GMU
Urban Design & Architecture

URBAN DESIGN REPORT IN SUPPORT OF PLANNING PROPOSAL FOR 4-18 NORTHWOOD ROAD & 274-274A LONGUEVILLE ROAD

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1. INTRODUCTION

1.1 INTRODUCTION

GM Urban Design & Architecture (GMU) have been appointed by Pathways Residences to undertake an urban design study for a Seniors Living (Aged Care Facility) Development for the site located at Nos. 4-18 Northwood Road and 274-274A Longueville Road, Lane Cove (the subject site).

The main purpose of this study is to suggest appropriate built form principles and density to achieve a better urban design outcome that contributes to the revitalisation of the area as well as a sustainable development which benefits the local community. A comprehensive urban design analysis of the site and the desired future character of the area has been undertaken in formulating the views and design approach for the subject site.

This study has considered the broader planning framework for the surrounding area and the intent of the applicable controls in relation to the general and immediate context. This urban design report forms part of the supporting documentation included as part of the Planning Proposal Application for the site.

1.2 METHODOLOGY

In undertaking this study and arriving at the conclusion in this report, GMU has used the following methodology:

- Visited the site and its immediate and broader context;
- Reviewed the Sydney Metropolitan Strategy "A Plan for Growing Sydney";
- Reviewed the current Lane Cove Local Environmental Plan (LEP) and Development Cotrol Plan (DCP) for the subject site, Northwood Neighbourhood Centre and surrounding area in general;
- Reviewed recent Planning Proposals in the vicinity of the subject site;
- Reviewed Tree Report prepared by Stuart Pittendrigh;
- Reviewed Flora and Fauna Assessment prepared by Cumberland Ecology Pty Ltd;
- Reviewed Report on Groudwater Testing - 4-10 Northwood Road Longueville prepared by Douglas Partners;
- Reviewed Traffic Impact Assessment prepared by Traffix;
- Reviewed the architectural drawings prepared by Morrison Design Partnership;
- Reviewed Final of Comments-Community Information Session prepared by Urban Concepts;
- Reviewed Communication Report prepared by Urban Concepts;
- Considered the site from various vantage points including approaching by car and public transport and its visibility from River Road West/Northwood Road and Longueville Road.

1.3 THE SITE

The subject site is located at the main intersection of River Road West/Northwood Road and Longueville Road/Kenneth Street. The site consists of Nos. 4-18 Northwood Road (the northern part of Northwood Neighbourhood Centre which is also known as Blaxland's Corner) and 274 & 274A Longueville Road, Lane Cove. The site has an total area of approximately 5,002.8sqm and is irregular in shape. It has a long street frontage of approximately 104m to Northwood Road with high visibility on approach from River Road West/Northwood Road.

The site is currently occupied by 2 detached dwellings at the northern end of the site, a service station and three 1-2 storey shop-top buildings with surface car parking. The majority of the site is identified as part of Northwood Neighbourhood Centre.

The site is bounded by Northwood Road to the west, Lane Cove Golf Course and bushland (zoned Environmental Conservation Land) to the east, lower scale residential flat buildings to the north and single dwellings to the south. It is on a bus route and has a direct road access to and from surrounding suburbs.

Figure 1. The site (aerial courtesy: Six Maps)

2. STRATEGIC CONTEXT

2.1 STRATEGIC CONTEXT

Metropolitan Strategy

The subject site is located in Sydney's North Subregion and the suburb of Lane Cove. It is approximately 1km south of Lane Cove Town Centre, 2.5km west of St Leonards, 5km north-west of North Sydney CBD. It is well connected to the M2 Motorway to the north via the local road network. The M2 is identified as a strategic bus corridor servicing the area.

The site is in close proximity to a number of urban centres such as Lane Cove, St Leonards and Sydney CBD. It also enjoys quality public amenities, which include accessible public transport, public open space associated with recreational facilities and community facilities such as Lane Cove Music & Cultural Centre and Royal North Shore Hospital.

The site forms part of the Northwood Neighbourhood Centres (Blaxland's Corner), which sits at the convergence of Longueville Road/Kenneth Street and River Road West/Northwood Road. These two major thoroughfares directly connect the centre to the wider Lane Cove area and Sydney CBD. The site's prominent location at the heart of the centre and a meeting place of major roadways makes it an ideal place to be identified upon arrival and a resting point for the passers-by and travelers.

As identified in the Metropolitan Strategy 'A Plan for Growing Sydney'', the site falls within the Global Economic Corridor, which aims to provide concentrated jobs and activities in strategic centres, transport gateways and industrial lands. The strategy also establishes an over-arching vision to increase housing density closer to work and amenities. Therefore, it is GMU's opinion that the proposed new development has the potential to deliver increased housing and job opportunities that will benefit the local community and contribute towards meeting Sydney's increasing population needs.

The large consolidated site containing the entire northern part of the neighbourhood centre has the opportunity to provide support services to the local community on a side of the centre that is unlikely to ever enjoy a high level of pedestrian footpath or good connectivity.

Lane Cove Strategic Plans - Seniors living

According to the Australian Bureau of Statistics, there will be a large increase of ageing population in Lane Cove area over the next 16 years. To cater for and accommodate the envisaged increase of seniors population, Lane Cove Council has undertaken a number of investigations and prepared the Community Strategic Plan 2025, Lane Cove Social Plan and Seniors Social Plan. These documents have recognised the increasing ageing population and future social needs of the community and encourages the creation of more accessible and affordable housing which is appropriate for Seniors. The intent is to cater for whole life-cycle planning and the provision of aged care facilities and concentrated growth of housing around transport services.

In line with Metropolitan Sydney and Council's strategies, the proposed Seniors Living development on the subject site is a desirable use that will contribute to the job opportunities and provide a sustainable living environment for Seniors.

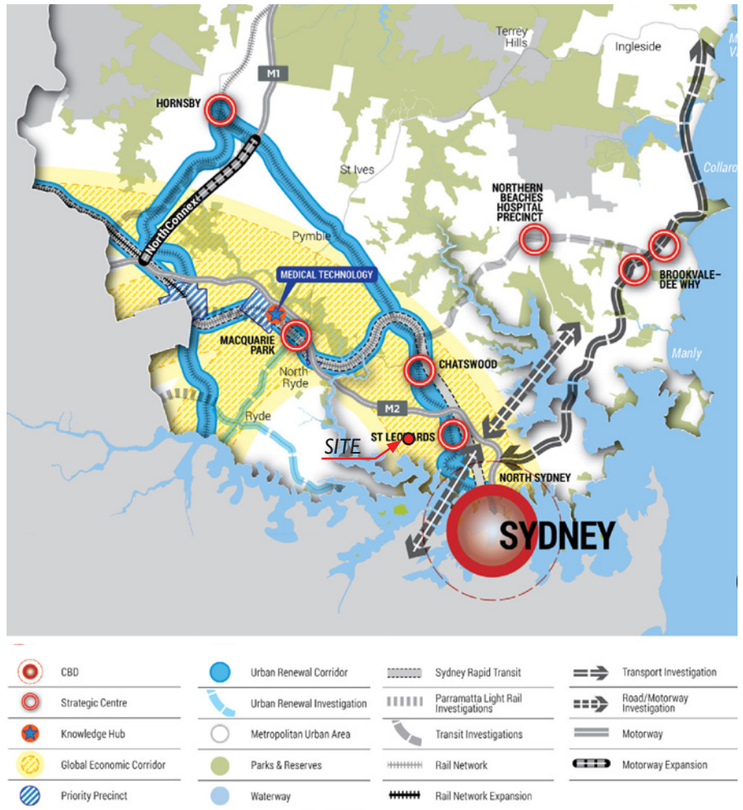


Figure 2. The site in the strategic context (Source: A Plan for Growing Sydney)

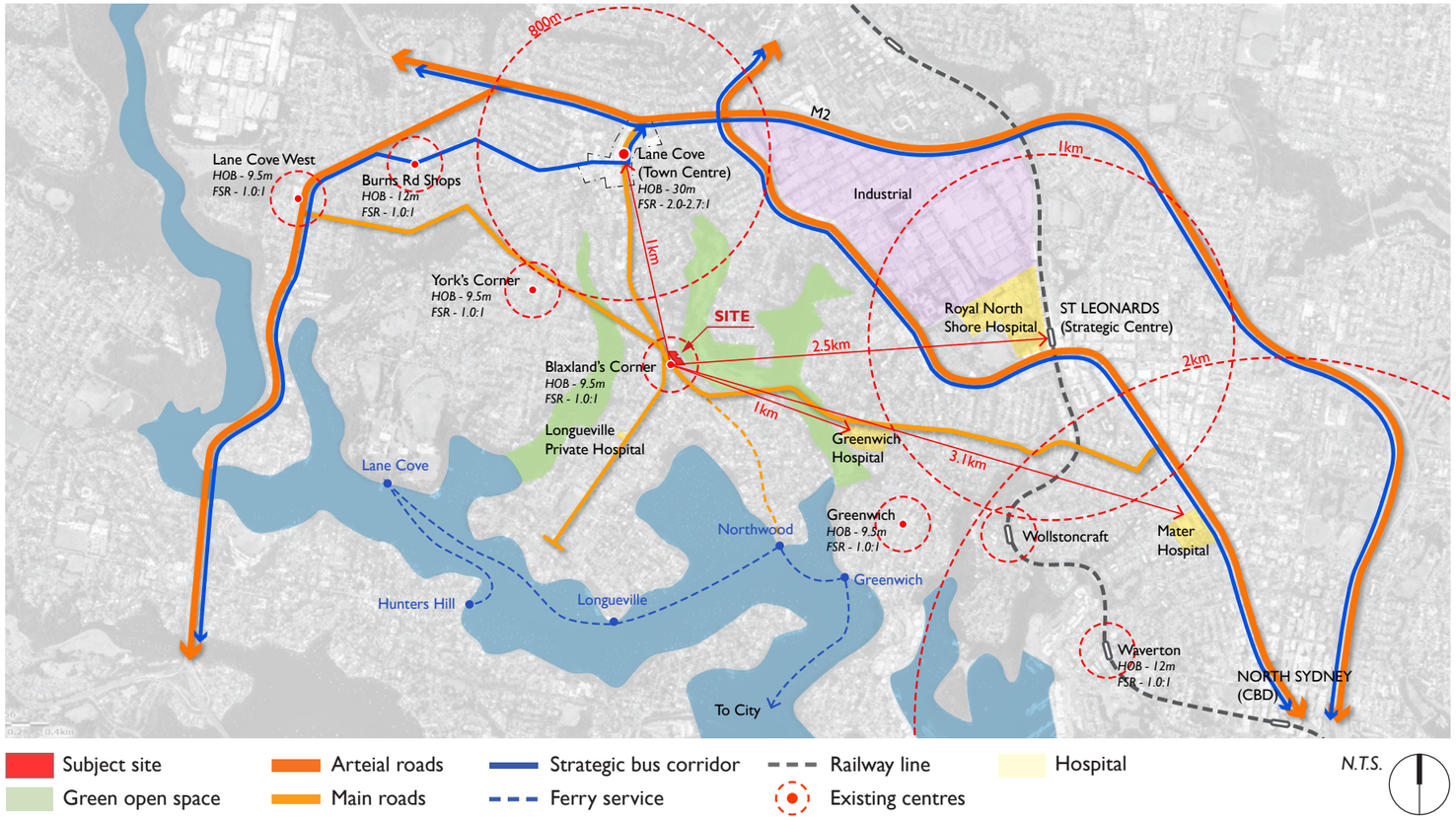


Figure 3. The subject site in the sub-regional context (adapted from Six Maps)

2.2 THE CURRENT PLANNING CONTROLS - LANE COVE LEP

GMU has reviewed the current applicable controls for the site and its surrounding context in order to understand the current development potential for the site. The permissible controls including zoning, height of building, FSR and heritage significance and are discussed below:

Zoning

- The majority of the site is currently zoned B1 - Neighbourhood Centre;
- The allotments at the northern end of the site are zoned R4 - High Density Residential (see Figure 4);
- The lands opposite Northwood Road to the south of the site are zoned B1, forming the southern part of the centre. Northwood Road, a busy thoroughfare divides the centre;
- Central Park is associated with a number of recreational facilities to the west and is zoned RE1-Public Recreation. It defines the western edge of the centre and balances the development around the intersection;
- R4 - High Density Residential is generally applied to the immediate north of the site and R2 - Low Density Residential to the adjacent lands to the south;
- The Environmental Conservation Zone (E2) is adjacent the site to the east.

Height of Building

- The subject site has a permissible height of 12m towards the north end and 9.5m to the rest of the site;
- Adjacent the site to the north, the permissible heights for the R4 zone are 12m and RL62.8
- The general allowable height control to the R2 residential area to the south east is 9.5m;

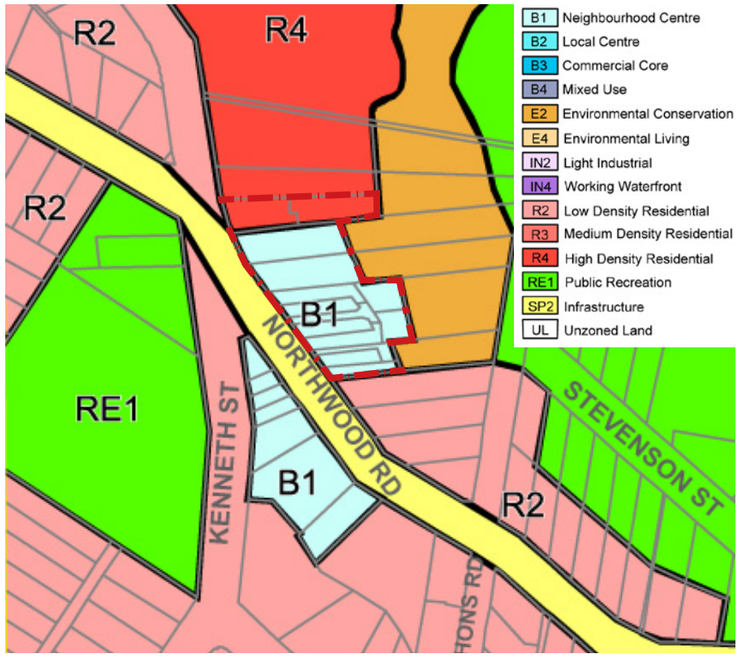
FSR

- The current applicable FSR for the subject site is 0.8:1 to the northern lot and 1.0:1 to the remainder;
- The high density residential area to the north has an FSR of 0.8: 1, rising up to 1.1:1 at 266 Longueville Road (a seniors living development);
- The general FSR for the low scale residential area is 0.5:1.

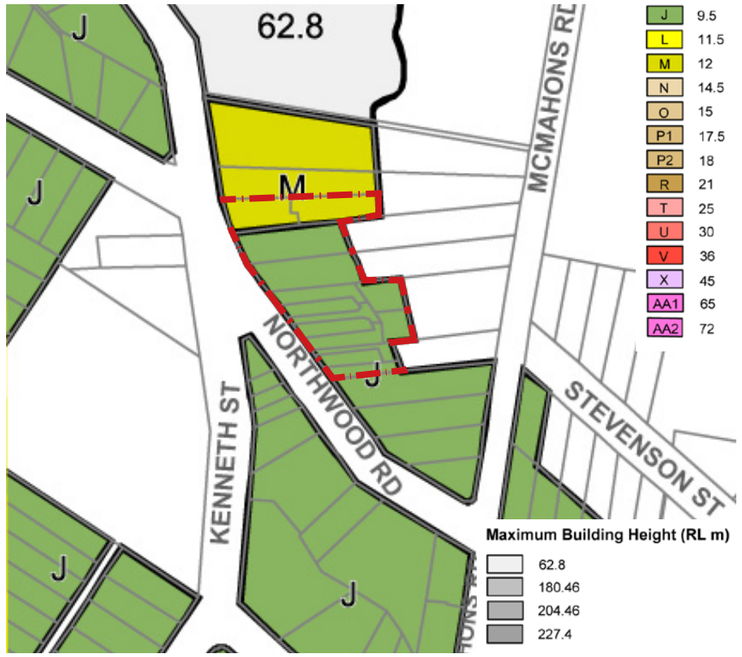
Heritage

- There are no heritage items found on the site; and
- There are a number of heritage items in close proximity, to the north and south of the site. The proposed development will have no direct impact on these items.

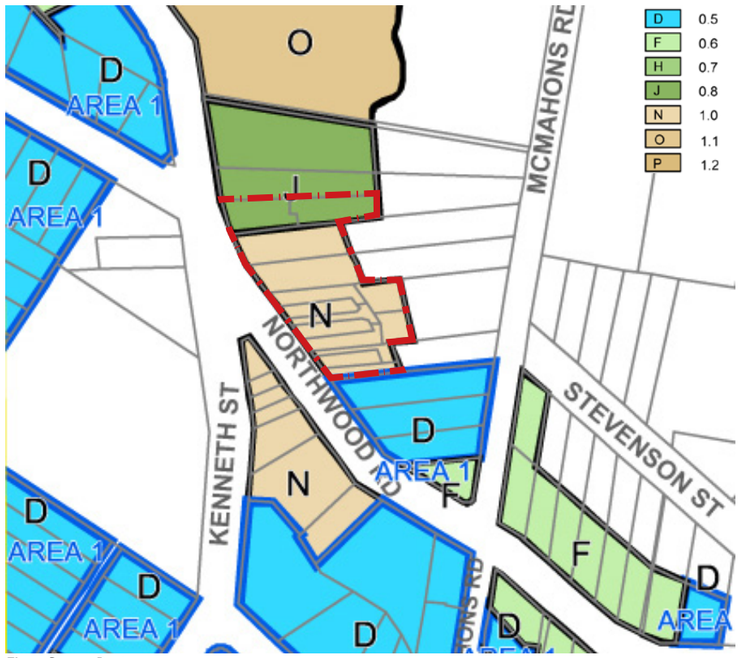
GMU's overview of the planning instruments shows that the existing centre and the nearby quality open space areas are fragmented by the busy roads network to the intersection of Northwood Road and Kenneth Street. The current planning controls offer little incentive to facilitate redevelopment of the centre. It is GMU's opinion that the existing controls should be reconsidered to encourage the revitalisation of the neighbourhood centre to provide relevant facilities and services to meet residents' daily needs.



Zoning



Height of Building



Floor Space Ratio

Heritage

Figure 4. Current Lane Cove LEP controls

2.3 LANE COVE DCP - NORTHWOOD NEIGHBOURHOOD CENTRE

Lane Cove DCP Part D - Locality 2 - Northwood Neighbourhood Centre

The Lane Cove DCP - Northwood Neighbourhood Centre provides the design strategies, desired future character and objectives that will guide the future development of the centre. It encourages a pedestrian and cyclist friendly, vibrant and active neightbourhood centre for local residents. It also envisaged that the centre will complement Lane Cove Town Centre.

The design strategies and desired future character relevant to the subject site are:

- Encourage commercial/retail uses along Northwood Road and retail uses with high pedestrian visitation along Kenneth Street, incorporating Central Park as part of the future local centre;
- Encourage mixed use developments to all blocks;
- Upgrade the public domain along River/Northwood Road and Kenneth Street;
- Allow residential uses above the ground floor to Kenneth Street, potentially up to 4 storeys in height;
- Setback the upper floors by 3m to reduce appearance of mass from the footpath.

It is clear from this Council Strategy that the main core of the centre is intended to be located along Kenneth Street. This is an appropriate and logical vision as Kenneth Street is not compromised by the traffic volume seen in Northwood Road and has for greater pedestrian connectivity. This reinforces that the northern side of the centre needs to identify a role that is not dependant on high pedestrian traffic but is more destinational.

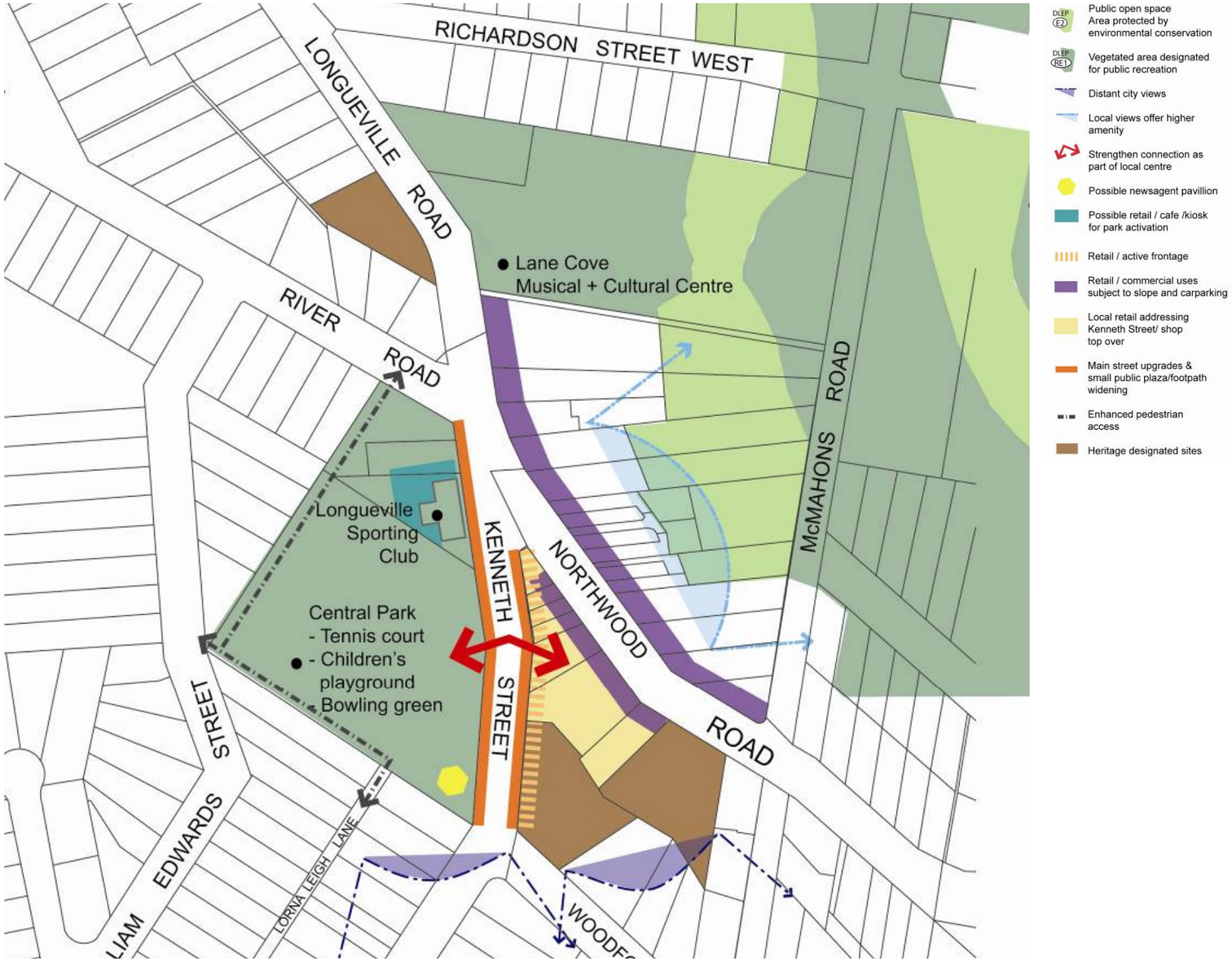


Figure 5. Design Strategies (Excepted from DCP Part D-Commercial Development and Mixed Use Localities

3. SITE AND ITS CONTEXT

3.1 LOCAL CONTEXT

The subject site is located at the intersection of Longueville Road/Kenneth Street and River Road West/Norwood Road. The site occupies a large parcel of land including the northern part of Northwood Neighbourhood Centre (see Figure 6). Lane Cove Town Centre is approximately 1km north of the site. The site is well connected to the surrounding suburbs through the local road network, the existing bus services and the nearby ferry service (Northwood Wharf).

The character of the local context is characterised as follows:

- The neighbourhood centre including the subject site sits on the ridgeline along Longueville/Northwood Road, enjoying significant district views;
- The centre is well connected to and from surrounding suburbs by local bus services and City to Lane Cove ferry services;
- The existing centre and surrounding context are generally characterised by 'fine-grain' developments;
- The major arterial road (River/Northwood Road) carrying the heavy traffic segregates the centre into two parts, making it difficult to connect as a sustainable and pedestrian-friendly local centre. It is also a noise generator that contributes to a poor pedestrian and living environment;
- The existing commercial/retail business and pedestrian connectivity are heavily compromised by the poor public domain amenity and the heavy traffic;
- The existing service stations and low scale built form (1-2 storeys) with inconsistent street alignment and insufficient activation does not create a true 'sense of place' for the neighbourhood centre;
- The Central Park associated with Longueville Sporting Club and Lane Cove Tennis Club, adjacent to the west of the centre, is a popular local destination but is quite isolated by busy roads and receives no passive surveillance from the surrounding developments;
- There are a number of public amenities located within walking distances, which includes Central Park, various sports clubs, Lane Cove Golf Course, Lane Cove Musical and Cultural Centre, and bushlands to the east and west;
- The area is generally characterised by 1-2 storey dwellings with some medium scale residential flat buildings north of the site and along the eastern side of Longueville/Northwood Road towards Lane Cove Centre.

The existing neighbourhood centre is run-down providing poor support for business and it is in need of revitalisation. Given the subject site's prominent location, it has the potential to support the revitalisation of the neighbourhood centre and contribute to the improvement of the public domain. The proposed development will capitalise on the opportunity of the site as well as responding to the physical constraints, the existing low scale context while also supporting the realisation of the desired future character envisaged in State Government and Council's strategies.

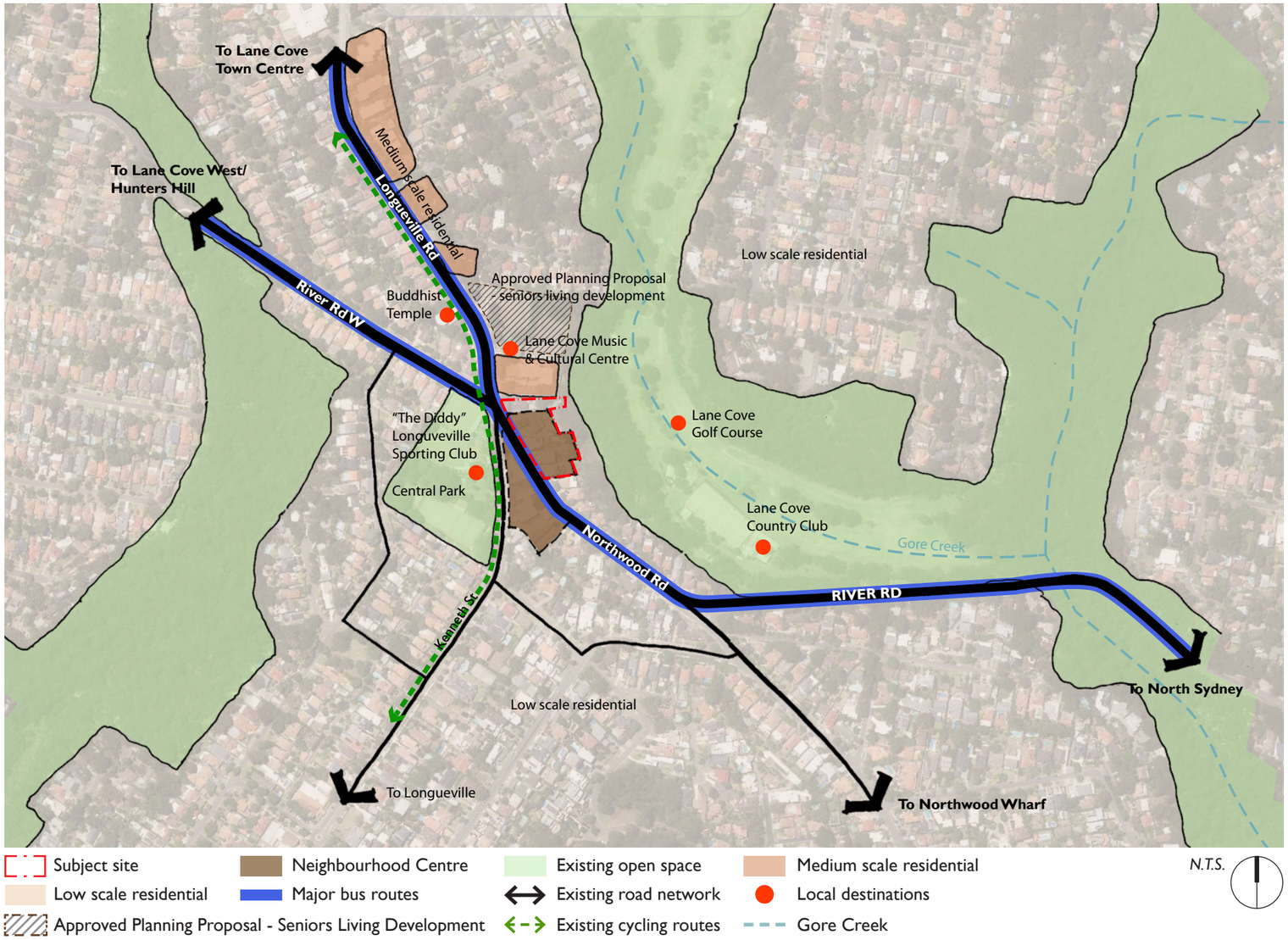


Figure 6. Local Context

Photo documentation of the surrounding context

View towards the site and the neighbourhood centre along River Road West

View towards the site and the neighbourhood centre along Northwood Road

The southern part of the neighbourhood centre opposite the site along Northwood Road

Longueville Sporting Club and Central Park

Site's slopping topography to the rear

Existing district view penetrating through the building gaps

Existing residential flat building with perceived 2 storey street wall height

Existing 3 storey residential building further to the north

Existing 1 storey residential property to the south of the site

3.2 EXISTING BUILDING HEIGHT

Subject site | 1 storey | 2 storeys | 3 storeys | Existing open space | Approved Planning Proposal (3-7 storeys)

N.T.S.

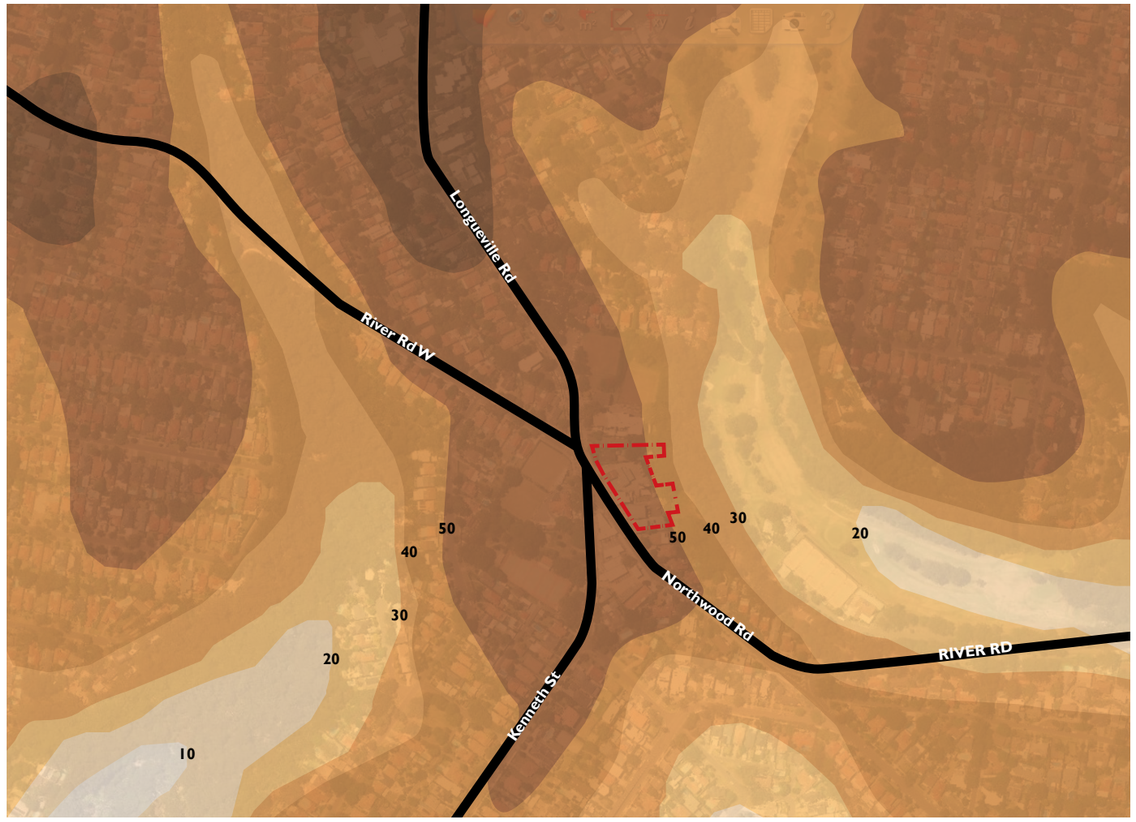
Figure 7. Existing building height

The area is characterised by 1-2 storey residential buildings. There are a number of higher density residential flat buildings emerging along Longueville Road to the north of the site and closer to Lane Cove Town Centre. These buildings have a street frontage height of 2-3 storeys reinforcing a relatively low scale residential streetscape and 3-5 storeys to the rear due to the sloping topography. The FSRs of these buildings are in a range of 0.83-1.56:1.

As mapped in Figure 7, the existing Northwood Neighbourhood Centre consists of low-scale buildings (1-2 storeys) with a loosely defined street alignment. The centre lacks a 'sense of arrival or place' when travelling from the surrounding areas.

The subject site occupies a large parcel of land and is located right at the major junction. It, therefore, has the potential to mark this centre through an increase in scale, with mannered architecture and street activation. To its edge, it must also provide a transition in scale to adjoining low-scale developments.

3.3 TOPOGRAPHY



Subject site | 10m | 20m | 30m | 40m | 50m | 60m

N.T.S.

Figure 8. Topography (Adapted from Six Maps)

The subject site is located on a ridge line which extends along Longueville Road and Northwood Road, falling in a west to east direction. The land to its east falls steeply to the valley and Lane Cove Golf Course. District views over the low-lying valley and golf course are available from the site.

The site's location on the ridge and at the main intersection makes it an ideal place to mark the neighbourhood centre as well as bringing the opportunity for an appropriate scale to the centre, with the topography accommodating greater scale at the rear, capitalising on the outlook to the green open space and surrounding suburbs.

3.4 EXISTING STREETSCAPE

The streetscape character of the existing neighbourhood centre features:

- Fine grain lot pattern;
- Low scale buildings (1-2 storeys) with inward business operations resulting in a low level of street activation and passive surveillance;
- Little relationship between the two sides of the centre due to the main road barriers and poor connectivity;
- The 3 existing service stations create an inconsistent street alignment and a significant frontage of undefined edge with insufficient activation to the street;
- A large number of vehicular crossing points along Northwood Road and Kenneth Street degrading the pedestrian environment;
- The existing pedestrian environment is further compromised by the narrow footpath (approx. 3m), a lack of street landscape and amenities.

Figure 9. Existing streetscape

Existing 'fine grain' developments (1-2 storeys)

The existing pedestrian environment

Existing vehicular crossing points

3.5 VIEWS AND VISTAS

GMU has analysed views from local vantage points and vistas, exploring the level of visibility and possible main focus for the potential development on the subject site.

The site's location at the topographic high point means it enjoys a high level of exposure from the major roads and surrounding public spaces. The site's elevated position also provides significant district views across the valley towards St Leonards.

According to the study, the site is highly visible on approach from River Road West, Kenneth Street, and Northwood Road. Views up from Lane Cove Golf Course are obscured by the existing dense bushland. Views towards the skyline from the club and park are mainly obscured by the current development and vegetation, with some outlook penetrating through the breaks between the buildings.

Views from neighbouring lots are side boundaries views, and development on the site would be unlikely to affect their district views. The existing development already obscures views across the site from the commercial uses on the corner of Kenneth Street and Northwood Road.

The existing low-scale buildings, business operation and poorly defined street edge form no true 'sense of arrival' or 'sense of place' for the centre. Given that the site's prominent location and its long frontage to Northwood Road, the site has a real opportunity to enhance the 'sense of place' and activation of the local centre and improve the public domain.

View 1 along Longueville Road looking south to the site (Source: Google Map)

View 2 along River Road West looking east to the subject site (Source: Google Map)

View 3 from the intersection of Northwood Road and Kenneth Street

View 4 along Kenneth Street looking north

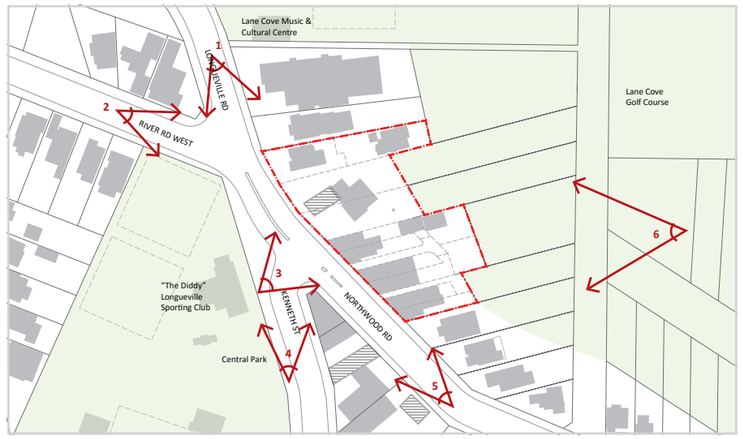


Figure 10. View keys

View 5 along Northwood Road looking north

View 6 from Lane Cove Golf Course looking towards the site

3.6 APPROVED AND PROPOSED PLANNING PROPOSALS WITHIN THE AREA

There are two planning proposals lodged with Council in 2012-2013 for 266 Longueville Road and the subject site respectively.

No. 266 Longueville Road

The proposed development at No. 266 Longueville Road (2 lots north of the site) was approved for a seniors living development. The site was considered as an appropriate location for seniors living given the proximity of bus routes and facilities. The development comprised 2-3 storeys at the street frontage and 6/7 storeys at the bushland interface. The maximum height is RL 62.8m across the entire site with an FSR of 1.1:1. The proposed new height and FSR limit has been adopted by the Council.

Previous planning proposal for the subject site

In 2012, a private developer EG Property Group lodged a planning proposal for the subject site. The proposal sought to rezone the site to B1-Neighbourhood Centre with a maximum height of 18m (5-6 storeys) and an FSR of 2.25:1. The Department of Planning and Environment issued a Gateway Determination with conditions.

The scheme proposed a street wall height of 5 storeys along Northwood Road and part 5 and part 6 storey building at rear. The proposal was not supported by the consent authority after the exhibition process as it was considered an over development that lacked transition and adequate setbacks to the surrounding residential properties.

Figure 11. Artist's impression of 266 Longueville Road devleopment prepared by Lane Cove Council

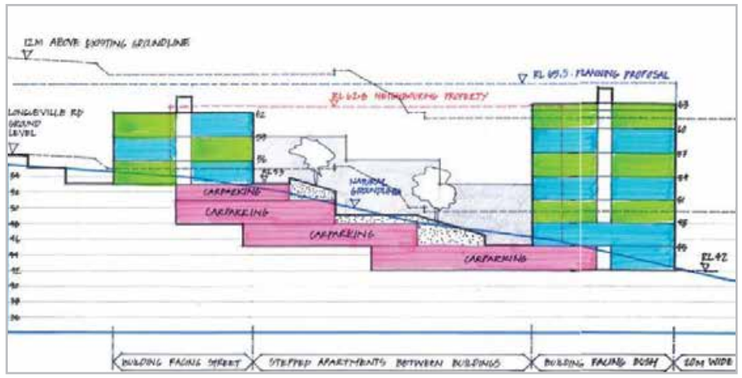


Figure 12. Section Study (extract from Ordinary Council Meeting - April 2013)

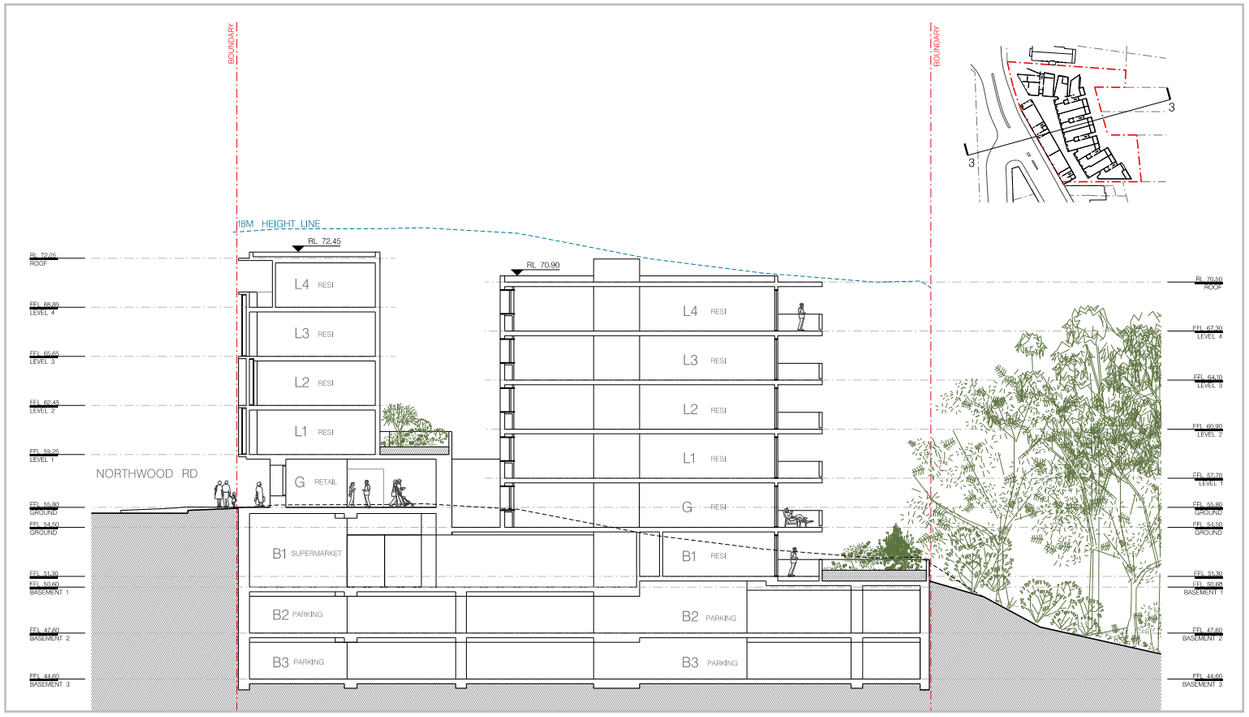


Figure 13. Proposed section for 4-18 Northwood Road & 274-274A Longueville Road (extract from the Planning Proposal prepared by RPS Australia East Pty Ltd)

3.7 SITE'S CHARACTERISTICS & CONSTRAINTS

The subject site has a street frontage of 104m to Northwood Road. The River Road West/Northwood Road creates a noise source and pedestrian barrier between the different parts of the centre.

The site falls in an easterly direction and has a steep escarpment along the eastern boundary. The level change between the residential lots to the north and the rest of site is in a range of 0.52-1.44m

The site is bounded by the bushland with dense mature trees to the east, lower scale residential flat buildings with habitable windows fronting the site to the north, single storey houses to the south and Northwood Road to the west. The subject site is currently occupied by two residential dwellings to the northern end, a service station, and three 1-2 storey shop-top buildings. There are 5 driveway crossings leading to a large area of surface parking at rear of the lots. These current developments do not provide a desirable or coherent streetscape for the centre.

There are a number of trees identified at the northern end of the site at 274 & 274A Longueville Road. According to the tree report prepared by Stuart Pittendrigh, 4 trees are recommended for removal to accommodate the proposed development and 3 clusters of palms are recommended for transplanting and integration within the new development. The site currently has no street tree planting to the verge to soften the streetscape and the site offers a very hard paved urban edge in contrast to the leafy character that characterises the rest of the suburb.

There is a bus stop located at the southern end of the site. The site is also close to a range of local destinations and community facilities.

The constraints for the site are:

- Disconnection from the rest of the centre and Central Park due to Longueville Road and Northwood Road;
- Noise generation and a poor pedestrian environment due to traffic levels;
- Permanent disconnection from the other side of the centre due to the hierarchy and likely increase in traffic over time for these major arterials;
- Adjacent residential developments of lower scale with habitable windows facing side boundaries with the site;
- Low scale street wall generally through the immediate context;
- Dense bushland zoned as Environmental Conservation Area adjoining the site to the east;
- Sloping topography and the steep escarpment to the eastern boundary;
- The existing telecommunication tower on the site;
- Existing easement to the south-eastern corner of the site;
- The complexity of traffic movements into the site.

The site presents a large consolidated land parcel in close proximity to a number of public amenities with significant local views. It offers the potential for increased density that contributes positively to a vibrant and active neighbourhood centre and offers improvements to the public domain. However, any redevelopment needs to be responsive to the existing lower scale edge conditions and landscape character of the Lane Cove streetscapes.

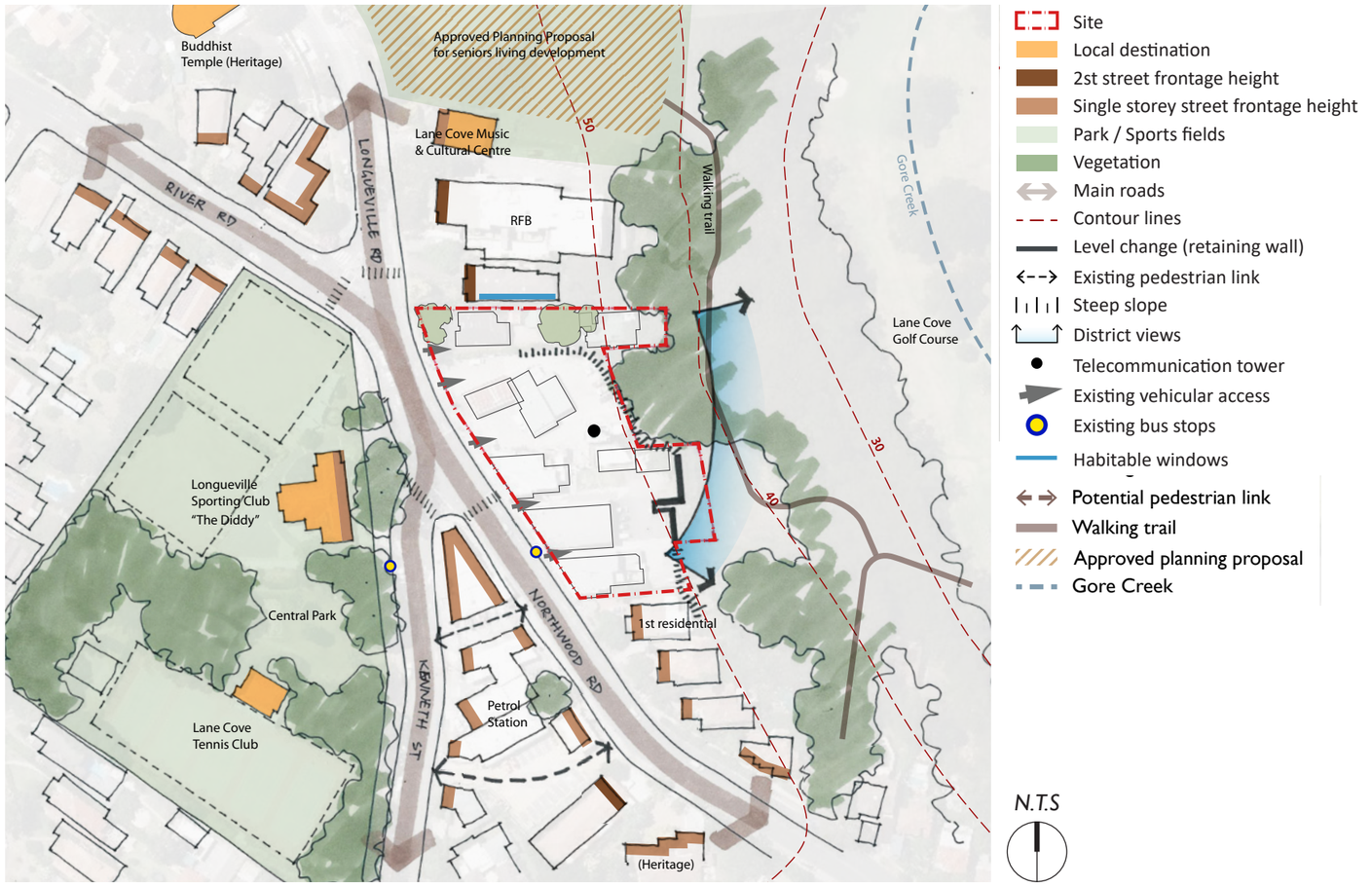


Figure 14. Opportunities

The existing service station and 1-2 storey fine-grained shop-top developments

The subject site when viewed along Northwood Road

Photo documentation of the site's characteristics

Sloping topography with car parking at rear of the site

Existing vehicular access along Northwood Road and district views from the centre

Rear surface car parking and retaining wall

Existing residential flat building with habitable windows facing the northern boundary of the site

Existing mature trees on the eastern edge of the site

Existing structure and change of level at the rear boundary of the site

Existing residential dwelling and trees at No. 274&274A Longueville Road

Steep slope with retaining wall to the south-eastern corner of the site

Existing poor amenity and inactive frontage

Telecommunication tower and station on site

3.8 SITE OPPORTUNITIES AND PRINCIPLES

To support of the revitalisation of the neighbourhood centre and respond to the increasing demand for seniors housing and facilities in the area, GMU has identified opportunities for the subject site as follows:

- Redevelop the site to improve the streetscape presentation and activation of this side of the centre;
- Provide a scale and form that reinforces the street edge but provides sufficient footpath widening to allow street trees;
- Improve the sense of place of the centre by providing a well mannered architectural solution and pedestrian-friendly environment;
- Reinforce the existing lower scale street edge and set any taller elements back from the street edge;
- Reduce the number of vehicle crossings to improve the public domain;
- Retain existing local retail/commercial uses which are important to the local community e.g. Vet Clinic
- Provide sufficient critical mass of development to provide activity to this side of the centre and to mark the centre;
- Provide a scale transition to the site side boundaries and sufficient setbacks to ensure reasonable amenity to neighbouring properties;
- Respond in the retail frontage to the fine grain lot subdivision pattern.

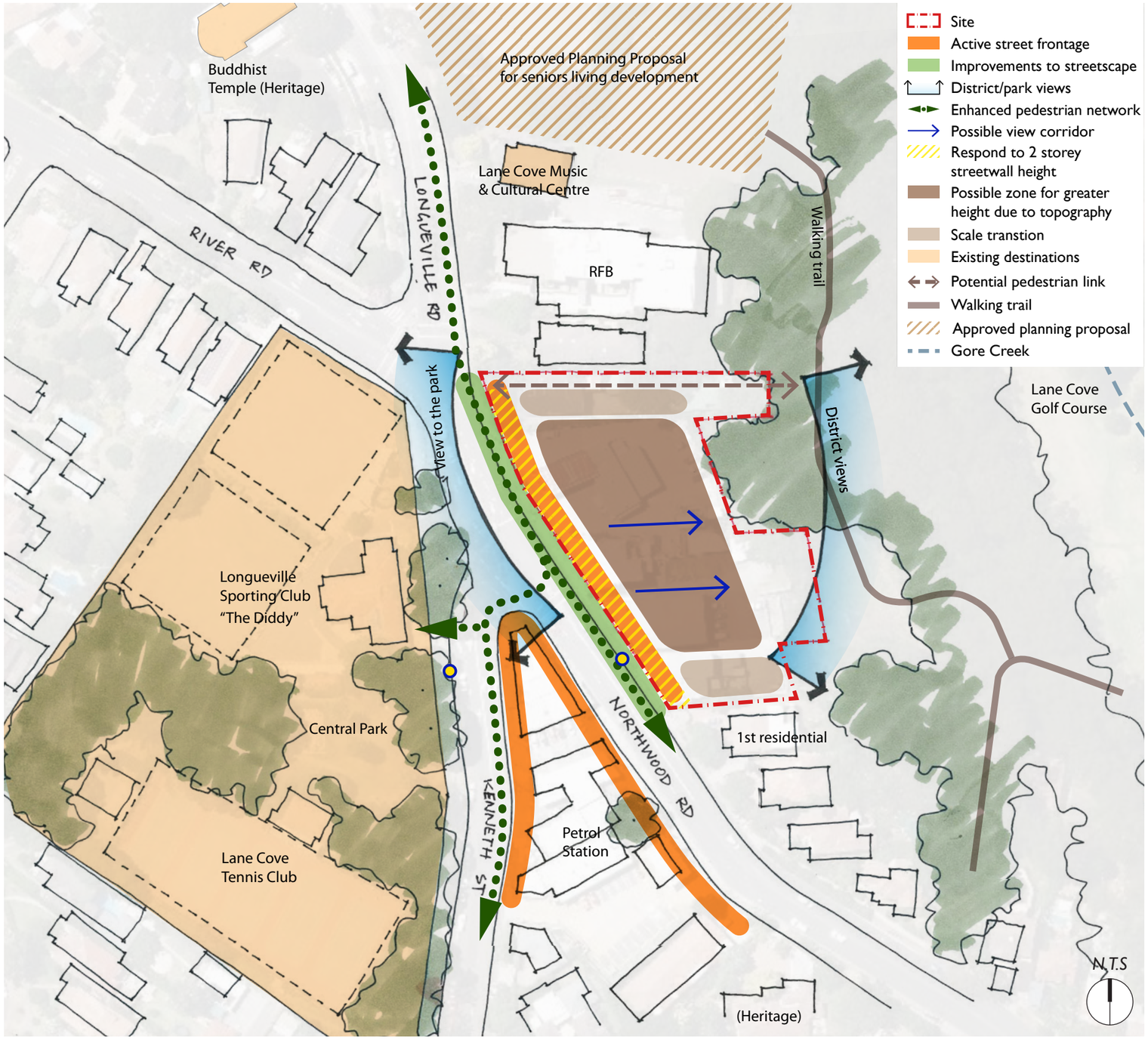


Figure 15. Constraints

4. BUILT FORM STRATEGY

4.1 THE CONCEPT MASTER PLAN

Based on the opportunities and constraints for the subject site, a preferred concept master plan has been developed for the subject site.

The essential elements of a future built form for the site are:

Height

- Maximum 4 storeys to street (6 storeys to rear due to topography)

Street wall height

- Maximum 3 storeys (upper floor setback from building edges to the street and side boundaries)

Setbacks

- Front - Provide a 3m setback to the ground floor uses to facilitate new street tree planting and a wider pedestrian verge (see Figure 17 & 20)
- Side - Provide a 3-6m landscaped setback to the side boundaries to ensure a positive separation, reasonable outlook to existing habitable rooms and landscaped buffer for adjacent residential uses
- Rear - Provide a range of rear setbacks (min. 3m) to provide external open space for the development and landscape opportunities adjacent to the bushland

Bulk and scale

- Provide view corridors at street level through the development to link the public domain to the bushland views and ensure visual permeability through the site
- Extend view corridors into the building form to articulation to building length and create a defined 'grain' through 'bays' of development
- Create a defined 'top' to the built form by setting back the upper floor, providing an articulated roof form

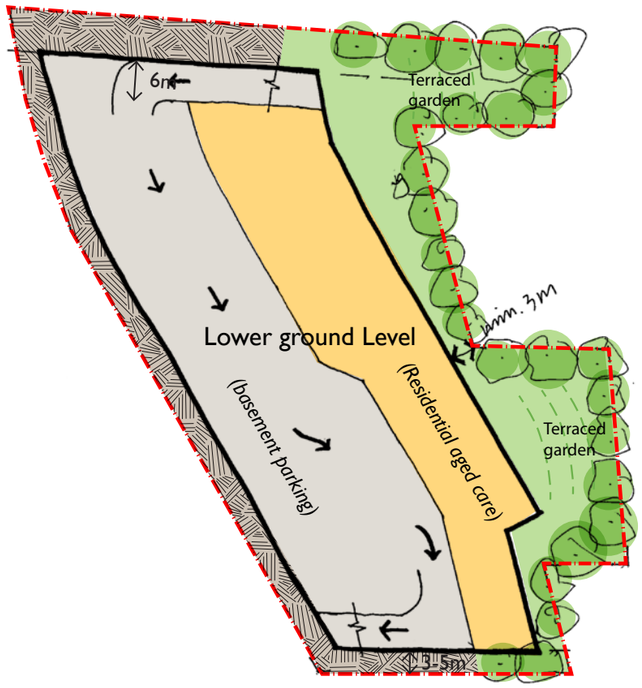


Figure 16. Proposed master plan - Lower ground Level

Figure 17. Proposed master plan - Ground Level

Figure 18. Proposed master plan - Level 1-2

Ground level activities

- Provide a range of retail, commercial shop fronts and terraces that will reflect the 'grain' of the existing lot pattern and provide diverse opportunities for activating use
- Maximise the active street frontage to Northwood Road and Longueville Road
- Minimise vehicle crossing points etc.

Figure 19. Proposed master plan - Level 3

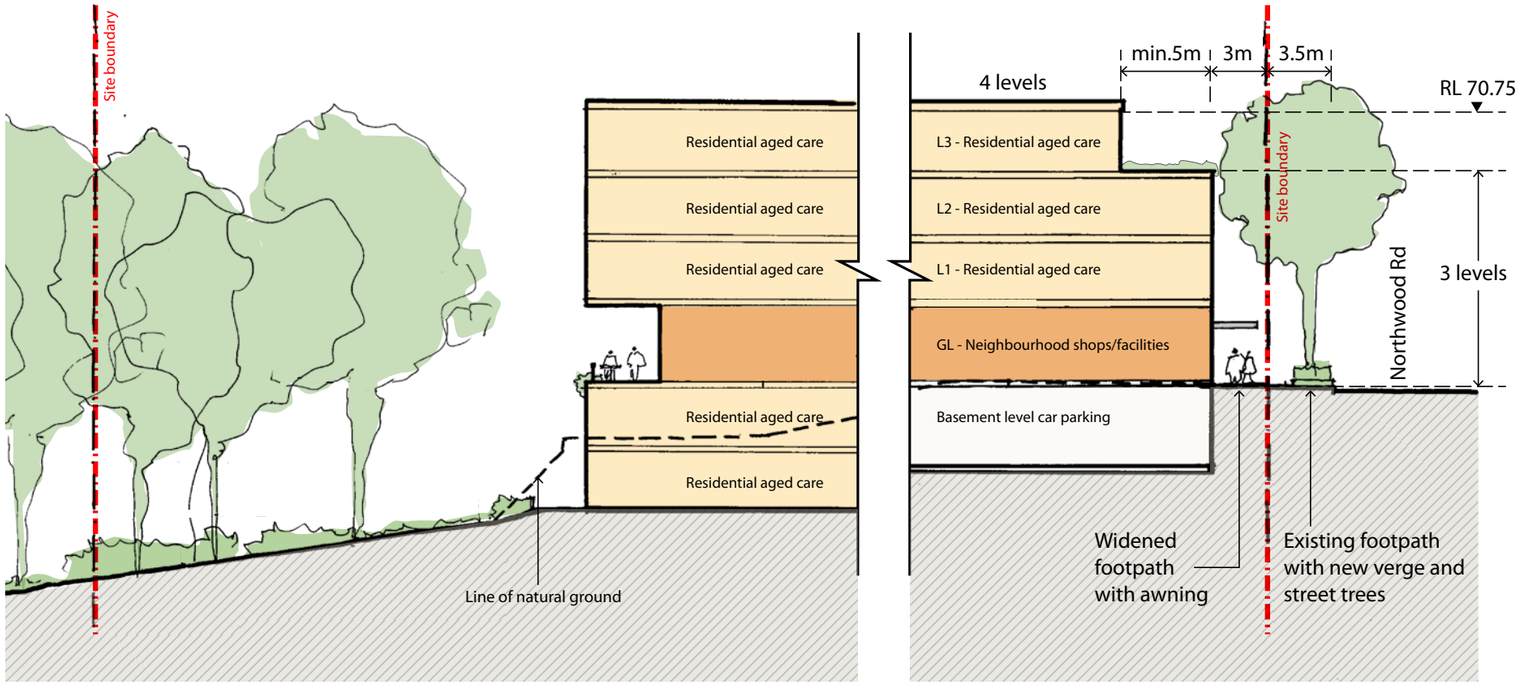


Figure 20. Proposed section AA

4.2 COMMUNITY CONSULTATION

As part of the design process for the site, the project team has undertaken preliminary community consultation. The event took place on 20th of September 2016.

The proposed master plan presented in the previous chapters was presented at the session. The results of the consultation has identified the community concerns in relation to a development on this site.

Main concerns/questions

The main concerns expressed by the local community during the session focus primarily on the traffic generation, proposed built form and ceiling heights and changes to LEP controls.

- Traffic generation

The traffic impacts of an aged care facility and any retail uses on the existing intersection and informal movements into the surrounding local road system is a major community concern, particularly for residents living on or using Northwood Road, Arabella Street and Woodford Street. Currently, these 3 roads are the only way for the northbound traffic from the city to access and leave the subject site. Residents raised concerns with accident risk on the hair-pin bend of Northwood Road and Arabella Street. The community suggested a roundabout be constructed at the intersection of Northwood Road and River Road. The community raised concerns regarding parking provision for any redevelopment and that on site parking should be maximised.

- Proposed built form and floor to floor heights

A query was raised regarding the proposed ceiling heights and the street frontage height along Longueville/Northwood Road. A resident expressed preference for a 2 storey street wall height with a maximum of 3 storeys on the site.

- Statutory controls

Other issues raised centred on the relationship of SEPP and LEP controls.

- Support for the proposal

Residents also expressed general support for the overall massing and use of the proposal. It was considered that the proposal demonstrated a better urban design outcome with a sympathetic design approach to the context and that it would generate less traffic movements compared to the previous Planning Proposal or a residential flat development.

Design response

- Traffic generation

Based on a detailed traffic study of the local traffic movements and volumes as well as the expected level of impact arising from the proposed RACF model, Traffix considers that the proposed development (130 beds) with neighbourhood shops, allied health care and veterinary hospital would create a net decrease in the existing traffic conditions during peak hour. The proposed residential aged care facility provides a use that will deliver the lowest level of impact on the existing traffic conditions, compared to other permissible uses (details refer to Traffic Impact Assessment report by Traffix).

The proposed access driveway from the intersection of Northwood Road and Kenneth Street and egress along Northwood Road is a directive of the RMS. It would result in minimal delays within the surrounding road network. According to the study, there will be no impact on Northwood Road, Arabella Street and Woodford Road traffic conditions caused by the proposal.

The proposed car parking of 46 spaces is in accordance with the Lane Cove Car Parking Guidelines and the Seniors Housing SEPP. The communities proposal for the construction of a roundabout is a local traffic management solution and the project team and Pathways Residences support examination of this potential by Lane Cove Council and the RMS.

- Proposed built form and floor to floor heights

GMU considers that it is normal practice for a local centre to have a greater height (normally 1-2 storeys) than the surrounding residential area. This is to create a sense of place and clear identity for the centre. The subject site is located at the heart of the centre along the main access to and within the centre and is, therefore, appropriate for a higher scale development. The proposed 3-storey street wall height (setback 3m from the street boundary) with deeply recessed 4th level provides a sympathetic response to the surrounding lower scale development. It is noted that 3 storey is a permissible height allowed under the current LEP height (9.5m) for the site.

The proposed built form and floor to floor heights are directly related to the functional requirements for retail and an aged care facility. The proposed higher floor to floor height of 4.5m for the ground level allows for the loading/service truck access to the basement. The floor to floor heights of 3.25-3.5m for other levels are required for services.

- Statutory controls

The proposed development seeks to add 'seniors living' as a permissible use under the current zoning controls. The proposed development will amend the maximum FSR control for the site to ensure a viable aged care facility on the site.

5. THE MASTER PLAN

5.1 THE VISION

The existing Northwood Centre lacks a strong identity or character. Redevelopment of the site presents a unique opportunity to take the first step toward creating a vibrant and pleasant centre.

Pathways Lane Cove will provide a boutique development of residential aged care that is founded on the principles of harmony and respect for the ageing community. The development will create a vibrant and active ground plane with a series of retail and commercial shop fronts to Northwood and Longueville Road, setback from the street boundary to provide the opportunity for street trees and an improved pedestrian environment to encourage an increased level of footfall to the centre.

Local retail services such as the vet clinic, a restaurant or café as well as a medical centre, possible pharmacy and other small grain retail tenancies will create the active frontage to the site in addition to the well-appointed entry lobby to the aged care facility.

Arrival at Pathways and parking will be through the entry archway leading to the porte-cochere and landscaped courtyard with district vistas beyond. The foyer will have a strong address to the street as well as the lane to provide 24 hours casual surveillance.

The associated retail and local services such as the vets and medical centre will provide high quality and much needed services to the local community and together with the aged care facility will create destinations for the centre that will encourage local patronage.

Figure 21. The Master Plan - Ground Floor Plan

N.T.S

5.2 THE MASTER PLAN

The final preferred master plan for the subject site is based on the draft concept master plan presented at the community event. It has been modified based on the concerns expressed at the community consultation event.

The master plan has reduced the 3-storey street wall height by 500mm to provide a lower street edge as much as is possible whilst balancing functional requirements to improve the response to the existing streetscape. The envelope also has an increased setback to the southern boundary to ensure no adverse shadow impacts occur for low scale residential dwelling at No. 20 Northwood Road.

The main design elements of the final master plan are:

- A maximum height of 3 storeys (3m away from the street boundary) with a recessed 4th level along Northwood Road, providing an RL to the underside of the top level ceiling of RL 70.25.
- A maximum height of 6 storeys at the rear (due to the sloping topography).
- Active ground floor uses including neighbourhood shops, cafe/restaurant, vet clinic and allied health care facilities to activate the ground floor and the streetscape to Northwood Road as well as provide and continue local retail services for the local community.
- Two through-site public links into the site at street level, expanding the pedestrianised area and providing a potential pedestrian environment away from Northwood Road to support the local centre and offer district vistas and bushland views.
- Limited (2) vehicular accessing points from Northwood Road.
- A minimum 6m setback to the north, ensuring an acceptable level of amenity for both the site and adjoining property as well as providing a potential through-site pedestrian link to the bushland walking trail.
- A minimum 3-6m setbacks to the south, ensuring no adverse shadow impacts on the low scale dwelling.
- A minimum 10m setback from the main building line of the levels above basement level to the southern boundary.

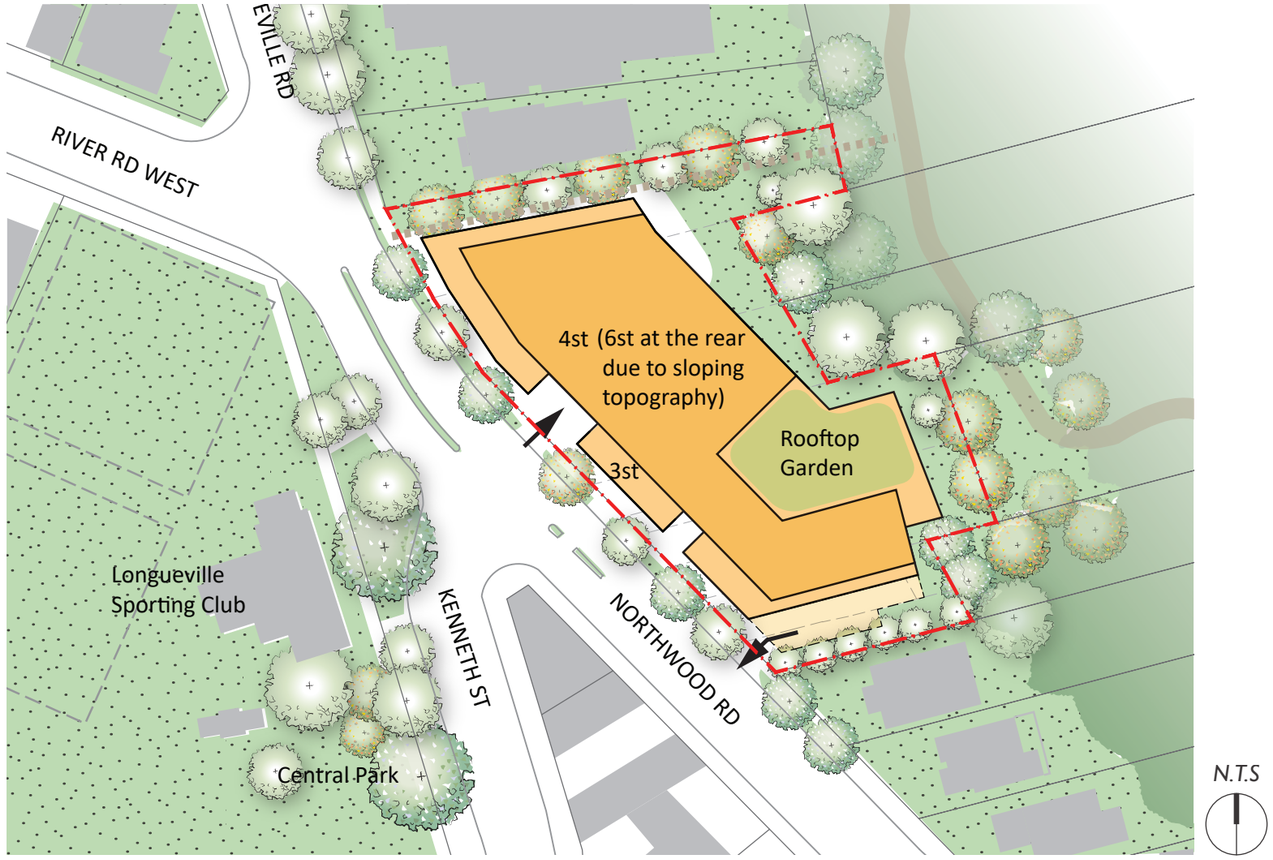


Figure 23. The Master Plan - Ground Floor Plan

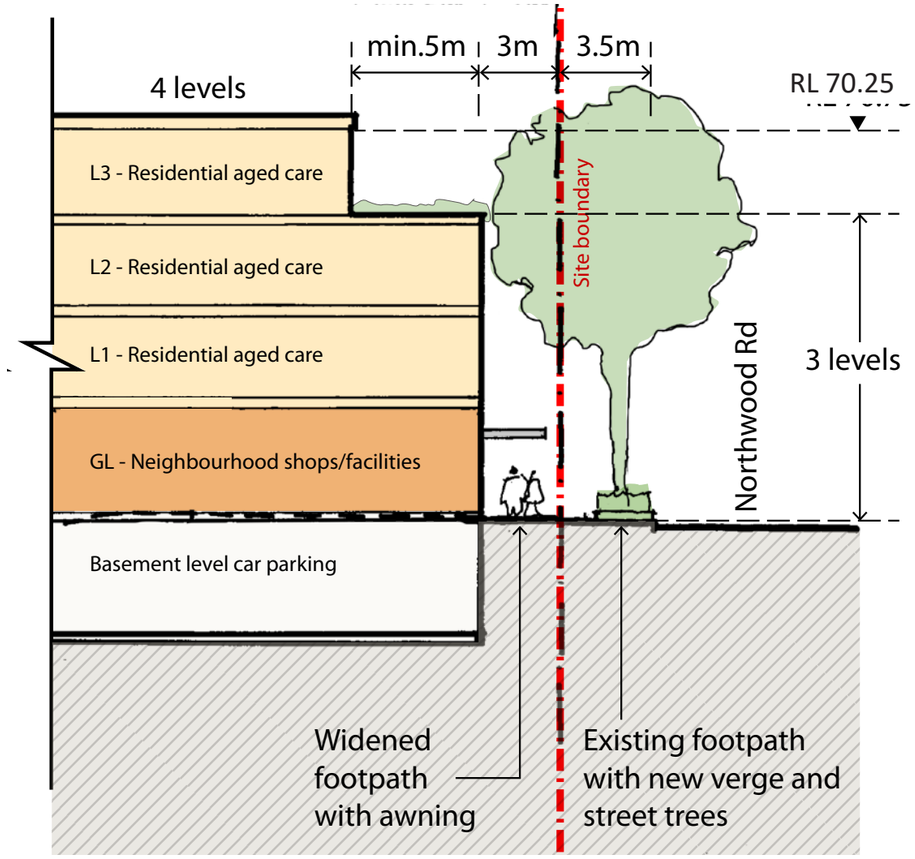


Figure 22. Proposed street frontage height

Figure 24. Artist's impression of the proposed street frontage when viewed from the corner of Northwood Road and Kenneth Street (source: GMU)

5.3 SHADOW ANALYSIS

The proposed building envelope has been tested in terms of shadow impacts on the surrounding area and properties.

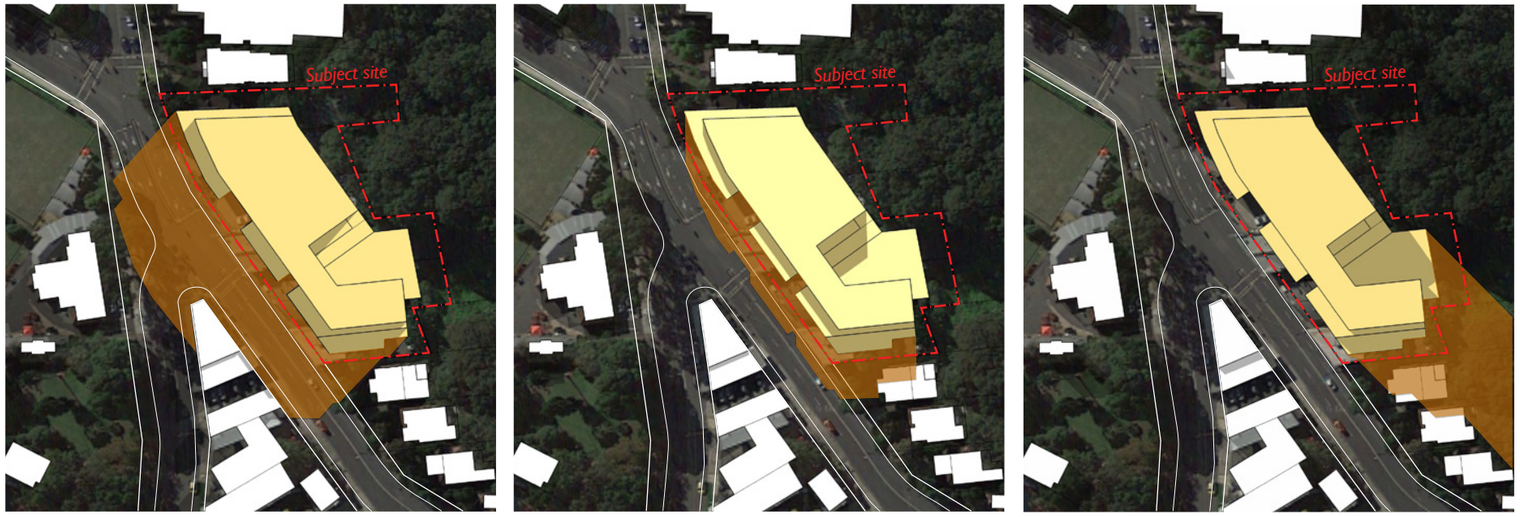
The analysis shows the extent of shadows cast by the proposed maximum development envelope between 9am and 3pm in mid-winter. The study also includes a comparison of the shadow impacts of the proposed building envelope relative to a fully compliant envelope to the residential dwelling to the south.

According to the study (see Figure 25), the proposed development will cast some additional shadow to the surrounding bushland edge in the afternoon and shadow to Northwood Road in the morning It will have no impact on the Longueville Sporting Club site.

It is understood that the property located at No. 20 Northwood Road has three windows facing the site. As highlighted in the diagrams below (see Figure 26), window A is to a living room, window B is to a kitchen and window C is a bathroom window.

The proposed built form with 6-10m setbacks to the rear southern boundary, will have no adverse impact to the neighbour's main living space. The living room will receive full solar access for 2 hours in the morning time and will have sun to 50% of window A for 3 hours (details refer to Appendix - Shadow Analysis). However, the study shows that a compliant envelope of 2 storeys with 3-6m setbacks and a maximum FSR of 1:1 on the subject site, will only allow for 1 hour full solar access to the neighbour's living space. Furthermore, only 50% of window A can receive 3 hours sunlight.

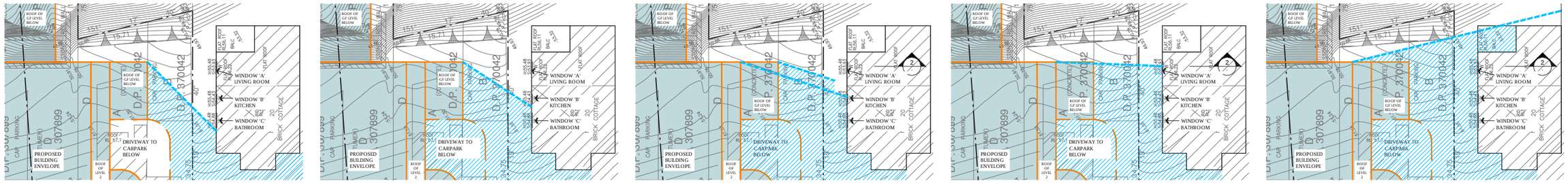
The study shows that the carefully sculpted envelope can deliver an improved outcome in comparison to the compliant building envelope. Therefore, GMU considers that the proposal will not result in adverse impacts on the surrounding dwelling.



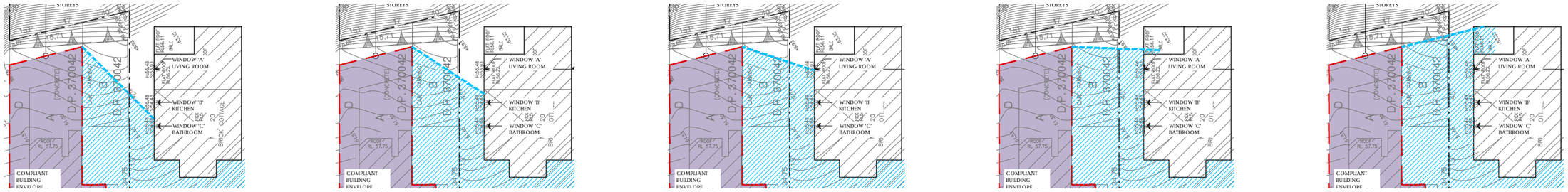
June 22nd 9am *June 22nd 12pm* *June 22nd 3pm*

Subject site Shadow caused by the proposed development

Figure 25. Shadow impact of the proposed development (source: GMU)



Proposed - June 22nd 9am *Proposed - June 22nd 10am* *Proposed - June 22nd 11am* *Proposed - June 22nd 12pm* *Proposed - June 22nd 1pm*



Compliant envelope - June 22nd 9am *Compliant envelope - June 22nd 10am* *Compliant envelope - June 22nd 11am* *Compliant envelope - June 22nd 12pm* *DCP setback complying - June 22nd 1pm*

Figure 26. Shadow analysis (source: Morrison Design Group)

5.4 URBAN DESIGN GUIDELINES

To guide the future development of the site, GMU has prepared the following site specific development guidelines to ensure an appropriate built form and design excellence are achieved.

Maximum building heights

Objectives

- To provide increased opportunities for height and density to support the future vision of the centre;
- To strengthen the street definition and establish a 'sense of place' for the neighbourhood centre;
- To achieve a 'distinctiveness' to the centre whilst still achieving an appropriate height transition responding to the existing and future built form scale;
- To minimise any adverse shadow impacts to the open space and adjoining sites.

Controls

- Maximum 3 storey streetwall height with recessed 4th level to Northwood Road;
- Maximum 6 storeys at the rear of the site with a maximum RL to the underside of the ceiling of RL 70.25;
- Proposed building heights should generally comply with Figure 27 & 28.

Building setback and separation

Objectives

- To achieve appropriate separation and provide appropriate amenity and outlook for neighbouring sites, ensuring a high level of amenity for future residents and surrounding residential properties;
- To improve the pedestrian experience and streetscape of Northwood Road and provide an inviting public domain for the neighbourhood.

Controls

- Provide a min. 3m front setback to Northwood Road;
- Provide a min. 5m setback from the main building alignment for the top floor to Northwood Road;
- Provide a min. 3m setback to the rear boundary as its narrowest point;
- Provide a minimum setback to the northern side boundary of 6m to Ground Level to Level 2;
- Provide a min. 3-6m setback to any dwellings or structure to the southern side boundary;
- Provide a min. 10m setback from the southern side boundary to Ground Level to Level 2;
- Provide a min. 2m setback from the level below to Level 3 to the south;

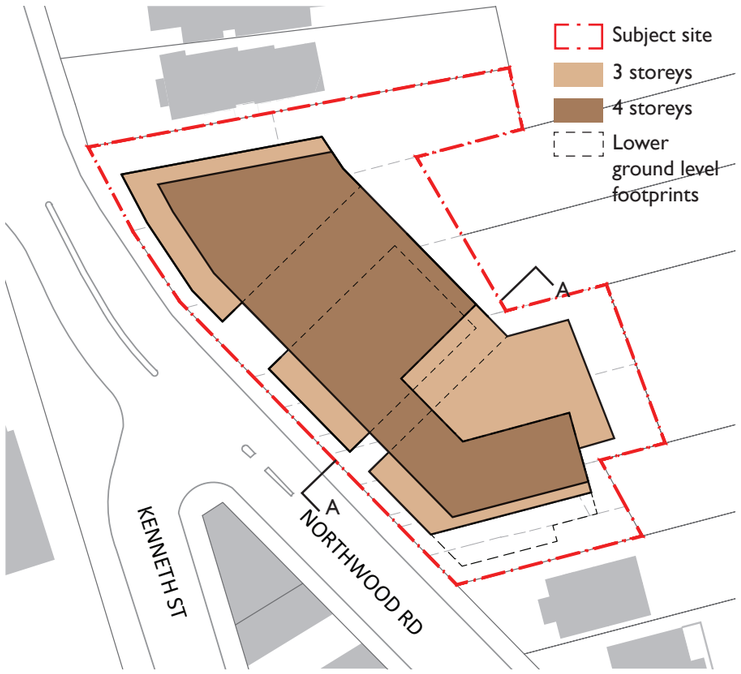


Figure 27. Building Height

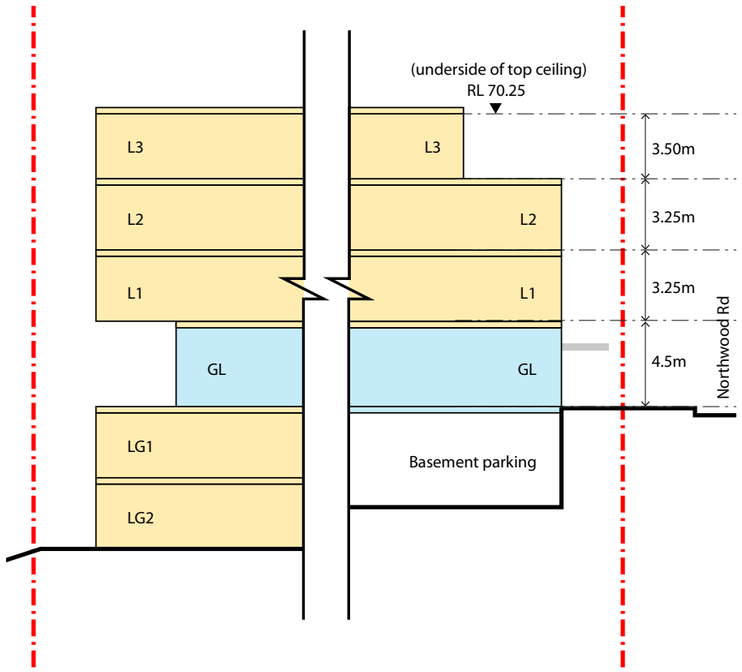


Figure 28. Proposed section AA and maximum building height

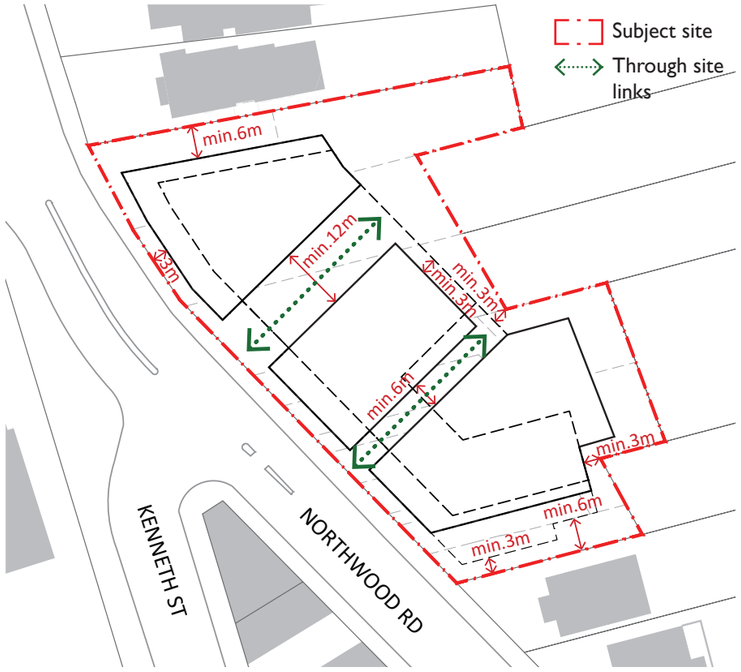


Figure 29. Setbacks and Separation - Ground and lower ground levels

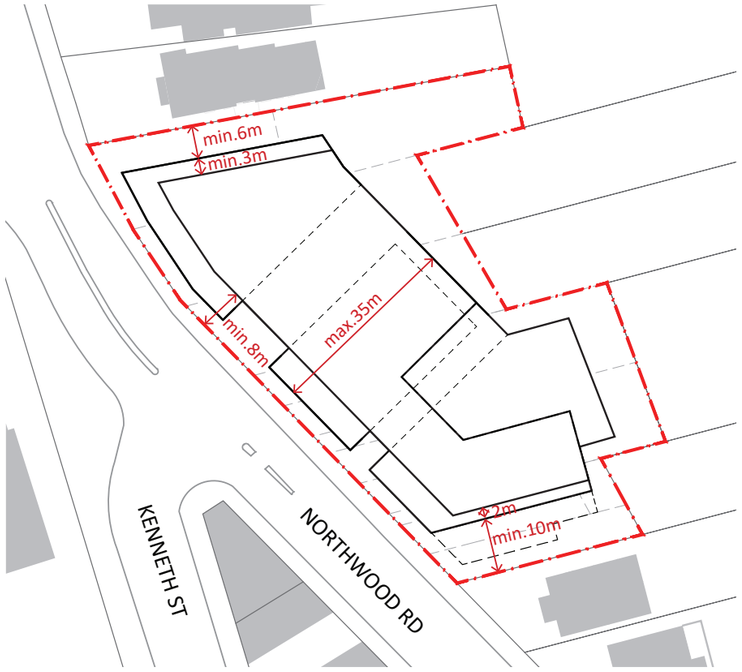


Figure 30. Setbacks and Separation - Upper levels

- Building depth is not to exceed 35m to ensure landscape areas are provided to the rear of the site;
- Proposed building setback and separation should generally comply with Figure 29 & 30.

Through site links and view corridors

Objectives

- To improve the site's accessibility and strengthen the connection with the surrounding area; and
- To maintain the outlook to surrounding areas.

Controls

- Provide a minimum of 2 through site links in the location generally shown on Figure 29;
- The minimum width of the northern pedestrian/vehicle link is to be a 12m, two storey link (4.5m);
- The minimum width of the southern link is to be a 6m two storey laneway (4.5m).

Active frontages and awnings

Objectives

- To create a high quality and attractive streetscape and public domain;
- To provide an active ground plane;
- To improve the amenity of the public domain.

Controls

- Provide active uses to the ground floor along Northwood Road;
- Minimise services, fire exits and blank walls to the street frontage;
- Provide active uses to through-site links;
- Active uses are to include commercial and retail uses in addition to building entries;
- Provide screening, public art or 'green' walls to inactive edges and blank walls;
- Where blank walls are unavoidable these facades should be treated with high quality materials and design solutions;
- Awnings are to be provided to the Northwood Road frontage;
- The active uses and location for awnings are to generally comply with Figure 31.

Figure 31. Active frontages and awnings

Open space and landscape areas

Objectives

- To achieve appropriate separation and landscape buffers between new development on site and neighbouring residential dwellings;
- To achieve an expanded public domain for the centre;
- To achieve high quality external recreational areas for residents in the facility.

Controls

- All setbacks to side boundaries are to be landscaped to reduce the visual scale of any new development;
- Provide new street trees and paving to the existing Northwood Road verge and within the 3m setback to the proposal to achieve a high quality public domain for Northwood Road;
- Underground power lines for length of the site frontage;
- Provide landscaped open space and private courtyards to the rear of the site and on podium spaces;
- The open space and landscape areas are to generally comply with Figure 32 & 33.

Figure 32. Open space distribution - Ground level

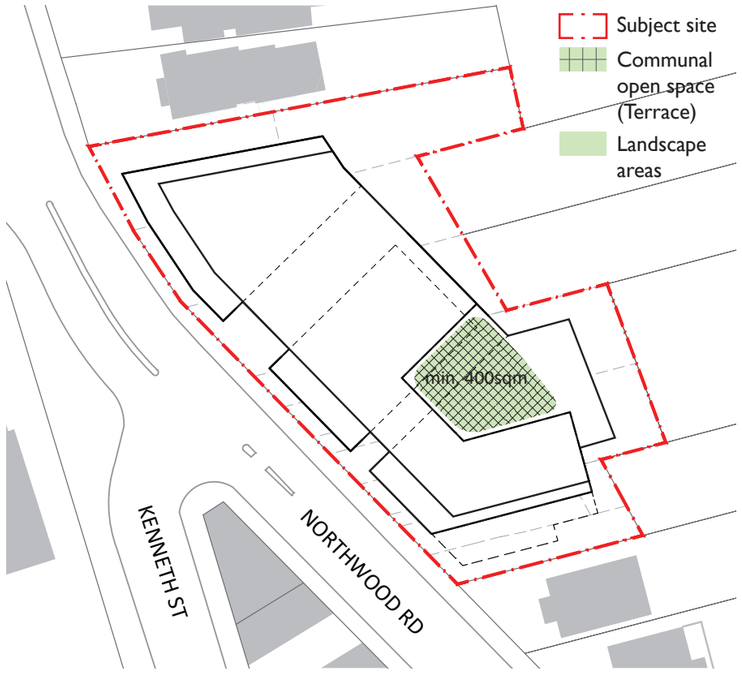


Figure 33. Open space distribution - Upper levels

Vehicular access

Objectives

- To improve the site's accessibility and strengthen the connection with surrounding areas;
- To reduce the traffic volume and impact to Northwood Road and improve the public domain for pedestrians.

Controls

- Restrict the vehicular access to the development to one (1) vehicular entry from the intersection of Northwood Road and Kenneth Street and to one (1) vehicle exit point to the south of the site;
- Provide a on-site drop-off zone within the site;
- Provide landscape buffers between any vehicle access points and adjacent residential development;
- Vehicular access should generally be provided in accordance with Figure 34.

Overshadowing

Objectives

- To minimise overshadowing impacts to adjacent residential properties;
- To maximise solar access to new open spaces within the site.

Controls

- Provide sufficient setbacks from the southern boundary to ensure a minimum of 3 hours of solar access to the living space of the neighbouring dwelling.

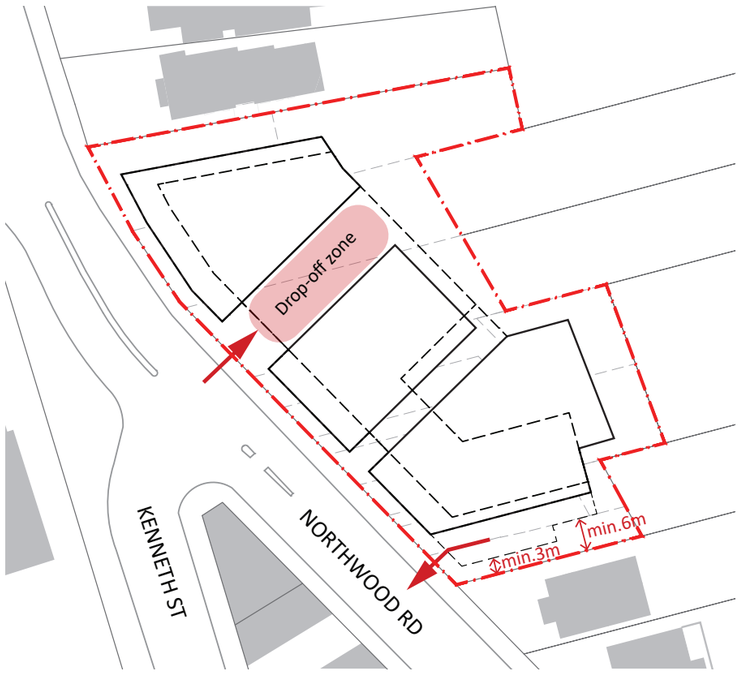


Figure 34. Vehicular and pedestrian access

6. FINAL RECOMMENDATIONS

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6.1 PROPOSED STATUTORY CONTROLS

GMU recommends that the following statutory controls be amended:

- LEP Zoning

The site is currently zoned R4-High Density Residential to the northern end and B1-Neighbourhood Centre for the remaining site. The proposal seeks to amend Part 6 - Additional Local Provision to add 'seniors housing' as a permissible use for this site only.

- LEP Height of Building

The existing applicable height control to the site is 11.5m to the northern end and 9.5m for the remaining site. The proposal seeks an amendment to a maximum RL to the underside of the top level ceiling of RL 70.25.

- LEP FSR

The site currently has a permissible FSR of 0.9:1 to the northern residential allotment and 1.0:1 to the remainder. The proposal seeks an amendment to a maximum FSR of 1.98:1 for the site.

6.2 CONCLUSIONS

GMU and the project team have undertaken an extensive analysis of the existing and desired future character of the area and the role that the subject site will play in the revialisation of the Northwood Neighbourhood Centre. The proposal will expand the existing level of aged care facilities for the neighbourhood.

This report has concluded that the proposed planning proposal provides the opportunity to strengthen the 'sense of place' for the neighbourhood centre, enhance the public domain with renewed vitality and contribute to job creation and activity for the centre whilst also supporting the increasing needs of seniors living.

The subject site as a large amalgamated land parcel presents a unique opportunity to provide a holistic development that acts as a catalyst to encourage the regeneration of the centre.

The proposed widened street frontage and on-site pedestrian links will establish a quality and sustainable environment for local community whilst contributing to the neighbourhood's public domain.

The proposed maximum scale will differentiate and define the centre without dominating the adjacent lower scale character and will respect the fine grain subdivision pattern in its future development. The master plan presents a well balanced outcome for the centre.

Based on the above, GMU recommends the proposed amendments to the applicable statutory controls including zoning, height of building and FSR controls, as per the Planning Proposal Report accompanying this submission (City Plan Services, November 2016).

Figure 35. Artist's impression of the proposed development (source: GMU)

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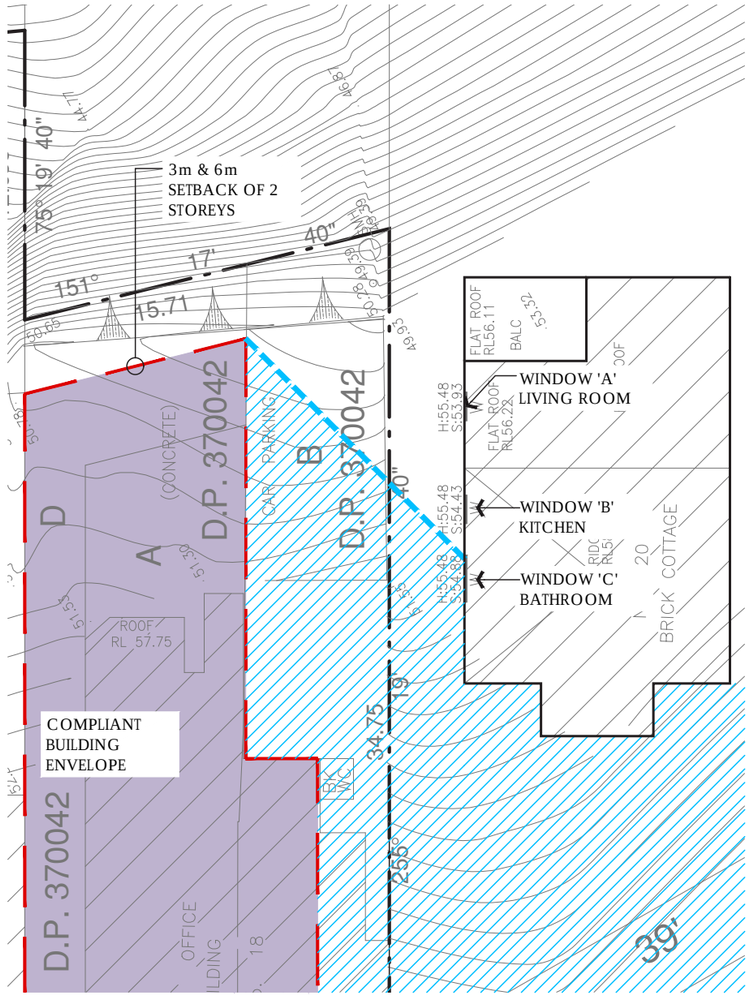
APPENDIX - SHADOW ANALYSIS

SHADOW ANALYSIS - COMPLIANT BUILDING ENVELOPE



LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

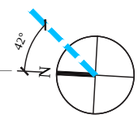
DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

1 SITE PLAN - SHADOW 9AM 22 JUNE
1 : 200



architecture
interior design
project management

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Monday, 7 November 2016 5:06:09 PM

CLIENT:
PATHWAYS PROPERTY GROUP P/L

PROJECT:
COMBINED MIXED USE/
RESIDENTIAL AGED CARE
4-18 NORTHWOOD RD,
NORTHWOOD. NSW

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DRAWING TITLE:
SHADOW ANALYSIS
SHEET 1

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-04	FOR DISCUSSION	VC	-
02	2016-11-07	FOR DISCUSSION	VC	-
03	2016-11-07	FOR DISCUSSION	VC	-
04	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 051	04

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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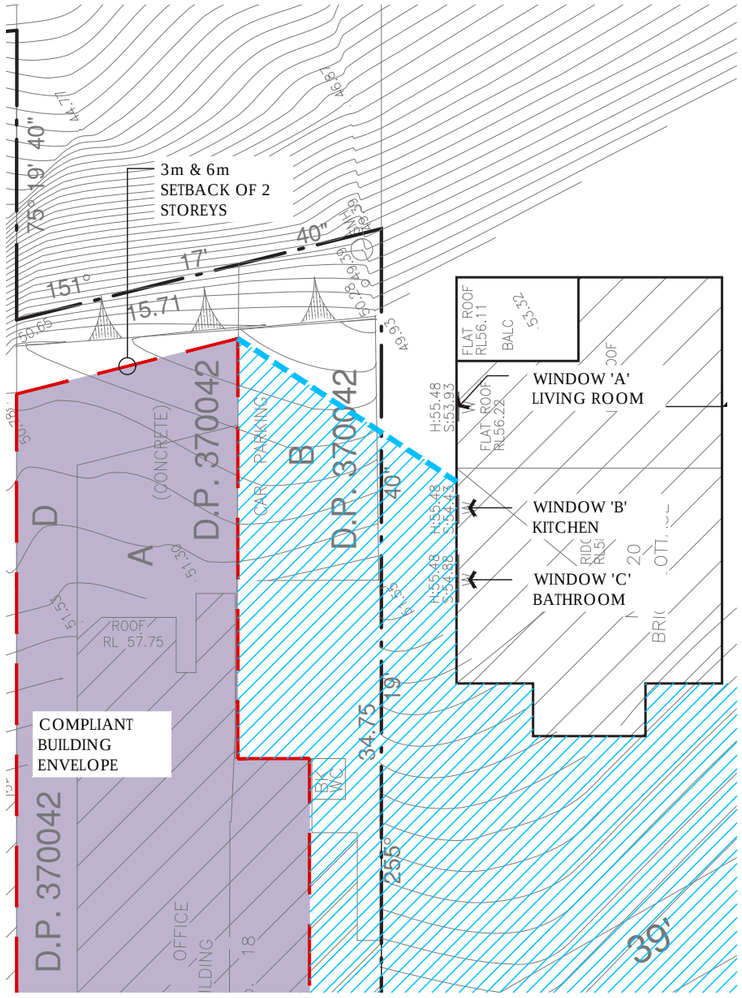

1 SITE PLAN - SHADOW 10AM 22 JUNE

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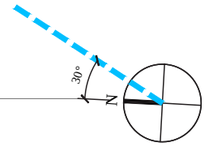

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Monday, 7 November 2016 7:39:15 PM

CLIENT:
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K:\2924 Pathways\A053 Shadows.dwg - **NB:** NOTWORKS - DRAG / METROPOLITAN DATA FOR SHADOW PAPER 7.dwg

DRAWING TITLE:

SHADOW ANALYSIS
SHEET 3

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-
02	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 053	02

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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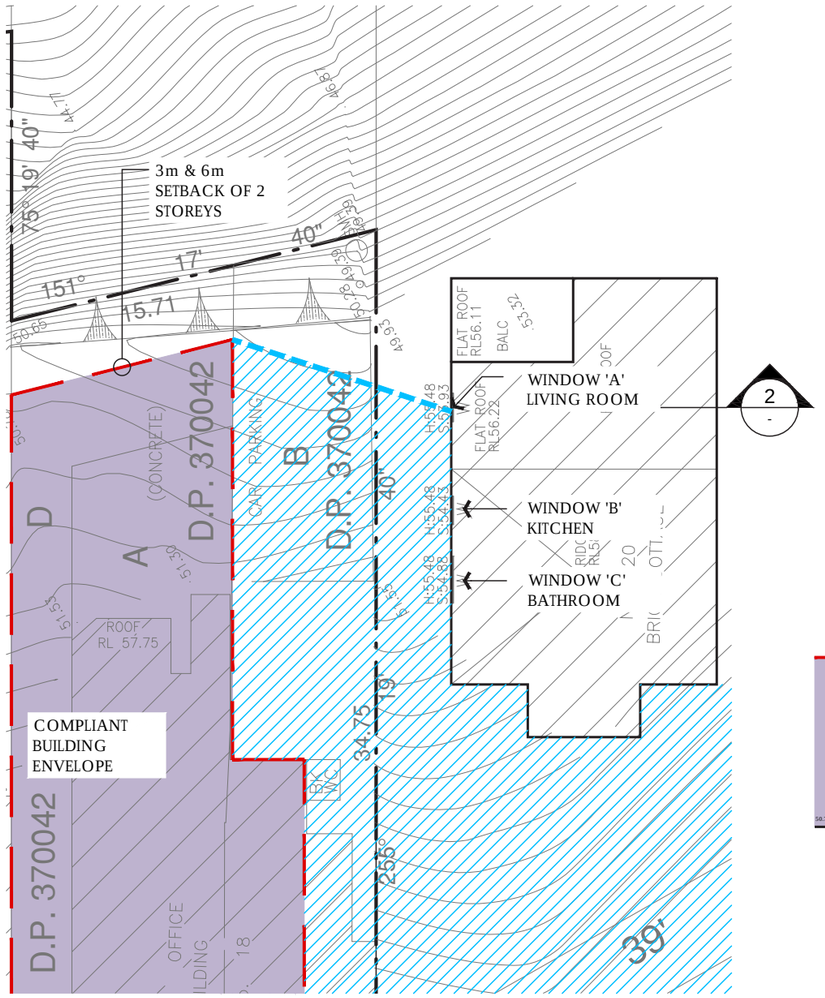
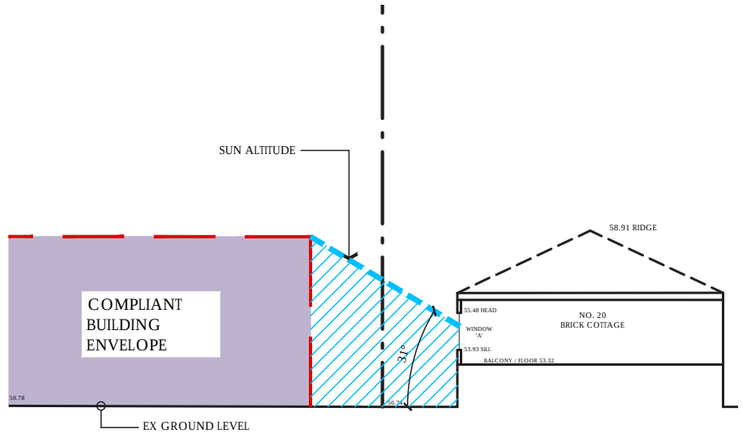




LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

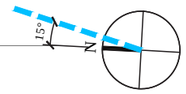
DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

1 SITE PLAN - SHADOW 11AM 22 JUNE
1 : 200



2 SECTION - SHADOW 11AM 22 JUNE
1 : 200

architecture
interior design
project management

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CLIENT:
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R:\JOBS\Active\2924\Models\Revit\2924 - SEE INTERIORS - ENVIO - SECTIONS FOR SHADOW TMP\A 5.dwg

DRAWING TITLE:

SHADOW ANALYSIS
SHEET 5

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-
02	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 055	02

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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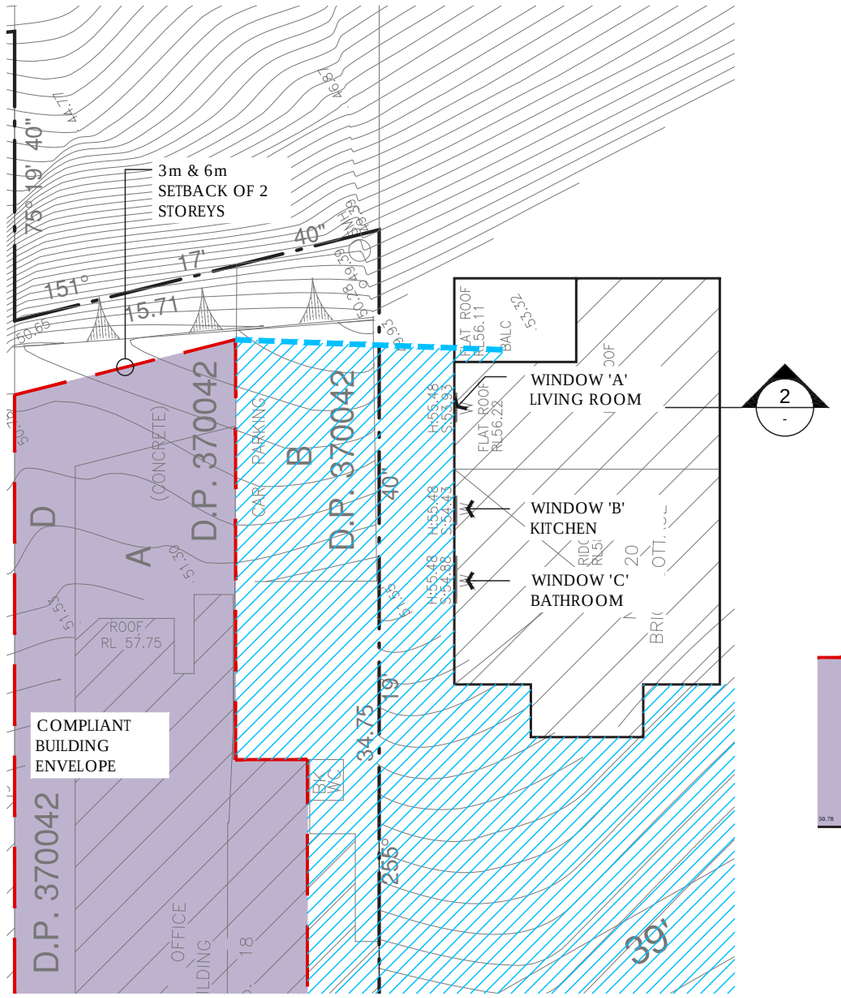
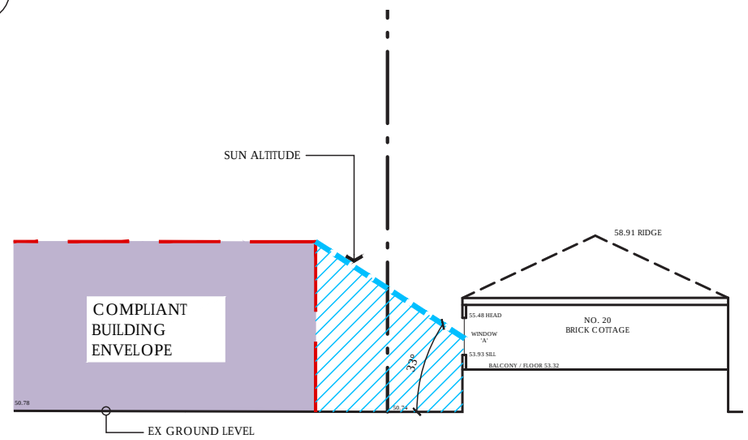




LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

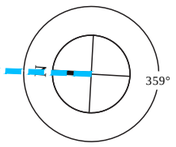
DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

1 SITE PLAN - SHADOW 12NOON 22 JUNE
1 : 200



2 SECTION - SHADOW 12NOON 22 JUNE
1 : 200

architecture
interior design
project management

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ACN: 001 595 268 ABN: 44 001 595 268 morrisondesign@mdpa.com.au
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CLIENT:
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R:\2924-Pwh-n-p-v & 3 Rhoda-n-o-v-Rhoda-n-o\ - MD\ INTERIORS\ - DRWG\ - MD\ DESIGN FOR SHADOW-REPRO\ 2.dwg

DRAWING TITLE:

SHADOW ANALYSIS
SHEET 7

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-
02	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 057	02

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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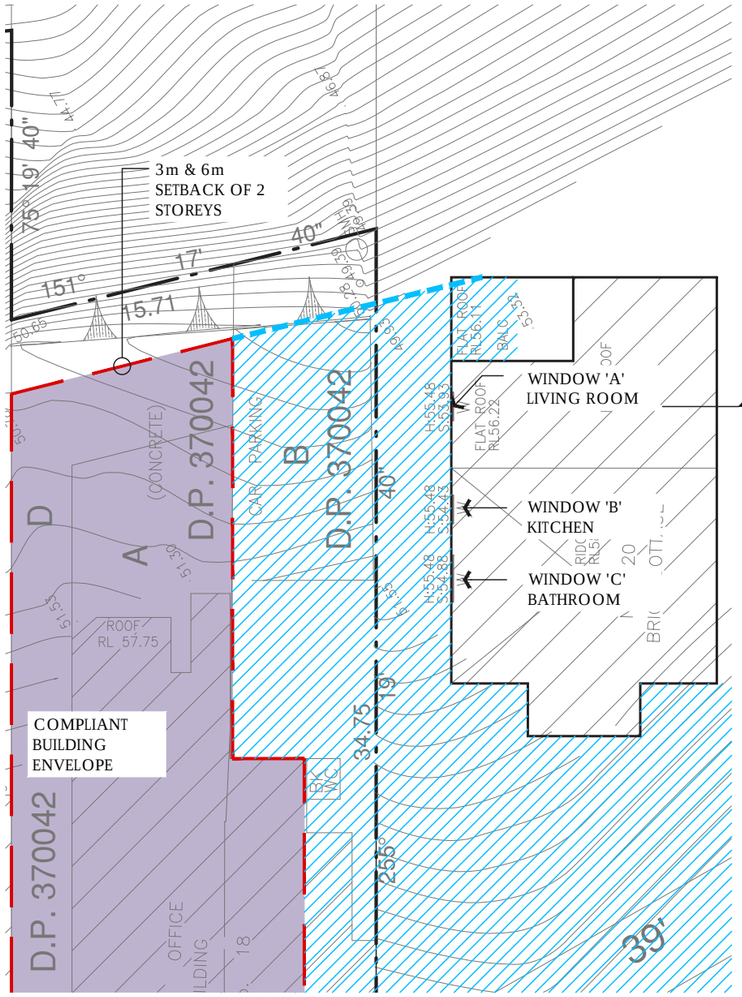


LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

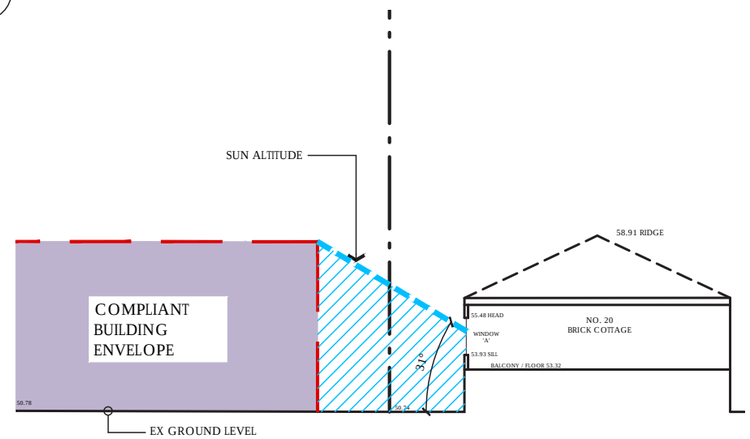
AREA OF OVERSHADOW

DATA FOR SUN POSITION

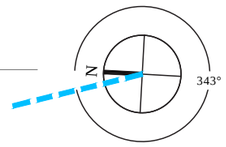
LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°



1 SITE PLAN - SHADOW 1PM 22 JUNE
1 : 200



2 SECTION - SHADOW 1PM 22 JUNE
1 : 200

architecture
interior design
project management

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K:\2924-Pathways\A059-Shadows.dwg - NBS NOTBORD(1:200)(1:100)(1:50)(1:20) FOR SHADOW INFPRJ.7.dwg

DRAWING TITLE:

SHADOW ANALYSIS
SHEET 9

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-
02	2016-11-07	FOR DISCUSSION	VC	-
03	2016-11-08	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 059	03

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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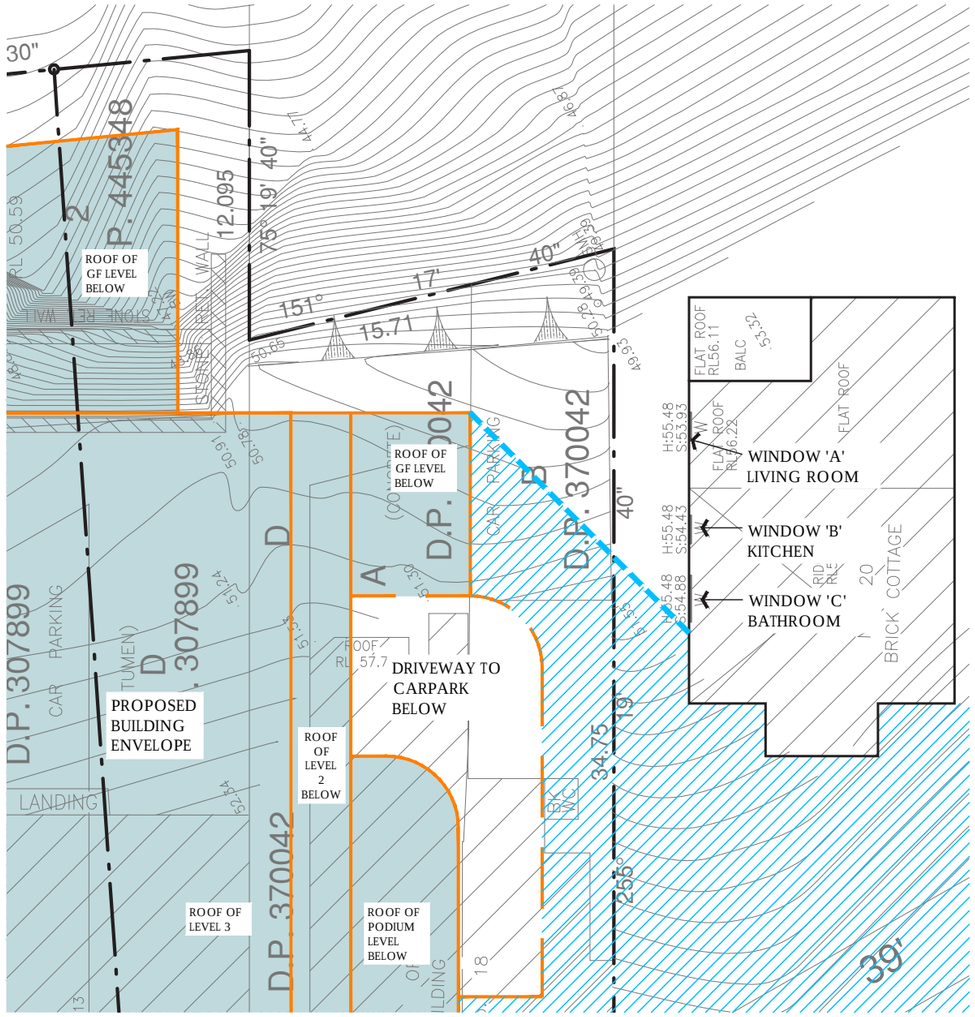
SHADOW ANALYSIS - PROPOSED BUILDING ENVELOPE



1 SITE PLAN - SHADOW 9AM 22 JUNE

1 : 200

LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

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Monday, 7 November 2016 12:12:41 PM

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R:\2924-Pacific-n-p-G-Elfhurst-woodland - MR \WORKING \DWG \SECTIONS FOR SHADOW IMPACT.dwg

DRAWING TITLE:

SHADOW ANALYSIS
SHEET 2

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-04	FOR DISCUSSION	VC	-
02	2016-11-07	FOR DISCUSSION	VC	-
03	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 052	03

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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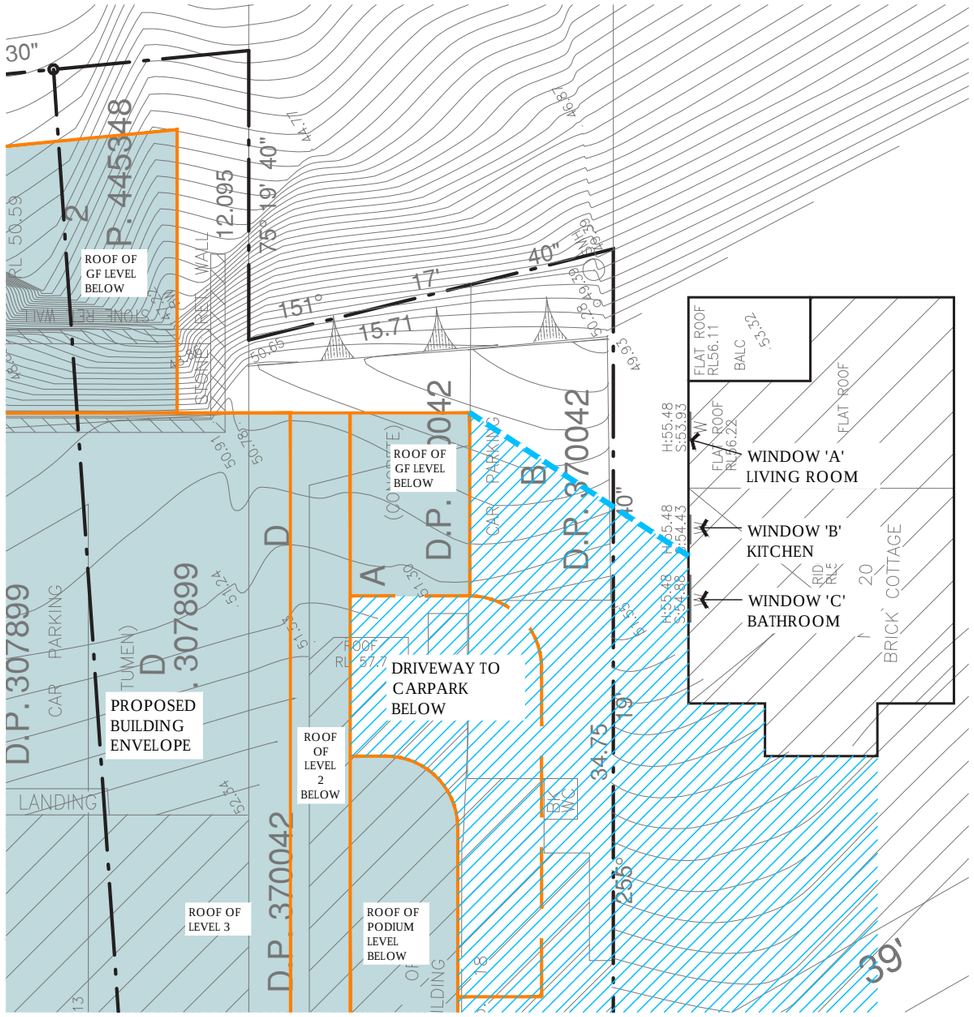

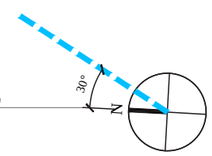

1 SITE PLAN - SHADOW 10AM 22 JUNE

1 : 200

LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

architecture
interior design
project management
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ACN: 001 595 268 ABN: 44 001 595 268 morrisondesign@mdpa.com.au
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K:\2924 Pathway-q-v-D 18Northwood Road - NW\WORKING STAGE\SHADOW IMPACT.dwg

DRAWING TITLE:

SHADOW ANALYSIS
SHEET 4

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 054	01

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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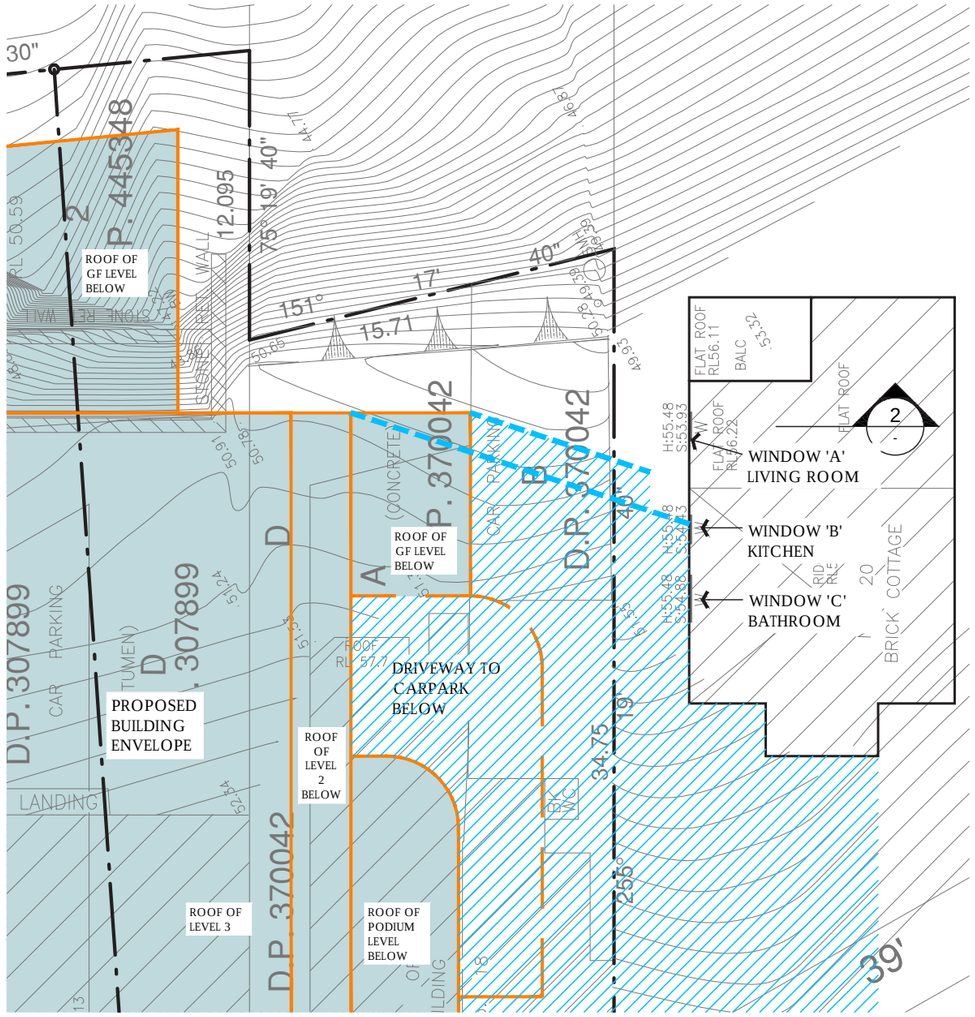
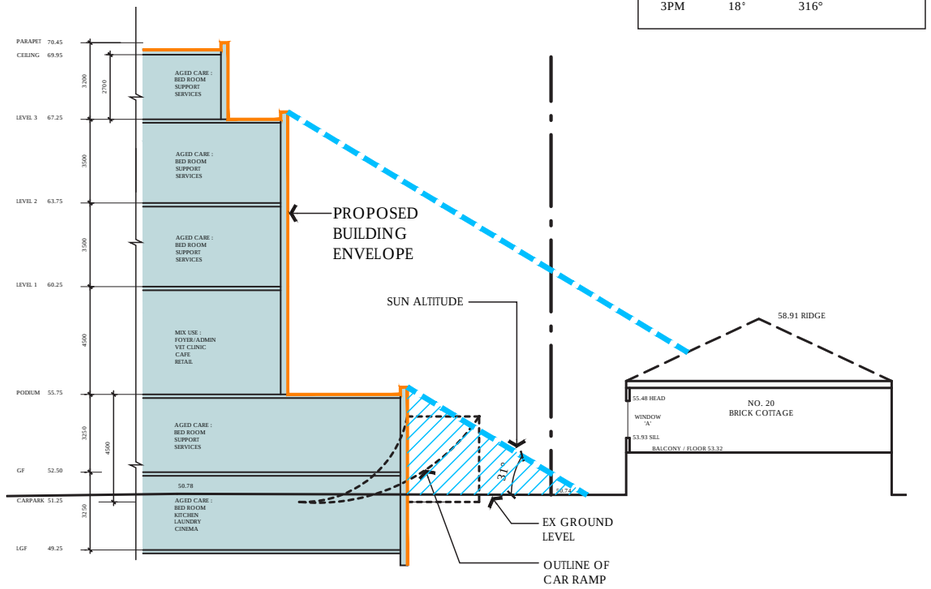


1 SITE PLAN - SHADOW 11AM 22 JUNE

1 : 200



2 SECTION - SHADOW 11AM 22 JUNE

1 : 200

LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

architecture
interior design
project management
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N:\2924 Pathways\a056 Northwood\a056.pln - NBR VICTORIA(1) - DWG | ISO 7809N FOR BASIC\7809 IMPRINT.dwg

DRAWING TITLE:

SHADOW ANALYSIS SHEET 6

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO. 2924	DRAWING NO. A 056	REVISION 01
SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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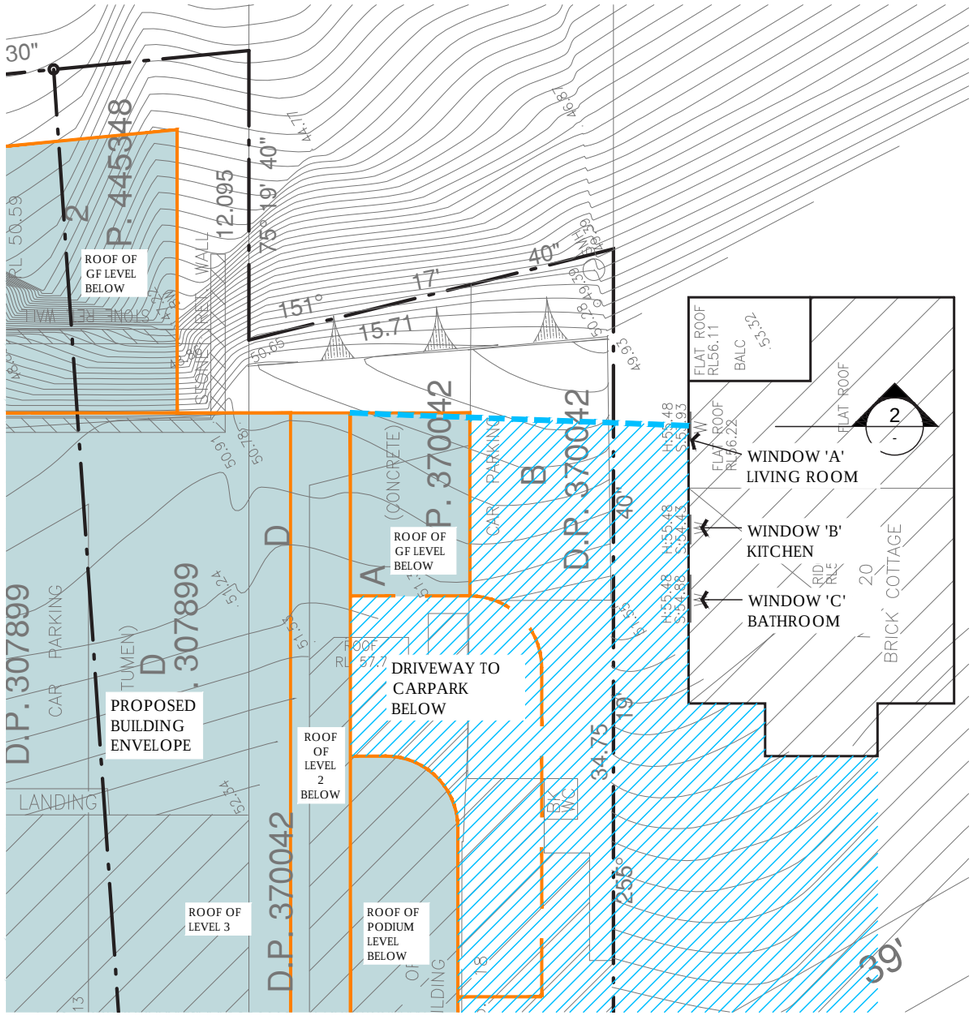

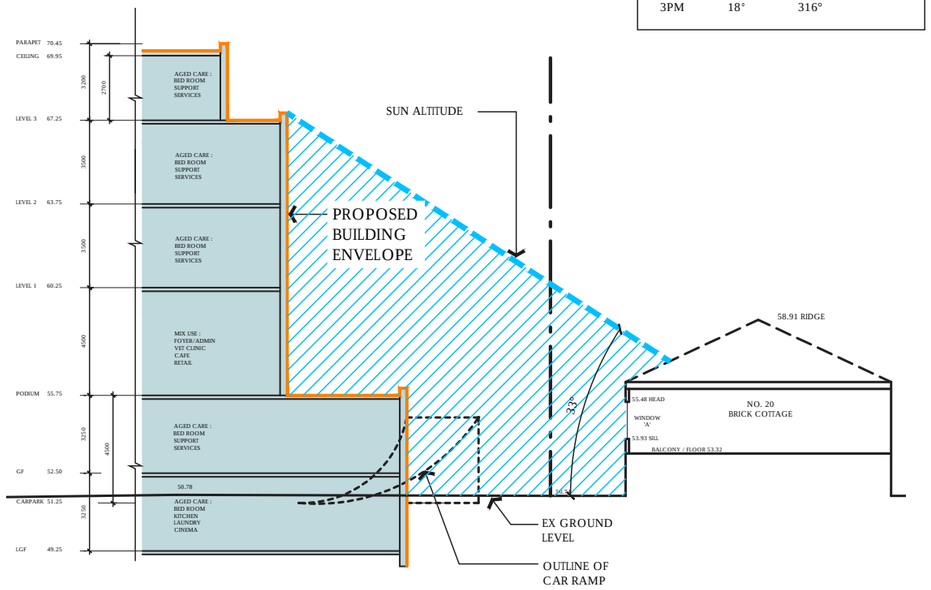

LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

1 SITE PLAN - SHADOW 12NOON 22 JUNE
1 : 200

2 SECTION - SHADOW 12NOON 22 JUNE
1 : 200

architecture
interior design
project management
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CLIENT:
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PROJECT:
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DRAWING TITLE:
SHADOW ANALYSIS
SHEET 8

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-
02	2016-11-08	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 058	02

SCALE	:	AS NOTED @ A3
DRAWN	:	VEE CHIN
PROJECT PRINCIPAL	:	MARKAM R.
DATE	:	NOV 2016

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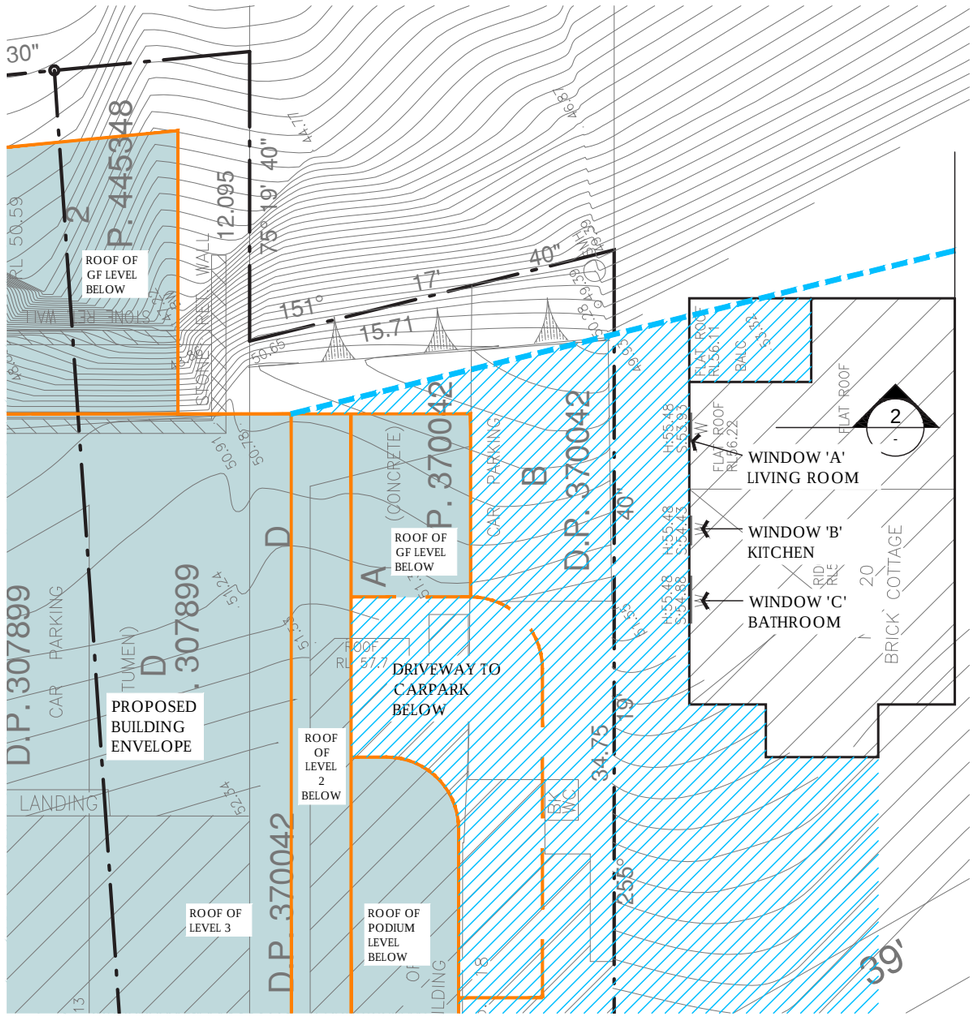
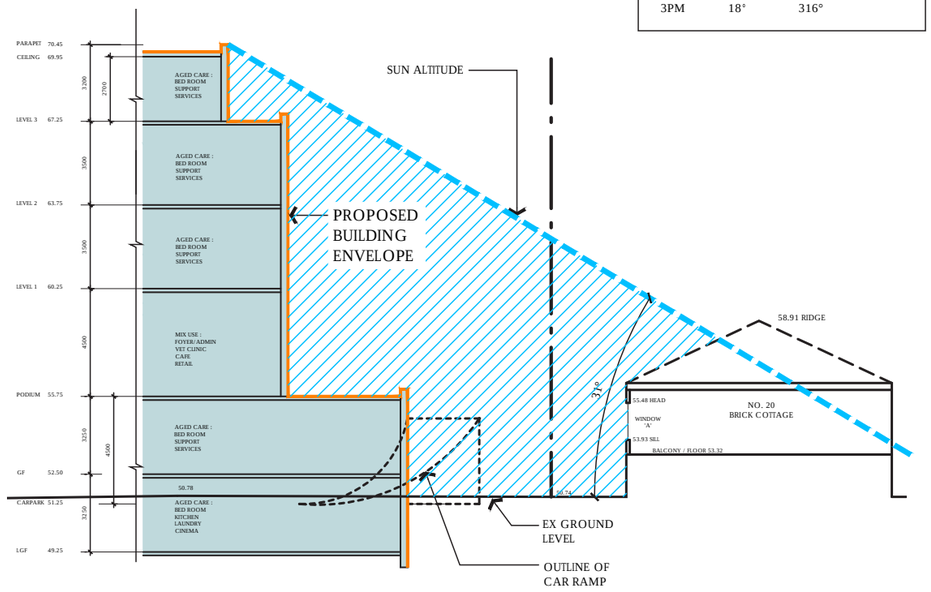




LEGEND - SHADOW DIAGRAMS

SHADOW DIRECTION & ANGLE

AREA OF OVERSHADOW

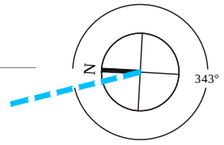
DATA FOR SUN POSITION

LOCATION OF STUDY:
SYDNEY METROPOLITAN AREA
33.8° S, 151.2° E

WINTER SOLSTICE 21 JUNE

TIME	ALTITUDE	AZIMUTH
9AM	19°	42°
10AM	26°	30°
11AM	31°	15°
12NOON	33°	359°
1PM	31°	343°
2PM	25°	329°
3PM	18°	316°

1 SITE PLAN - SHADOW 1PM 22 JUNE
1 : 200



2 SECTION - SHADOW 1PM 22 JUNE
1 : 200

architecture
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NSW ARB REG ARCHITECT: G. OLLERTON #7621
ACN: 003 595 268 ABN: 44 001 595 268 mountsandesign@mdpa.com.au
Suite 202 69 Chinatie Street St. Leonards NSW 2065 | 02 99665566 | www.mdpa.com.au
Monday, 7 November 2016 5:23:03 PM

CLIENT:
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PROJECT:
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A - 2014 Autodesk Inc v 18 Revision xxxx Revit - MR - NORMAL - DWG - 06/10/09 - FOR MANDATORY IMPACT Z.dwg

DRAWING TITLE:

SHADOW ANALYSIS
SHEET 6

REV	DATE	AMENDMENT	INITIALS	CHECK
01	2016-11-07	FOR DISCUSSION	VC	-

PROJECT NO.	DRAWING NO.	REVISION
2924	A 060	01
SCALE :	AS NOTED @ A3	
DRAWN :	VEE CHIN	
PROJECT PRINCIPAL :	MARKAM R.	
DATE :	NOV 2016	

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URBAN DESIGN / ARCHITECTURE / LANDSCAPE ARCHITECTURE

Project	4-18 Northwood Road & 274-274A Longueville Road
Prepared for	Pathways Residences
Job number	16111
Date issued	09 November, 2016