard along Lane Cove Road. Similarly, with a FSR of 2.25:1, the proposed development reflects a stepping down from the underlying 2:1 FSR standard along Lane Cove Road, noting that a residential development has significantly less building bulk and intensity of use than a commercial or industrial development with a comparable FSR. This is largely due to the taller ceiling height of commercial and industrial development, and the greater density of people accommodated within these uses.

The relationship of the proposed height and FSR to the underlying controls within the Macquarie Park Corridor is conceptually illustrated at Figures 26 and 27 below.

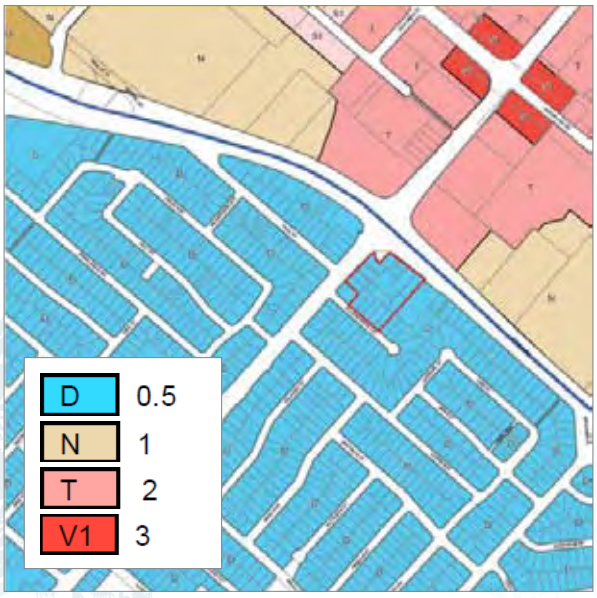
While the proposed use, height and density clearly exceeds the underlying R2 zone standards, the residential use is consistent, and the built form and density represent a logical extension of the standards applicable within the Macquarie Park corridor.

Figure 26 – Height Controls

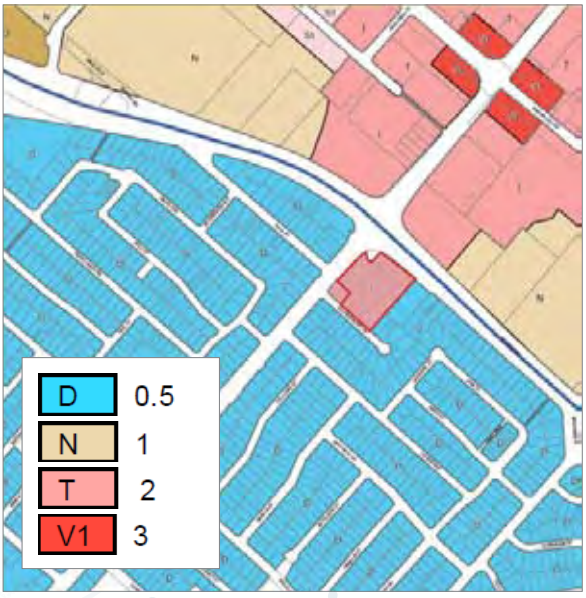
EXTRACT: RYDE LEP BUILDING HEIGHTS MAP

RELATIONSHIP OF HEIGHT PROPOSED TO UNDERLYING CONTROLS

Figure 27 – FSR Controls



EXTRACT: RYDE LEP FSR MAP



RELATIONSHIP OF FSR PROPOSED TO UNDERLYING CONTROLS

6.1.9 Ryde Development Control Plan 2010

Council adopted the City of Ryde Development Control Plan 2010 on 16 June 2009 and the Plan came into effect on 30 June 2010.

The project achieved the intent of the DCP and provides for a diversity of housing types. In particular, the indicative scheme design provides for 64 one bedroom units out of the total 269 units, representing just 23% of the units and as such, meets the DCP control of a maximum number of small one bedroom dwellings 50% of total number of dwellings on site.

It is noted that some of the setback controls specified in the DCP have not been achieved; however, as discussed in the SEPP 65 design verification statement and the RFDC compliance table, the Concept Plan has been appropriately designed, orientated and sited to ensure appropriate amenity is maintained.

As discussed in Section 6.5, the car parking provision has been designed in accordance with the DCP controls.

A complete assessment of the relevant components of the DCP is provided in the compliance table located at Appendix I.

6.1.10 Ryde Bicycle Strategy and Master Plan 2007

As addressed in the Traffic Report (located at Appendix K) and Section 2.7 of this report, the site is provided with comprehensive access to the regional bike path network (refer to Figure 10). In addition the provision of bicycle facilities will be appropriately incorporated at the detailed design phase of the development in accordance with Council's standards.

6.1.11 Macquarie Park Pedestrian Movement Study 2009

The Ryde Park Pedestrian Movement Study 2009 does not propose any significant upgrades to the pedestrian or bicycle environment surrounding the site. Convenient pedestrian access exists between the site and Macquarie Park train station, Avon Road shops and Cox Road shops.

6.1.12 Macquarie Park Public Domain Technical Manual

As discussed in the SEPP 65 Design Verification Statement included at Appendix E, the Concept Plan has been design in accordance with the intent of the Macquarie Park Public Domain Technical Manual. As this proposal seeks approval for the Concept Plan only, further compliance with the manual will be demonstrated at later detailed design stages of the project.

6.1.13 SEPP 55 - Remediation of Land

The key objective of this policy is:

> *To promote the remediation of contaminated land in order to reduce the risk of harm to human health or any other aspect of the environment:*
>
> - by specifying when consent is required for remediation work and when it isn't
> - by specifying considerations that are relevant in rezoning and development applications for consent to carry out remediation work
> - by placing certain standards and notification requirements for remediation work.

The SEPP states that land must not be rezoned or developed unless contamination has been considered and, where relevant, land has been appropriately remediated.

A Phase 1 Environmental Site Assessment undertaken by Environmental Investigation Services has found that, as the site and surrounding area has predominantly been used for residential purposes, no activities which could be expected to generate significant soil or groundwater contamination were obvious.

Whilst the results of some onsite tests showed elevated levels of contaminants in some soil samples it is not expected that these levels will inhibit the suitability of the site for residential development.

Further investigation will be completed upon demolition of existing buildings. If remediation is found to be required a Remedial Action Plan will be submitted for approval and audited upon implementation.

6.1.14 SEPP 65 - Design Quality of Residential Flat Development and the Residential Flat Design Code (RFDC)

The Concept Plan meets the requirements of SEPP 65 and the Residential Flat Design Code (RFDC) as depicted in the SEPP 65 Design Verification Statement located at Appendix E and the RFDC compliance table located at Appendix G, both prepared by Candalepas Associates.

The Concept Plan provides a minimum setback of 12m to Epping Road, aligning with the neighbouring town house development. The building then steps at each unit to a maximum of 29m setback. The stepping of this building at each unit creates a scale similar in proportions to the single dwellings characterised in the area.

The building alignment on Allengrove Crescent aligns with the setback of the residences on either side of the development. The form of this building has been divided up into 3.5m vertical elements reducing the scale of the building to proportions reflective of the neighbouring streetscape.

All three blocks have been sited to maximise the distance from the south east boundary which is setback 7m to 10m. These setbacks provide 3 hours of sun access to the northern windows and private open space in mid winter.

The Concept Plan allows for environmental design initiatives including:

- The orientation of all units to the north east, allowing living spaces to optimise solar access, reduce heating and artificial lighting requirements;
- Sun-screening devices and strong shuttering elements to reduce solar gains and increase control of the internal environment against late afternoon sun; and
- Cross ventilation to all units and approximately two thirds of dwellings have dual aspect apartments

6.1.15 SEPP (Infrastructure) 2007

The aim of this Policy is to facilitate the effective delivery of infrastructure across the State of NSW by:

- Providing greater flexibility in the location of infrastructure and service facilities, and
- Identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and
- Identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development.

Schedule 3 of the policy relates to traffic generating development to be referred to the RTA. Of relevance to the subject proposal, any development that has capacity for 200 or more motor vehicles must be referred to the RTA. Accordingly the proposal will be required to be referred to the RTA.

6.1.16 Nature and extent of any non-compliance

As previously discussed, the proposal does not meet the height and FSR standards of the LEP. The extent of these non compliances is as follows:

- The Concept Plan seeks a height of 31.85m, exceeding the allowable standard of 9.5m by 22.35m
- The Concept Plan seeks an FSR of 2.25:1 exceeding the allowable standard of 0.5:1

While the project significantly exceeds the height and density provisions of the R2 Low Density Residential zone under Ryde Local Environmental Plan 2010, the proposed intensification of the site is directly consistent with the principles of a range of broader strategic planning considerations, such as the NSW State Plan 2010, the Draft Inner North Subregional Strategy, the Metropolitan Transport Plan 2010 and Integrating Land Use and Transport – A Planning Policy Package 2001. Aside from the LEP controls, the project is consistent with all other relevant guidelines and controls, including the Residential Flat Design Code.

As the proposed use is defined as a residential flat building under the LEP, it is prohibited in the R2 zone. However, pursuant to Section 75O and 75R of the Act, in deciding whether or not to give approval for a Concept Plan, the Minister may (but is not required to) take into account the provisions of any environmental planning instrument, other than State Environmental Planning Policies (SEPPs). While the above LEP prohibition, and the following development standards, must be 'considered', they are not strictly applicable to the proposed Concept Plan.

In terms of land use, the site is clearly zoned for predominantly residential purposes. The prohibition of residential flat buildings therefore relates to density, not underlying use. The proposed residential use is therefore not inconsistent with the underlying purpose of the zoning, notwithstanding its increased density, and the stated objective of not significantly altering the existing character of the location.

6.2 Built Form, Urban Design/Public Domain and Environmental and Residential Amenity

Director General's Environmental Assessment Requirement No. 2 and No. 6

The EA shall address the height, bulk and scale of the proposed development within the context of the locality. In particular, detailed envelope / height and contextual studies should be undertaken to ensure the proposal integrates with the local environment. The EA shall also provide the following documents:

- *Comparable height study to demonstrate how the proposed height relates to the height of the existing/approved developments surrounding the subject site and in the locality;*
- *Visual and view analysis to and from the site from key vantage points; and,*
- *Options for the siting and layout of the building envelopes, massing and articulation, with particular consideration given to the impact upon residential amenity arising from different options.*

The EA shall address the design quality with specific consideration of the massing, setbacks, building articulation, landscape setting, and public domain, including an assessment against the CPTED Principles.

The EA shall consider the interface of the proposed development and public domain and public domain improvements needed to provide a high level of residential and pedestrian amenity.

The EA must address solar access, acoustic privacy, visual privacy and view loss and demonstrate that the Concept Plan development will achieve a high level of environmental and residential amenity.

The EA shall address the siting of the development in relation to any existing significant landscaping on site and provide a site tree survey and detailed aborist report.

The EA should address the issue of noise impacts and provide details of how these will be managed and ameliorated though the design of the building, in compliance with relevant Australian Standards and the Department's Interim Guidelines for Development near Rail Corridors and Busy Roads.

6.2.1 Height Study

A Visual and View Analysis has been prepared by Candalepas Associates and is provided at Appendix F. The Visual and View Analysis provides an examination of comparable height within the area and illustrates that the proposed Concept Plan heights are justifiable within the local context.

Notably, the Visual and View Analysis identifies that the proposal presents a comparable height with the development on the northern side of Epping Road.

In relation to development on the southern side of Epping Road, the Visual and View Analysis concludes that:

"The forms of the buildings as proposed, whilst large, are reduced from their potential impact by:

a. The proposed landscape setting which is an important design element to this proposal; and

b. The façade articulation"

6.2.2 Visual and View Analysis

The Visual and View Analysis included at Appendix F demonstrates that the Concept Plan is appropriate for the site with regard to visual impact. The Visual and View Analysis concluded that whilst the project will have impacts on the visual environments of the surrounding area, these impacts are considered to be acceptable both in terms of the design outcome and the establishment of a more suitable form of development:

> *"The impact of the development does not outweigh its relevance in creating an appropriate built form for the roadway intersection and the removal of what, arguably, is an inappropriate residential form for the size of the intersection and street."*

6.2.3 Consideration of Options

The various options considered in the evolution of the current proposal are described below. The building height and massing of each option was assessed in terms of the scale and existing built forms in the locality, resulting in lower buildings addressing the neighbouring properties and or Allengrove Crescent to create a contextual outcome.

Option 1

The building separation and scale of this initial option was derived from analysis of extant built forms. Consideration was given to the height of building; in particular the blocks are much lower in scale along the south eastern boundary and on Allengrove Crescent where the project interfaces with single storey dwellings. Although the scheme provided amenity for neighbouring properties it lacked the necessary building separation to ensure suitable amenity for building occupants of the project in terms of sun access, natural ventilation and open spaces.

Option 2

Option 2 created greater private open space and amenity to most of the units through a general increase in height and setbacks to a majority of the building. The buildings of greatest height were located on Epping Road and on the south west of the site.

Option 3

Option 3 (the option that was described in the Preliminary Environmental Assessment) created smaller more useable open spaces that were defined by the building blocks. This scheme increased the setback to the south eastern boundary whilst reducing the height of the buildings. This improved the amenity of existing properties to the immediate south-east of the site.

Option 4

The conceptual approach was reconsidered in Option 4. The orientation and layout of the blocks resulted in greater amenity for the site. Daylight access and natural ventilation was achieved to a greater number of units and provisions of open spaces with appropriate sizes and proportions were provided.

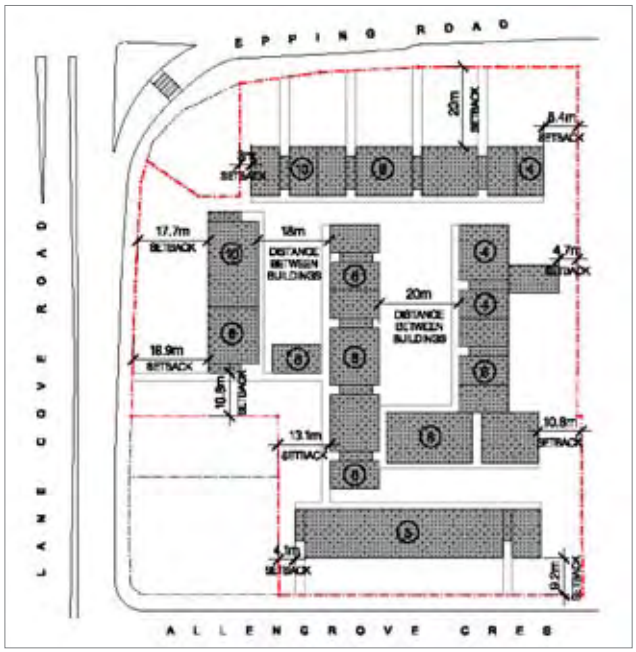
Previous options proposed a single building along the south eastern boundary adjacent to the low scale residential developments, compromising their amenity and daylight access.

Increasing the setback to the south eastern boundary achieves daylight access for 3 hours in mid winter to the open space and north facing windows of the adjacent dwellings.

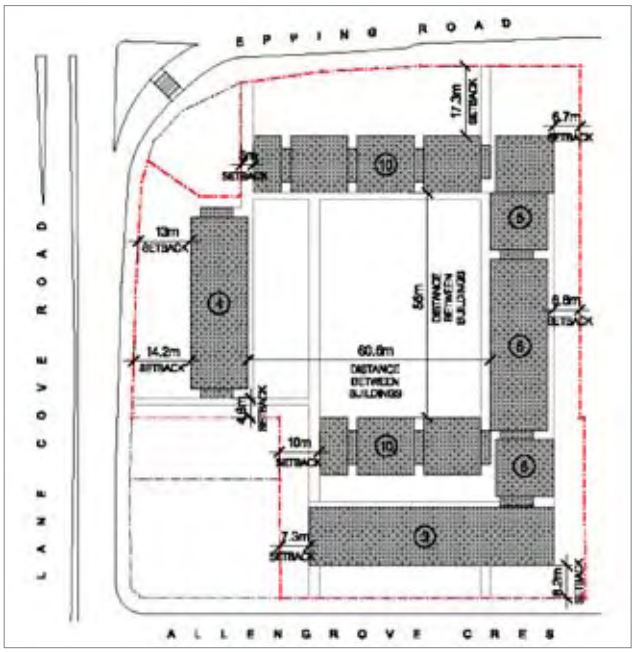
The long continuous wall presented to existing properties to the immediate south-east of the site is also replaced with long views into the site and landscape proposed therein.

The limited building separation in previous options compromised amenity in terms of sun access and natural ventilation. The provision of three rows of buildings, one fronting Epping Road, one fronting Allengrove Crescent and one in between provides larger communal open spaces and visual and acoustic privacy.

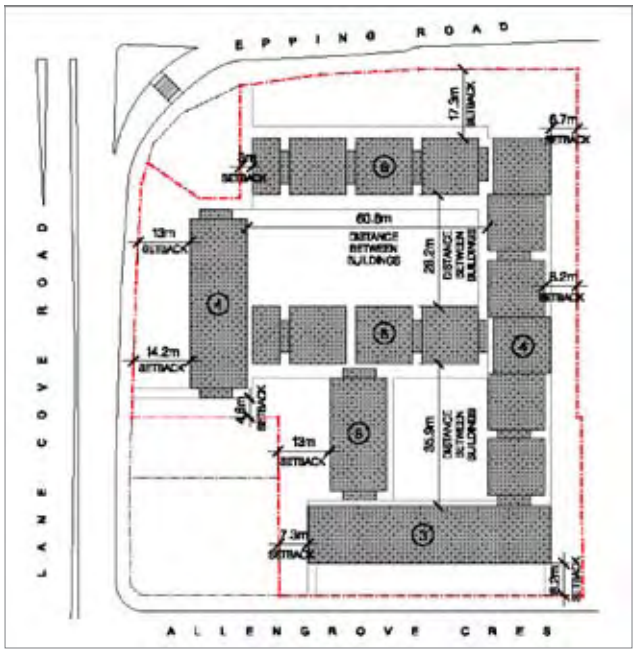
Figure 28 –Massing Options



OPTION 1



OPTION 2



OPTION 3

OPTION 4

OPTION 5

Option 5

Option 4 was further developed into Option 5 by increasing setbacks to improve the amenity of proposed dwellings and those to the south-east.

Building mass (i.e. height) was shifted away from the remnant property on the corner of Allengrove Crescent and Lane Cove Road towards the centre of the site to create a more contextual transition to the remnant property.

The setbacks to Epping Road were further considered to better define the street edge, stepping the block up towards the busy intersection and overpass, creating a more articulated form.

6.2.4 Design Quality

As discussed in the SEPP 65 Design Verification Statement (refer to Appendix E), the Concept Plan has been designed to ensure quality built form, urban design and public domain outcomes which are sympathetic to the surrounding environment. The SEPP 65 Design Verification Statement specifies that:

> *"The intent of the design is that both on a macro and micro level the detailing of the finishes and planning of the site will lift the standard of the surrounding area into the future and provide a high quality example for development in the area."*

The bulk, height and scale of the development as well as the range of materials and textures proposed have been carefully considered to address the surrounding buildings, scale of the street and the nature of the residential streetscape.

The Concept Plan has been designed to provide maximum amenity to the dwellings. All units are orientated to the north east and more than 75% of proposed units will receive a minimum of three hours solar access to the living areas and private open spaces during mid winter.

6.2.5 Crime Prevention Through Environmental Design Principles

Candalepas Associates has prepared an assessment of the proposal against the Crime Prevention Through Environmental Design (CPTED) principles.

The CPTED Assessment is included at Appendix P. The report demonstrates that the proposal has been designed to adhere to the CPTED principles. Design elements which support the CPTED principles include:

- Building layout and orientation which promotes passive surveillance;
- Appropriate separation of private and communal open space from Lane Cove Road and Epping Road through the provision of gabion walls;
- Comprehensive lighting plan providing appropriate design and lux levels to ensure safety in all internal and external communal areas of the development;
- Secured entrances to the site; and
- The use of light coloured painting and transparent materials to enhance light and visibility.

As illustrated in the CPTED report, the massing, setbacks, building articulation, landscape setting, and public domain effectively promote implementation of CPTED principles across the development.

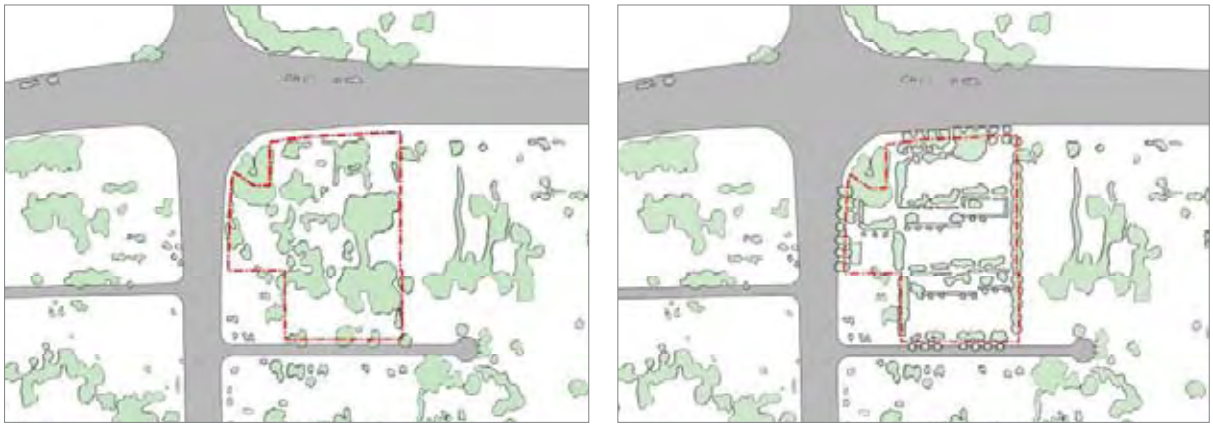
6.2.6 Public Domain Improvements

Public domain improvements proposed as part of the development are addressed in Section 5.6 of this report as well as the Landscape Report at Appendix L and the SEPP 65 Design Verification Statement at Appendix E. As outlined in these documents, improvements to the public domain proposed as part of the project incorporate both the upgrade of the Council reserve on the corner of Epping Road and Lane Cove Road and the introduction of street trees.

The implementation of these improvements will transform what is currently an under utilised, unattractive and unsafe public park into a useable space which coordinates and integrates with the proposal to establish a seamless interface with the development. Further, the introduction of street trees along Lane Cove Road, Epping Road and Allengrove Crescent combined with the upgrade of the turf verge and pedestrian footpath bounding sections of these roads, will contribute to a much improved streetscape which fosters a positive residential and pedestrian amenity.

Figure 28 demonstrates that the landscape concept proposed for the site will establish a greater amount of vegetation in the public domain than currently exists.

Figure 29 – Existing and Proposed Landscape Massing



EXISTING LANDSCAPE MASSING

PROPOSED LANDSCAPE MASSING

6.2.7 Privacy

The Concept Plan has been designed to ensure residential privacy both within the development and on adjoining sites. As outlined in the SEPP 65 Design Verification Statement at Appendix E and the RFDC compliance table at Appendix G, design measures such as orientation, setbacks and building separation, as well as the incorporation of shutters, will contribute to visual privacy.

Through its stepped design and north-east orientation, the Concept Plan allows for angled and offset placement of dwelling units, preventing cross-viewing. This design has been developed in accordance with the requirements of the RFDC.

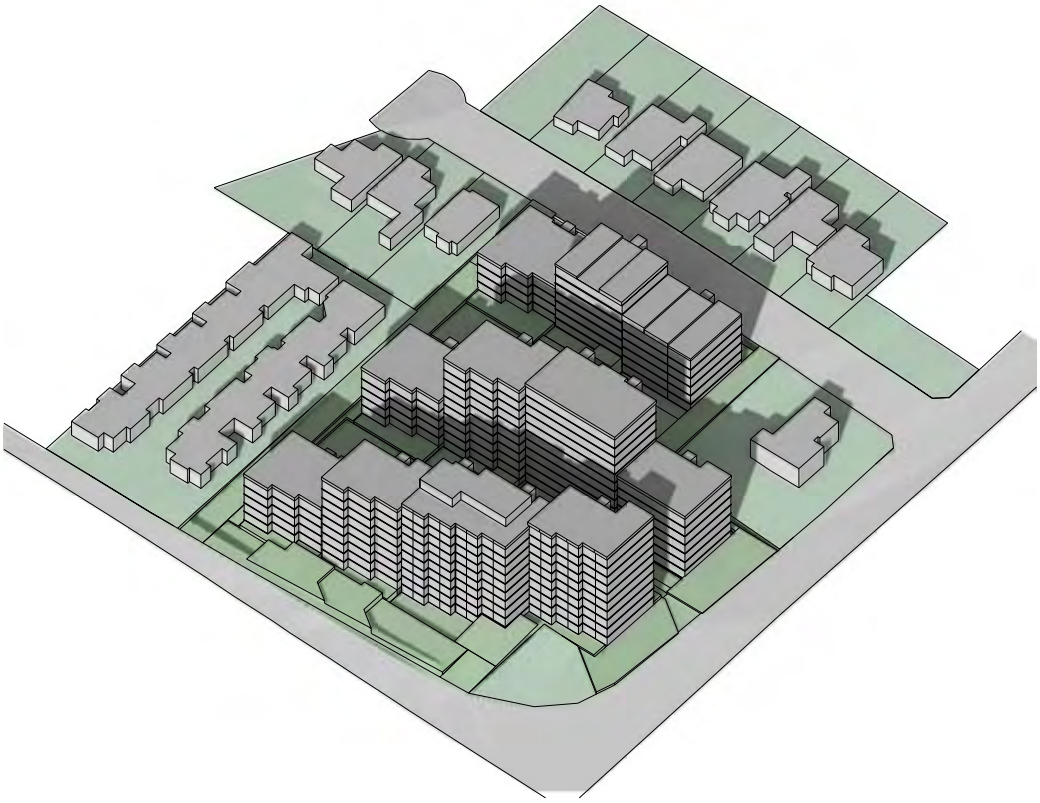
Further, significant building separation of 12m-30m is provided, once again meeting the standards of the RFDC. This building separation, coupled with the proposed landscaped areas between the buildings, will facilitate privacy within the development.

6.2.8 Sunlight and Overshadowing of Neighbours

As illustrated in the Solar Access drawing at Appendix D and discussed in the SEPP 65 Design Verification Statement, the indicative design of the proposal will have limited impacts on sunlight access to adjoining properties and will ensure appropriate levels of sunlight access are achieved within the proposal. More than 70% of the apartments in the development receive a minimum of three hours of solar access to the living areas and private open spaces during mid winter.

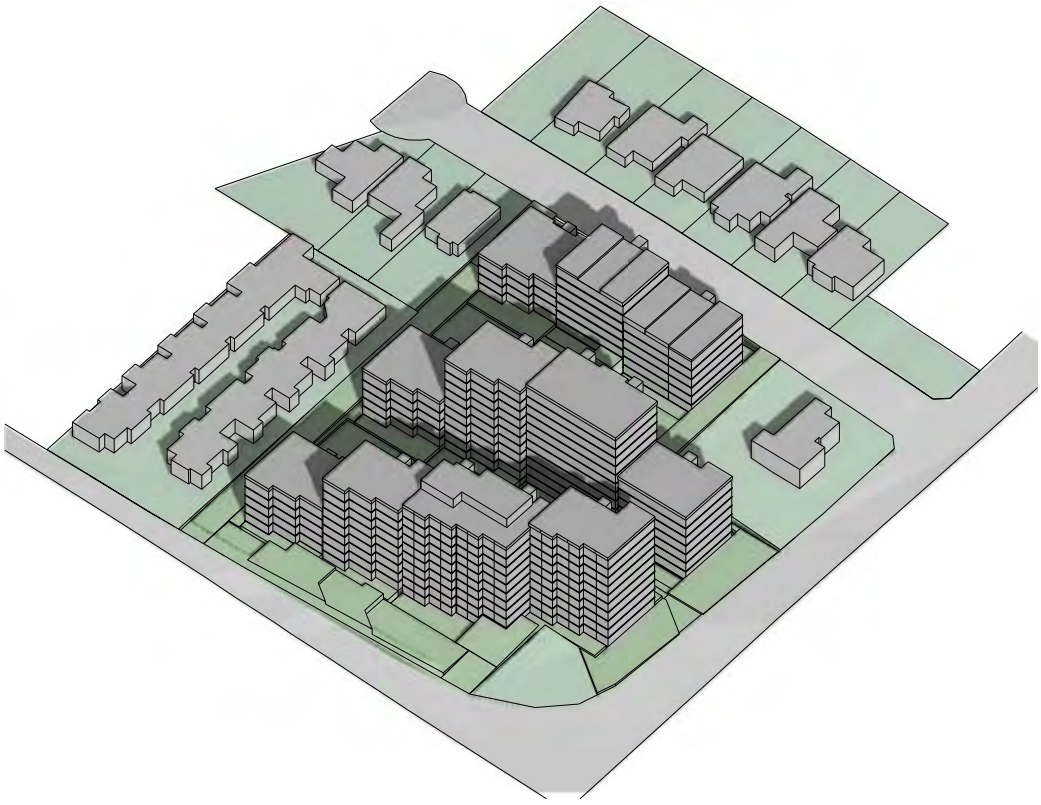
Whilst some overshadowing occurs to adjoining residences, all of these properties will retain a minimum of three hours of sunlight in mid winter to northern windows and private open spaces. As shown in Figure 29 below, all overshadowing of adjoining properties has ceased by 11 am in mid winter.

Figure 30 – Solar Access

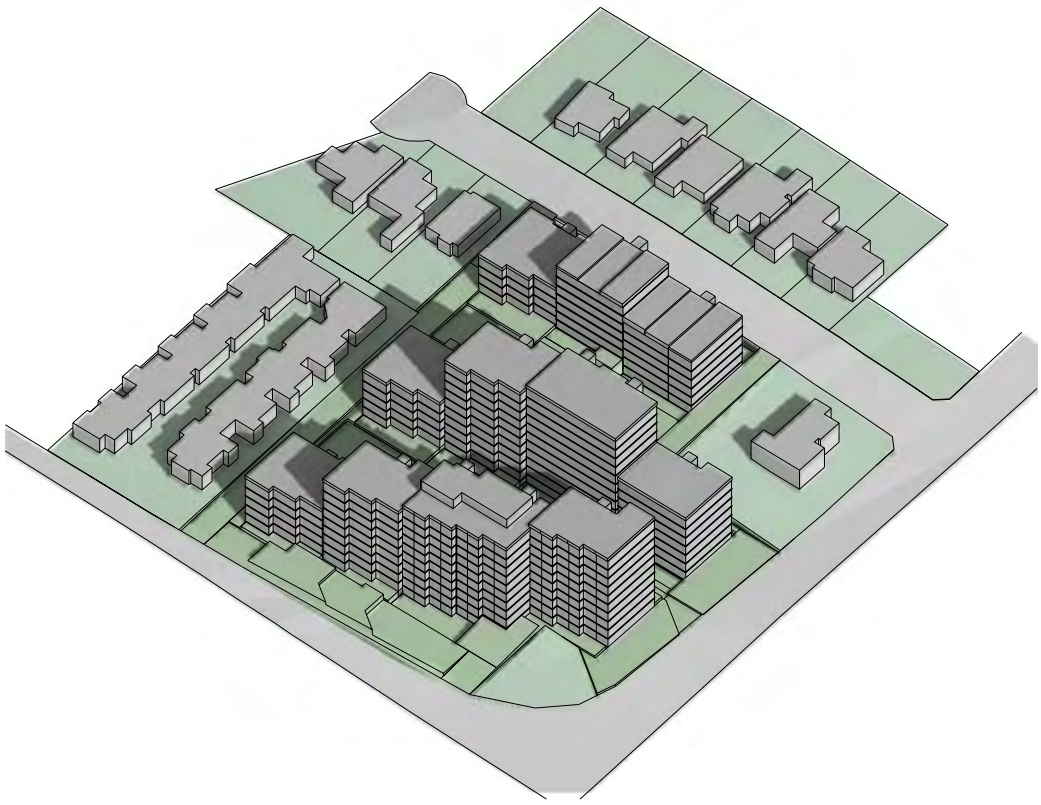


02 – SHADOWS CAST AT 10.00 AM 21 JUNE

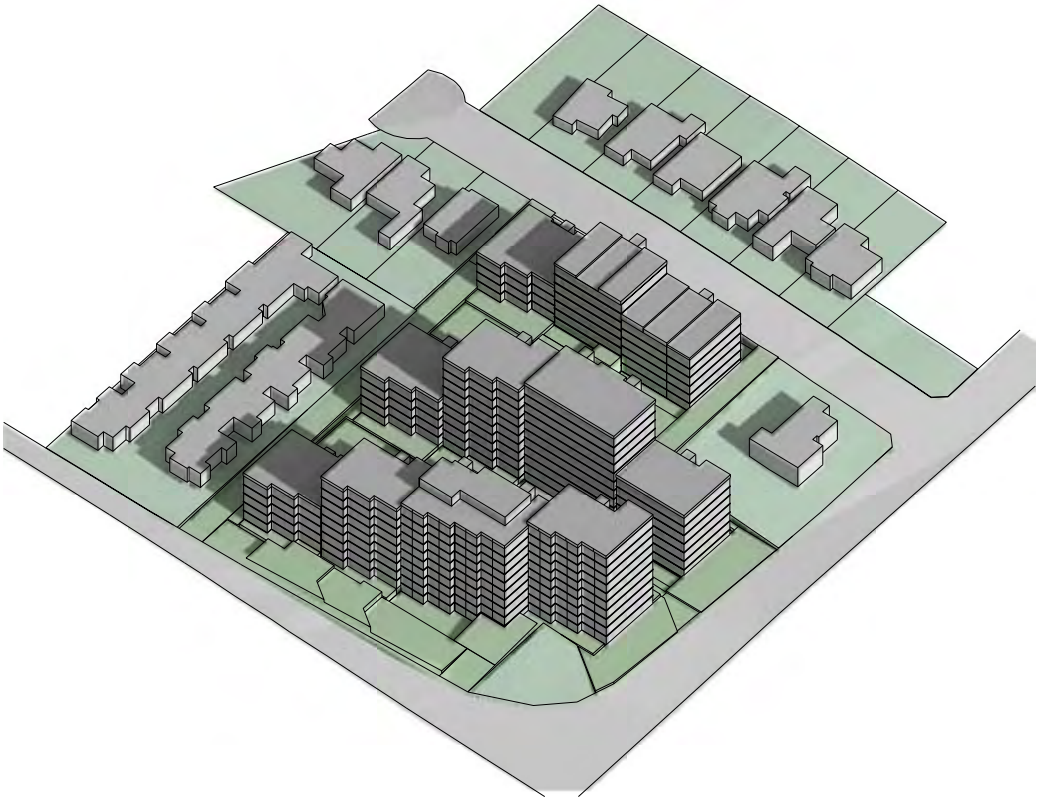
03 – SHADOWS CAST AT 11.00 AM 21 JUNE



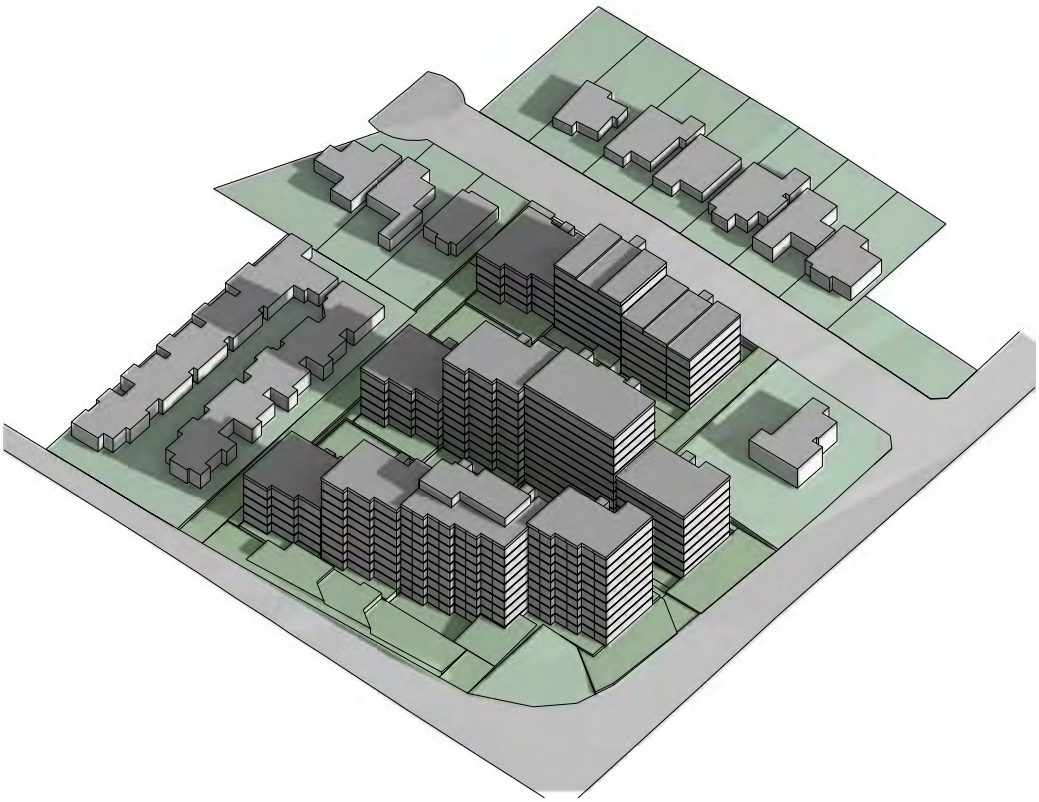
04 – SHADOWS CAST AT 12.00 PM 21 JUNE



05 – SHADOWS CAST AT 1.00 PM 21 JUNE



06 – SHADOWS CAST AT 2.00 PM 21 JUNE



07 – SHADOWS CAST AT 3.00 PM 21 JUNE

6.2.9 Noise

A Noise Impact Assessment has been completed by Heggies Pty Ltd. The Noise Impact Assessment notes that the DoP Interim Guideline Noise Criteria sets a building façade traffic noise level of 35 dBA for sleeping areas (between 10pm and 7am) and 40 dBA for habitable rooms at any time. Figure 30 is extracted from the Noise Impact Assessment and demonstrates the predicted building façade traffic noise levels.

Figure 31 – Building Façade Predicted Traffic Noise Levels

Building	Facade	Predicted Daytime/Night Noise Level in dBA	Mechanical Ventilation	Required Building Noise Reduction
Northern	North - east end	67/62	Y	27
	North – west end	68/63	Y	28
	West	69/65	Y	30
	South – west end	65/61	Y	26
	South - centre	58/53	Y	18
Central	North – west end	65/61	Y	26
	North – centre	58/53	Y	18
	West	68/64	Y	29
	South – west end	65/61	Y	26
	South - centre	62/58	Y	23
Southern	North – west end	60/56	Y	21
	North – centre	57/53	Y	18
	West	66/62	Y	27
	South – west end	60/56	Y	21
	South - centre	61/57	Y	22

Notes 1. The predicted noise levels are for upper levels and do not include the effects of topography, or any potential shielding at the lower building levels.

The Noise Impact Assessment states that:

> *"The typical outdoor to indoor noise reductions provided by most standard dwellings (i.e. without special acoustic treatment) is generally accepted to be 10 dBA with windows open (allowing for natural ventilation) and 25 dBA with windows closed … A reduction of outdoor to indoor noise of 30 dBA can be achieved through the upgrading of glazing. It is anticipated that this will be required in some parts of the project."*

The Noise Impact Assessment confirms that mechanical ventilation will be required for most dwellings. However this ventilation should be designed to ensure windows can be opened. It is not anticipated that all windows in all apartments will need to be closed, but rather that mechanical ventilation be provided to allow additional acoustic impact attenuation during particularly noisy times.

The Noise Impact Assessment is included at Appendix Q.

6.2.10 Vegetation

The site contains numerous trees consistent with a typical urban environment. An arborist report has been prepared by Footprint Green to assess the condition and significance of existing vegetation on the site. The arborist report is provided at Appendix J.

In summary the arborist report identifies three trees as having Significant Landscape Significance. These include:

- 1 Eucalyptus sp.
- 1 Pinus patula (Mexican Yellow Pine)
- 1 Corymbia maculate (Spotted Gum)

The *Eucalyptus sp.* will be retained. However the Mexican Yellow Pine and the Spotted Gum will be removed. Whilst these two trees are healthy and in good condition, retaining them within the scale of development is not feasible.

In total, the arborist report proposes the removal of 109 trees from the site. Of these, five are considered to be of High Landscape Significance. These specimens have been established in a highly varied and uncoordinated arrangement given the previously fragmented ownership of the site and the single dwelling allotments. These trees will be replaced with comparable density and number as part of the coordinated landscape theme proposed for the development.

Of the remaining trees proposed for removal, 38 have been identified as noxious weeds and the rest are only of Low-Moderate Landscape Significance. These will be replaced as part of the coordinated landscape plan prepared for the site.

It is also noted that the arborist report proposes to remove ten trees from the adjacent reserve. Whilst these tress are not located on the site the removal of the trees has been proposed to enhance the existing poor conditions in the reserve. The project is not contingent on this occurring and the trees will only be removed with the approval of Ryde City Council.

6.3 Isolated Sites

Director General's Environmental Assessment Requirement No. 3

The proposal should seek to amalgamate with the adjacent properties known as 253-257 Lane Cove Road so that there is a more appropriate and reasonable relationship with future developments in the locality. The EA shall include details outlining negotiations with the owners of the affected properties. In the event that amalgamation is not possible, the EA shall address development potential of the isolated sites if they cannot be included within this proposal.

The Land and Environment Court established a planning principle in this regard in the matter of *Melissa Grech v Auburn Council [2004] NSWLEC 40*.

This planning principle provides that when a proposal will isolate an adjoining property, negotiations to amalgamate the site should commence as soon as possible. Where amalgamation cannot be achieved, details of the negotiations should be provided as part of the development application.

The judgement also states:

"A reasonable offer, for the purposes of determining the development application and addressing the planning implications of an isolated lot, is to be based on at least one recent independent valuation."

Finally, the judgment states that the level of negotiation and any offers made can be given weight in the consideration of the development application:

"The amount of weight will depend on the level of negotiation, whether any offers are deemed reasonable or unreasonable, any relevant planning requirements and the provisions of s 79C of the Environmental Planning and Assessment Act 1979."

Whilst the project will 'isolate' the property on the corner of Allengrove Crescent and Lane Cove Road (253-257 Lane Cove Road), the proponent has made numerous documented offers (refer to Appendix R) to acquire this site over a considerable period of time. As these reasonable offers have all been declined, the scheme has been designed to step down towards this property to reasonably protect its amenity and context, and the Concept Plan illustrates how a future redevelopment of this site could occur in a co-ordinated manner.

6.4 Staging

Director General's Environmental Assessment Requirement No. 4

The EA shall include details regarding the staging of the proposed development including the provision and timing of all required infrastructure works, including a schedule of works and infrastructure to be available for each stage.

The proposal will be developed as a single project and as such no staging plan has been prepared. Construction phasing will be required to ensure the orderly and efficient delivery of the project. This phasing will see the building closest to Epping Road constructed first, followed by the middle building, and then the building fronting Allengrove Crescent.

The proposal is located within a highly urban area with all services available. Augmentation of these services will be detailed at construction certificate phase of the process if required.

6.5 Transport and Accessibility (Construction and Operational)

Director General's Environmental Assessment Requirement No. 5

The EA shall address the following matters:

- *Demonstrate the provision of minimal levels of on-site car parking for the proposal having regard to local planning controls, RTA guidelines, and the high public transport accessibility of the site, and include opportunities for car sharing.*
- *Provide an estimate of the trips generated by the proposed development and identify measures to manage travel demand, increase the use of public and non-car transport modes, and assist in achieving the objectives and targets set out in the NSW State Plan 2010;*
- *Provide a Traffic and Accessibility Impact Study prepared with reference to the RTA's Guide to Traffic Generating Developments and Australian Standards, considering traffic generation including trip generation (daily and peak traffic movements), any required road/intersection upgrades, service vehicle generation and movements, access, loading dock(s), car parking*

arrangements, and measures to promote public transport usage and pedestrian and bicycle linkages; particularly between the site and Macquarie Park train station and the nearest bus stops and the potential for implementing a location specific sustainable travel plan; and

- *Provide an assessment of the implications of the proposed development for non-car travel modes (including public transport, walking and cycling), including an assessment of existing and proposed pedestrian and cycle movements within the vicinity of the subject site;*

- *Details of the potential impacts on the local road network and in particular, the intersections identified in the RTA response (25 May 2010). Consideration should also be given to the Macquarie Park 2007 Base Paramics Model, where appropriate; and*

- *Consideration of future pedestrian/vehicular/cycle connectivity with adjoining sites and to and from the Macquarie Railway Station.*

As discussed in Section 6.1.7, the Traffic Report determines from the results of Paramics modelling that with the exception of the Wicks Road and Epping Road intersection, each of the intersections analysed as part of the traffic assessment will remain generally unchanged in regards to their Level of Service.

In addition, the Concept Plan provides for appropriate levels of car parking as detailed in the Traffic Report. Figure 31 has been taken from the Traffic Report and provides a breakdown and calculation of the proposed car parking numbers:

Figure 32 – Car Parking Provision

Type	Number Attending	Council Parking Rates	Spaces Required	Spaces Provided
One Bedroom	64	1.0 spaces per unit	64	64
Two Bedroom	167	1.2 spaces per unit	201	201
Three Bedroom	38	1.6 spaces per unit	61	61
Visitor	269	1 space per 4 units	68	68
		Totals	394	394

Visitor parking, disabled parking and cycle facilities will be provided in accordance with Council's requirements as outlined in the Traffic Report.

The site provides excellent opportunities for walking and cycling, being located within walking distance to Macquarie Park train station as well as a range of services and facilities and being situated adjacent to the regional bike path network.

The Traffic Report concludes that the proposal can be accommodated within the existing transport infrastructure, and further, that the proposal is strategically placed to represent a Transit Oriented Development. Full details are included in the Traffic Report at Appendix K.

Traffic Demand Management

In contrast to a workplace environment or other destination based land uses, where opportunities to influence travel demand (such as car pooling) are easier, it is difficult within a residential development to enforce non car usage. The principal traffic demand management feature of the project is the location of a significant supply of housing in the immediate vicinity of train, bus and local/regional cycleway infrastructure, where the opportunity to utilise transport modes other than cars is optimised. Notwithstanding this, measures identified in the Traffic Report under the heading "Sustainable Travel" include:

- The provision of a travel plans located in common areas that would identify:
  - all local bus stop locations,
  - bus and rail time tables
  - location of taxi ranks in the locality
  - location of local services within walking distance such as convenience stores, supermarkets and other retail related areas,
  - location of car share vehicles within reasonable walking distance (if any) and
  - local cycle routes.
- Provision of considerable bicycle storage facilities within the development to help promote usage. This will be detailed at project application stage.
- Consultation with car share operators such as Go Get to provide car share vehicles either within Allengrove Road or nearby elsewhere, for use by local residents. This will obviously be dependant upon the car share operator.
- The provision of parking at the minimum rate under Council's DCP. The restriction of parking on the site will suppress car ownership and promote public transport and other sustainable transport solutions.

Commitment in the above regards are made as relevant in the Statements of Commitment at Section 5.9. Should other options be identified in the consultation and assessment process that would help encourage alternative transport options, these can be incorporated in the Preferred Project Report where appropriate. A Traffic Report has been prepared by Traffix. The Traffic Report addresses the issues raised in this DGR and concludes that the proposal is suitable on traffic grounds. In addition, the Traffic Report concludes that the traffic impacts on the existing network associated with the development will be negligible.

6.6 Ecologically Sustainable Development (ESD)

Director General's Environmental Assessment Requirement No. 7

The EA shall detail how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development.

The EA should include a commitment to a likely minimum standard of ESD to be attained and provide detail of how those standards can be met.

The underlying principle of concentrating new development around major transport nodes in existing areas is one of the most important sustainability objectives for the future development of Sydney, and significantly contributes to:

- Containment of the urban footprint of Sydney.
- Better utilisation of existing infrastructure.
- Reduced private car use and associated congestion and $C0^2$ emissions.

As discussed in Section 5.5 of this report, a comprehensive ESD analysis of the proposal has been undertaken by Built Ecology (refer to Appendix M). The report describes how the proposal incorporates ESD principles and outlines a series of commitments relating to the proposed ESD measures to be incorporated in the development.

In addition, the proposal endeavours to uphold the principles of ESD through a range of initiatives including a communal market garden, upgrade of the adjoining public reserve, and establishment of street trees.

The proposal will not only meet the minimum standard of ESD, but will include a number of best practice initiatives. Refer to the ESD Strategy prepared by Built Ecology (located at Appendix M) for a complete description and analysis of the ESD measures proposed for the development.

6.7 Drainage, Stormwater Management and Flooding Potential

Director General's Environmental Assessment Requirement No. 8

The EA shall include a Stormwater/Drainage/Flood Study addressing drainage/groundwater/flooding issues associated with the development and the site, including consideration of any required infrastructure upgrades and stormwater/flooding management strategies/mitigation measures for development of the site and adjacent lands.

The EA shall address the requirements for additional drainage infrastructure and the incorporation of Water Sensitive Urban Design measures.

A Stormwater Management and Flood Assessment has been undertaken by Worley Parsons. The report details flooding, stormwater management, hydrology and Water Sensitive Urban Design matters affecting or proposed as part of the development and is included at Appendix N along with a Stormwater Management Concept Plan.

As outlined in the report, the proposal is appropriate with regard to drainage, stormwater and flooding potential as there are no flooding issues on site, appropriate drainage and stormwater control measures will be implemented and no additional infrastructure will be required.

It is proposed that overland flow paths will be constructed to ensure stormwater flows are conveyed into the existing stormwater network.

Further, the Stormwater Management and Flood Assessment proposes the establishment of on-site detention (OSD) tanks to control and limit stormwater runoff generated across the site. These tanks will include a discharge control outlet to control peak flows. Discharge controls will be designed to cater for all storm events up to the 100 year average recurrence interval (ARI) storm event.

The implementation of Water Sensitive Urban Design best practice principles is proposed, including rainwater tanks, litter baskets, OSD tanks and bio-retention basins. Through the implementation of these measures, the Department of Environment, Climate Change and Water pollutant reduction targets for urban stormwater management will be achieved.

6.8 Contributions

Director General's Environmental Assessment Requirement No. 9

The EA shall address the provision of public benefit, services and infrastructure having regard to Council's Section 94 Contribution Plan, and provide details of any Planning Agreement or other legally binding instrument proposed to facilitate this development.

In accordance with the Ryde City Council Section 94 Development Contributions Plan 2007 and the 2010 Contribution Rates for development outside the Macquarie Park area, the following rates are applicable to the proposal:

- 1 bedroom dwelling: $9,313.13 per dwelling
- 2 bedroom dwelling: $11,175.75 per dwelling
- 3 bedroom dwelling: $14,280.11 per dwelling

Based on these rates, the Section 94 Contribution for the proposal has been calculated as follows (based on indicative dwelling numbers in accordance with the Concept Plan):

Table 5 – Section 94 Contributions

Dwelling Type	Number of Units	Rate per Dwelling	Cost per Dwelling Type
1 bedroom dwelling	59	$9,313.13	$549,474.67
2 bedroom dwelling	159	$11,175.75	$1,776,944.25
3 bedroom dwelling	33	$14,280.11	$471,243.63
		TOTAL:	**$2,302,662.55**

Contributions will be paid in accordance with these calculations.

6.9 Statement of Commitments

Director General's Environmental Assessment Requirement No. 10

The EA must include a draft Statement of Commitments detailing measures for environmental management, mitigation measures and monitoring for the project.

The Statement of Commitments is contained in Section 5.9 of this report and at Appendix C.

6.10 Consultation

Director General's Environmental Assessment Requirement No. 11

Undertake an appropriate and justified level of consultation in accordance with the Department's Major Project Community Consultation Guidelines October 2007.

It is proposed to conduct a community consultation program in conjunction with the public exhibition period of this application by DoP. This consultation program will include:

- Community information days – a number of community information days will be held on site. These will be advertised locally and will allow interested parties to attend at their convenience to obtain information, ask questions and raise concerns.
- Stakeholder meetings – briefing sessions will be held to engage with key stakeholders including local councillors, state and federal members, representatives from government agencies and local community groups.
- Media briefings – a series of media briefing sessions will be carried out in order to provide information on the proposal to the wider community via media channels. These media briefings will include information on the other consultation program components to allow interested parties to take part.
- Project website – it is proposed to establish a project website which will disseminate information regarding the project. The project website will be established to go live on the first day of the statutory public exhibition period.
- Telephone and email feedback – a 1800 number and project email will be set up to enable people to provide comments on the proposal.

7 Conclusion

The Macquarie Park Corridor is a critical component of the future employment potential of Sydney, and significant public investment has recently been made to serve the corridor by heavy rail. While it is important to protect the future employment potential of land within the corridor, key aspects of the Metro and Draft Subregional strategies emphasise the importance of concentrating future housing in centres and along transport corridors, in view of a wide range of transport, environmental, sustainability and livability objectives.

Furthermore, a significant shortfall exists between the housing growth required under the Metro Strategy and the housing potential of the Ryde LGA identified by Council. The provision of significant densities of housing on the very limited locations that are outside the Macquarie Park Corridor, but within walking distance of the new railway stations, will achieve many significant strategic planning objectives.

While the project will transform the existing low density detached dwelling character of the locality, existing dwellings on the site fronting Lane Cove Road and Epping Road are significantly compromised by noise levels associated with traffic on these roads. The Concept Plan will facilitate high quality redevelopment adopting measures to suitably mitigate this impact, providing renewal of compromised housing stock. The significantly enlarged built forms step down to surrounding lower scale development, and at their tallest point reflect a logical extension of the existing and planned built forms along the adjacent length of Lane Cove Road within the Macquarie Park Corridor.

Detailed traffic modelling demonstrates that the project will not perceptibly alter the traffic performance of any surrounding road intersections, and the proximity of the site to a range of rail, bus, car, cycle and walking transport options, in addition to a range of local services and facilities, will assist in reducing private vehicle reliance, and associated pollution and congestion impacts across the city.

Suitable measures have been implemented to mitigate potential overshadowing, privacy and visual impacts upon surrounding residential properties. While the project will significantly alter the existing context of these properties, it will nevertheless provide an alternative high quality environment and one which is more appropriate on the intersection of arterial roads of such scale.

In view of the above, we conclude that the project represents one of very few opportunities to provide transit oriented housing to complement the significant public and private investment in the Macquarie Park Corridor and rail. While transformational, the project will not result in any unreasonable adverse impacts but will provide very significant urban benefits. We therefore commend the Concept Plan to the Minister for approval.

Sydney
Level 21,
321 Kent Street
Sydney, NSW 2000

Tel: +612 8233 9900
Fax: +612 8233 9966

Brisbane
Level 12,
120 Edward Street
Brisbane, QLD 4000

Tel: +617 3007 3800
Fax: +617 3007 3811

Dubai
Level 4, Attareen Building,
Saaha Offices,
Old Town Island Downtown Burj Dubai,
UAE

Tel: +971 4 4200212
Fax: +971 4 4200209

Melbourne
Level 12,
120 Collins Street
Melbourne, VIC 3000

Tel: +613 8663 4888
Fax: +613 8663 4999

Perth
Ground Floor,
53 Ord Street
West Perth, WA 6005

Tel: +618 9346 0500
Fax: +618 9321 7790

Australia • Asia • Middle East
www.urbis.com.au
info@urbis.com.au