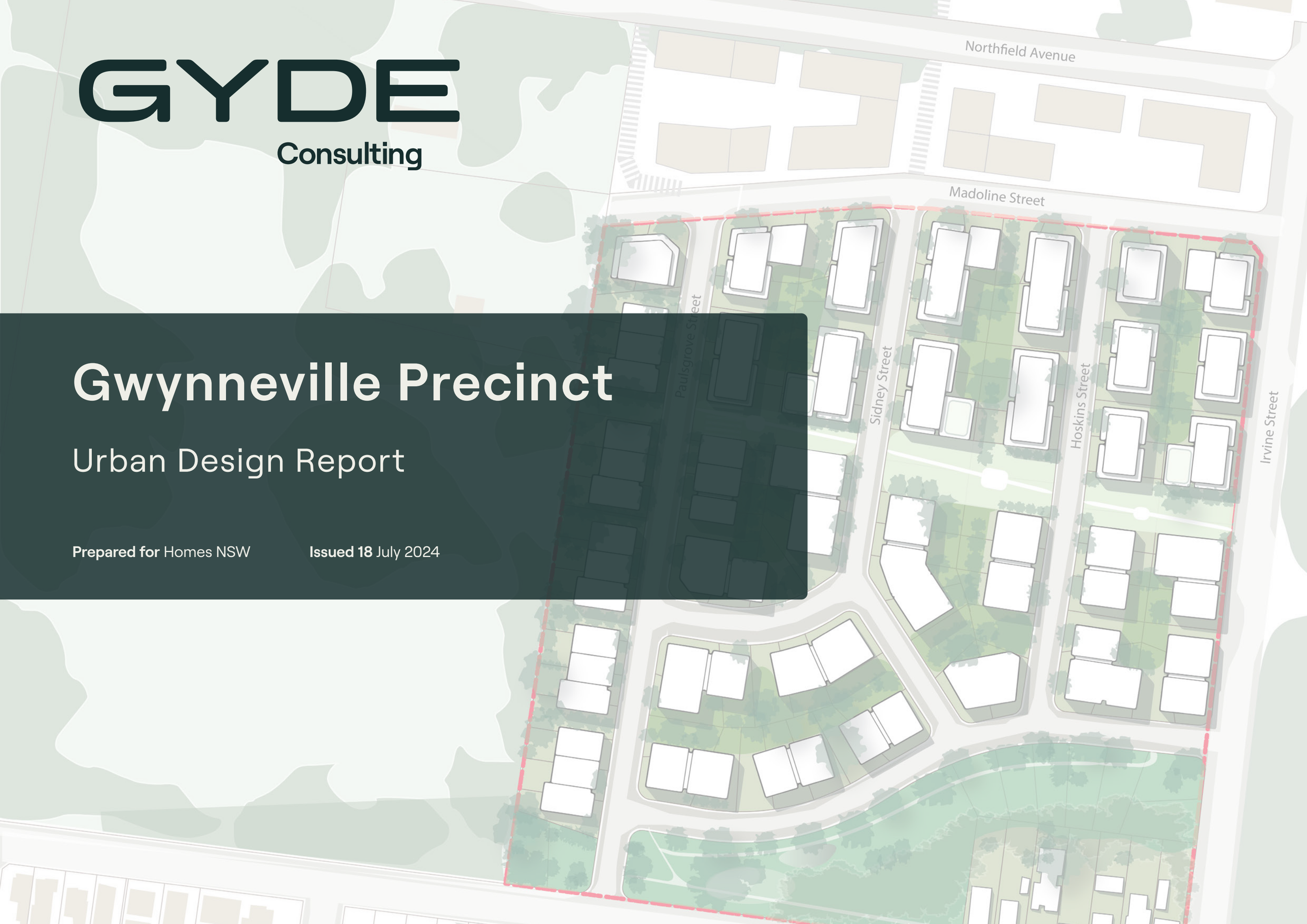
GYDE Consulting

Gwynneville Precinct

Urban Design Report

Prepared for Homes NSW

Issued 18 July 2024



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Gwynneville Urban Design Report

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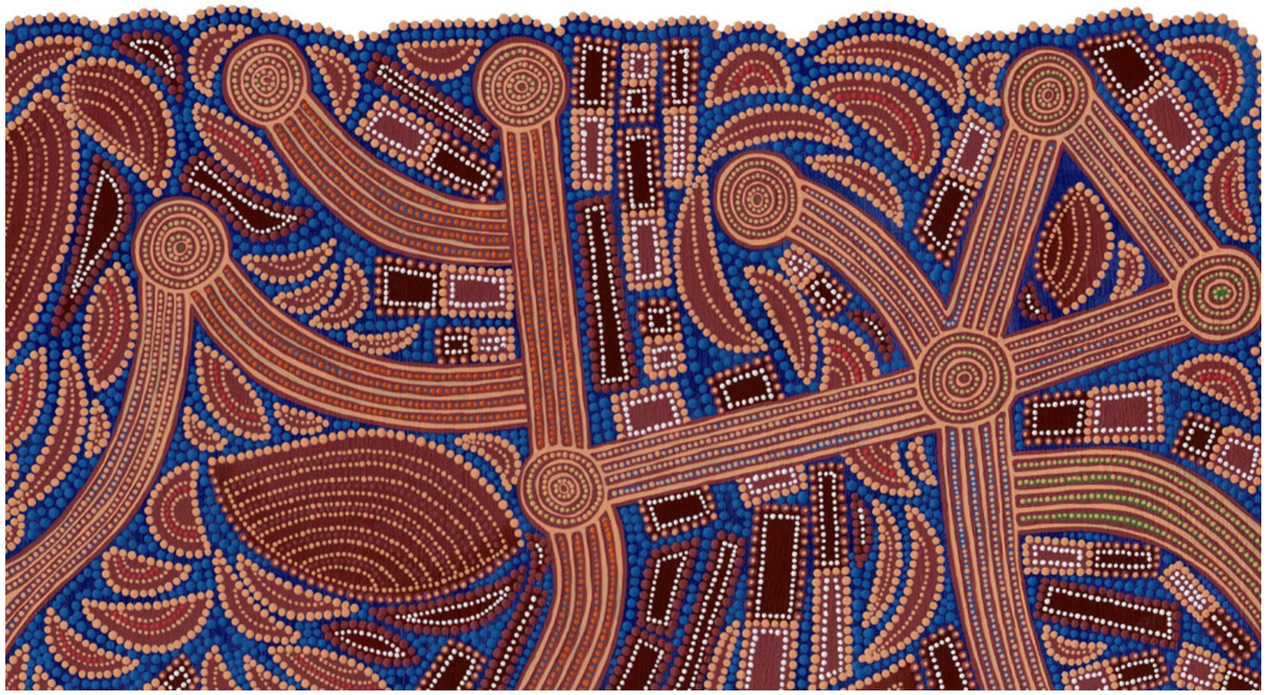
Acknowledgment of Country

Gyde Consulting acknowledges and pays respect to Aboriginal and Torres Strait Islander peoples past, present and future Traditional Custodians and Elders of this nation and the cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander people. We recognise the deep and ongoing connections to Country – the land, water and sky – and the memories, knowledge and diverse values of past and contemporary Aboriginal and Torres Strait communities.

Gyde is committed to learning from Aboriginal and Torres Strait Islander people in the work we do across the country.



Towards Harmony by Aboriginal Artist Adam Laws

1 Introduction

This study was prepared on behalf of Homes NSW.

The study summarises the analysis undertaken for the land parcel located immediately south of University of Wollongong Campus and east of Wollongong Botanic Garden, in the suburb of Gwynneville.

The analysis presented in this report considers the urban context of the study area, making informed recommendations with respect to the urban context and built form outcomes for future redevelopment of the subject site.

Gyde Consulting (Gyde) was appointed by Homes NSW (the proponent), formerly known as NSW Land and Housing Corporation, to undertake urban design investigations on behalf of the proponent.

The urban design investigations relate to the area bounded by Madoline Street (north), Murphys Avenue (south), Irvine Street (east) and the Wollongong Botanic Gardens (west).

This report gas been prepared in support of a Planning Proposal to facilitate redevelopment of the study area to help deliver a diverse range of housing typologies.

This will include additional social and affordable housing, market housing products and seniors housing, as well as opportunities to develop build-to-rent, key worker housing and student accommodation.

Gyde's urban design team has examined the existing and likely future urban context, to understand the site specific constraints applying to the future development potential of the study area and the role of the site within the wider area.

The context investigations take into account the urban structure of the immediate and wider setting of the site, key neighbourhood characteristics, site constraints as well as the desired outcomes sought by the current planning framework.

Comprehensive analysis has informed a series of the potential massing strategies developed and tested for the site. This approach has enabled Gyde's urban design team to determine the appropriate built form outcomes for the site and ensure adequate capacity to deliver strong site-specific responses to support and complement the evolving character of Gwynneville.

Figure 1. Aerial Photographs indicating the study area (Source: Google Maps)

2 Methodology

Gyde's team has examined the strategic planning framework and the outcomes sought by local controls. We have examined the project history and analysed the existing character of the site and surrounding areas.

In undertaking this study, our team reviewed and considered relevant strategic plans and planning documents to understand the strategic context and future objectives for the suburb of Gwynneville. These included:

- Illawarra Shoalhaven Region Plan 2041, which provides the strategic policy, planning and decision-making framework to guide the region to sustainable growth over the next 20 years.
- Wollongong Local Strategic Planning Statement 2020 (LSPS) which sets out a 20-year land use planning vision for the Local Government Area (LGA). The LSPS is considered an important tool in understanding the local strategic planning direction relevant to the proposal and the Gwynneville Keiraville area.
- Wollongong Local Housing Strategy 2023 which seeks to ensure that new housing will continue to diversify supply and provide choice for residents through a variety of housing types, sizes and configurations.
- Current applicable development controls including Wollongong Local Environmental Plan 2009 (WLEP) and relevant chapters of the Wollongong Development Control Plan 2009 (WDCP). Chapter 1D of the WDCP provides Character Statements for Gwynneville and surrounding neighbourhoods which, in conjunction with the development controls, provides a tool to assist decision-making to determine whether a proposed development is compatible with the desired future character of a locality.
- Publicly available documents relating to the master planning work undertaken for the Wollongong University Campus which is located immediately to the north of the study area. Plans for the university campus must be considered to inform the likely future character and scale of the general area as well as site specific conditions including future pedestrian and vehicular traffic movements around the site edges.
- Relevant background information including the Gwynneville Precinct Gap Analysis Report prepared by Stantec (April 2023).
- Flood function and riparian corridor advice prepared by Stantec.
- Traffic and transport advice prepared by Stantec.
- Advice regarding heritage views provided by Urbis.
- Built form testing options and other preliminary site investigations undertaken by the proponent.

Upon review of the background information, we undertook a comprehensive site and context inspection. The objective of the inspection was to understand and document key site and streetscape characteristics including the unique topographical conditions. As part of the inspection we visited the Botanic Gardens to understand the relationships to the subject site as well as the visually connectivity to surrounding areas including parts of Wollongong Town Centre.

The physical site inspection informed an appreciation for the grain and scale of existing development, relative to the wider context. Additional site visits were undertaken to inform scenic view and site visibility assessment.

Following the site visit, our team undertook detailed context and site analysis to understand the surrounding urban structure, movement networks as well as key constraints and opportunities applying to the site.

The analysis considered both contributory as well undesirable elements within the existing setting, to identify key character elements of the existing neighbourhood. Equally, the urban design analysis nominated sensitive interface conditions, to which any future development must respond.

Informed by the analysis, our team prepared a set of design principles for the site. The principles subsequently guided the built form massing strategies explored for the site.

The principles were crafted to ensure the capacity to deliver compatible and contextually appropriate built form and amenity responses as part of a future redevelopment of the Gwynneville precinct.

On the basis of the design principles, a series of built form massing strategies were explored. These strategies were developed as a combination of hand sketched diagrams, vector drawings and building envelopes modelled in a digital 3D model on the existing terrain.

An accurate 3D model was prepared by Gyde's team on the basis of the GIS and LIDAR data provided by the proponent and the consultant team. The 3D model was constructed on the basis of topographical data and was geo-located to enable testing of solar access and overshadowing.

Informed by analysis of the existing development pattern and consideration for best practice urban design principles, the team explored a number of site layout arrangements to determine how built form and open space may be distributed across the site, in response to the site characteristics identified in the urban design analysis.

Guided by the urban design principles, built form massing scenarios were tested against best practice principles for how built form should respond to key character considerations including; the topographical framework, landscape character, views and vistas, heritage fabric, sensitive interfaces as well as the grain and scale of surrounding development. Equally, each option was developed in a digital 3D model and interrogated to understand the responses in terms of visual bulk exposure and open space amenity.

Throughout the design development process, ongoing advice was sought from the technical advisors with regard to environmental impact issues such as; traffic, storm water management and flood constraints, acoustic impacts, bush fire risk and ecological impacts.

All interim massing options were performance tested against flood and traffic models to understand potential risks, the likely level of impact and the extent of mitigation measures required.

Informed by the analysis and the findings of the rigorous 3D model testing, the project team tailored a preferred master plan layout which achieves a sympathetic response to the desired future character of the Gwynneville neighbourhood precinct.

The preferred master plan option was developed to ensure the capacity to deliver appropriate bulk and scale relationships, acceptable scenic view impact and appropriate access to direct solar access and natural ventilation. Open space amenity to future residents was also a key consideration informing the site layout options tested.

The resulting master plan delivers a balanced relationship between the distribution and orientation of built form versus open space, to achieve a high-amenity residential precinct. The master plan achieves a contextually appropriate distribution of built form and a neighbourhood character with a prominent landscape presence and a strong sense of place, to benefit future residents as well as the wider community.

3 The Study Area

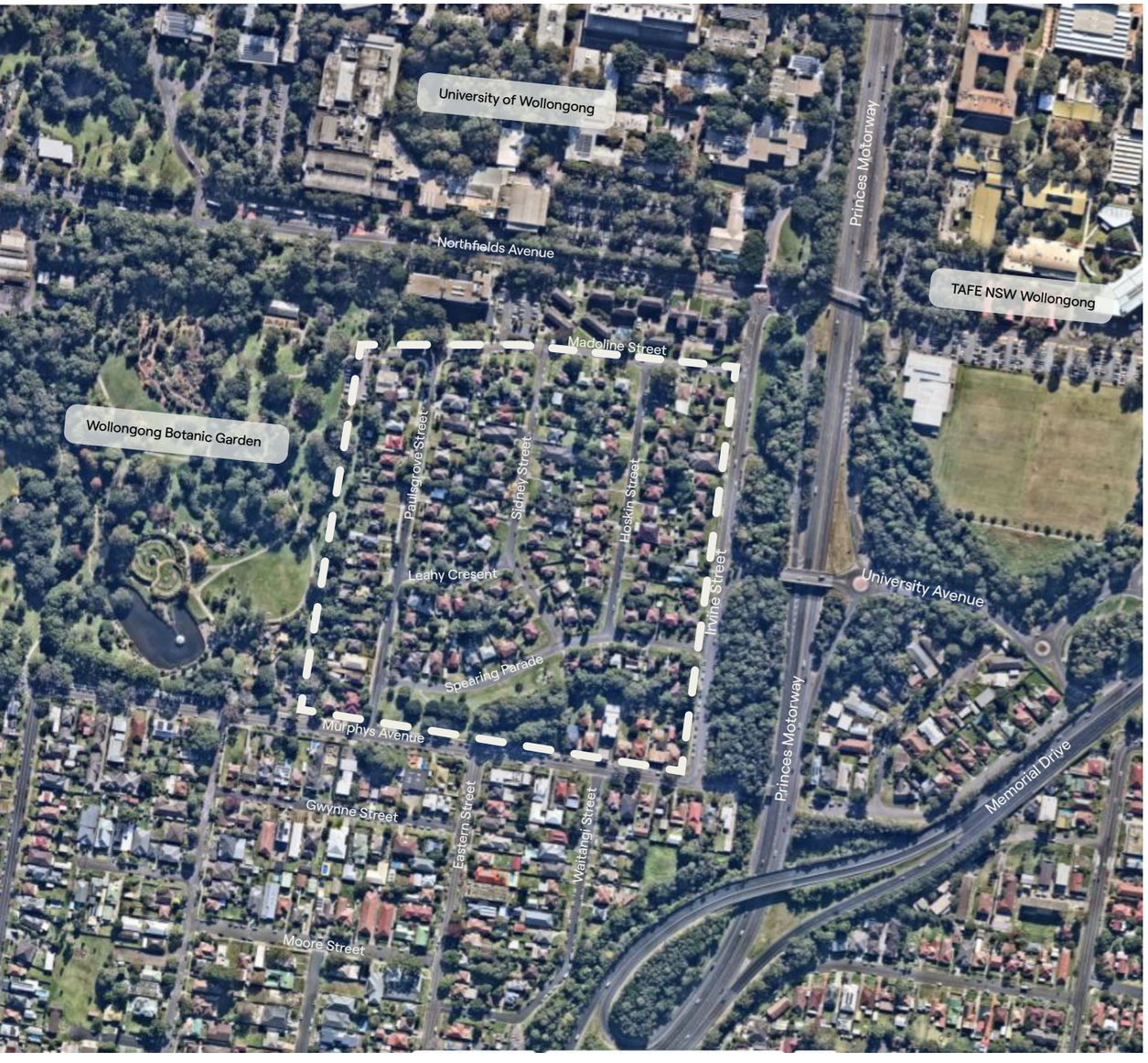


Figure 2. Study Area (Source: NearMap)

3.1 Local context

The study area is located in Gwynneville, within the Wollongong Local Government Area (LGA). The study area is located approximately 1km north west of Wollongong North Railway Station and approximately 2km north of Wollongong CBD.

3.1.1 The proposal site

The study area is approximately 9 hectares, bounded by the University of Wollongong Campus to the north, the Princes Motorway to the east, Murphys Avenue to the south and the Wollongong Botanic Garden to the west.

The location of the study area is illustrated in Figure 2, with further context detail provided in Figure 6.

The site is currently occupied by 117 single-dwelling lots, consisting of 79 social housing dwellings owned by HNSW and 56 privately owned properties.

The existing typologies predominantly comprise 1950s detached, single storey dwellings in landscaped settings.

According to the information provided by the proponent, the properties within the proposal boundary have fragmented ownership. There are 79 (59%) social housing dwellings and 56 (41%) private dwellings in the precinct.

Existing character elements include:

- Local landmark vistas – Mount Keira and CBD skyline views
- Topographical framework and ‘cascading’ streets
- Canopy views terminating streets
- Undulating streets and a sense of journey
- Properties engage with, and overlook, the street
- Mid block mature tree clusters & visual layering
- Sense of neighbourhood relating to visual enclosure and street network
- Suburban grain & streetscape rhythm
- Landscape screening and vegetation between built forms. Limited recreational areas within the site
- Streetscape and built form diversity
- Pedestrian desire lines – University, bus stops, train station, local corner shop, local school/village centre, CBD
- Limited visual permeability and poor accessibility

Figure 3. Site photographs

4 Existing Planning Framework

4.1 Local Controls

Gyde's team has reviewed the local planning framework to understand the outcomes sought by the suite of local development controls currently applying to the site.

A comprehensive review of the relevant planning policies will be provided in the Planning Proposal Report including an assessment of the proposal's performance against wider strategic plans for the region.

The LSPS refers to the following Council endorsed vision statements for the Gwynneville Keiraville area which were taken into account in this study:

- Keiraville and Gwynneville are villages;
- Viable shopping centres;
- Building styles to reflect village character;
- Managing traffic for safety and access;
- Managing parking pressures;
- A mix of people;
- A connected community;
- Valuing the University while retaining our character;
- Protecting green spaces; and
- Protecting heritage.

The primary statutory planning document pertaining to the precinct is the Wollongong Local Environmental Plan 2009 (WLEP 2009). Under WLEP 2009, the following key controls currently apply to the land:

- The land is currently zoned R2 – Low Density Residential. (Residential Flat Buildings and Shoptop Housing are currently permissible within the zone)
- The maximum Height of Buildings is 9m
- The maximum Floor Space Ratio (FSR) permitted within the precinct is 0.5:1.

The land to the north and east of the proposal is zoned as SP2 – Infrastructure, the land to the south is zoned as R2 – Low Density Residential and the land to west is zoned as RE1 – Public Recreation.

The study area does not include a heritage item but Urbis has undertaken investigations focused on heritage issues and items in the vicinity of the site, to understand whether potential impact should be considered as part of this study.

The nominated objectives for the Zone R2 zone aim:

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

The nominated objectives under Clause 4.3 Height of Buildings aim:

- To establish the maximum height limit in which buildings can be designed and floor space can be achieved,
- To permit building heights that encourage high quality urban form,
- To ensure buildings and public areas continue to have views of the sky and receive exposure to sunlight.

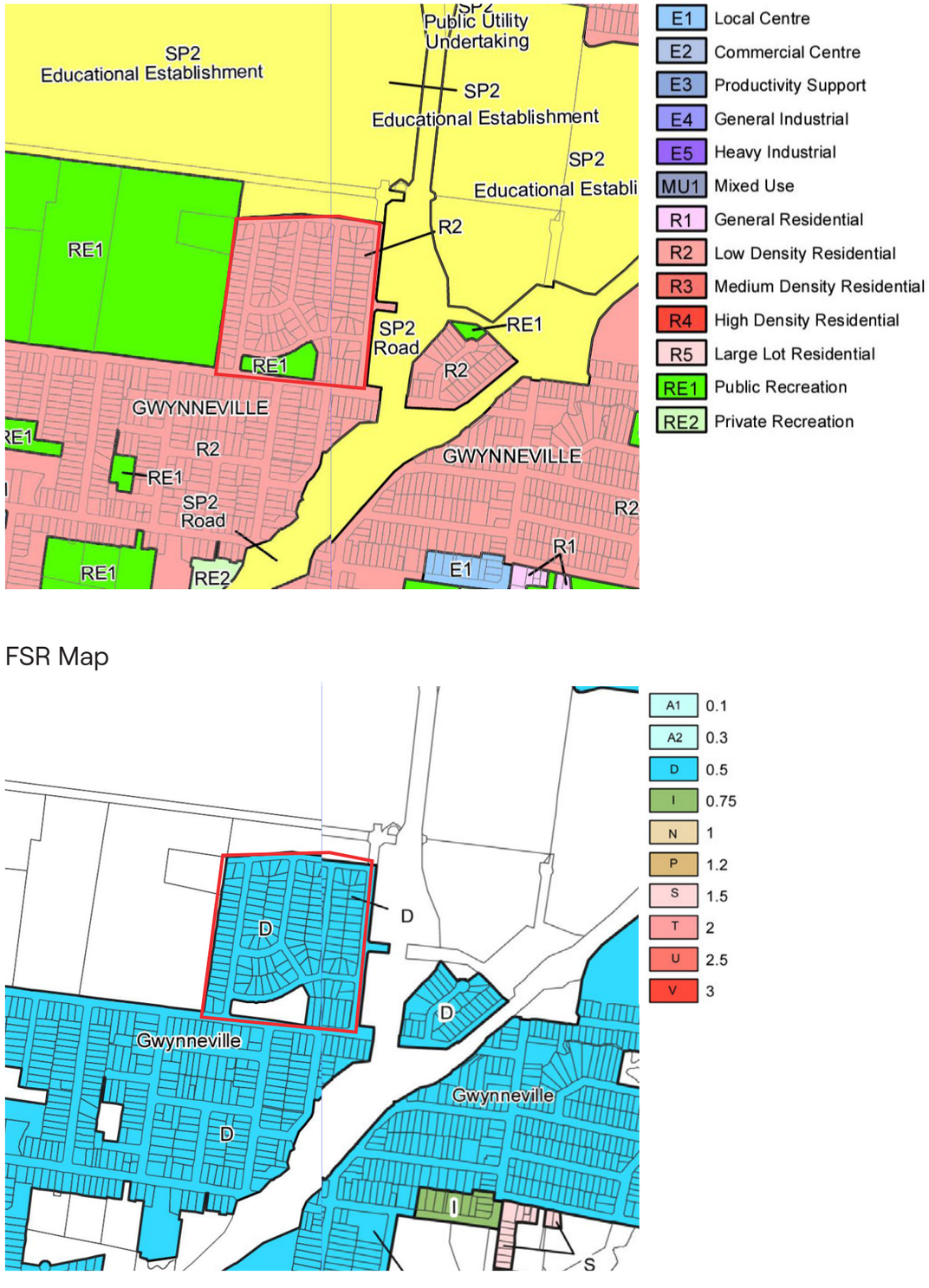
The nominated objectives under Clause 4.4 Floor Space Ratio aim:

- To provide an appropriate correlation between the size of a site and the extent of any development on that site,
- To establish the maximum development density and intensity of land use, taking into account the availability of infrastructure to service that site and the vehicle and pedestrian traffic the development will generate,
- To ensure buildings are compatible with the bulk and scale of the locality.

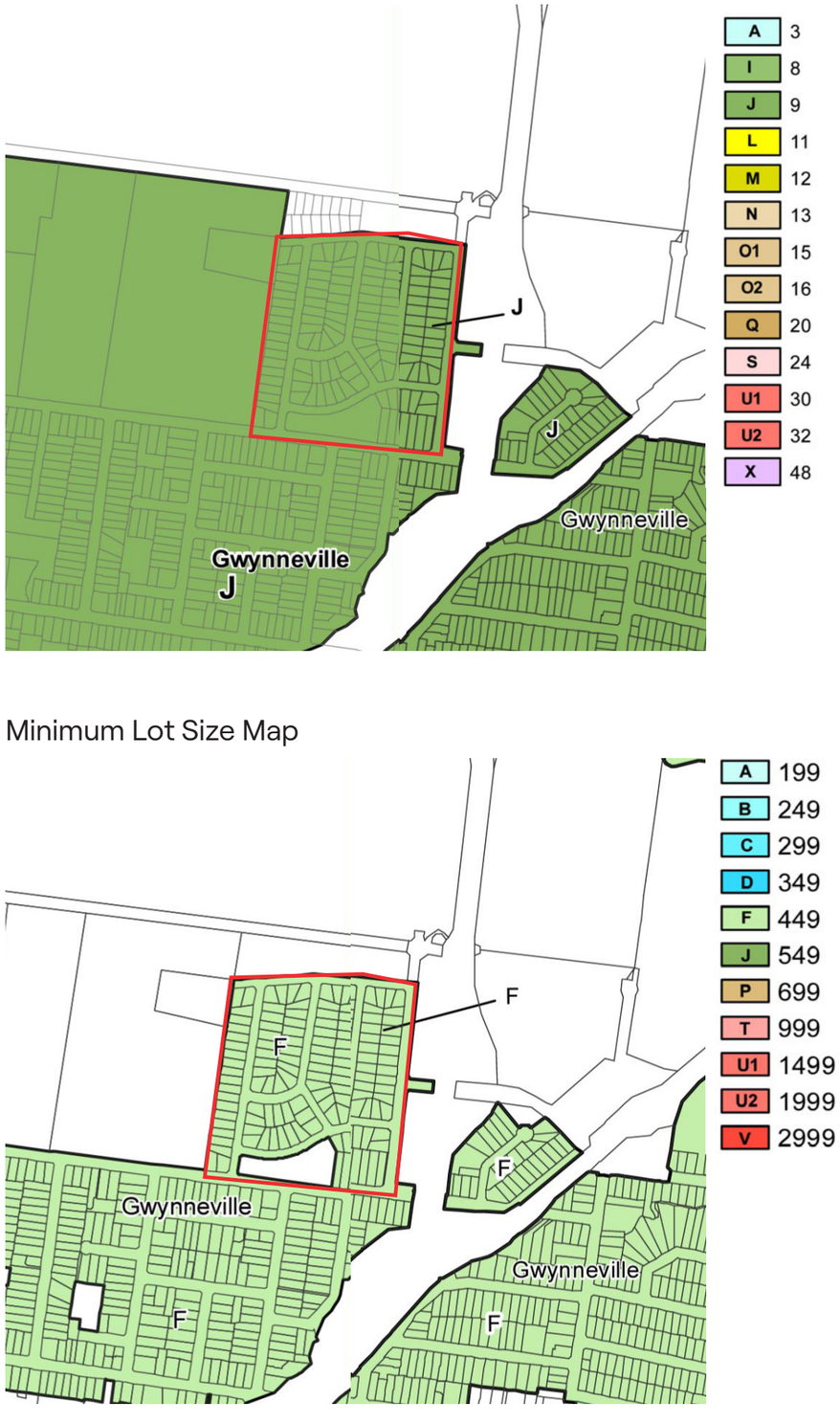
The master plan presented in this study takes into account the objectives of the current controls.

A comprehensive discussion of the proposal's response to the local planning framework is provided in the Planning Proposal report.

Zoning Map



Maximum Height Map



FSR Map

Minimum Lot Size Map

Figure 4. Extracts from the LEP Maps (Source: www.legislation.nsw.gov.au)

5 Regional Context

5.1 Regional connectivity

The proposal site is well connected via the existing road and rail network.

The study area is located approximately 83 km south of Sydney and the journey takes approximately 1 hr 45 mins via car.

Commuters also have the option to travel via Sydney trains where the journey from Sydney Central Station takes approximately 1 hr and 40 minutes.

The study area is located approximately 1km west of the North Wollongong Train Station.

While a public bus connection visa Campbelltown is available, the travel time typically exceeds 2 hrs and 45 minutes.

Kiama is located approximately 39 km further south and the journey takes approximately 31 mins via car or 43 minutes via train.

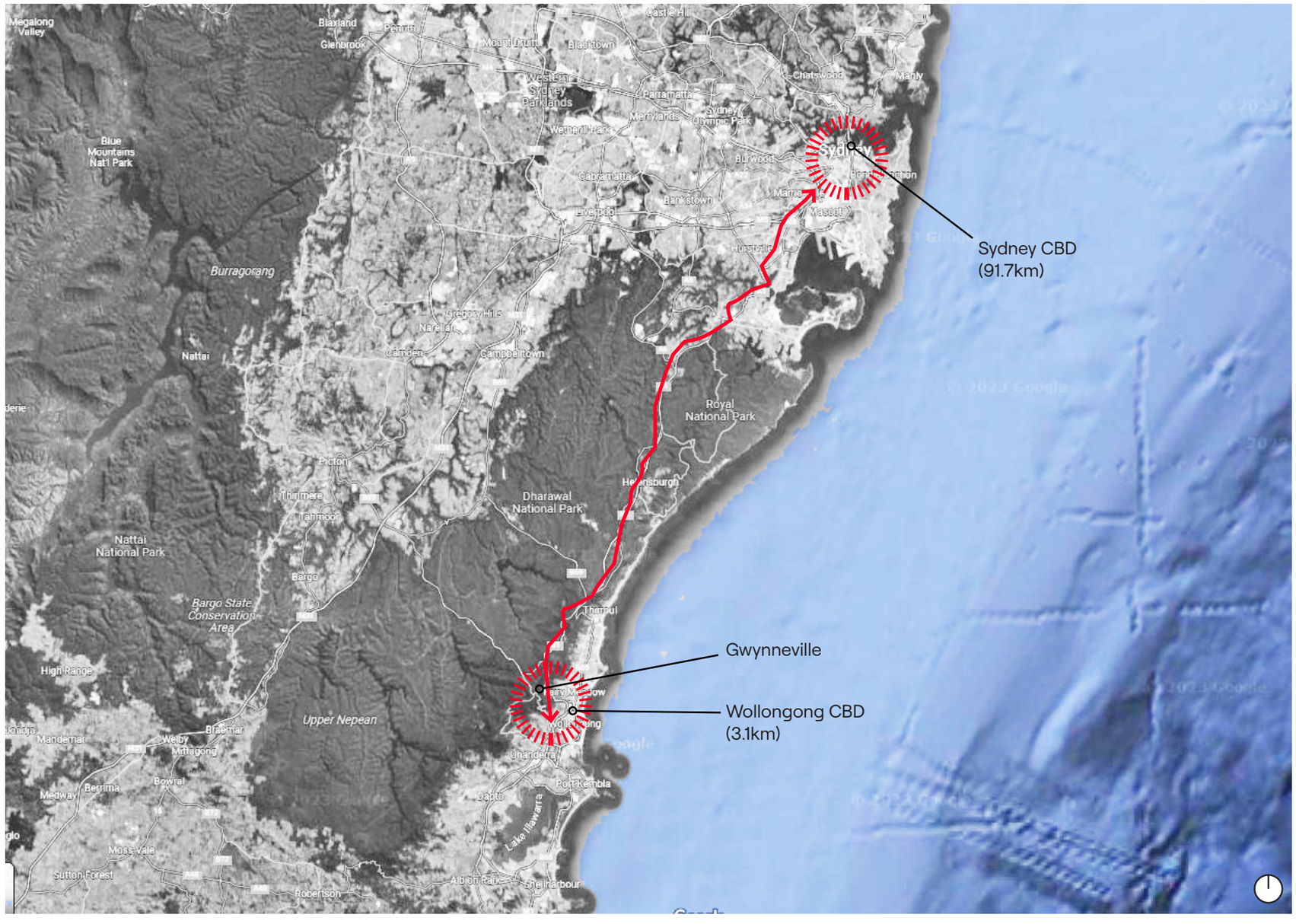


Figure 5. Regional connectivity (Source: Google Maps)

6 Local Context

6.1 Gwynneville

Gwynneville is ideally located as an inner city suburb, located approximately 2km to the north west of Wollongong CBD.

Neighbouring suburbs include North Wollongong (east) and Mount Keira (west), in proximity to the Wollongong city centre as well as spectacular beaches and bushland areas west of Mount Keira.

The site is located immediately adjacent to a large educational facilities, local schools and medical facilities. The site is within walking distance of the North Wollongong train station (approximately 800m).

The proximity to coastal areas, public transport, the commercial core and open space amenity makes the site well suited for residential development to suit a wide range of demographic profiles.

The site benefits from access to:

- Wollongong CBD approximately 2km
- Wollongong North Beach approximately 1.5km
- Wollongong North Train Station approximately 800m
- Wollongong Hospital approximately 2km
- Mount Keira Lookout approximately 4km
- Beaton Park Leisure Centre approximately 900m
- Gwynneville Public School approximately 800m
- Wollongong University Campus approximately 10m
- Keiraville Public School approximately 700m

Nearby village centres include Keiraville and Gwynneville.

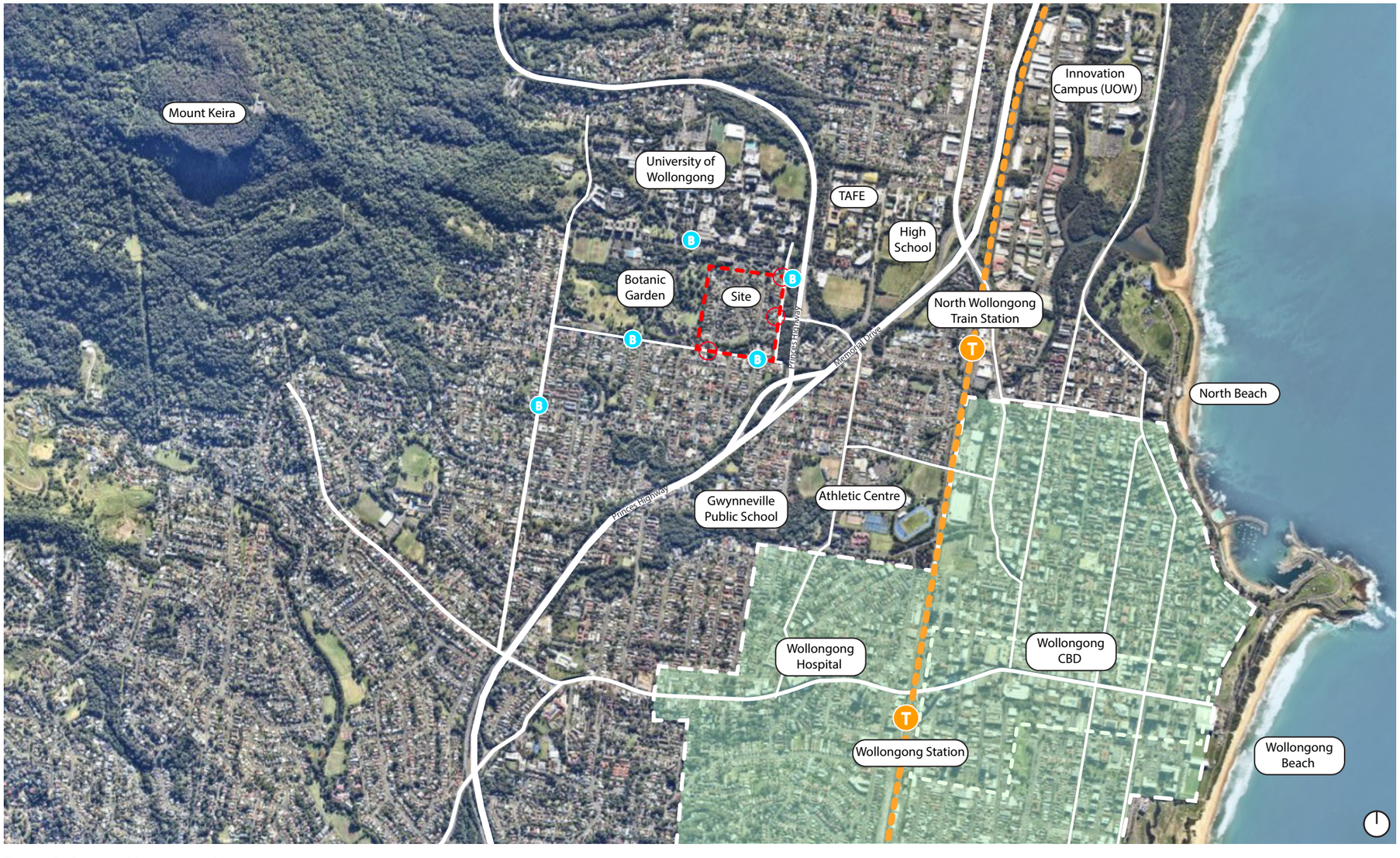


Figure 6. Context Map (source Nearmap)

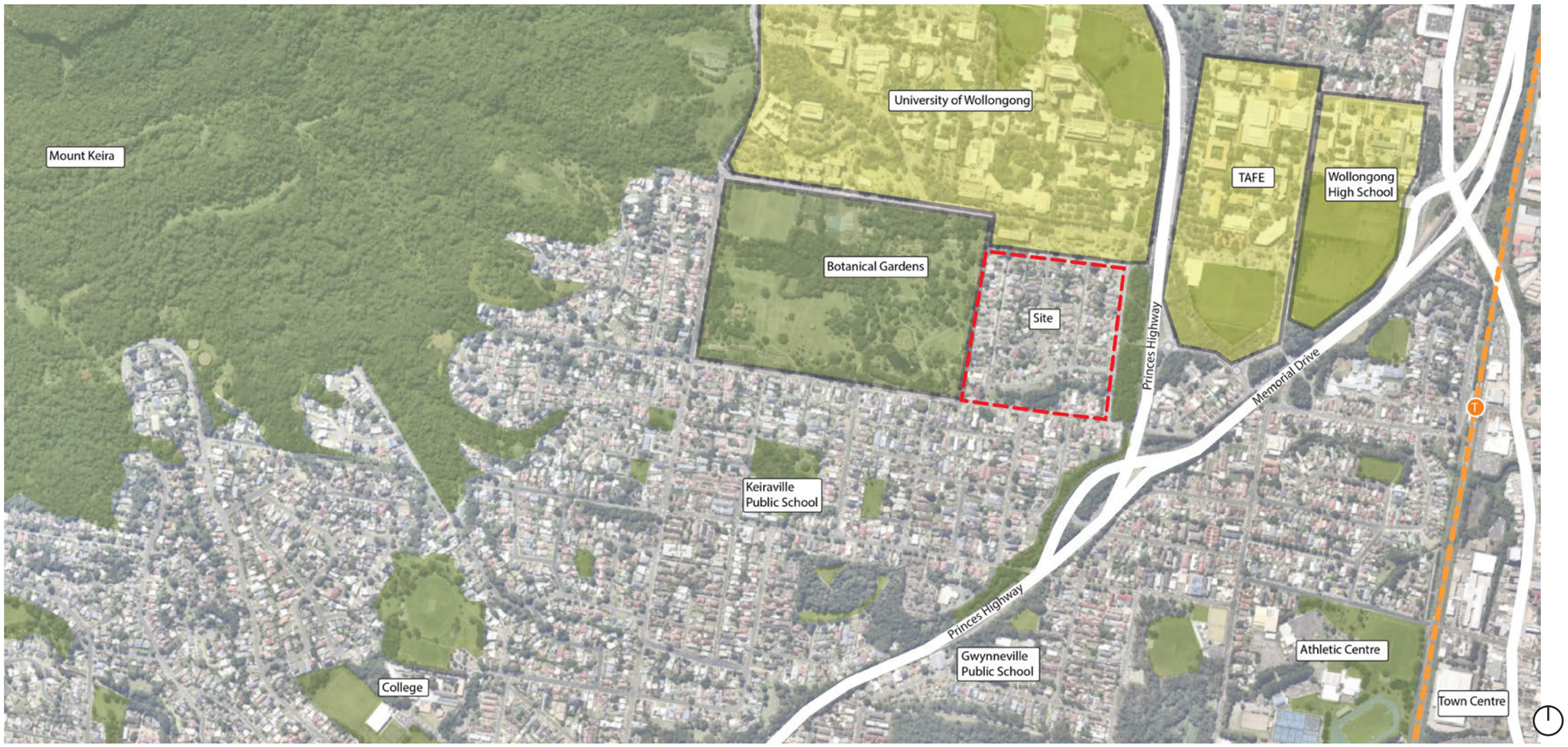


Figure 7. Local context and open space amenity

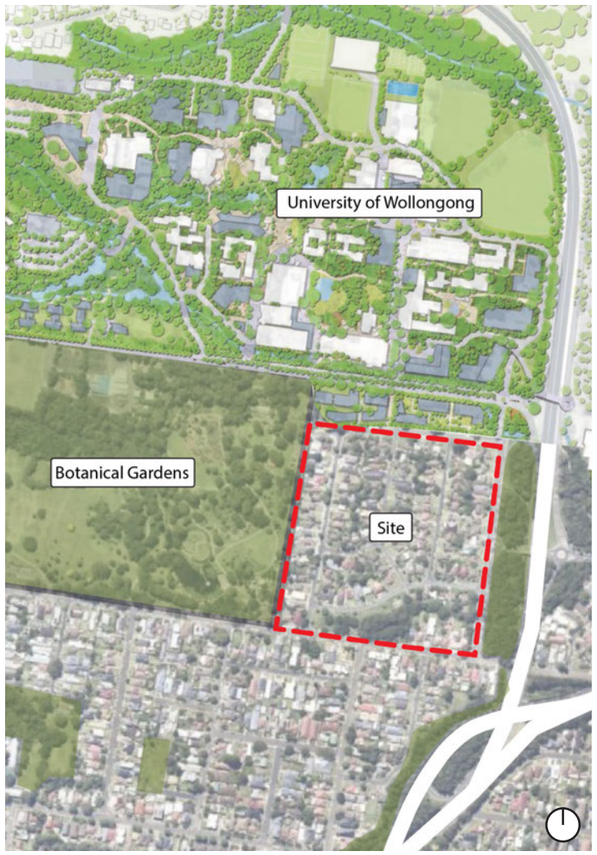


Figure 8. Future Open Space (Wollongong University Campus)

6.2 Open Space amenity

Aside from the proximity to coastal areas, Wollongong and surrounding areas benefit from the scenic qualities of the Illawarra Escarpment immediately west of the site.

The escarpment defines the Illawarra region which extends from Stanwell Park in the north to Kiama, Gerringong and the Shoalhaven River in the south.

Wollongong and surrounding areas benefit from a range of public open space amenity and green open spaces distributed on both sides of the railway line including:

- Mount Keira National Park which includes walking tracks, a lookout, camp sites and a camp lodge.
- Mount Kembla and the Illawarra Escarpment State Conservation Area with walking tracks and spectacular fold-created cliffs and plateau-eroded outcrop mountain range west of the coastal plain.
- Wollongong Botanic Garden adjacent to the site.
- The TAFE NSW Wollongong Sports Fields to the east.
- Wiseman Park Tennis Club and oval facilities to the south east of the site.
- The Beaton Park Leisure Centre to the south east which includes an aquatic centre, a tennis club and playing fields.

A number of local parks and reserves are located in the area including Spearing Park Reserve which is located at the southern end of the site.

The Campus Master Plan area immediately to the north of the site envisages upgrades to, and expansion of, open space areas and recreational facilities intended for public and/or communal use.

7 Topographical framework

7.1 Landform

The undulating landforms at the footslopes of the Illawarra Escarpment area considered an important scenic character element of the residential areas east of Mount Keira.

Generally, the topography of the wider area descends from the north west to the south and south east.

The study area includes a raised elevation (approximately 36 metres with respect to the Australian Height Datum (AHD) in the northwest corner of the site, descending to the lower elevations near the southern (14mAHD) and eastern (19mAHD) site edges.

According to the topographical data provided by the proponent, there is a fall of approximately 22m across the study area, from the north western corner (Madoline Street) to the south eastern corner (Spearing Parade) as indicated in Figure 9.

Figure 9. Diagram indicating the sloping topography characterising the study area

8 Transport and Movement

7.2 Connectivity

Located on the corner of Irvine Street and Murphys Avenue, the site is well connected to surrounding areas through the existing street network with direct access to the M1 Princes Motorway as a main arterial road.

The Princes Motorway is the main connector road to neighbouring towns, providing commuter access to the Sydney Metropolitan area further north and coastal towns further south including Kiama, Gerringong and Nowra.

Local bus routes and free shuttle bus services also connect the site to Wollongong CBD, stopping at Madoline Street and Northfields Avenue.

A number of bicycle routes and shared pathways connect the subject site to surrounding area and Wollongong CBD as indicated in Figure 10. Connections include off road paths available for use by pedestrians and cyclists as well as on road routes marked with bicycle logos either on the road shoulder or within a bicycle lane.

The site is located approximately 800m from Wollongong North Train Station. The following services connect Wollongong North station to surrounding areas:

- Southbound train services via the South Coast Line to Albion Park, Shellharbour City, Kiama and Bomaderry. The train journey to Kiama takes approximately 50 minutes.
- Northbound train services via the South Coast Line to Thirroul, Helensburgh, Wolli Creek and Sydney Central Station. The train journey to Kiama takes approximately 1 hour 30 minutes.

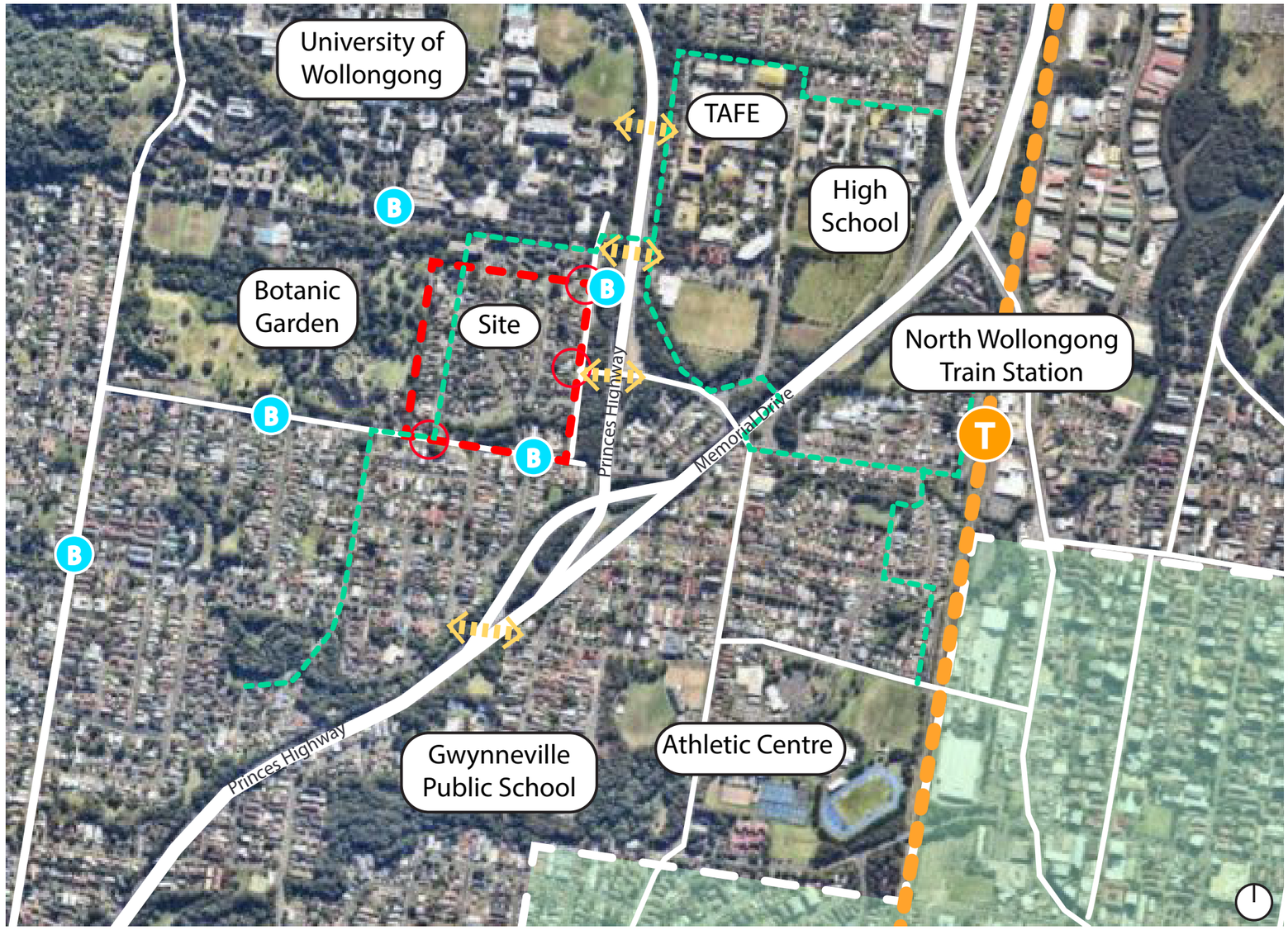


Figure 10. Local connectivity. Shared pathways and on road facilities are sourced from the TfNSW Cycleway Finder website

9 Visual Environment

8.1 Scenic setting and local vistas

Views of the Illawarra Escarpment are considered a significant scenic character element in the wider Illawarra region.

The escarpment is listed as a 'Scenic Landscape of Statewide Significance' on the Register of the National Trust of Australia (NSW)

Partial views and glimpses to Mount Keira further west can be gained from within and around the subject site. As part of the site and context investigations, the project team has examined and documented the local views and views.

Distant views are available from the private and public domain including from streets and parks.

Public domain views form an important part of the local sense of identity. To a greater degree than private domain views, these are generally experienced as dynamic elements, which incorporate a level of change according to the location and movement pattern of the observer.

Public domain views are affected by environmental factors such as the local topography and weather patterns. The compositional elements within the view are likely to change as the observer moves within the visual catchment.

Due to the sloping topography, southbound oblique views of the Wollongong Hospital Precinct and the CBD are also available from the northern portion of the site.

The massing strategy considers key public domain views and vistas through the distribution of built forms, to ensure the authenticity of the view is preserved from key viewing locations such as public parks and where streets terminate in a view of the escarpment.

Assessment of long and medium range views impacts is considered in detail in Section 26 of this report.

Heritage views in relation to Gleniffer Brae Manor House and the Illawarra Escarpment are also considered in the advice prepared by Urbis.

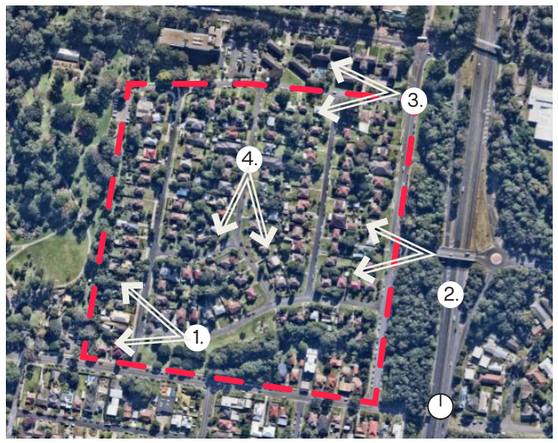


Figure 11. Distant views to Mount Keira are available from the public domain

Figure 12. A prominent view corridor to the Illawarra Escarpment is available from University Avenue.

Figure 13. Mount Keira and the Illawarra Escarpment are visually prominent from numerous locations within and around the study area

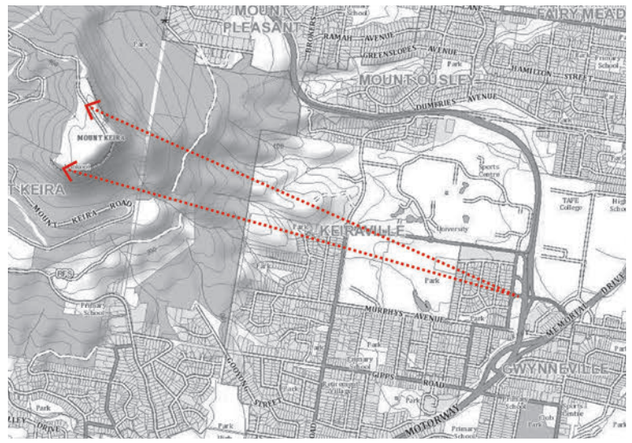


Figure 14. A visual corridor from University Avenue to Mount Keira and the Illawarra Escarpment was identified to inform the indicative site layout.

Figure 15. Site photographs

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10 Immediate Context

10.1 The existing site condition

Street network

- The site is accessed from the local street network. The site entries are located near the north eastern corner of the site (Madoline Street), along the eastern precinct edge (University Avenue) and near the south western corner (Murphys Avenue).
- University Avenue provides a direct connection across the Princes Motorway to areas further east. University Avenue and Gipps Road approximately 600m further south provides access from the residential areas to the south and south west of the site, to Wollongong CBD, North Wollongong and the coast.
- Bus services can be accessed along Murphys Avenue and Madoline Street and as discussed in Chapter 15 of this report, the master plan vision for the Wollongong University Campus seeks to strengthen future north south bound pedestrian and bicycle connections through the subject site.

Landscape character

- There is a strong landscape presence throughout the local area which is amplified by the sloping terrain and the availability of westbound local vistas to the Illawarra Escarpment.
- The Wollongong Botanic Garden is located immediately adjacent to the western site boundary, providing delightful canopy views from within the subject site and a strong landscape edge presentation along the northern side of Murphys Avenue.
- Dense vegetation defines the interface to the Princes Motorway, providing visual screening and a sense of containment to the motorway.
- Prominent clusters of mature trees are scattered throughout the University Campus and the subject site, contributing to the suburban character of the existing neighbourhood.

Figure 16. Existing street network

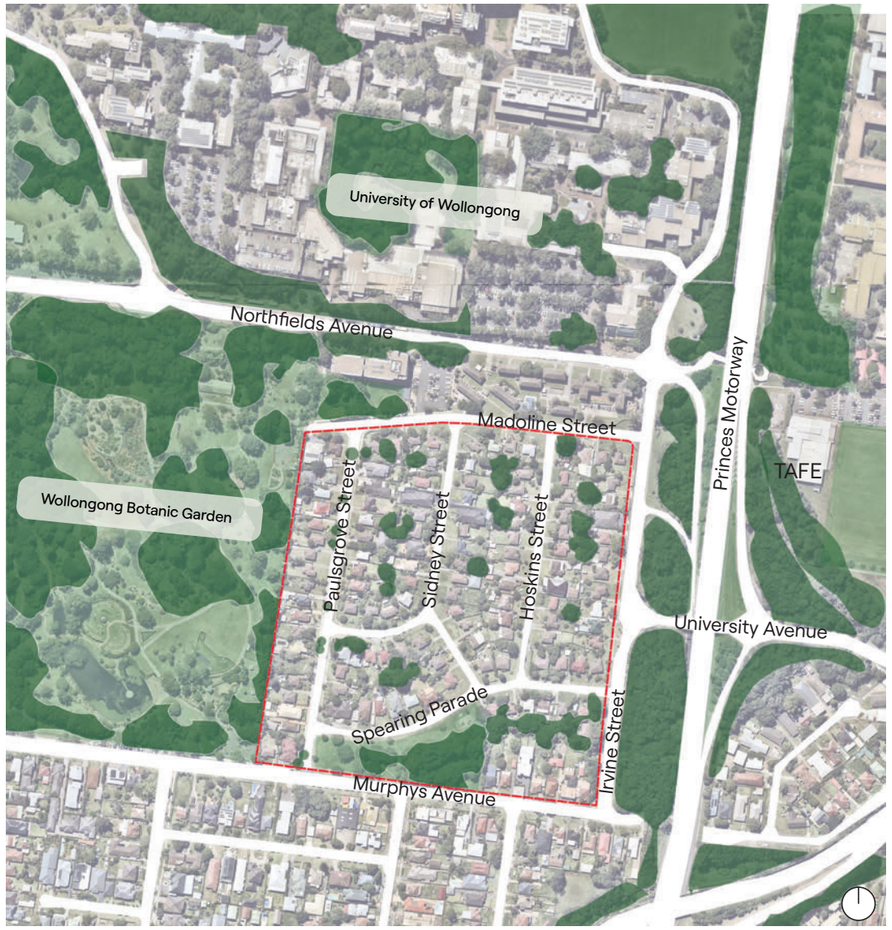


Figure 17. Prominent landscape features

- Westbound streets terminate in ‘green’ outlook and canopy views and glimpses of the Botanic Garden between existing dwellings.
- The Spearing Park Reserve fronts Murphys Avenue, visually screening the precinct from the residential areas further south.
- Spearing Park Reserve is visible from Paulsgrove Street and the southern end of Sydney Street.

Figure 18. A riparian corridor traverses the southern portion of the site. Details of the wider floodway path is provided in the Flood Report prepared by Stantec.

Figure 19. Areas identified as flood affected

11 Surrounding Development

Surrounding development

- Currently the site is occupied by residential dwellings in a garden setting. The predominant typology is a free-standing dwelling and the development scale is generally 1-2 storeys with a isolated examples of 2-3 forms.
- Lot widths typically range from approximately 17m to 21m (according to SixMaps) with narrower lots fronting Murphys Avenue. Street blocks range in depth from approximately 45m to 93m with landscaped corridors at the centre of each double loaded block.
- The western block is located adjacent to the Wollongong Botanic Garden, where lawns and garden sheds present to the shared boundary.
- Existing dwellings present with traditional tiled roofs and brick or weatherboard façades. The undulating street pattern responds to the sloping topography whereby buildings are orientated in a staggered alignment relative to the street.
- Some streets including Leahy Crescent, present with a typical 'high side/low side' arrangement where properties fronting the southern side of the street are below street level whereas the northern lots are located above the level of the street.
- Other dwellings along other streets such as Paulsgrove Street, are arranged in a characteristic stepped formation where the northern properties overlook properties further south.
- The existing street reserves range from approximately 15m to 17m in width, with vegetated verges and a limited number of street trees.
- Front setbacks generally present as open lawns or as fenced gardens with diverse landscaping.
- A concrete footpath is located along Paulsgrove Avenue, providing the main pedestrian connection from the residential areas of Gwynneville to the University however, most streets currently fail to provide footpaths.

Figure 20. Surrounding development pattern

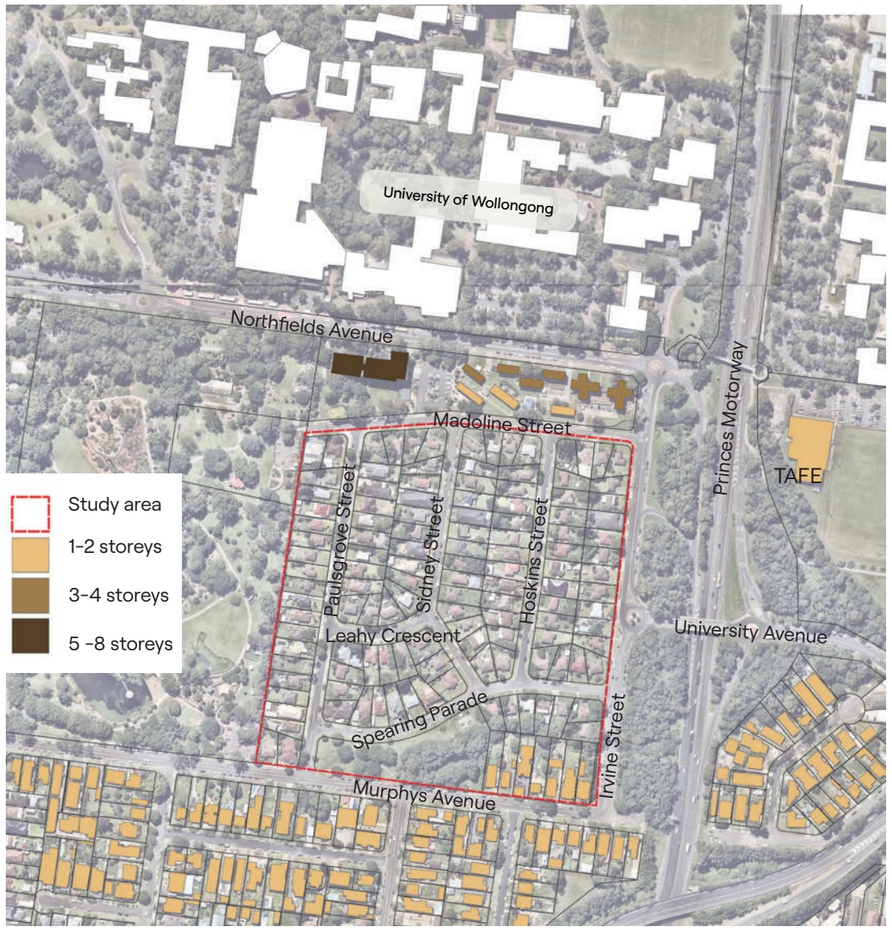


Figure 21. Existing development scale

- Development located north of Madoline Street ranges from 3-7 storey in scale. The buildings present with larger building footprints than the residential dwellings further south.
- A variety of uses are located north of Madoline Street with a mix of faculty buildings and student accommodation.
- Exposed at grade car park areas are located north of Madoline Street and the entry to Wollongong Botanic Garden terminates the western end of the street where a gate currently restricts access after hours.
- Landscaped edges define the eastern, western and southern (Spearing Reserve) site edges, providing spatial containment and visual screening from surrounding areas.
- The existing streetscape along Murphys Avenue is characterised by single 1-2 storey dwellings fronting the southern street edge with generous front setbacks.
- The northern side of Murphys Avenue is largely defined by the landscaped edge presented by Spearing Reserve and the Botanic Garden.

Figure 22. Built form and landscape containment

Figure 23. Current building alignments

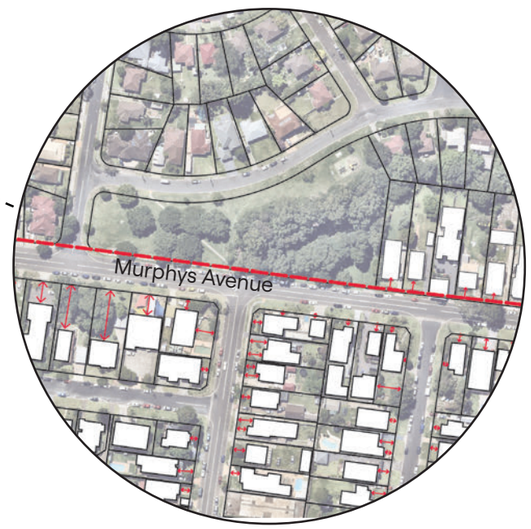


Figure 24. Existing front setbacks

12 Site Analysis

12.1 Key characteristics

The site is located in Gwynneville, north west of Wollongong town centre.

Gwynneville is a suburb of Wollongong located approximately 80km south of Sydney's CBD.

As summarised in earlier chapters of this report, the suburb is well connected to major employment hubs via public transport and the suburb is immediately adjacent to the motorway connection.

Gwynneville is well serviced by local schools and recreational open space amenity and the area is known for its scenic values and the coastal proximity, located within an acceptable commuter distance to Sydney Metropolitan Area.

The sloping terrain and prominent canopy outlook are desirable character elements. Good connectivity, local social infrastructure and an expanding bicycle route network, make the area an ideal location for a mix of demographic profiles including families, seniors and students.

Figure 25. Key site constraints

12.2 Site Constraints

Gyde has investigated the main constraints of the subject site. A number of the current constraints are equally present as potential opportunities, as discussed in later chapters of this study. Key constraints include:

- The sloping landform.
- The limited number of site entries and the capacity of the existing road network.
- Potential acoustic impacts associated with the proximity to the motorway.
- Acoustic impacts from special events held in the Botanic Gardens.
- Flood constraints and the riparian corridor.
- The visually sensitive interface to the Botanic Garden.
- Proximity to the low scale residential area.
- Limited visual exposure due to the dense landscape buffers along the southern, eastern and western site edges.
- Limited pedestrian permeability, especially in an east west direction.
- Limited passive surveillance to public streets.

12.3 Site Opportunities

Based on our context and site analysis, the site has the ability to benefit from the following opportunities:

- Distribute built form scale to minimise visual bulk impact to surrounding areas.
- Respond to the unique site characteristics and the sloping terrain, to provide a stepped built form and varied streetscape responses that are sympathetic with the human scale environment.
- Reflect and enhance the landscape character of the site.
- Strengthen the landscape character and place making qualities of Spearing Reserve.
- Mitigate existing flood impacts, minimising off-site impacts to neighbouring sites.
- Retain and celebrate prominent public domain views to Mount Keira.
- Provide generous deep soil capacity along the western boundary, to deliver substantial landscape screening to mitigate visual impacts of new development.
- Retain and improve the residential presentation to the eastern end of Murphys Avenue.
- Provide good quality residential development in proximity to public transport nodes and local community services (schools, playing fields etc.).
- Provide a diverse mix of dwellings to benefit from a unique lifestyle setting, within walkable distance of North Wollongong train station and Wollongong CBD.
- Provide a contemporary and well designed residential neighbourhood with a range of housing options.

Figure 26. Key site opportunities

13 University of Wollongong

13.1 Campus Master Plan

In 2016, University of Wollongong (UoW) issued a master plan for the main Wollongong Campus located immediately to the north of the study area.

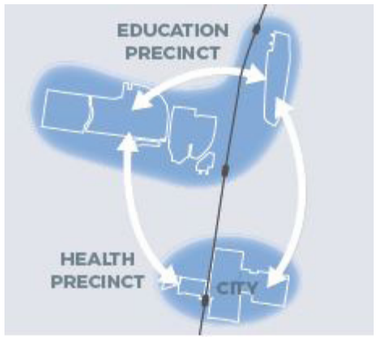
The campus is set on more than 80 hectares of land, occupied by a number of buildings, parklands and bushland.

The Wollongong campus Master Plan provides a vision and framework to guide the physical development of the main campus over the next 20 years until 2036.

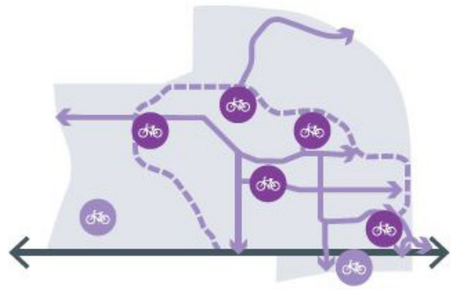
The vision seeks to allow for 4-5 stories for academic buildings (plus plant) as the benchmark for buildings on campus. A 7 storey building is currently located north of Madoline Street within the university grounds.

Importantly, this built form study takes into account the master plan vision and how future development on the subject site may integrate with, and complement, the pedestrian networks and open space offerings anticipated by the campus vision.

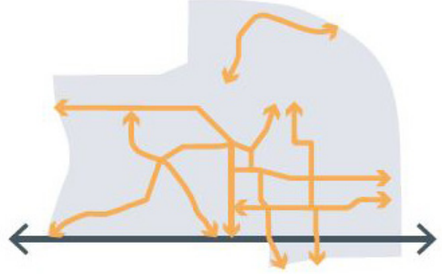
The objectives nominated in the vision have informed this study some of which, are summarised in the diagrams below.



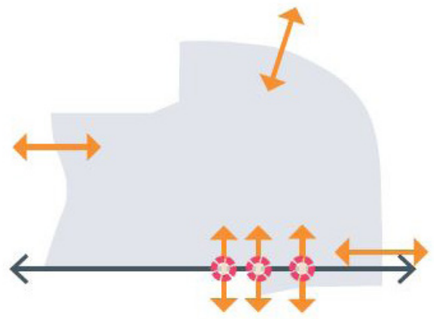
Integrate the campus as part of a University City



Introduce a series of pedestrian walks and improve pedestrian safety throughout the campus



Improve access to the campus for cyclists and upgrade bike infrastructure



Introduce pedestrian-friendly gateways to provide a welcoming entrance to the campus that connects to the neighbourhood

Figure 27. Master plan principle diagrams (source: UoW)

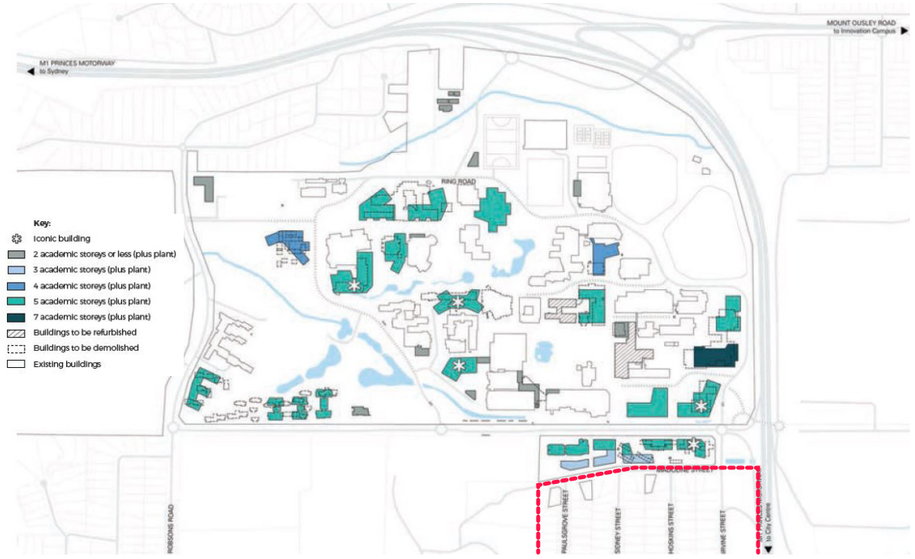


Figure 28. Campus master plan (source: UoW)

Figure 29. Future campus interface and existing bicycle infrastructure (source: Adapted from UoW)

14 Recent Infrastructure Upgrades

14.1 Mount Ousley Interchange

According to Gyde's desktop review, the Australian Government and the NSW Government has committed funds to build the Mount Ousley interchange.

The interchange is located to the north of the subject site. The objective of planned project is to improve safety for both light and heavy vehicles, provide for future traffic growth, improve access and travel time to and from the Princes Motorway and the Wollongong CBD.

The access to the University of Wollongong may fundamentally alter the traffic levels and patterns on the road network surrounding the subject site.

Transport and traffic impact advice is provided Stantec in a separate document. The interchange incorporates the following:

- Heavy vehicle only bypass lanes for southbound travel, separating cars and heavy vehicles.
- Two new heavy vehicle safety ramps.
- New commuter car park with additional parking space and improved incident response facility.
- New southbound service road between Mount Ousley Road and University Avenue.
- Upgrades and widening of the existing pedestrian bridge over the motorway at Northfields Avenue.
- New pedestrian and cyclist bridge over Mount Ousley Road.
- Two new roundabouts and a bridge over the motorway for improved access between Mount Ousley Road, Princes Motorway and University of Wollongong.
- Improved pedestrian and cyclist connectivity on existing shared paths.
- Five metre noise walls along the northern side of the motorway and the southern side of Dumfries Avenue; and along the southern side of the motorway and northern side of Falder Place.
- Three and a half metre noise wall along the southern side of Mount Ousley Road, between Gowan Brae Avenue and the cul-de-sac at the western end.

Gyde understands the infrastructure upgrades seek to deliver the following:

- Improved travel times.
- Safer access to and from the motorway to Mount Ousley Road.
- Improved access to the Wollongong CBD and University of Wollongong.
- Improved safety by separating cars and heavy vehicles travelling down Mount Ousley.
- Improved amenity for pedestrians and cyclists.
- Reduced vehicle operating costs.
- Provides for future traffic growth.

Commentary on the implication of changes to the network associated with the new interchange and movements through the university campus is provided in the traffic report prepared by Stantec.

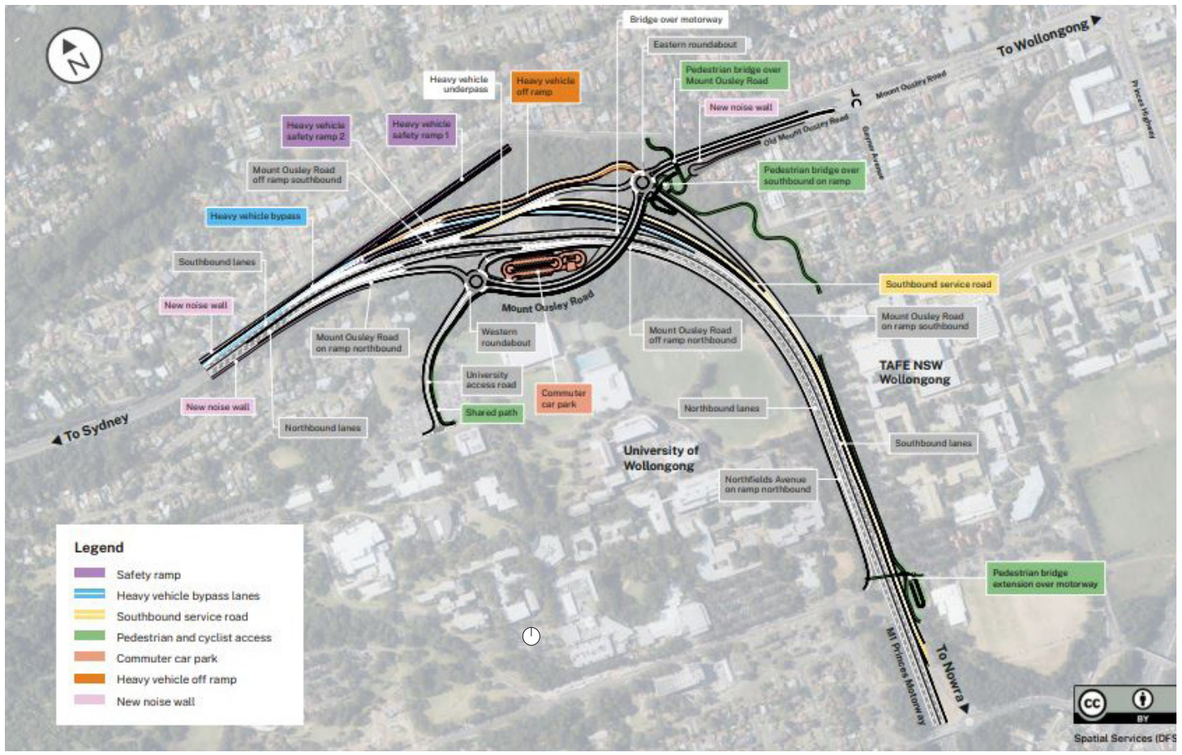


Figure 30. Planned Mount Ousley Interchange (source: TNSW)

Figure 31. Adapted from UoW and TNSW

15 Precinct Vision

15.1 Project Vision

Homes NSW is growing and changing its portfolio to better meet the needs of current social housing tenants and those on the priority social housing waitlist.

Concentrated social housing areas like Gwynneville are good opportunities for large-scale renewal of ageing housing stock, delivering a greater diversity and supply of new homes including social homes that better respond to the needs of community.

Located close to train and bus services, the Botanical Gardens and the University of Wollongong the potential renewal of Gwynneville will help meet Wollongong's urgent need for new housing supply, and capitalise on major infrastructure works underway on the new M1 interchange at Mt Ousley Road.

Across Wollongong, HNSW will use revenue from any private development to maintain or increase our proportion of social housing in the community, while ensuring our housing portfolio is well-maintained and meets the need of Wollongong's residents.

15.2 Precinct Vision

This Master Plan is based on HNSW's holistic vision for social, community and diverse private housing in Gwynneville. Its aim is to increase housing supply to address the shortage of and critical need for affordable and social housing a precinct that is under majority HNSW ownership. In particular the PP aims to facilitate diverse range of housing typologies which will include additional social and affordable housing, market housing products and seniors housing, as well as opportunities to develop build-to-rent, key worker housing and student accommodation.

HNSW's vision is to create a high amenity walkable and accessible residential high-density neighbourhood with an increased choice of affordable and diverse housing options that provide for a broad range of community needs and family types including students, people on low incomes, people with disability and seniors. New residential development will enable increased housing choices in a picturesque and well-connected location benefiting from frequent free shuttle bus services operating between University of Wollongong, North Wollongong railway station and a multitude of destinations including the city centre and hospital.

The vision is based on sound and robust planning and urban design principles that will facilitate the development of new homes that will work in harmony with sloping topography and established landscape qualities in and around the precinct. Well designed, articulated and oriented buildings will achieve good solar access and a comfortable human scale. Building scale will be distributed in response to the topography, and supported by landscape setbacks will maintain the garden character of Gwynneville, working together to minimise exposure of visual bulk from surrounding streets and vistas and incorporate vistas to the Illawarra Escarpment and Mount Kiera. A strong relationship between residential buildings and public space will provide opportunities for natural surveillance over streets and parks enhancing safely and accessibility.

New parklands and green links close to homes will provide diverse and inclusive places for people of all ages and abilities to participate in community life. These will enhance connectivity to make it easier, intuitive and enjoyable for people to walk around Gwynneville and provide attractive, safe and logical routes between North Wollongong railway station and the university

16 Urban Design Principles

The urban design principles for the precinct have been informed by the context and site analysis.

The principles below are based on a best practice approach, derived from the place-based investigations and technical advice.

Land Use

- Provide a robust urban form that is capable of affordable, social and diverse housing catering for broad range of community needs as well as community housing.
- To provide new opportunities for the community to meet and recreate in well configured and accessible open space.

Built form

- Distribute development scale in response to the topography, minimising visual bulk exposure surrounding streets and achieving a sympathetic precinct (skyline) profile.
- Maintain human scale edges to the main pedestrian links.
- Respond to the university master plan layout and the scale envisaged along the northern site edge.
- Provide a variety of building envelope typologies to encourage diverse and textured development outcomes and enhance a sense of place.
- Provide built form containment along Madoline Street.
- Ensure adequate solar access and outlook to communal open spaces and built forms.
- Increase visual permeability across the development and maximise passive surveillance to open spaces.
- Provide built forms that respond to the sloping land, that are compatible with the surrounding context,
- Incorporating a facade grain and texture which responds to the human scale of the pedestrian environment.

Movement and Access

- Improve block permeability and pedestrian safety by ensuring increased visual permeability.
- Provide a visual link through a landscape corridor linking the campus entry (Madoline Street) and University Avenue.
- Encourage walkable, active links through the development.

Public Domain/ Landscape

- Preserve key public domain vistas to local landmarks.
- Maintain landscape buffers between development fronting Paulsgrove Street.
- Retain existing mid-block tree groupings where possible.
- Provide a range of open space typologies with varying degree of public/private character.
- Minimise visual interference to the Wollongong Botanic Garden.
- Expand the publicly accessible landscaped open along the southern site perimeter.
- Mitigate flood impacts.

KEY

- Prominent tree groupings
- Visual landscape corridor celebrating the visual axis to Mount Keira
- Canopy outlook terminating streets
- Built form containment
- Developable areas
- Landscape corridor which provides a visual east west link

Figure 32. Urban design principles

17 Master Plan

17.1 Built form and distribution of massing

The master plan facilitates the development of 35 building envelopes distributed across 5 street blocks. New an expanded areas of open space are also proposed to enhance local amenity. Each of the envelopes is intended to accommodate residential flat buildings. A small pocket of low density residential and neighbourhood shops exists in the south western corner of the precinct will remain unchanged as a result of this proposal.

The master plan illustrated in Figure 33 supports the following in relation to future buildings within the precinct:

Bulk and scale

- Nuanced distribution of building heights to respond to topography and minimise visual bulk impact.
- Building envelopes which range in height from 3-6 storeys with building heights distributed in response to the sloping topography.
- Bulk and scale distribution that facilitates a layered urban form profile which is sympathetic to the sloping land form and the development scale of surrounding areas.
- Building envelope footprints distributed to retain and respond to the existing street network.
- Stepped building envelopes to minimise the need for cut and fill across the site.
- Compact built form that enables more than 2 ha of publicly accessible open space to be achieved across the precinct to enhance the public amenity of the precinct, contributing to canopy coverage and habitats across Gwynneville.
- New ‘green spine’ open space link, increasing block permeability and accessibility between the North Wollongong railway station and the adjacent university. The publicly accessible link contributes to the broader active transportation network. West of Paulsgrove Street, this link is visual-only in nature.
- Facilitate a canopy view termination to west bound streets, retaining an existing character element of the area.
- Maximise canopy coverage and retain existing mature trees where possible.

Public domain interface

- A site layout that allows all building envelopes to achieve residential address to a public street, enhancing the sense of neighbourhood and maximised passive surveillance.
- Buildings that are carefully oriented and positioned to maximise passive surveillance of public open space.
- Taller built forms that are tailored to minimise the impacts of visual bulk with upper levels recessed to minimise exposure to public domain edges.
- A site layout to allow for consolidated basement entries, minimising interruptions to the pedestrian environment.

Grain and form

- Built forms configured to ensure the capacity to achieve a diverse variety of housing types and tenures, responding to the context and grain of the wider urban fabric.
- Building envelope lengths typically ranging from 40m - 48m. The only building exceeding 50m in length is well modulated to minimise visual bulk impact to the street and surrounding areas.

Building setbacks and massing

- The leafy garden character to be supported by:
  - » Minimum front setbacks to Madoline Street of 3m.
  - » Minimum 4m front setback to all other streets of 4m.
- Minimising the visual impacts of building bulk by establishing:
  - » Minimum 3m secondary setbacks to Madoline Street.
- Facilitating privacy, ventilation and access to sunlight between buildings and neighbouring sites through minimum building separation stipulated in the Apartment Design Guide.
- Provide generous communal open spaces distributed across the precinct with capacity to achieve good solar access and maximised passive surveillance. Built forms configured to achieve visual links between public and communal open spaces to enhance a sense of openness and a sense of place.
- Provide generous deep soil capacity along the western boundary to ensure adequate capacity for genuine landscape screening to the Wollongong Botanic Garden, minimising any adverse visual impacts.

Building Envelope

Public Open Space

Communal Open Space

Green Link / Public Open Space

Private Lots

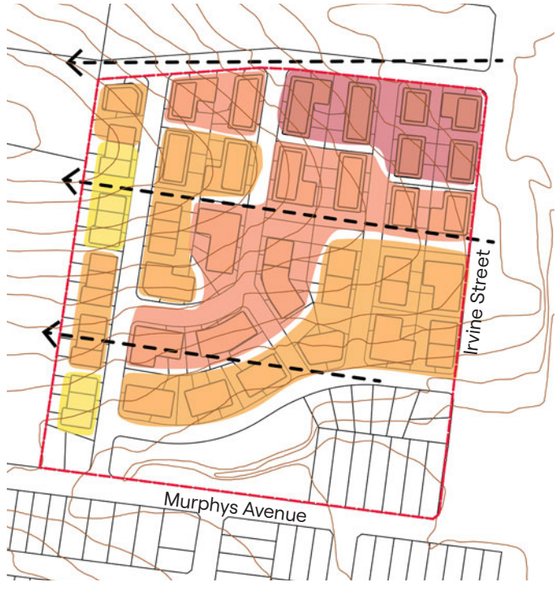
Vehicle access

Active transport route

Figure 33. Indicative Master plan

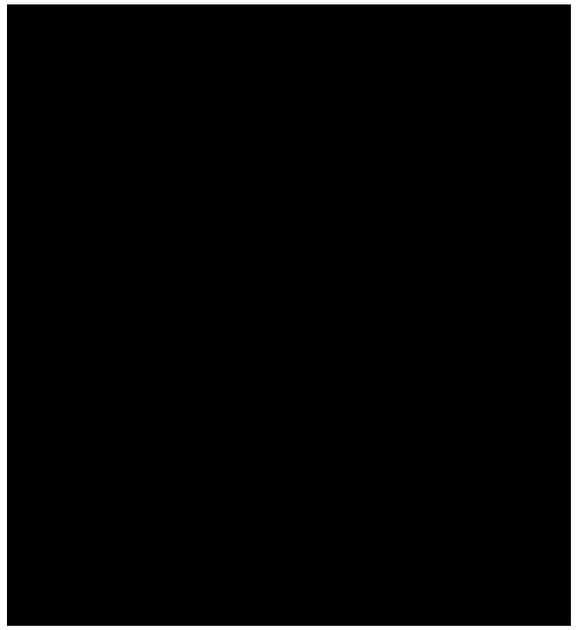
18 Site Layout Principles

Height distribution and response to topography



Important view corridors

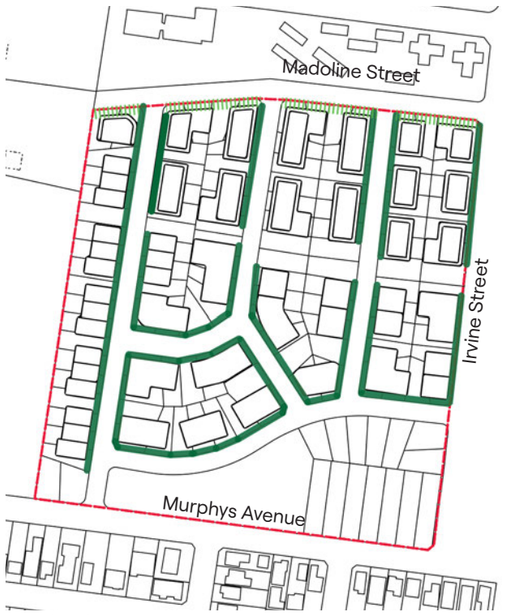
Prominent landscape components



Land ownership pattern

Open space network

Pedestrian connectivity, potential links and visual corridors



Front setbacks

Character areas

Figure 34. Site layout principles

19 Setbacks and Building Separation

The indicative site layout incorporates the following front setbacks:

Primary setbacks

- Minimum 3m setback to Madoline Street
- Minimum 4m setback to other streets

Secondary setbacks

- Generally 3m

Figure 35. Front setback principles

Figure 36. Minimum building separation principles

20 Massing Strategy

In collaboration with the project team and based on the urban design principles, Gyde has developed and examined a range of massing options to arrive at a contextually appropriate built form and character response for the subject site.

The urban and context responses examined include:

- Distribution of development scale and response to the topography.
- Development scale presented to public domain interfaces.
- Open space distribution and visual connectivity.
- Visual bulk outcomes and potential visual interference to surrounding areas.
- The urban form and skyline profile of the development.
- Building envelope proportions and relationships to precinct edges.
- Orientation of building forms and open space with respect to the sloping topography and solar access.
- Human scale edges and streetwall proportions.
- Development grain and streetscape rhythm.
- Building envelope and open space typologies.
- Landscape corridors and retention of canopy views.
- Setbacks and building separation.
- Consideration for potential privacy impact.
- Improved pedestrian connectivity.
- Visual permeability, sight lines and passive surveillance.
- Precinct vistas and sky exposure.

Figure 37. The preferred master plan and the immediate future context

The team has undertaken rigorous testing of various site layout arrangements to inform, the preferred massing strategy.

Early concept testing included a concentration of forms along the ridge line. This approach was abandoned due to concerns for visual bulk impact. Gyde also tested long continuous building footprints. However this approach was also abandoned due to concerns relating to imposing bulk and a lack of visual permeability.

The master plan concept in this urban design report was tailored to capture the opportunities available to the site, incorporating key local character elements such as:

- retention of key Mount Keira vistas
- maintaining canopy views from east west streets
- ensuring built forms are stepped in response to the sloping land.

The proportions and grain of the massing reflected master plan is the result of further refinement of form in response to the wider and local development pattern, to achieve contextual fit and a compatible site layout.

The place-based strategy considers the university campus master plan, to strengthen the role of the site to contribute to the wider pedestrian and cycle networks. The urban grain response is demonstrated in this report, documenting the urban design and built form outcomes delivered by the underlying massing strategy.

Figure 38. Existing Land Ownership over potential built form outcome

Figure 39. The preferred master plan and the wider existing context

21 Urban Form Responses

21.1 Response to the topography

The scenic quality of the local area and the local terrain informed the massing strategy of the master plan.

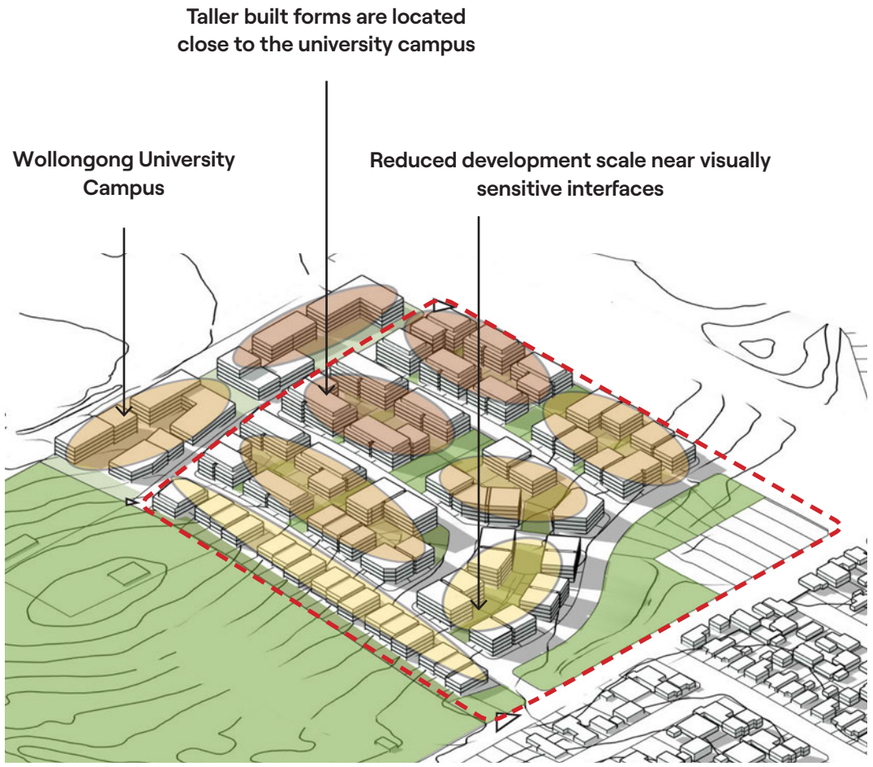
Distribution of bulk and scale responds to the sloping land form of the site by locating taller forms where they will result in minimal exposure of visual bulk as viewed from surrounding low scale residential areas.

To faciliate an urban form profile that is sympathetic and responsive to the natural terrain 3-4 storey forms have been located along the ridge line. Taller forms taller forms have been located where contextually compatible and responsive to the likely future scale on the university campus site. Refer Figure 40.

This approach enables the master plan to achieve balanced streetscape proportions adjacent to the university in a location where topography enables the broader visual impact of bulk to be mitigated.

As can be seen in Figure 41, this results in a skyline profile that transitions from the ridge near the north western corner of the site, to the southern site edge. This demonstrably achieves a harmonious, gradual height presentation with upper floor levels recessed to achieve a layered urban form.

Existing dense landscape screening along site edges act as a visual buffer to surrounding areas, limiting the visual catchment of the site.



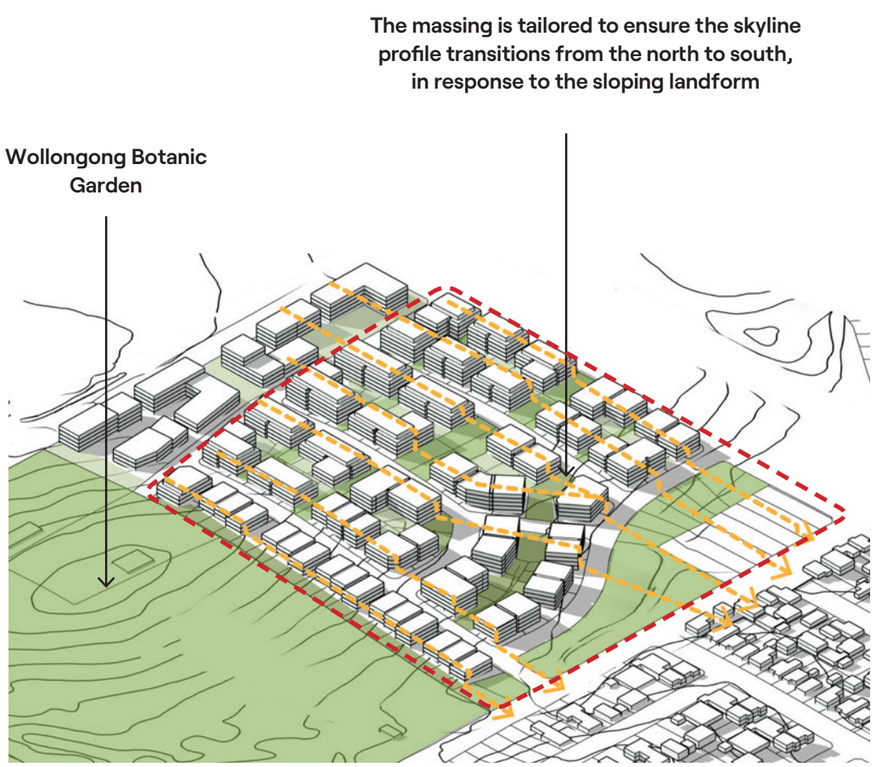
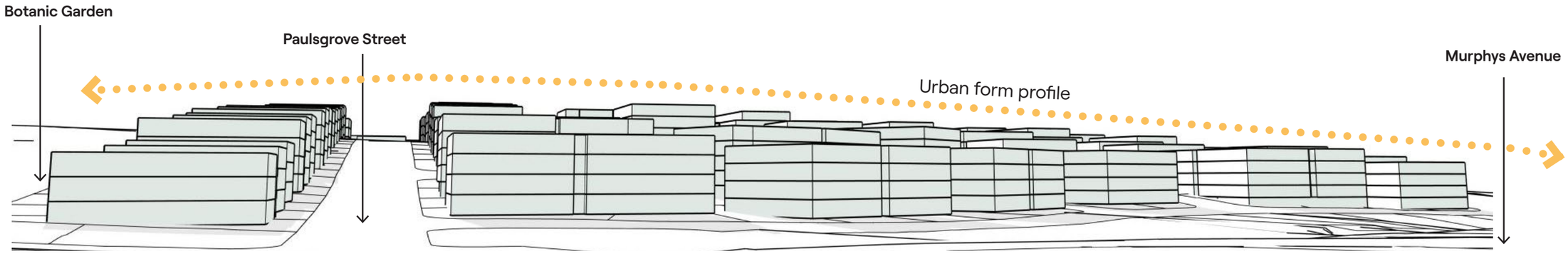
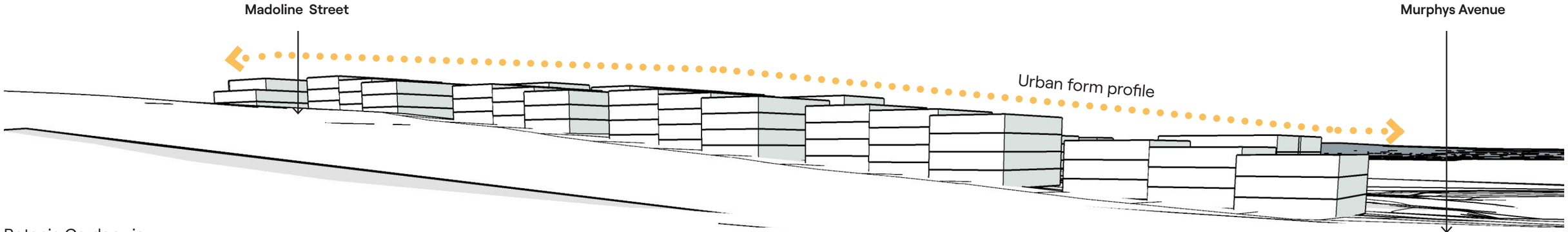


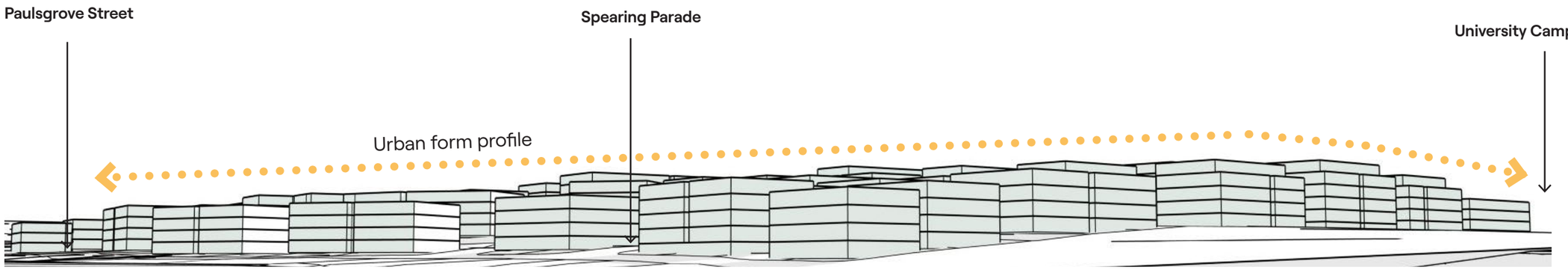
Figure 40. Height distribution diagrams



Murphys Avenue view



Botanic Garden view



Irvine Street view

Figure 41. Urban profile diagrams

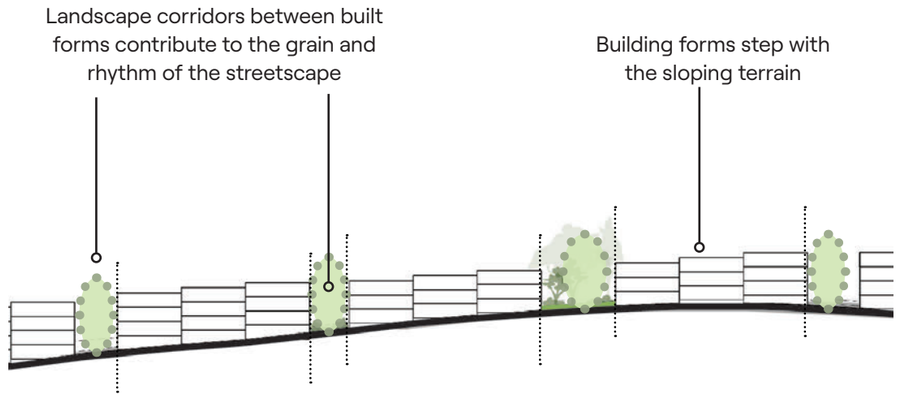
22 Typical Streetscape Sections

22.1 Streetscape proportions

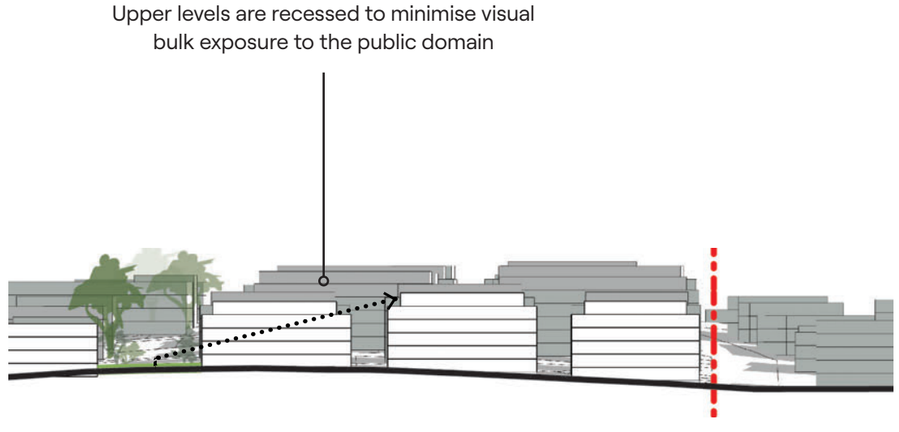
The massing strategy delivers building envelope proportions that are responsive to the visual setting and topography of the individual streets as follows:

- The gradient of Paulsgrove Street enables building envelopes to be expressed as stepped forms, descending with the undulating terrain. The stepped envelope forms deliver a nuanced streetscape profile with prominent grain and facade structure presented to the street. The interval of 'canopy corridors' between the built forms enhance the streetscape rhythm and adds visual interest.
- Streets located east of Paulsgrove Street provide taller forms near the northern site edge, descending further south near Spearing Reserve. Modest building lengths and landscaped corridors between the buildings establish a balanced streetscape rhythm which, in combination with a strong landscape presence across the precinct, will enhance the residential neighbourhood character.
- Built forms provide a 3-4 storey presentation to the central green spine to reduce visual bulk, minimise overshadowing and achieve a streetwall scale that is compatible with the human scale. The scale of the building envelopes presented to the publicly accessible open spaces are proportional to the width and size of the open spaces.

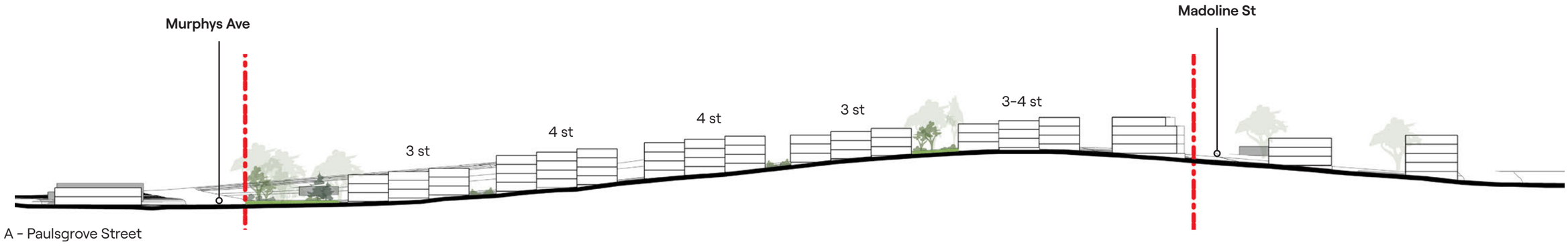
Figure 42. Map indicating typical street sections



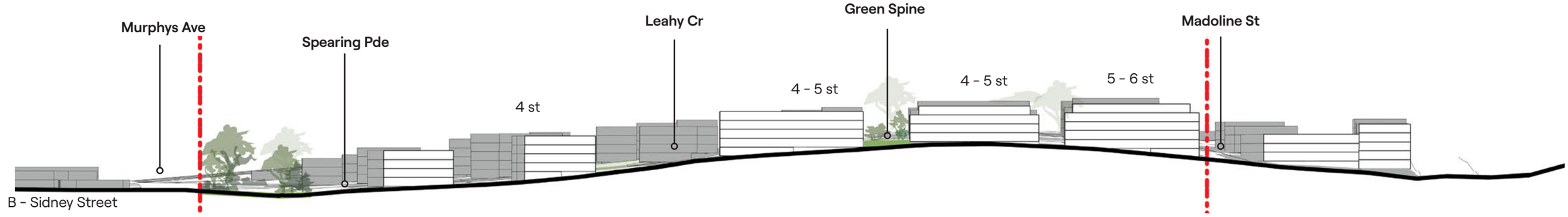
A - Paulsgrove Street



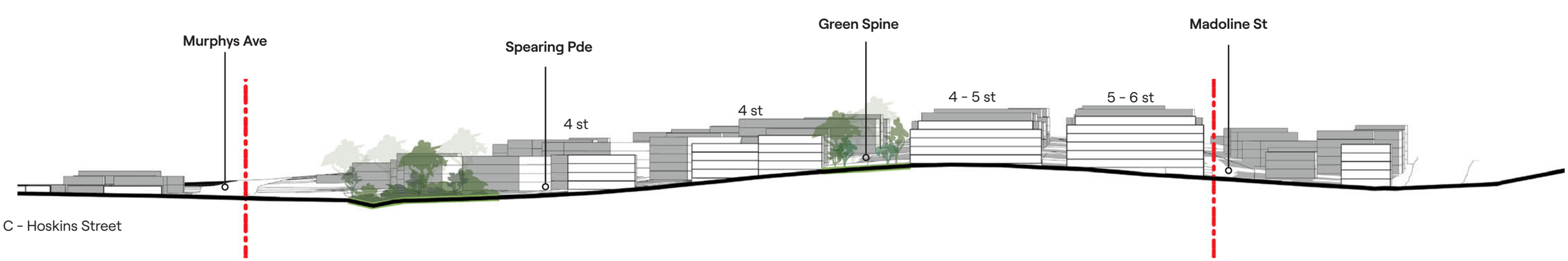
D - Irvine Street



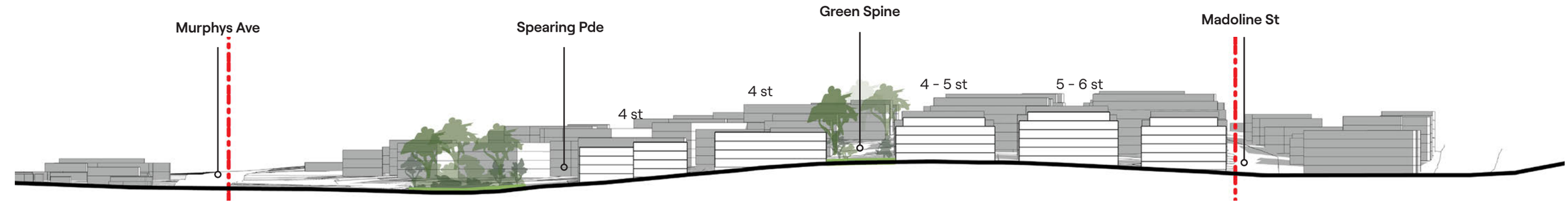
A - Paulsgrove Street



B - Sidney Street



C - Hoskins Street



D - Irvine Street

Figure 43. Typical street sections

23Built Form Typologies

2 storeys plus attic/upper level in roof form

3 storeys plus attic/ recessive pop up level

4 storeys - 6 storeys

24 Street Typologies

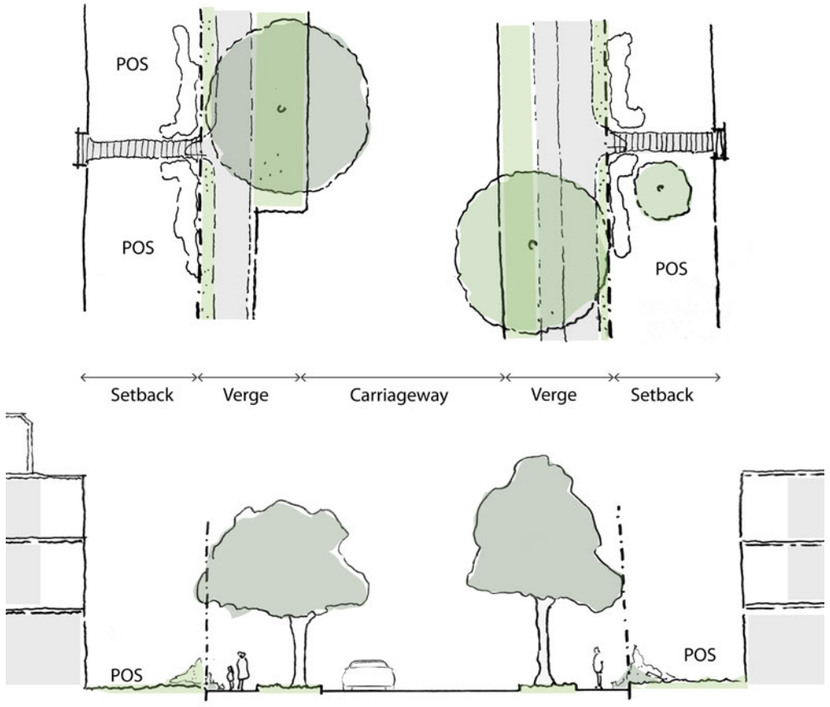
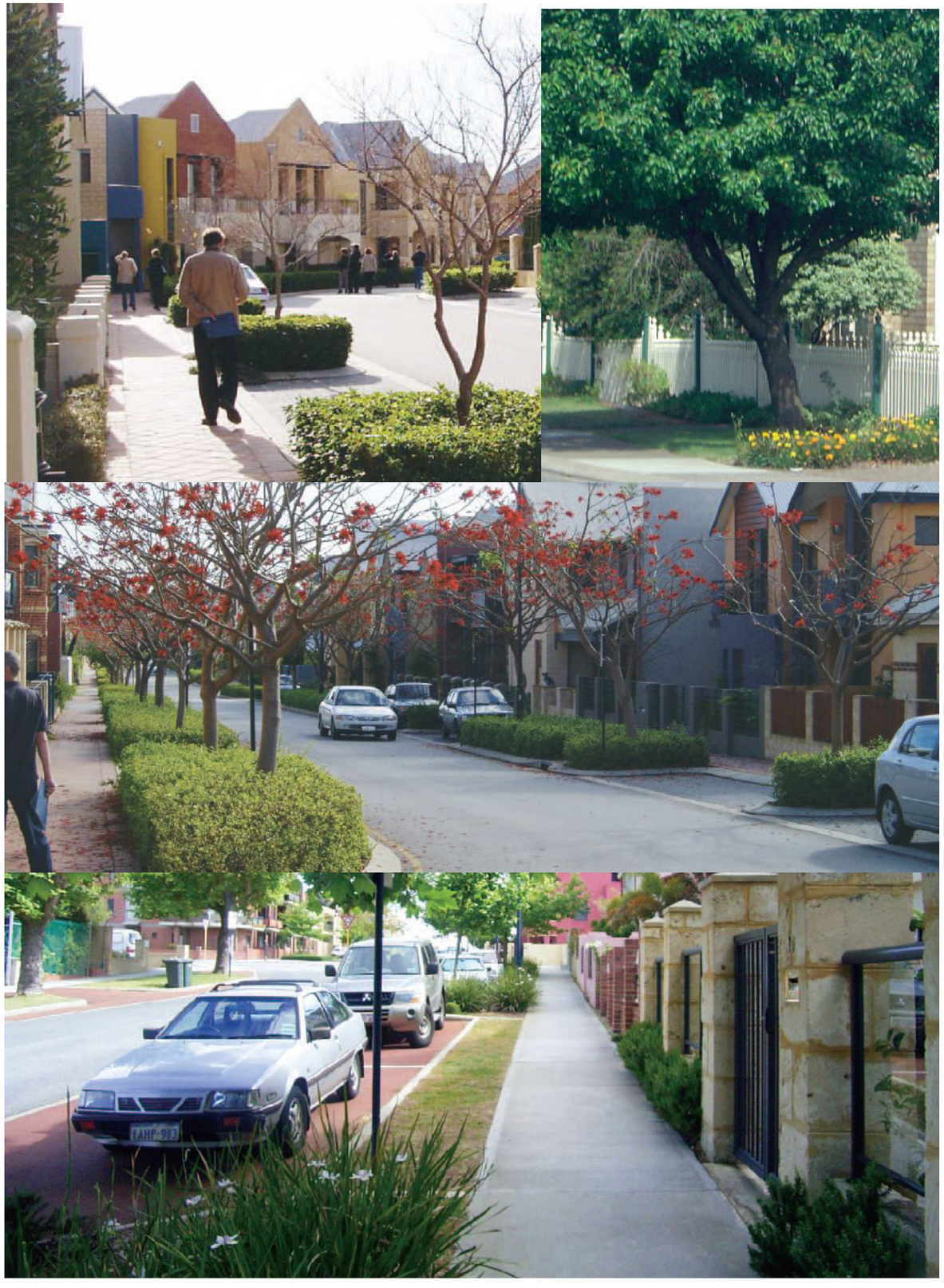


Figure 44. Example of sketch options explored for potential future street interface solutions

Figure 45. Existing condition - Paulsgrove Street (Source: Google)



25 Visual Exposure

Figure 46. Photographs of the study area

25.1 Landscape screening

The visual catchment of the site is limited by the dense vegetation along the southern, eastern and western site perimeters. Mature landscape components visually screens views to the subject site from surrounding areas.

The visual exposure of the site to the adjacent Wollongong Botanic Garden, is limited by existing landscaped areas along the western boundary.

Opportunities to strengthen the landscape screening should be explored as part of a future redevelopment of the site.

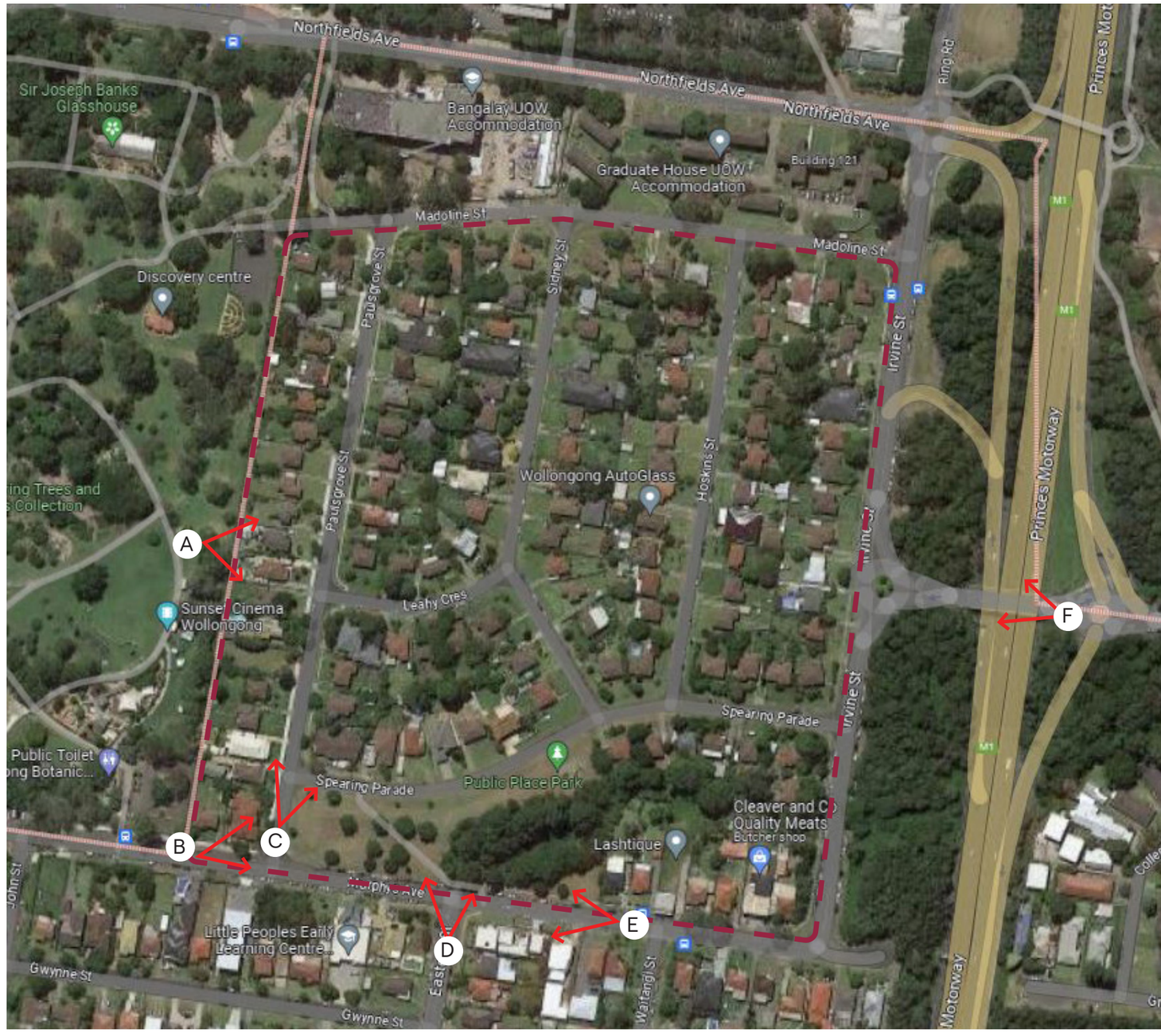


Figure 47. Photographs of near the study area

Figure 48. Map indicating the location of views

26 Scenic View and Site Visibility

25.2 Purpose

Preliminary scenic view and site visibility investigations were undertaken in relation to the urban design concept.

The aim of these investigations is to identify and better understand the visual bulk implications for long distance scenic vistas as well as medium distance views.

The visual bulk issues considered relate to the land parcel located immediately south of University of Wollongong Campus and east of Wollongong Botanic Garden

The investigations of visual bulk are intended to assist Council in the assessment of any potential impacts as part of the broader considerations for site suitability in the context of the proposal.

In response to a request by Council and following extensive engagement with Council staff, this study has been undertaken to identify whether the proposed massing strategy developed for the Site, may impact on the scenic quality of existing views.

The aim of the visual bulk investigations is to examine how the proposed massing visually relates to surrounding areas, acknowledging that amendments to the land zoning, height and density controls, as sought by the Planning Proposal, will lead to localised changes to the visual character on the subject site. The investigations were conducted with input from Modata who prepared the view montages considered in this report.

In consultation with Council, nine (9) long and medium range view were nominated for visual bulk analysis, to determine the level of visual interference with the broader scenic character of the area and scenic views to the Site.

The views and findings expressed in this report are formulated on the basis of a block form master plan prepared for the purpose of the Planning Proposal. The limitations of block form envelopes include the lack of built form refinement, architectural detail and proposed landscape treatment, yet these are a useful tool to determine the extent of visibility and the level of visual bulk exposure.

A detailed Visual Impact Assessment may be undertaken for future Development Applications (DAs), to determine how future development will impact on the visual character of the area. Future DAs will include tailored design solutions to achieve compatibility with the desired visual character and minimised view loss, subject to detailed building and landscape design.

This investigations summarised in this report establish the following:

- There will be no adverse impact to the broader scenic quality of the area with no perceivable impact to the landscape character of long distance views to Glennifer Brae, Mount Keira and the Illawarra Escarpment.
- The report demonstrates the capacity for the envelopes to deliver the desired urban form outcomes in response to the local topography in accordance with the vision for the Planning Proposal.

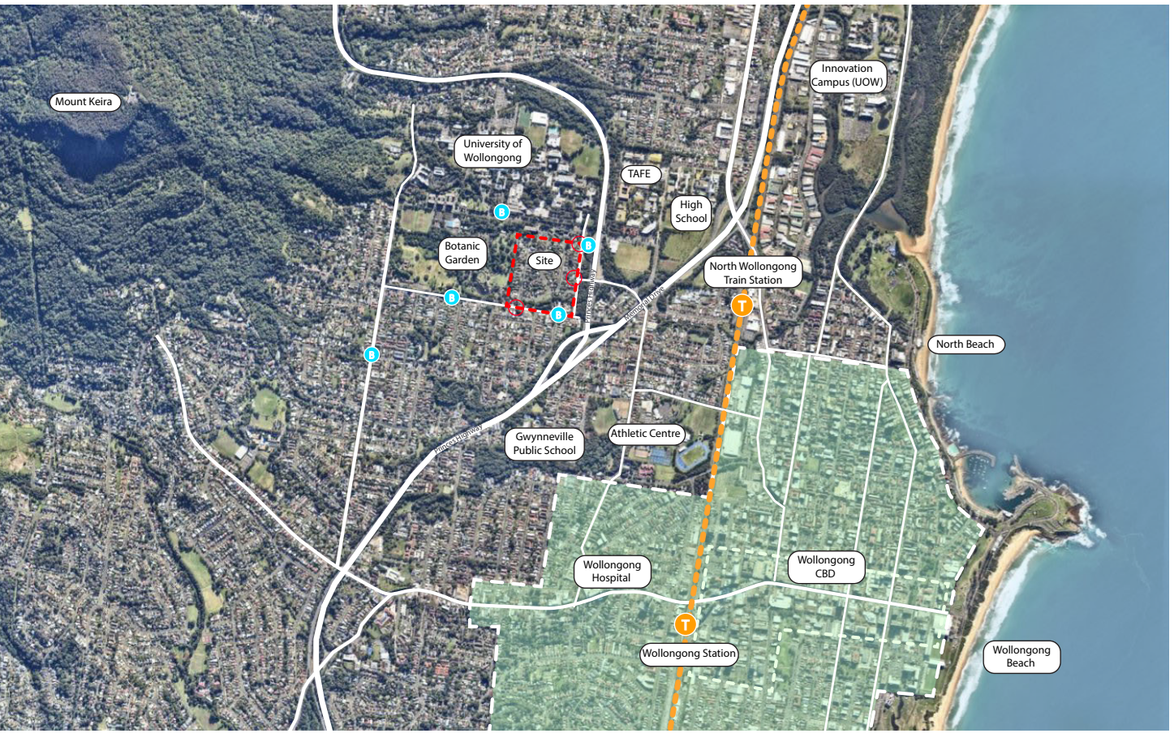


Figure 49. Context diagram with the Site indicated in red (Source: Google).

26.1 Methodology

In preparing the visual bulk investigations, Gyde and the Proponent team relied on the following methodology:

- Undertaken engagement with Council to identify nine (9) public long and medium range public domain viewing locations for analysis.
- Provided location maps of the agreed locations for Council's review and approval.
- Attend an all-day site visit, documenting existing views from each of the selected nine (9) long and medium range viewing location, accompanied by a professional Photographer.
- Ensuring ell existing views were captured by the Photographer using a camera with lenses ranging from 50mm, 35mm to 24mm focal length.
- Ensuring views were captured at pedestrian eye level (1.6m)with a horizontal alignment, representing views available to the common observer.
- Where possible, views were captured from pedestrian areas. Only a few views were captured from within the road reserve.
- Liaise with the perspective artist (Modata) who extracted geospatial data (including Light Detection and Ranging (LiDAR) data) from local government spatial data providers.
- Provided the digital 3D massing model, prepared by Gyde's urban design team, to the Perspective Artist who subsequently extracted pertinent survey data to the project datum to ensure precise alignment with the 3D model.
- Based on photographs of the existing condition, the Perspective Artist proceeded to prepare view montages demonstrating 'existing versus proposed' view scenarios from each of the nominated nine (9) long and medium range vantage points.
- Liaised with the Perspective Artist to ensure the proposed scenarios were prepared as photo montages, based on digital views captured from the accurate 3D model, with the corresponding camera focal length and aspect ratio of the existing photograph.
- Ensured the 3D model views were accurately overlayed photographs, using LIDAR survey data, as indicated in **Figure 50,** creating photo montages as follows:
  - » The visible components of the proposed massing are illustrated as while/grey box forms.
  - » The hidden components of the proposed massing are indicated in red outline.
- Based on the visual analysis prepared by Modata, Gyde prepared this report, summarising considerations and observations for each of the nine (9) long and medium range views.

Figure 50. Graphic examples of geospatial survey data points superimposed (in colour) onto an existing photographs to ensure the 3D model view is accurately 'matched' to the photograph (Source: Modata).

26.2 Selected long and medium distance views

Seventeen (9) long and medium range viewing locations were selected in consultation with Council. These are located more than 50m from the Site.

Subsequently, existing views were documented by a photographer for the preparation of visual analysis of the block model master plan developed for the Site.

The long and medium distance views are indicated in **Figure 51**, with consideration for impacts in following sections.

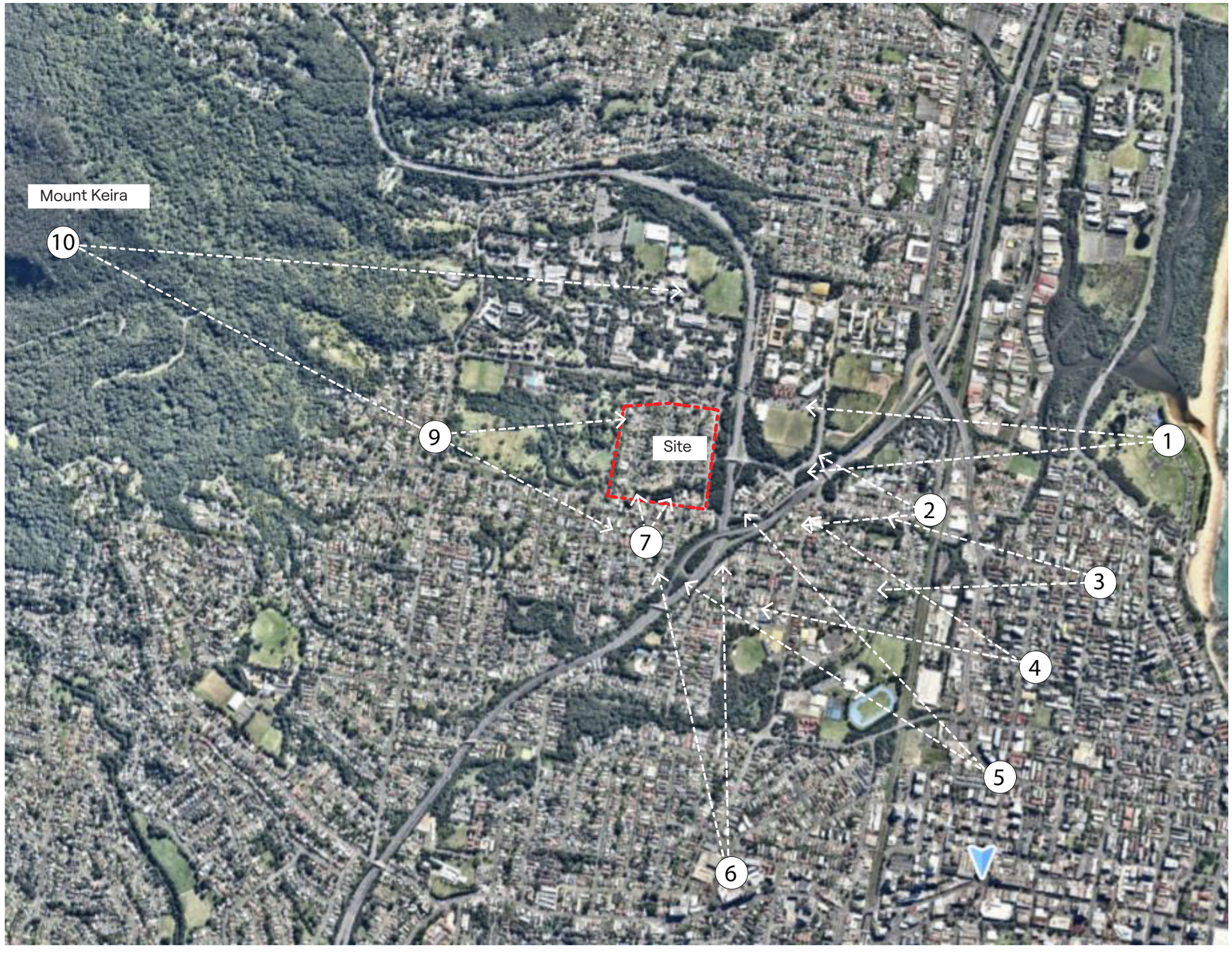


Figure 51. Location map (Source: NearMap)

View No 1

LONG DISTANCE VIEW_STUART PARK

View No. 1	Observation
Type of view	Public domain, park
Viewing distance to Site	Approximately 1.6km
View orientation	West
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Nil**

VIEW DESCRIPTION

The view is characterised as a park view, captured from pedestrian areas within Stuart Park.

The view looks west towards the subject site where the characteristic profile of Mount Keira forms the visual backdrop terminating the view.

VISUAL BULK COMMENTARY

Due to the existing vegetation and local topography, the Site is not visible from this vantage point as documented in **Figure 53.**

The proposal will not obstruct, or visually interfere with, scenic landmarks.

Figure 52. Existing view (Source: Modata).

Figure 53. Visual bulk montage (Source: Modata).

View No 2

LONG DISTANCE VIEW_WOLLONGONG NORTH RAILWAY STATION

View No. 2	Observation
Type of view	Public domain, local street
Viewing distance to Site	Approximately 850m
View orientation	West
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Nil**

VIEW DESCRIPTION

The view is captured from the western side of Wollongong North Railway Station, looking west along Railway Crescent.

The view is characterised as a neighbourhood street view, with low scale development fronting the street. Existing dwellings are set back approximately 4m from the green verge.

A small cafe on the corner of Railway crescent and Porter Street defines the northern edge of the view.

The characteristic profile of Mount Keira and undulating distant hilltops terminate the view.

VISUAL BULK COMMENTARY

Due to the landform and existing urban fabric, the Site is not visible from this vantage point as documented in **Figure 55.**

The proposal will not obstruct, or visually interfere with, scenic landmarks.

Figure 54. Existing view (Source: Modata).

Figure 55. Visual bulk montage (Source: Modata).

View No 3

LONG DISTANCE VIEW_BOURKE STREET

View No. 3	Observation
Type of view	Public domain, street view
Viewing distance to Site	Approximately 1.3km
View orientation	West
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Negligible**

VIEW DESCRIPTION

The view is captured from a pedestrian area along the southern side of Bourke Street, near Park Street.

Taller built forms present to the northern side of Bourke Street.

Mount Keira terminates west bound views along Bourke Street with Gleniffer Brae in the distance.

VISUAL BULK COMMENTARY

The Site is barely visible from this vantage point as documented in **Figure 57**, except for a very minor protrusion above the existing canopy line at the centre of the view.

Importantly,the proposal does not interfere with views to Gleniffer Brae.

The level of change is considered negligible and the low degree of change to the existing is unlikely to be perceived by the common observer, due to the significant viewing distance.

Figure 56. Existing view (Source: Modata).

Figure 57. Visual bulk montage (Source: Modata). Massing which is not visible is highlighted in red.

View No 4

LONG DISTANCE VIEW_ GIPPS STREET

View No. 4	Observation
Type of view	Public domain, major street
Viewing distance to Site	Approximately 950m
View orientation	North west
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Nil**

VIEW DESCRIPTION

The view is captured from the public footpath along the southern street edge, near the intersection of Gipps Street and Flinders Street.

The view is characterised by the sloping terrain as Gipps Street descends towards the railway line.

The top of Mount Keira is visible in the distance.

VISUAL BULK COMMENTARY

The Site is not visible from this vantage point as documented in **Figure 59**, nor does it visually interfere with scenic elements in the existing view.

Figure 58. Existing view (Source: Modata).

Figure 59. Visual bulk montage (Source: Modata).

View No 5

LONG DISTANCE VIEW_ SMITH STREET

View No. 5	Observation
Type of view	Public domain, street view
Viewing distance to Site	Approximately 1.5km
View orientation	North west
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Nil**

VIEW DESCRIPTION

The view is captured on the corner of Smith Street and Keira Street, looking north west.

Princes Highway is visible to the north and a partial view of Mount Keira presents as a visual backdrop to the streetscape setting.

VISUAL BULK COMMENTARY

Views to the subject site are obstructed by building built form and existing vegetation as documented in **Figure 61.**

The proposal will not obstruct, or visually interfere with, scenic landmarks.

Figure 60. Existing view (Source: Modata).

Figure 61. Visual bulk montage (Source: Modata).

View No 6

LONG DISTANCE VIEW_WOLLONGONG HOSPITAL

View No. 6	Observation
Type of view	Public domain, street view
Viewing distance to Site	Approximately 1.3km
View orientation	North
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Nil**

VIEW DESCRIPTION

The view is captured immediately north of Wollongong Hospital.

The viewing location is elevated above areas to the north and characterised by expansive scenic outlook towards the Escarpment edge where the suburban building fabric visually 'blends' into the bushland areas in the distance.

Roofscape components visible within the view appear to 'step' with the sloping topography.

VISUAL BULK COMMENTARY

The Site is not visible from this vantage point as documented in **Figure 63.**

The proposal will not obstruct, or visually interfere with, scenic landmarks.

Figure 62. Existing view (Source: Modata).

Figure 63. Visual bulk montage (Source: Modata).

View No 10

LONG DISTANCE VIEW_MOUNT KEIRA LOOKOUT

View No. 10	Observation
Type of view	Public domain, scenic lookout, local tourist destination
Viewing distance to Site	Approximately 2.2km
View orientation	South east
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Negligible**

VIEW DESCRIPTION

The view is elevated above the site, captured from Mount Keira Lookout. The lookout is located on the eastern side of the peak, on Mount Keira Road. The lookout is a local destination which is accessible via car and walking tracks.

The outlook from the lookout is characterised by spectacular scenic views across Wollongong and the coastline. Wollongong CBD is visible to the south east.

VISUAL BULK COMMENTARY

Views to the Site from this location are obscured by vegetation except for a minor portion at the south western corner of the Site. The local landmark known as Gleniffer Brae, with its east facing lawn, is visible from this vantage point.

The detailed viewing location was selected during the site visit after examining views from the lower level lookout platforms, from where the Site would be entirely obstructed by the canopy line.

The proposal will barely be visible from the Lookout and is likely to be visually absorbed into the surrounding fabric due to the viewing distance and the elevated view. The proposal will not detract from, or interfere with, the scenic view aspects.

Figure 64. Existing view (Source: Modata).

Figure 65. Visual bulk montage (Source: Modata).

View No 7

MEDIUM DISTANCE VIEW_EASTERN STREET

View No. 7	Observation
Type of view	Public domain, local street
Viewing distance to Site	Approximately 125m
View orientation	North
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Negligible**

VIEW DESCRIPTION

The view is characterised as a local neighbourhood street view with low scale residential dwellings.

Mature landscaping located with Spearing Reserve terminates the view to the north.

Figure 66. Existing view (Source: Modata).

VISUAL BULK COMMENTARY

The majority of the Site is concealed below the existing canopy line, except for a small portion visible beyond Spearing Reserve.

The level of visual bulk exposure is considered negligible from this vantage point as indicated in **Figure 67** and the proposal will not detract from the scenic outlook or prominent vistas in the area.

Figure 67. Visual bulk montage (Source: Modata).

View No 9

MEDIUM DISTANCE VIEW_GLENIFFER BRAE

View No. 9	Observation
Type of view	Public domain, park view
Viewing distance to Site	Approximately 540m
View orientation	East
Viewing level	Pedestrian eye level (1.6m)
Site visibility	**Nil**

VIEW DESCRIPTION

The viewing is obtained from the upper level of the large open lawn area which forms part of the Gleniffer Brae Estate, located in Wollongong Botanic Garden.

The view is characterised by the elevated position and vistas to Wollongong CBD, revealing the undulating topography of the area.

Gyde understands the garden setting forms an important part of the heritage significance of Gleniffer Brae. Both the property and the Botanic Garden are locally listed heritage items.

VISUAL BULK COMMENTARY

The Site is concealed by the existing vegetation within the Botanic Garden as indicated in **Figure 69.**

The proposal will not obstruct, or visually interfere with, scenic landmarks.

Figure 68. Existing view (Source: Modata)..

Figure 69. Visual bulk montage (Source: Modata).

26.3 Summary of findings

As demonstrated in the visual analysis, the proposal will have no, or only negligible, impact on long and medium distance views. Where negligible impact to long and medium distance views occur, the minor change is unlikely to perceived by the common observer, as the proposal will be visually absorbed into the surrounding suburban fabric due to the significant viewing distance and the textured urban context.

The view comparison for medium distance views reveal the importance of maintaining landscape screening along site edges, to minimise exposure to neighbouring areas.

The visual bulk investigations demonstrate the proposal will not detract from, or visually interfere with, scenic vistas from surrounding areas to the Illawara Escarpment and Mount Keira.

Given the proposed changes to land zoning, Height of Buildings and Floor Space Ratio, it is reasonable to expect the Planning proposal to result in changes to the built form proportions and character within the Site.

The investigations summarised in this report demonstrate that visual bulk impacts to surrounding areas are limited to a few areas of exposure to immediate viewing locations, with no impacts to the scenic landscape qualities of Gwynneville or Wollongong.

The investigations establish there will be no adverse impact to the nominated view lines to Glennifer Brae or Mount Keira from surrounding areas and the analysis demonstrates capacity for the envelopes to deliver the desired urban form outcomes in response to the local topography.

The analysis finds the proposal will result in some localised interference with partial views to Mount Keira, from within the Site itself, pending the viewing location and proximity to built forms.

A site specific DCP will be prepared for the Site with robust provisions to achieve good built form outcomes that are sympathetic to the local character and setting of the locality.

As per the findings in Table 1, Gyde considers the outcomes of the visual bulk investigations to be acceptable and valuable for the preparation of a site specific DCP framework for the Site.

Table 1. Findings of scenic view and site visibility investigations - long and medium range views

View No.	Description	Viewing distance	Scenic aspects	Site visibility	Visual Bulk Exposure	Notes
1	Long distance_Stuart Park	1.6km	Yes - Distant views to Mount Keira and the Escarpment	Nil	None	The Site will not be visible from this vantage point and
2	Long distance_Wollongong North Railway Station	850m	Yes - Partial long distance view to Mount Keira	Nil	None	The Site will not be visible from this vantage point
3	Long distance_Bourke Street	1.3km	Yes - Partial long distance view to Mount Keira	Negligible	Negligible	The Site will barely be visible from this vantage point
4	Long distance_Gipps Street	950m	Yes - Partial long distance view to Mount Keira	Nil	None	The Site will not be visible from this vantage point
5	Long distance_Smith Street	1.5km	Yes - Partial long distance view to Mount Keira	Nil	None	The Site will not be visible from this vantage point
6	Long distance_Wollongong Hospital	1.3km	Yes - Distant views to Mount Keira and the Escarpment	Nil	None	The Site will not be visible from this vantage point
10	Long distance_Mount Keira Lookout	2.2km	Yes - Wide scenic views across Wollongong and foreshore areas	Negligible	Negligible	The Site will barely be visible from this vantage point
7	Medium distance_Eastern Street	125m	No	Negligible	Negligible	The Site will barely be visible from this vantage point
9	Medium distance_ Gleniffer Brae	540m	Yes - Distant views to Wollongong CBD	Nil	None	The Site will not be visible from this vantage point

27 Open Space Strategy

27.1 Landscape outcomes

This chapter summarises the landscape strategy developed for the indicative scheme, providing a strong landscape and open space strategy which will underpin and complement the residential character of the precinct. The strategy seeks to enhance the unique visual amenity of the area.

The preferred master plan relies on an arrangement of pavilion building forms in a landscape setting with a prominent landscape presence throughout the precinct as follows:

1 - Establishing a 'Landscape Spine'

- A green spine that traverses the site, providing visual connectivity from University Avenue (east) to Paulsgrove Street (west).
- The connection is provided as a linear series of landscaped open spaces with soft landscaping to benefit residential amenity.
- The arrangement improves the general connectivity and visual permeability in the precinct. The outcome complements future plans for the university campus, improving precinct integraion, amenity and pedestrian safety. Building envelopes are proportioned to provide a presentation of maximum 3-4 storeys to the green spine to ensure reasonable levels of solar access and prevent imposing bulk.
- The green spine has the capacity to accommodate a diverse range of programs to encourage active movement and outdoor recreation and will enable the provision of community gardens and 'parkside' or garden apartments at the ground level.

2 - Well configured communal open spaces

- These are distributed to achieve visual connections between communal open areas and the publicly accessible green spine. The arrangement delivers a sense of journey through a variety of spaces, delivering solar corridors and maximised passive surveillance between building forms.
- Communal open spaces are configured to achieve adequate solar access to meet the ADG requirements.
- Communal open spaces will be designed to include generous landscaping and integrated seating to encourage social interaction between residents.

3 - Expanding and enhancing existing parkland

- Spearing Reserve fronts Murphys Avenue. The local park forms part of the riparian corridor, currently including public seating and a small playground.
- The proposal seeks to substantially expand the park to include areas to the east and west of the existing reserve. The landscape strategy seeks to increase canopy coverage within the park, exploring a native 'bushland' landscape palette with native species and interpretive play ground elements such as stepping stones and rock elements in areas around the overland flow path zone. The space will provide a mix of open lawn areas and shaded undergrowth between clusters of native trees.
- The expanded park will enhance the landscape presentation to Murphys Avenue, providing containment to the street to complement the existing condition of the northern street frontage.
- The proposed improvements to the park will benefit the visual presentation of the site and encourage intensified use by residents from neighbouring residential areas.

4 - Greening of the streets

- Where possible, existing street trees are to be retained and consolidated basement entries will allow for the provision of additional street trees, contributing to the 'greening' of the streets and reduced neighbourhood heat load.

5 - Deep Soil

- A 12m wide deep soil zone is provided along the western boundary to allow for additional landscape screening to the Wollongong Botanic Garden to the west.

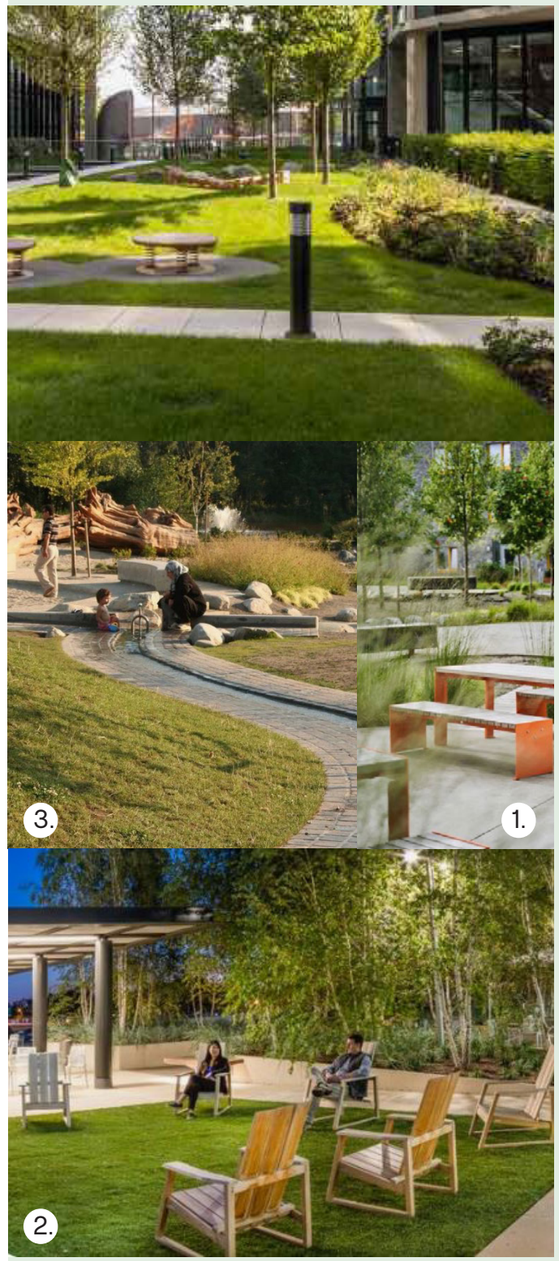
6 - Enhancing landscape character

- Landscape corridors between built forms fronting Paulsgrove Street will ensure west bound streets are terminated in canopy views as a desirable character element.

7 - Better permeability and accessibility

- The landscape strategy will enhance attractive and enjoyable ways to walk through the precinct and integrate with future movements networks on the university campus site.

The strategy provides a vision for the landscape outcome to ensure that capacity to deliver strong landscape amenity to benefit the community. A detailed landscape concept will be developed as part of future Development Applications which may include landscape on structure and rooftop landscape treatments.



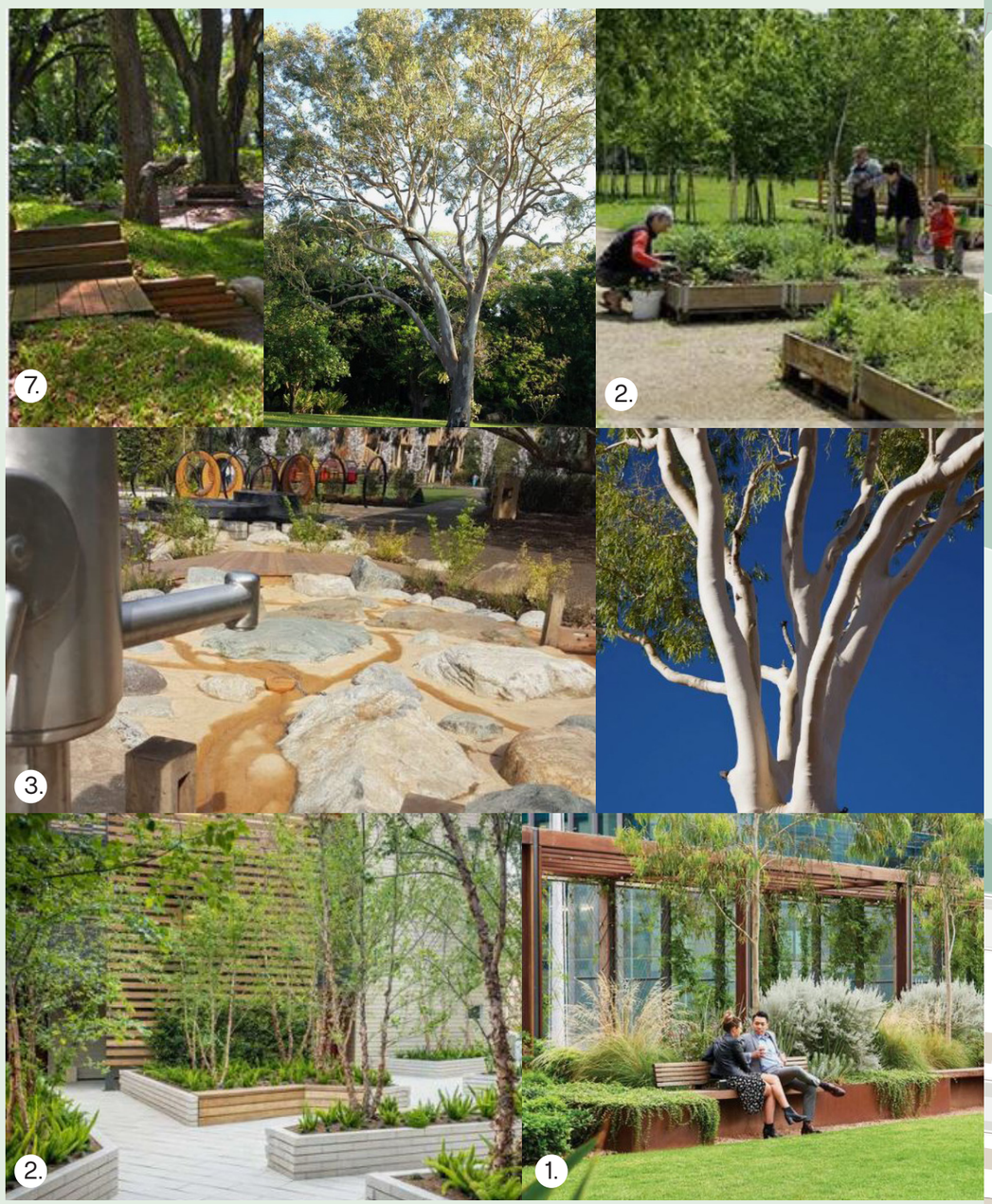


Figure 70. Landscape Strategy

27.2 Connecting to Desired Locations

The strategy seeks to enhance the existing street network as to strengthen the use of and amenity of the movement corridors.

The planning proposal and indicative scheme demonstrate an intensification of density which will amplify the desire lines to key locations surrounding the site.

The indicative works to maintain the existing street network which already allows for north west pedestrian and bicyclist flows towards desirable locations like the University of Wollongong.

The massing scheme and the subsequest landscape plan encourage the ease of connections to pedestrian friendly accessways such as the pedestrian and road bridge over Princes Motorway. It will enourage the use of existing and proposed open spaces for boosted amenity for both residents and visitors.

By maintaining and enhancing the existing movement corridors to public transport hubs, like the bus interchange to the north and North Wollongong Train Station to the west, this scheme enables passive movement for pedestrians and bicyclists alike .

GYDE

28 Amenity Outcomes

28.1 Amenity outcomes

To facilitate good levels of residential amenity, the massing strategy was tested in a geo-located digital 3D model to understand the capacity to meet the solar access requirements nominated under Design Criteria of the ADG.

The testing demonstrates the capacity to achieve a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter to living areas and private open spaces of at least 70% of residential apartments in accordance with Objective 4A-1 of the ADG.

The distribution of built form and communal open space ensure the capacity to meet the Design Criteria under Objective 3D-1 to achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm during mid winter (21 June).

The building envelopes are proportioned and orientated to ensure the capacity to achieve good amenity outcomes for future residents including natural ventilation, outlook and building separation to meet ADG requirements.

The outcome is appropriate for the site and consistent with the Design Guidance provided in the ADG.

9:00 AM

10:00 AM

11:00 AM

12:00 PM

Figure 71. Overshadowing diagrams

1:00 PM

2:00 PM

3:00 PM

Figure 72. Shadow diagrams

Figure 73. Overshadowing to publicly accessible open space (3PM)

29 Implementation

29.1Wollongong Local Environmental Plan 2009

To realise the outcomes of the Master Plan, amendments will be required to the WLEP.

It is intended that the recommendations for implementation of this Master Plan will largely form the basis of a HNSW-initiated planning proposal to amend the WLEP.

The following sections outline recommended changes to the WLEP.

29.2 Land Zoning

To achieve the intended outcomes of the Master Plan for residential flat buildings, the R4 High Density Residential land use zoning is recommended.

The central area of public open space between Sidney Street and Hoskins Street, where open space corresponds to existing cadastral boundaries is to be zoned RE1 Public Recreation. The proposed extension of Spearing Reserve to the south and an additional public space at the corner of Murphys Avenue and Paulsgrove Street are recommended to be RE1 zones.

Public open space areas that do not exactly correspond to existing cadastral boundaries are proposed to be implemented via key sites provisions proposed to be established under Part 7 of the WLEP 2009.

The group of sites at the corner of Murphys Avenue and Irvine Street will remain R2 Low Density Residential as no change to these sites is intended under this proposal.

Figure 74 illustrates the recommended land use zoning across the precinct.

Figure 74. Recommended land use zoning map

29.3 Height of Buildings

To achieve the intended outcomes of the Master Plan, amendments to the height of building controls set out under the WLEP will be required.

Figure 75 illustrates the recommended development standards to be incorporated into the Height of Buildings map, to retain the base height of 9m (2 storeys) across the precinct.

Height limits would be removed from any areas proposed to be zoned RE1.

Additional local provisions are proposed under Part 7 of WLEP for proposed key sites identified under the Key Sites Map. Proposed provisions under Part 7 are intended to provide building height incentives to encourage land amalgamation, delivery of key public domain elements and intended social housing outcomes.

The group of sites at the corner of Murphys Avenue and Irvine Street will remain limited to 9 metres as no change to these sites is intended under this proposal.

Figure 75. Recommended height of buildings map

29.4 Floor Space Ratio

To achieve the intended outcomes of the Master Plan, amendments to the floor space ratio controls set out under the WLEP will be required.

Figure 76 illustrates the recommended development standards to be incorporated into the Floor Space Ratio (FSR) map, to retain a base FSR of 0.5:1 across the precinct.

FSR limits would be removed from any areas proposed to be zoned RE1.

Additional local provisions are proposed under Part 7 of WLEP for proposed key sites identified under the Key Sites Map. Proposed provisions under Part 7 are intended to provide FSR incentives to encourage land amalgamation, delivery of key public domain elements and intended social housing outcomes.

The group of sites at the corner of Murphys Avenue and Irvine Street will remain limited to 0.5:1 as no change to these sites is intended under this proposal.

Figure 76. Recommended Floor Space Ratio map

29.5 Key Sites

Building height and floor space ratio bonus incentives are proposed to:

- overcome fragmented land ownership to facilitate amalgamation of feasible land parcels that are suitably sized and configured to achieve the intended development forms.
- facilitate the implementation of new public domain elements proposed by the master plan via the development application process.
- limit 'one off' speculative smaller scale development which would impact on the delivery of the overall project vision.

To achieve these outcomes, it is proposed to identify the sites as Key Sites for consolidation and establish precinct-specific local provisions under Part 7 of WLEP.

This may include height and floor space bonus incentives for Key Sites, subject to minimum site area being achieved and identified public benefits being provided. Building height and floor space bonus incentives will be in addition to those recommended in Figures 75 and 76.

The intended amalgamation pattern seeks to establish land parcels of optimal size and configuration to support feasible envelopes and to amortise the delivery of new public domain elements across multiple land parcels.

Given the substantial HNSW landholding in the precinct, most of the Key Sites is in majority HNSW ownership. Some are under majority private ownership. The controls seeks to incentivise amalgamation and/or a partnership approach between HNSW and the private sector to delver social, affordable and diverse housing.

An additional benefit of identifying key sites as a mechanism for delivering intended outcomes is that it triggers design excellence provisions under clause 7.18 of the WLEP 2009, thereby ensuring high quality design outcomes.

The proposed Part 7 provisions set out in Table 2 and have been informed by the high level yields analysis provided in Section 30. These provide an overview of anticipated development yields on an overall project and per key site to enable an FSR to be prescribed for each of the key sites.

Figure 77. Proposed Key Sites Mapping

Table 2. Key Sites Provisions

Key Site ID	Min Lot size (sqm)	Max FSR (x:1)	Max HOB (m)	Min site frontage	Minimum Public Open Space Area (sqm)	Minimum Social and affordable housing component (% of permissible FSR)
10	-	1.2	15	40m	Note A	50%
11	1,300	1.5	15	-	-	50%
12	3,750	1.3	15	-	-	50%
13	5,800	1.6	18	-	-	50%
14	6,800	1.5	18	-	Note B	50%
15	3,800	1.8	18	-	Note C	50%
16	4,350	1.7	22	-	Note D	50%
17	4,000*	0.6	15	-	Note E	50%
18	3,000	1.5	18	-	Note F	50%
19	4,750	1.4	22	-	Note G	50%
20	5,000	1.7	22	-	Note H	50%
21	2,500	1.3	15	-	Note I	50%
22	6,200*	1.0	18	-	Note J	50%
23	1,800	1.4	15	-	Note K	50%
24	4,800	1.8	22	-	Note L	50%
25	4,900	2	22	-	Note M	50%
26	1,850	1.7	15	-	Note N	50%

* Consists of two non-contiguous areas within lot boundaries, excluding the area of the Spearing Parade road reserve. FSR measured in accordance with the sum of the two non-contiguous areas, excluding the area of the Spearing Parade road reserve.

Notes

A: Key Site 10 - Lots 36 and 37 In DP36218 to be dedicated as Public Open Space.

B: Key Site 14 - Dedication of the land identified to form part of the east west link to Council for the purposes of public open space (i.e. part Lot 59 in DP36218 and Part Lot 73 in DP36218). Combined with Key Sites 15 and 16, the total width of the public open space link is to be a minimum of 17m as part of a continuous link extending from Sydney Street to Paulsgrove Street.

C: Key Site 15 - Dedication of the land identified to form part of the east west link to Council for the purposes of public open space (i.e. part Lot 60 in DP36218). Combined with Key Site 14, the total width of the public open space link is to be a minimum of 17m as part of a continuous link extending from Sidney Street to Paulsgrove Street.

D: Key Site 16 - Dedication of the land identified to form part of the east west link to Council for the purposes of public open space (i.e. part Lot 72 in DP36218). Combined with Key Site 14, the total width of the public open space link is to be a minimum of 17m as part of a continuous link extending from Sidney Street to Paulsgrove Street.

E: Key Site 17 - Lots 107 108 and 109 in DP36218 to be dedicated as Public Open Space.

F: Key Site 18 – Lot 84 in DP36218 to be dedicated as Public Open Space.

G: Key Site 19 – Lot 85 in DP36218 to be dedicated as Public Open Space.

H: Key Site 20 – Lot 100 in DP36218 to be dedicated as Public Open Space.

I: Key Site 21 – Lot 101 in DP36218 to be dedicated as Public Open Space.

J: Key Site 22 - Lots 110, 111, 112 and 113 in DP36218 to be dedicated as Public Open Space.

K: Key Site 23 - Dedication of the land identified to form part of the east west link to Council for the purposes of public open space (i.e. part Lot 119 in DP36218). Combined with Key Site 24, the total width of the public open space link is to be a minimum of 25m as part of a continuous link extending from Hoskins Street to Irvine Street.

L: Key Site 24 - Dedication of the land identified to form part of the east west link to Council for the purposes of public open space (i.e. part Lot 120 in DP36218). Combined with Key Site 23, the total width of the public open space link is to be a minimum of 25m as part of a continuous link extending from Hoskins Street to Irvine Street.

M: Key Site 25 - Dedication of the land identified to form part of the east west link to Council for the purposes of public open space (i.e. part Lot 135 in DP36218). Combined with Key Site 26, the total width of the public open space link is to be a minimum of 25m as part of a continuous link extending from Hoskins Street to Irvine Street.

N: Key Site 26 - Dedication of the land identified to form part of the east west link to Council for the purposes of public open space (i.e. part Lot 136 in DP36218). Combined with Key Site 25, the total width of the public open space link is to be a minimum of 25m as part of a continuous link extending from Hoskins Street to Irvine Street.

30 Indicative Development Yields

Table 3. Indicative floor space building yields

Site Area (sqm)	Building ID	GBA (sqm)	GFA (sqm)	Dwelling Estimate (units)
BLOCK A				
12,160	A2	2,903	2,177	
	A3	3,870	2,903	
	A4	3,870	2,903	
	A5	2,903	2,177	
	A6	3,211	2,408	
	A7	2,583	1,937	
Total A		**19,339**	**14,504**	**167**
BLOCK B				
9,801	B1	3,520	2,640	
	B2	4,838	3,629	
	B3	4,458	3,343	
	B4	3,080	2,310	
	B5	3,080	2,310	
Total B		**18,976**	**14,232**	**164**
BLOCK C				
15,231	C1	3,630	2,723	
	C2	3,702	2,777	
	C3	4,498	3,374	
	C4	4,842	3,631	
	C5	5,492	4,119	
	C6	4,315	3,236	
	C7	6,050	4,537	
Total C		**32,529**	**24,397**	**280**
BLOCK D				
	D1	3,211	2,408	
	D2	6,134	4,600	
	D3	1,718	1,288	
	D4	7,563	5,672	
	D5	6,512	4,884	
	D6	4,896	3,672	
18,142	D7	4,181	3,136	
Total D		**34,215**	**25,661**	**295**

Site Area (sqm)	Building ID	GBA (sqm)	GFA (sqm)	Dwelling Estimate (units)
BLOCK E				
17,370	E1	4,721	3,541	
	E2	3,434	2,575	
	E3	3,545	2,659	
	E4	4,315	3,237	
	E5	3,686	2,764	
	E6	4,685	3,514	
	E7	4,316	3,237	
	E8	4,345	3,259	
	E9	4,289	3,217	
	E10	3,344	2,508	
Total E		**40,680**	**30,510**	**351**

Assumptions	
Efficiency Ratio (i.e. GBA - GFA)	0.75:1
Average GFA/ Unit	87sqm

Source cadastre - NSW Digital Database accessed April 2023

Totals Block A-E	
GBA	145,738
GFA	109,304
TOTAL UNITS	**1,256***

*Assumed apartment yield for the purpose of this PP has been rounded to 1,250 dwelling units

Table 4. Indicative floor space building yields per key site

Key Site	Area (Sqm)	GFA Sqm
10	10,792	12,567
11	1,367	1,937
12	3,802	4,950
13	5,998	9,282
14	6,882	10,036
15	3,934	7,005
16	4,415	7,355
17	4,161	2,408
18	3,144	4,600
19	4,997	6,961
20	5,046	8,556
21	2,573	3,136
22	6,312	6,049
23	1,881	2,575
24	4,962	8,660
25	5,007	10,009
26	1,915	3,217

Figure 80. Proposed Key Sites Map showing building envelope and parks overlay

Figure 81. Building yield key diagram

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