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St. Clair Architecture

Bomaderry BTR

53 & 57 Bolong Road, and 4 Beinda Street Bomaderry NSW 2541

Development Application Stage Design Report



Prepared for	Landcom
Reference	202312
Issue date	12/04/24
Version	DA01

We would like to acknowledge Wodi Wodi Country and the people of the Yuin Nation as the traditional custodians of the land on which the project is located and pay our respects to elders, past, present and emerging.

At St Clair Architecture we believe in design excellence as a way to deliver sustainable and affordable living environments and neighbourhoods for diverse communities.

This project has a number of key objectives:

- + to benefit the NSW public through the application of the NSW Housing SEPP 2021 and related build-to -rent and affordable housing provisions that aim to increase the supply of secure tenure rental housing.
- + to promote good design, sustainability and amenity of the built environment, consistent with NSW Government Policy and the NSW Environmental Planning and Assessment Act.
- + to apply Landcom Housing Policy for increased rental housing supply and diversity and deliver a design that is replicable and scalable for possible application to other sites.

As a pilot project this aims to be a model for the wider industry for build- to-rent developments in regional NSW and to demonstrate that they can be delivered at smaller scales.

Document control

Version	Description	Prepared by	Checked by
01	Issued for DA	PSC	VT



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1.0 Introduction

1.1 Purpose of this document

This document has been prepared as a design report to accompany the development application submission. It provides a summary of the design process that has been undertaken, including site investigations and key design objectives and strategies, illustrated in diagram form.

1.2 Key milestones completed

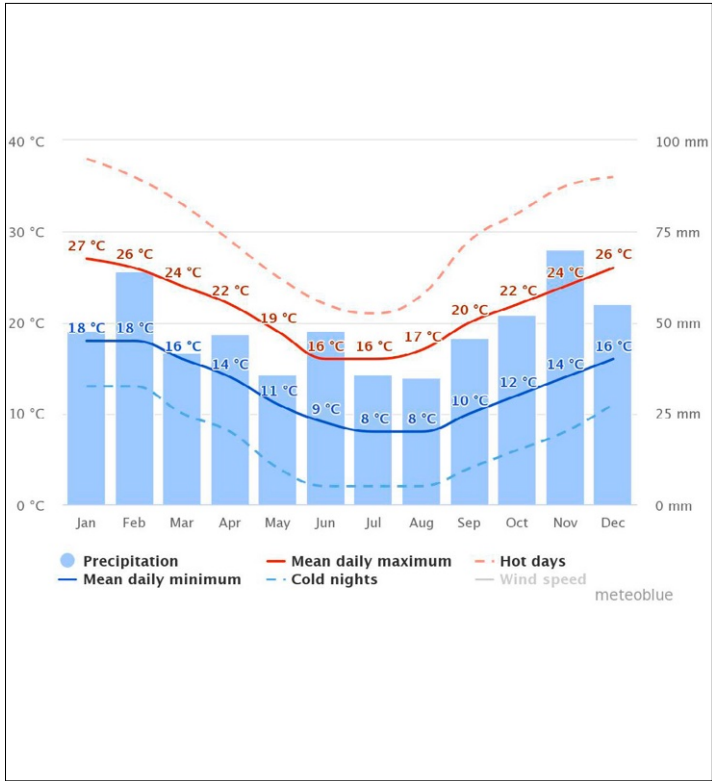
A number of Milestones have been completed, that contributed to the preparation of this design and development application. There's included:

- 1. Pre-development application meeting with Shoalhaven Council: 25th January 2023
- 2. Walk on Country with Uncle Sunny: 25th January 2024
- 3. Landcom Design Review Panel meeting: February 2024
- 4. Community meetings: various meetings between January and April 2024

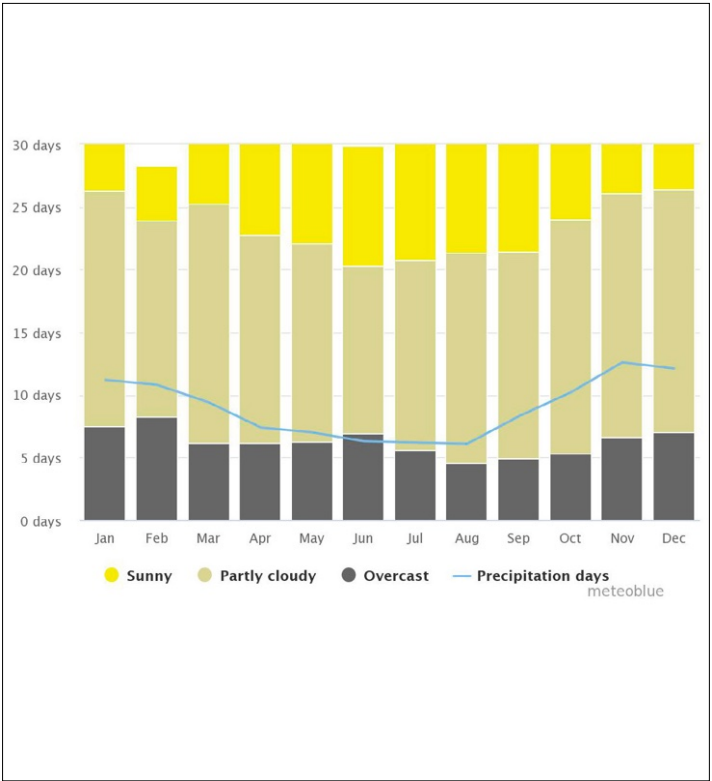


2.0 Context and site studies

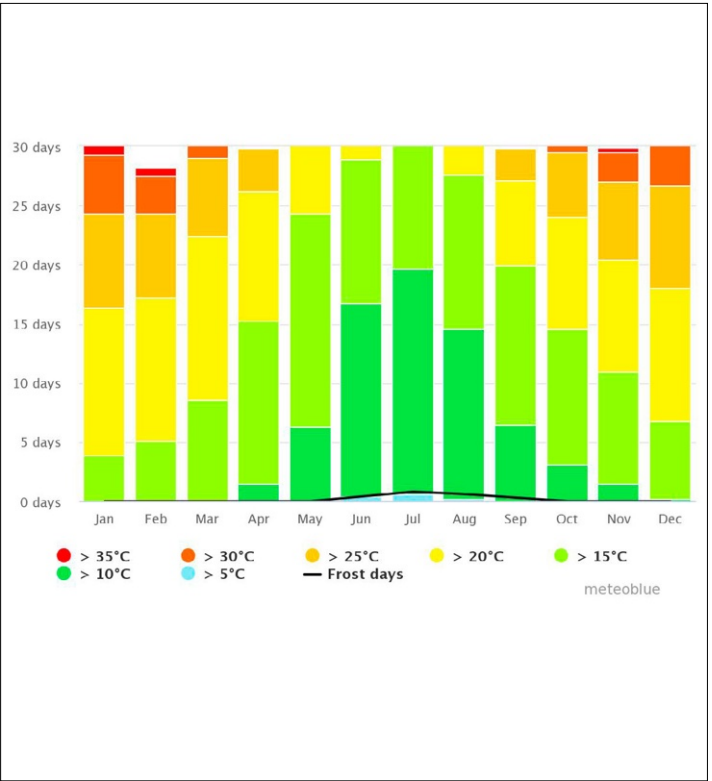
Simulated historical climate & weather data for
Nowra (closest weather station)



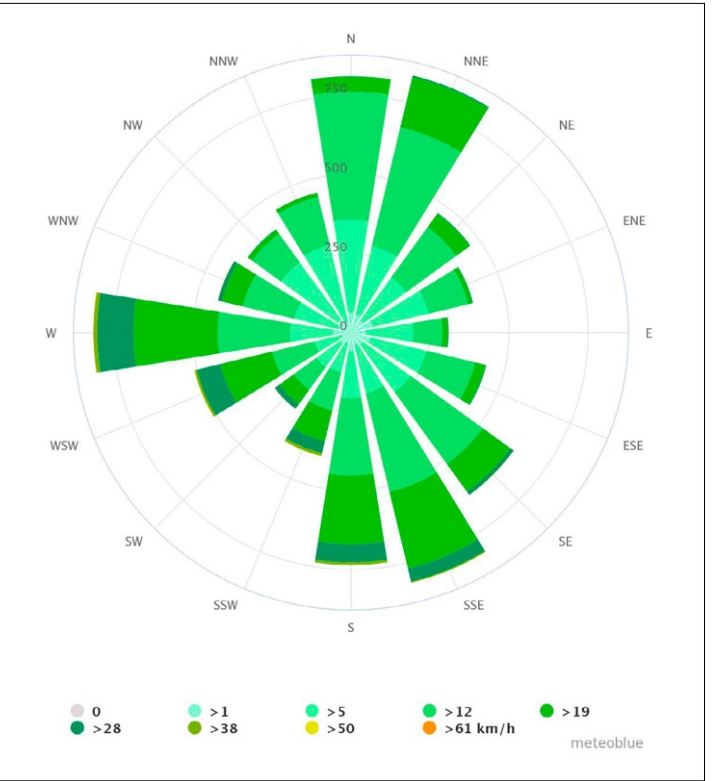
Average temperatures and precipitation



Cloudy, sunny, and precipitation days



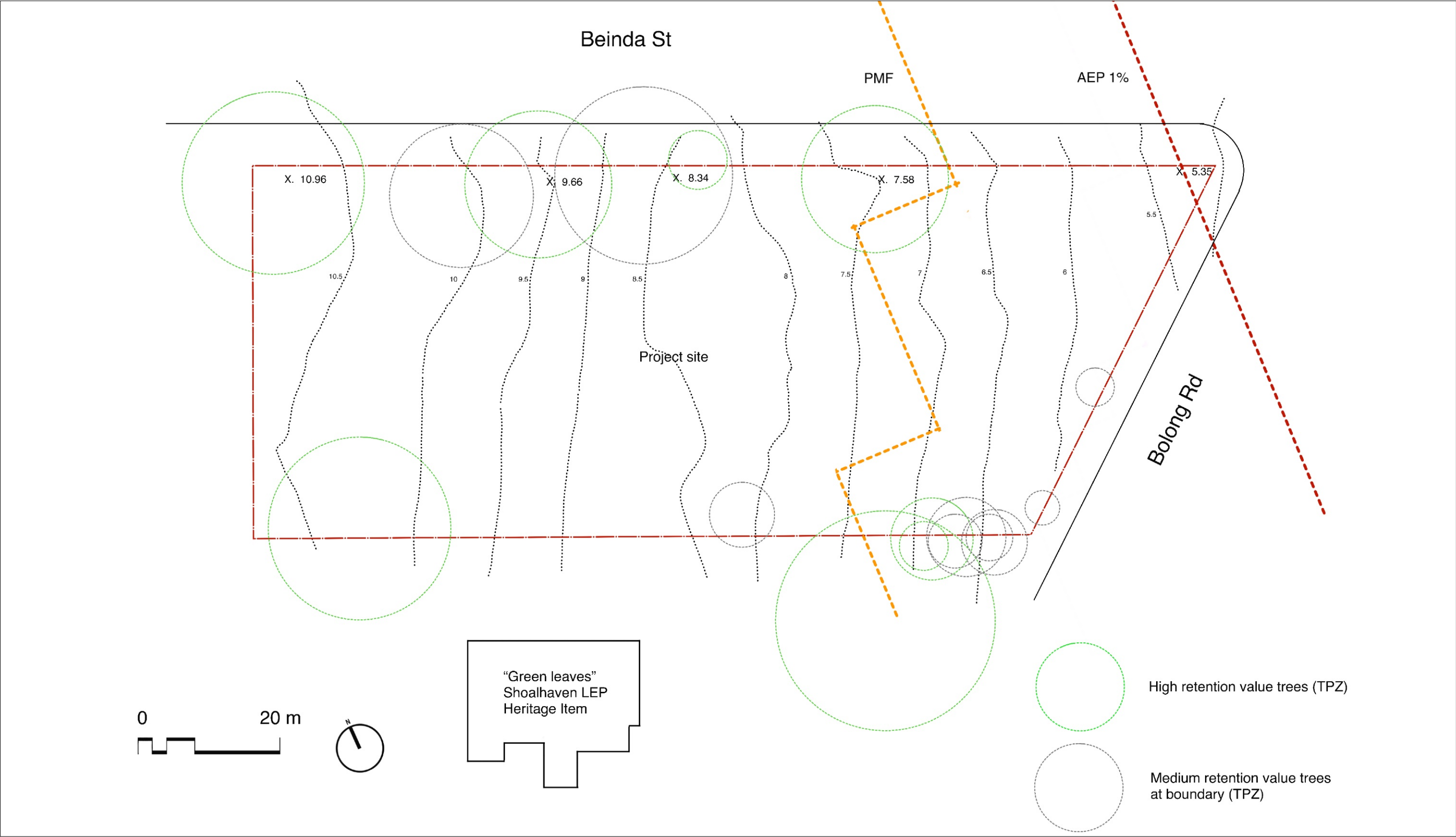
Maximum temperatures



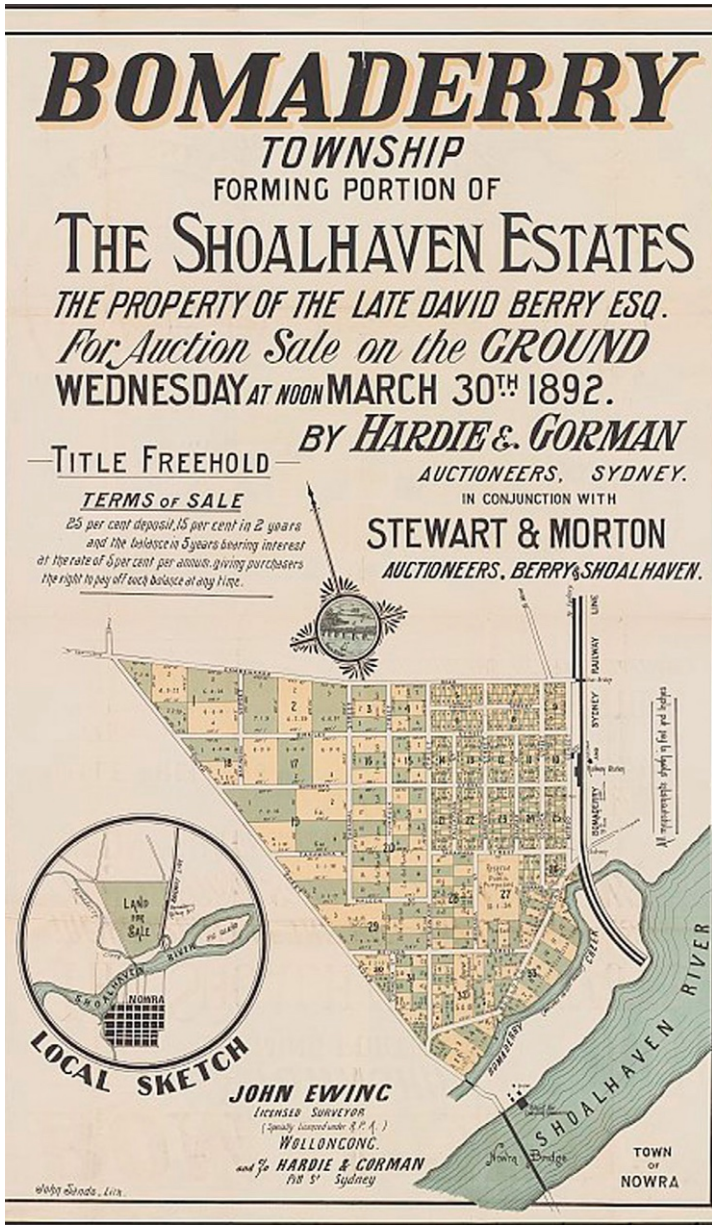
Wind rose

Location: Nowra AP, AUS
Longitude: 150.54
Latitude: -34.95
Elevation above sea level: 105.0 m
Köppen–Geiger climate zone: Cfb. Marine west coast, warm summer.
Average yearly temperature: 16.0 °C
Hottest yearly temperature (99%): 30.7 °C
Coldest yearly temperature (1%): 5.7 °C
Annual cumulative horizontal solar radiation: 1634.07 Wh/m2
Percentage of diffuse horizontal solar radiation: 39.0 %

Site constraints diagram - topography, tree APZ's, flood planing levels, heritage



History + architectural character - Bomaderry



Bomaderry Auction Plan 1892
Hardie & Gorman Pty. Ltd - out of copyright



Private home, Tarawara St
Photo by author

Natural and recycled materials
Sun shading
Lightweight cladding - CFC



Private home, Coomea St
Photo by author

Elevated above ground
Verandahs
Lightweight cladding - timber
Brickwork



Illawarra Institute of Technology - TAFE, Beinda St
Photo by author

Sun shading
Brickwork
Lightweight cladding - CFC



Dog park, Bolong Rd
Photo by author

Public amenity
Green space and cooling
Natural habitat



Reserve, Tarawara St
Photo by author

Public amenity
Green space and cooling
Natural habitat



Former Bomaderry Aboriginal Children's Home, Bienda St

Historical significance
Heritage listed buildings
Light weight cladding and roofs

History + architectural character - Nowra



Nowra Showgrotund Woodchop Stands

Photo by author

- Privacy screening
- Sun shading
- Lightweight materials



Anglicare Fairview Independent Living

Photo by author

- Landscape buffer
- Privacy screening
- Private outdoor space



Shoalhaven Cancer Centre

Photo by author

- Natural and recycled materials
- Sun shading
- Lightweight cladding - CFC



Shoalhaven Hospital

Photo by author

- Sustainability
- Sun shading
- Lightweight cladding - precoated metal



Private home, Plunkett St

Photo by author

- Street corner entrance and gardens
- Sandstone walls
- High quality landscaping



Meroogal

Photo by author

- Detailed metalwork
- Verandahs
- Lightweight cladding - timber



Private home, Plunkett St

Photo by author

- Elevated above ground
- Verandahs
- Lightweight cladding - timber



Private home, Plunkett St

Photo by author

- Detailed concrete block
- Natural ventilation
- Privacy screening

Site photos



View from Beinda St looking east



View from Beinda St looking west



View from from corner of Beinda St and Bolong Rd looking east



View from Bolong Rd



View from Beinda St of service station



View from Beinda St looking east (site on right)



View of corner of Beinda St and Bolong Rd

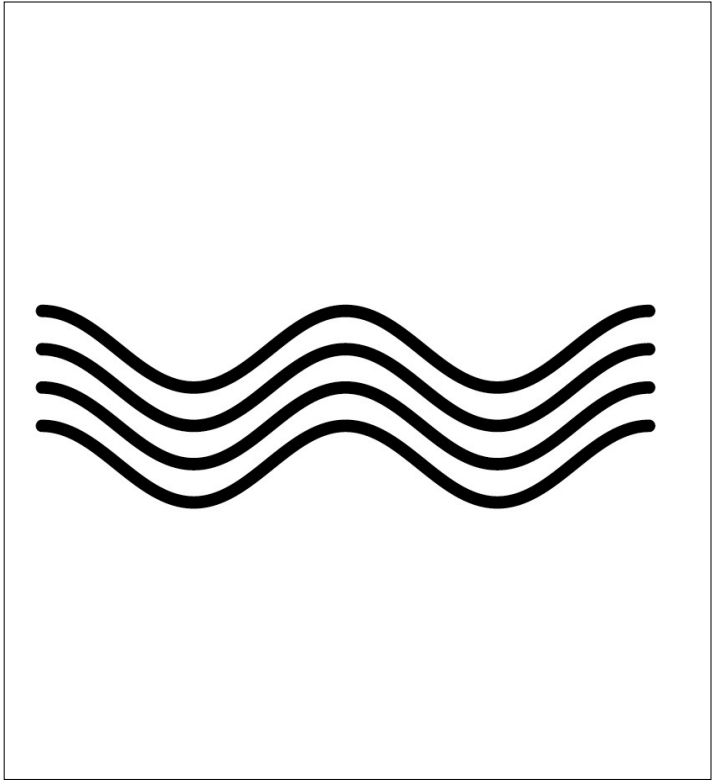


View from Bolong Rd looking north



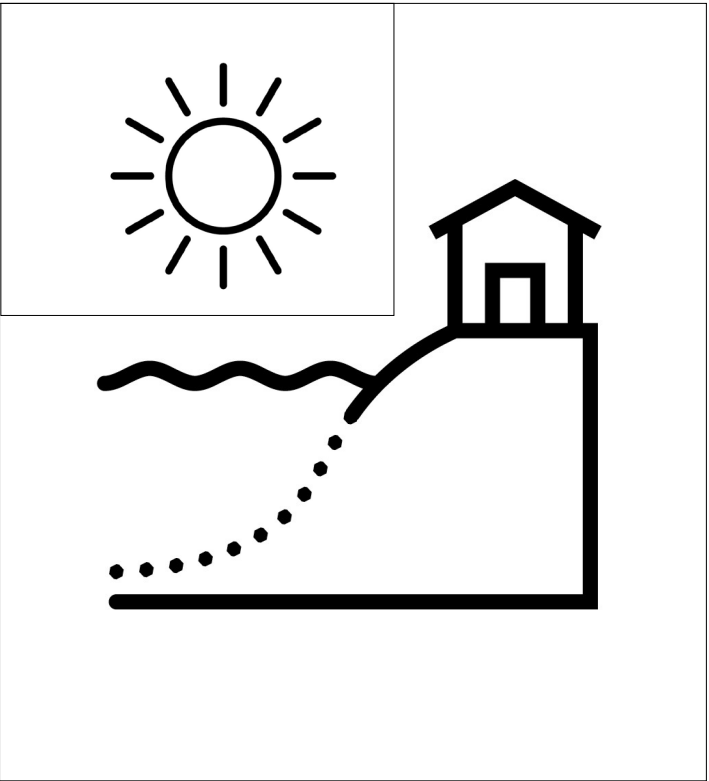
3.0 Design Principles

St Clair Architecture



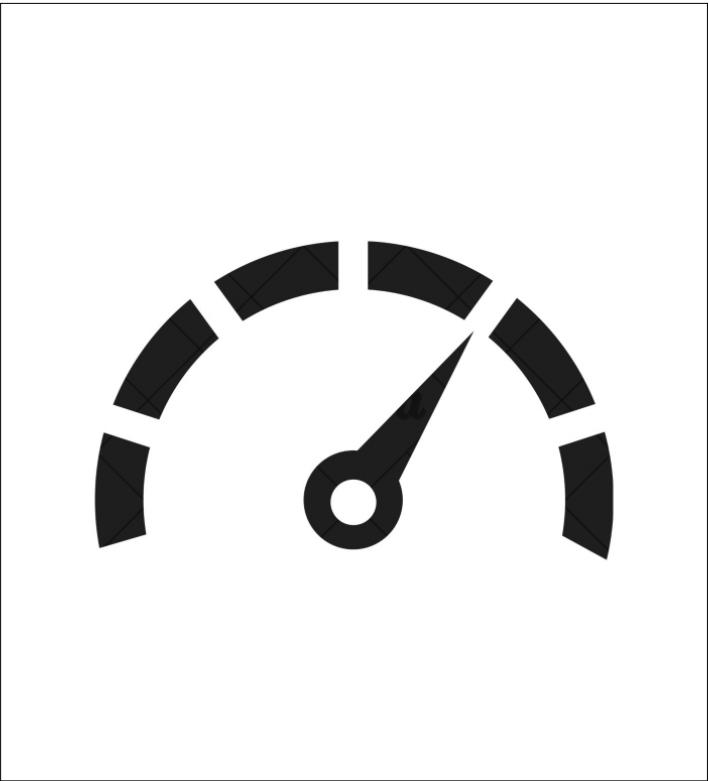
Principle 1 - Rivers and layering

- Recognise, respect and express Shoalhaven River system, wetlands and tributaries including Bomaderry Creek and on site water movement.
- Promote ongoing ecological health and bio-diversity by preserving key landscape elements such as high value trees on site.
- Recognise low density character of Bomaderry and visually permeable streetscapes with framed distant views
- Recognise ground conditions and layering of sandstone and wetlands with visible outcrops on site
- Preserve existing layering of bushland in landscape design.
- Provide a layered sequence of public to communal to private spaces, to encourage use of outdoor space and provide the highest level of amenity for both residents and neighbours.



Principle 2 - South Coast local character and lifestyle

- Recognise and build upon distinct South Coast architectural style of elevated buildings, ventilated walls, lightweight cladding and roofs
- Respond to flood levels and climate resilience with elevated buildings.
- Explore different lifestyle opportunities and dwelling typologies suited to Bomaderry and different to typical metropolitan responses.
- Promote outdoor circulation, solar access and cross ventilation as part of healthy lifestyle and South Coast character.
- Provide a welcoming environment with a light and spacious design that allows living with a sense of dignity and reflects a commitment to design quality.



Principle 3 - High performance buildings and landscapes

- Design homes for durability and high performance, thermal comfort, and significantly reduce the cost of living/utility bills through high efficiency performance.
- Incorporate low-maintenance and durable materials
- Incorporate cost-effective and affordable materials, that consider not only the initial capital cost, but material costs over the life of the building
- Ensure sustainability outcomes consistent with Landcom industry benchmarks and project specific goals.
- Incorporate simple and cost effective passive design strategies.
- Embrace low Volatile Organic Compound (VOC), low carbon and renewable materials.



Principle 4 - Diversity and Affordability

- Provide a variety of dwelling types for varied demographics and lifestyle opportunities
- Address the needs of local households including single occupant homes and town-housing
- Provide equal amenity, finishes and fixtures to all dwellings, providing maximum flexibility for tenant allocations and without differentiation between affordable and other rental homes
- Design flexible housing permitting tenants to move within the site to suit future needs
- Provide a high proportion of universal housing to allow use irrespective of age, level of mobility or health.

4.0 Connecting with Country

Project Brief

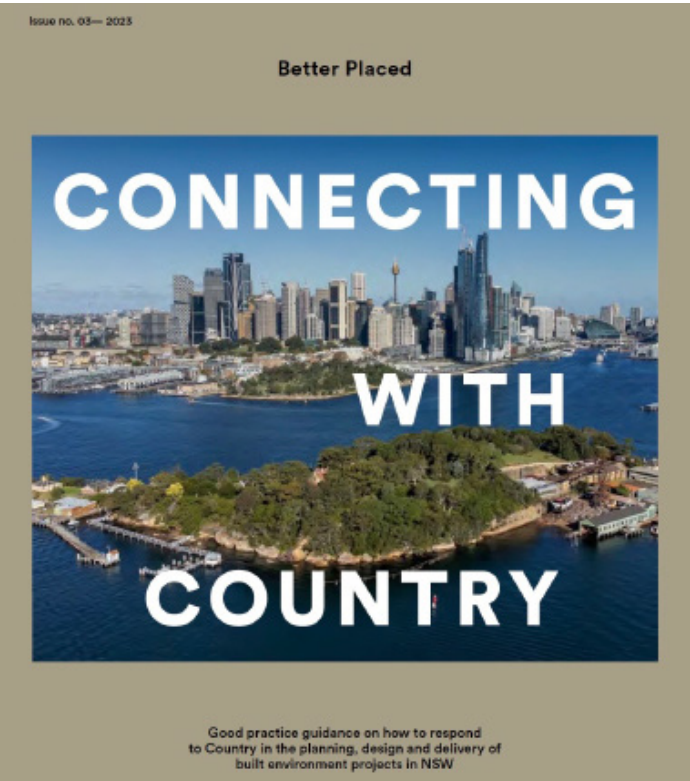
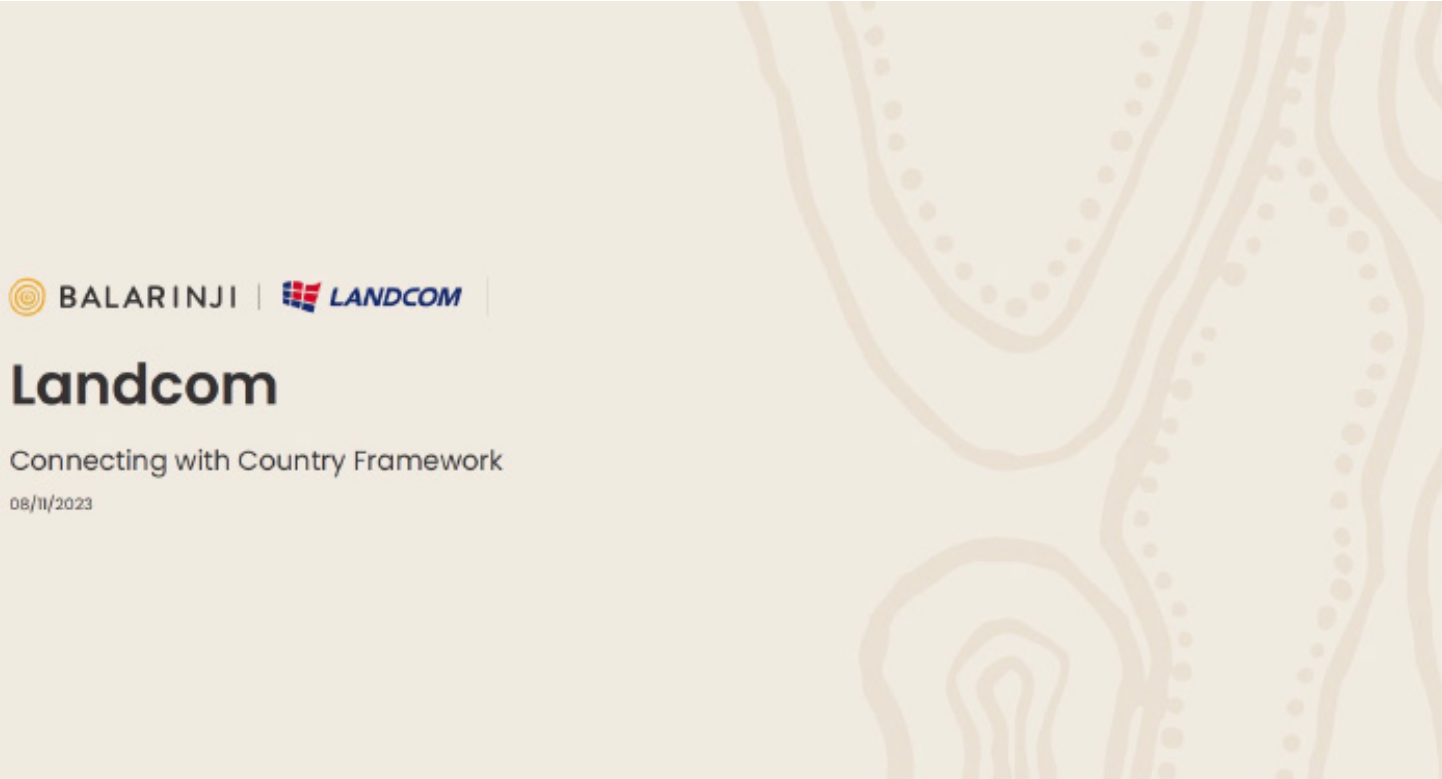
4.1 Approach

The proposal will address Landcom's Connecting with Country Framework 2023 and the Government Architect's Connecting with Country guide 2023.

An initial walk on country was completed in late January 2024 with Henry Simms (Uncle Sonny), identifying some of the key considerations for the project and significant elements of the site.

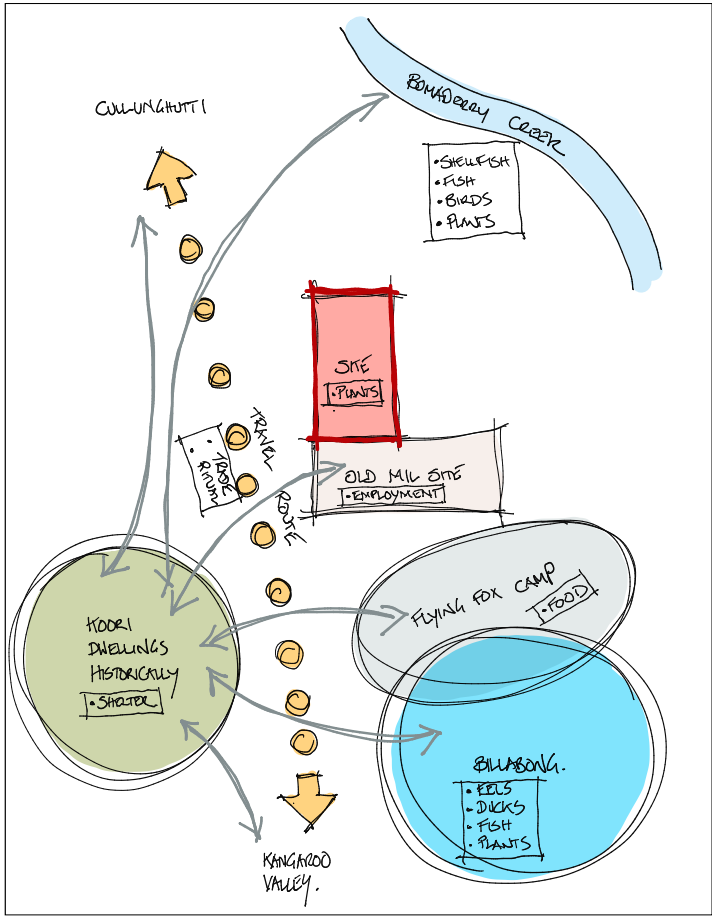
Some initial strategies are described in the following diagrams. As the architecture and landscape designs progress towards DA, these will be further developed.

Further input will also be sought from Landcom's Design Review Panel.



Walk on Country - 25th January 2024

St Clair Architecture



Connection to Country Recording and Impressions
Edmiston Jones



Spotted gum trees to Beinda St - looking north east from site
Photo by author



Spotted gum trees to Beinda St - looking east (downhill) from site
Photo by author



Exposed rock outcrops within site
Photo by author



Exposed rock outcrops within site - north west corner
Photo by author



Wetland 100m west of site - traditional place for water collection
Copyright Daryl Jones (Oz Aerial) used with kind permission of Daryl Jones



Walk on Country with Uncle Sonny (Henry Simms)
Photo by Stuart Scobie

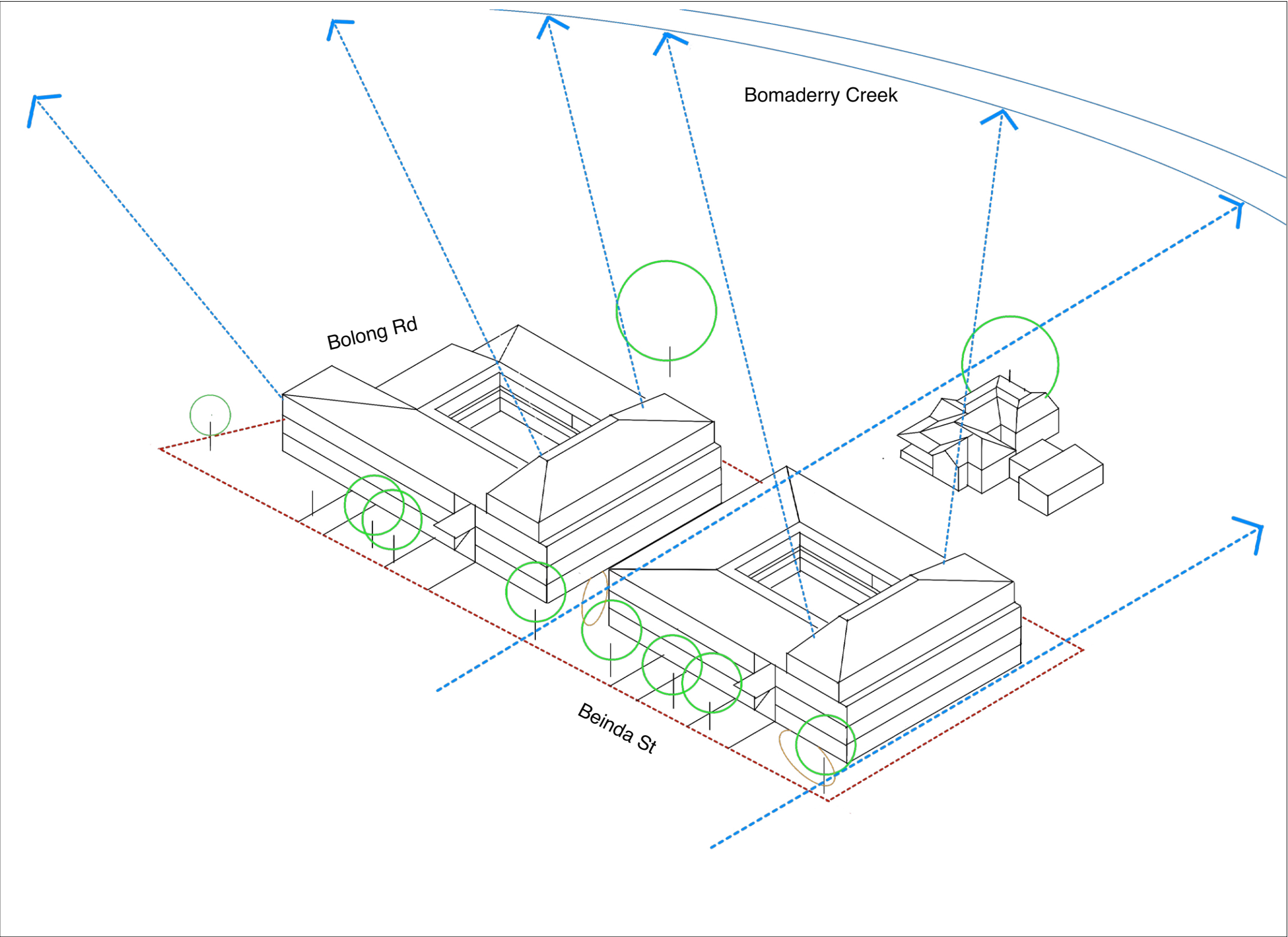
Connecting the site to Country - design strategies

Key design moves:

- + Maximise Beinda St building setback to preserve mature boundary trees
- + Carefully locate and plan pedestrian and vehicle entrances and car-parking
- + Minimise excavation by placing car parking above ground
- + Reuse and repurpose existing sandstone from the site
- + Preserve existing surface level rock outcrops where possible and feature within landscape design.
- + Apply textured and natural materials to the ground level carpark at and transition into lighter weight materials above.
- + Take inspiration from the Shoalhaven River, Bomaderry Creek, adjacent wetland and indigenous places of gathering. Create a unique sense of place based upon sheltered courtyards whilst also complimenting neighbouring landscapes and streets.
- + Maintain through site views from ground level
- + Maximise views towards Bomaderry Creek and Shoalhaven River
- + Maximise passive design strategies that seek to minimise energy usage

Benefits and opportunities:

- + Maintains and expresses existing site character and opportunities to connect with Country
- + Provides a resource efficient design that is respectful of a Country
- + Preserves existing high-value mature trees to Beinda St and allows for future tree planting benefiting overall ecology, streetscape and community
- + Avoids unattractive vehicle down ramps



5.0 Sustainability

Project Brief Summary

5.1 Key Sustainability Considerations

Landcom’s key sustainability objectives for new projects are summarised in the table below:

Healthy and inclusive places

Objective: To deliver healthy and inclusive places, founded on equity for people of all ages and abilities

Target: To deliver high quality liveatttble places, founded on equity, affordability, and inclusion

Climate resilient places

Objective: To deliver low carbon resource efficiency, and environmentally, sensitive places.

Target: To lead environmental performance across Landcom developments by committing to be in carbon, neutral and water positive, with zero waste and net positive ecological outcomes by 2028. Undertake a climate resilience assessment and prepare and implement a climate adaptation and community resilience plan. All new projects should enhance the local habitat and biodiversity compared with the site conditions pre-acquisition. Reduce the impact of urban heat island effect on between 20 and 50% of project site area.

Energy and emissions performance

Objective: To conserve energy and drive, energy-efficient, low carbon and low emissions precincts for the future.

Targets: All new projects to be modelled to reduce greenhouse gas emissions at a precinct scale by 50% against 2016 reference case. Minimum of 5% of predicted precinct energy demand to be supplied by on-site renewable energy where site constraints permit.

Environmental management

Objective: To maintain and enhance the culture of high environmental performance

Target: All projects to adopt the use of industry recognise rating tools, , master plan and build form scale, achieving not less than ‘Australian best practice equivalent’.

Basix: Target energy rating of 55 for low rise, 45 for medium rise and 40 for high-rise construction. Target water rating of 60 for all dwellings.

Waste and Materials

Objective: To drive innovation in waste reduction, and further enable the use of responsible resources

Target: All new projects divert minimum 95% of construction waste from landfill and 100% of timber sourced for construction to be Forest Stewardship Council certified.

Water

Objective: To design precincts based on best practice water sensitive urban design (WSUD) principles, and actively conserve potable water.

Target: WSUD strategies for all projects and apply pollutant discharge maximums. All new projects to be modelled to reduce mains potable water demand by 50% at the precinct scale, against the 2016 reference case.

Health equity and inclusion, community, connection and safety

Objective: To deliver, healthy and inclusive places, founded on equity for people of all ages and abilities

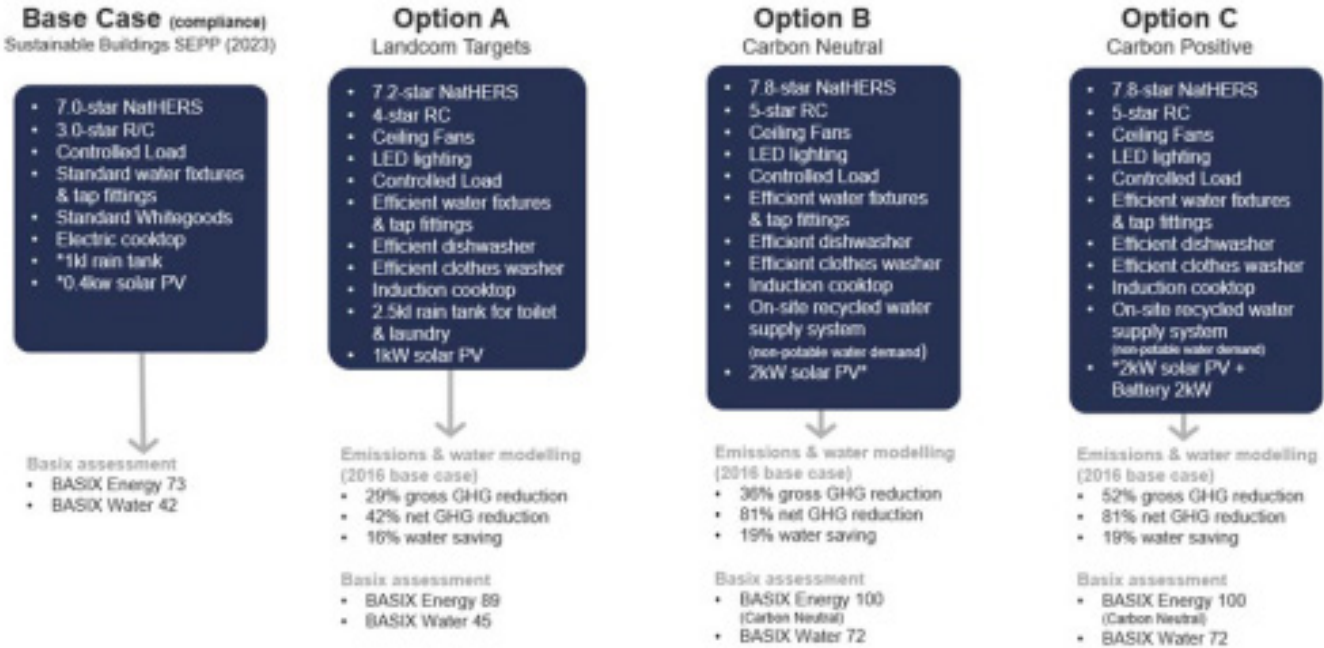
Target: 90% of residents to report satisfaction with quality of life, physical and mental health, reflecting project design, programs or events that encourage active, social and healthy lifestyles. 90% of residence to report satisfaction with integration of culture and heritage, community cohesion by fostering the integration of community networks and facilities in projects. 90% of residence to report feeling safe.

Affordability and diversity

Target: A minimum of 15% of new housing should meet the definition of diverse housing. Medium and high density housing to include at least 30% that is universally designed to meet or exceed Liveable Housing Australia Silver level certification.

Landcom aims to include sustainability initiatives in this BTR project in line with these objectives.

Different levels of inclusion have been scenario tested for this project and are shown in the following graph. The design must aim to include the highest possible level that the given budget allows for whilst maintaining the project objectives.



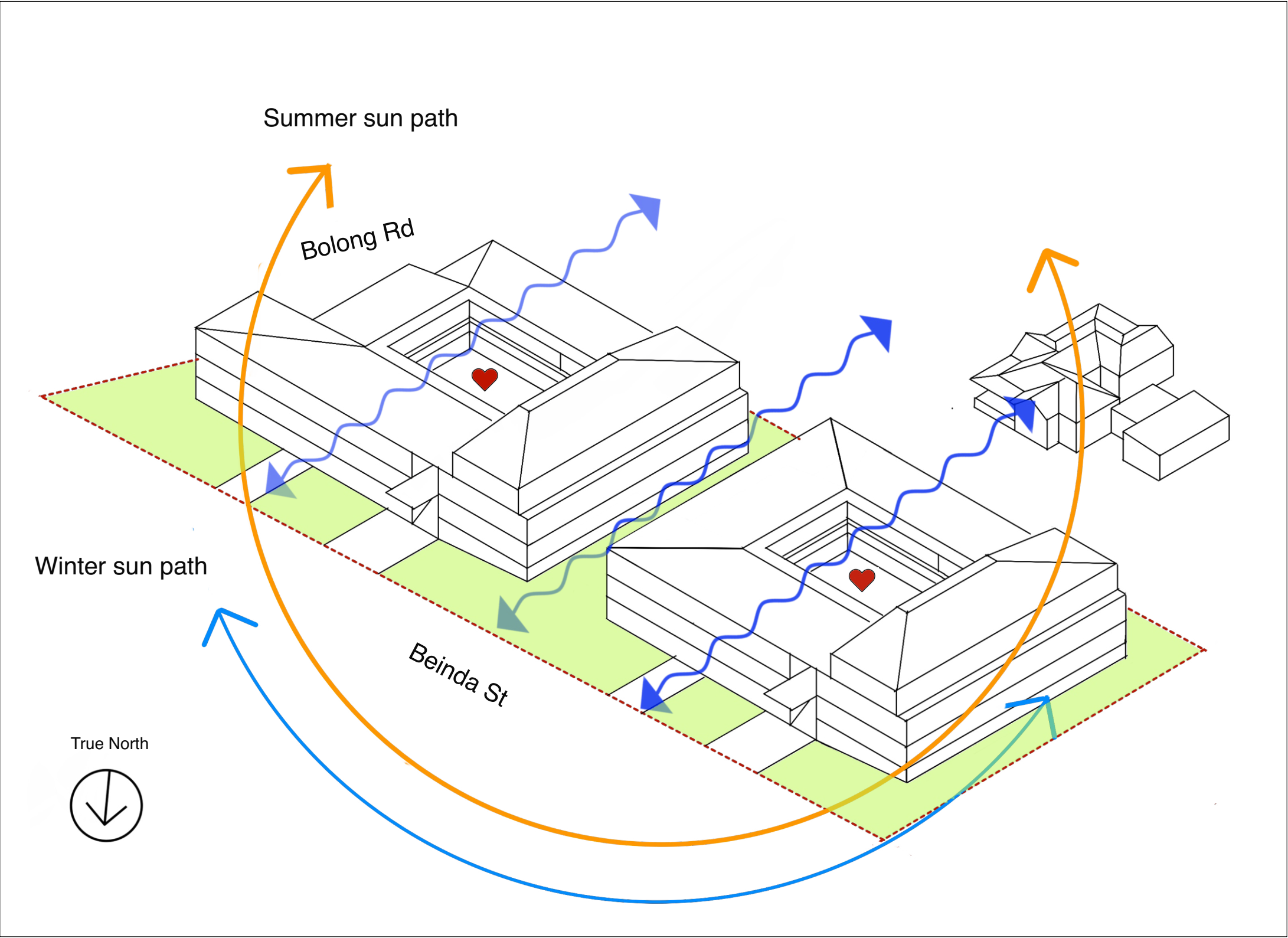
Sustainable design + resident amenity/well-being

Key design moves:

- + Provide high performing buildings based on simple, passive design strategies
- + Provide private central courtyards for planned and casual social interaction
- + Implement sustainability rating and certification schemes
- + Co-ordinate sustainable design with connecting with Country strategies
- + Provide dual aspect apartments with high levels of cross ventilation, solar access and daylighting to meet and exceed the ADG
- + Create naturally ventilated common circulation areas in the form of galleries and naturally ventilated stairs

Benefits and opportunities:

- + Satisfies and exceeds ADG objectives
- + Satisfies Sustainable Buildings SEPP requirements and Landcom sustainability requirements
- + Recognises relationship between sustainable design, passive design and designing for Country
- + Reduces energy consumption and carbon emissions by reducing reliance on air conditioning
- + Reduces utility bill costs for residents
- + Passive design provides respectful approach to designing with Country
- + Provides opportunities for social interaction and associated resident well-being



6.0 Key design moves

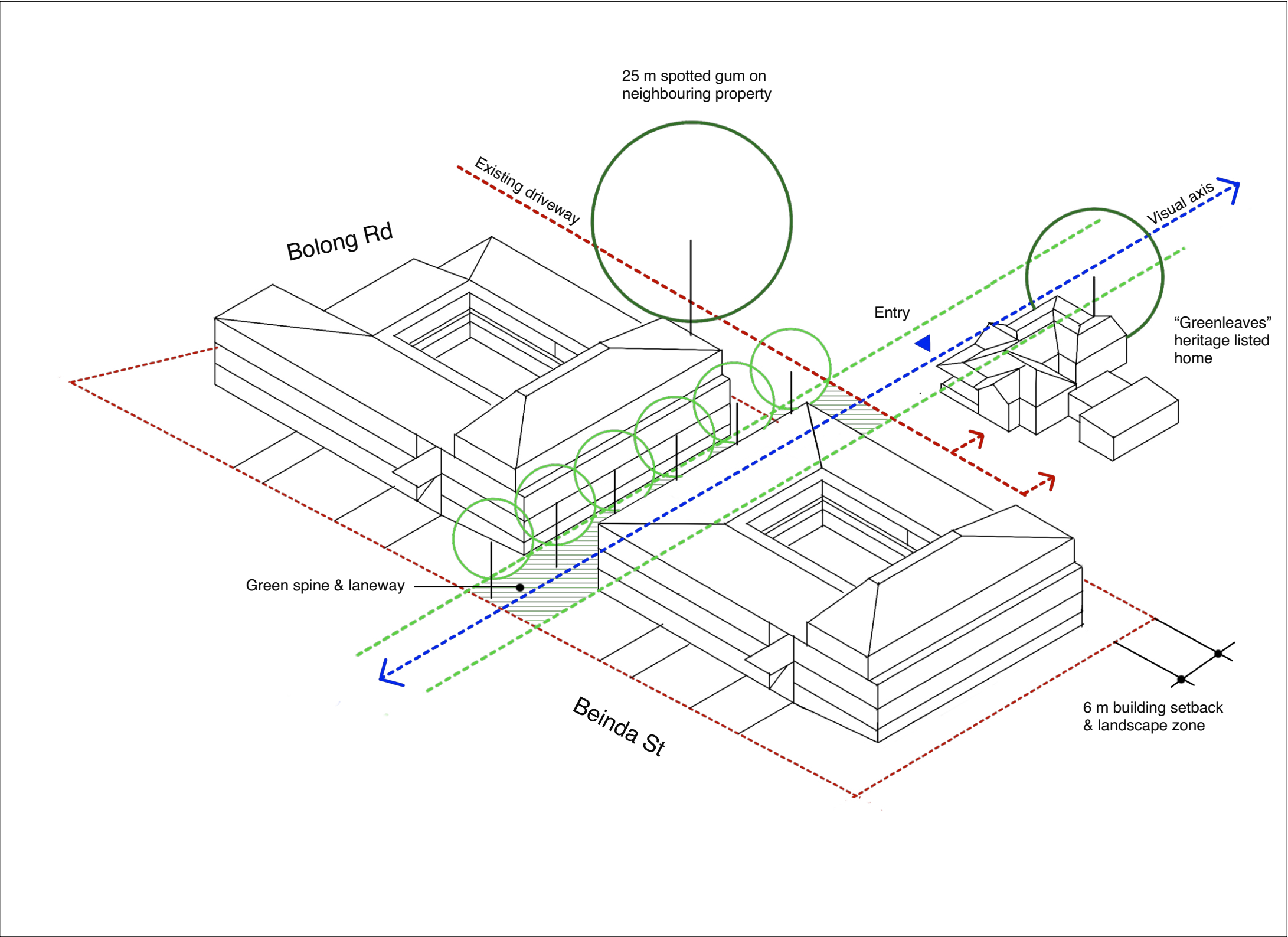
Heritage

Key design moves:

- + Provide green spine between proposed buildings as resident laneway and communal open space
- + Set back proposed buildings 6 m from southern boundary
- + Incorporates advice from heritage consultant including face brickwork to landscape elements

Benefits and opportunities:

- + Preserves existing through site vistas to "Greenleaves" lot
- + Preserves curtlage around "Greenleaves"
- + Increases percentage of site dedicated to landscape area, deep soil and communal open space
- + Provides service access to rear of site



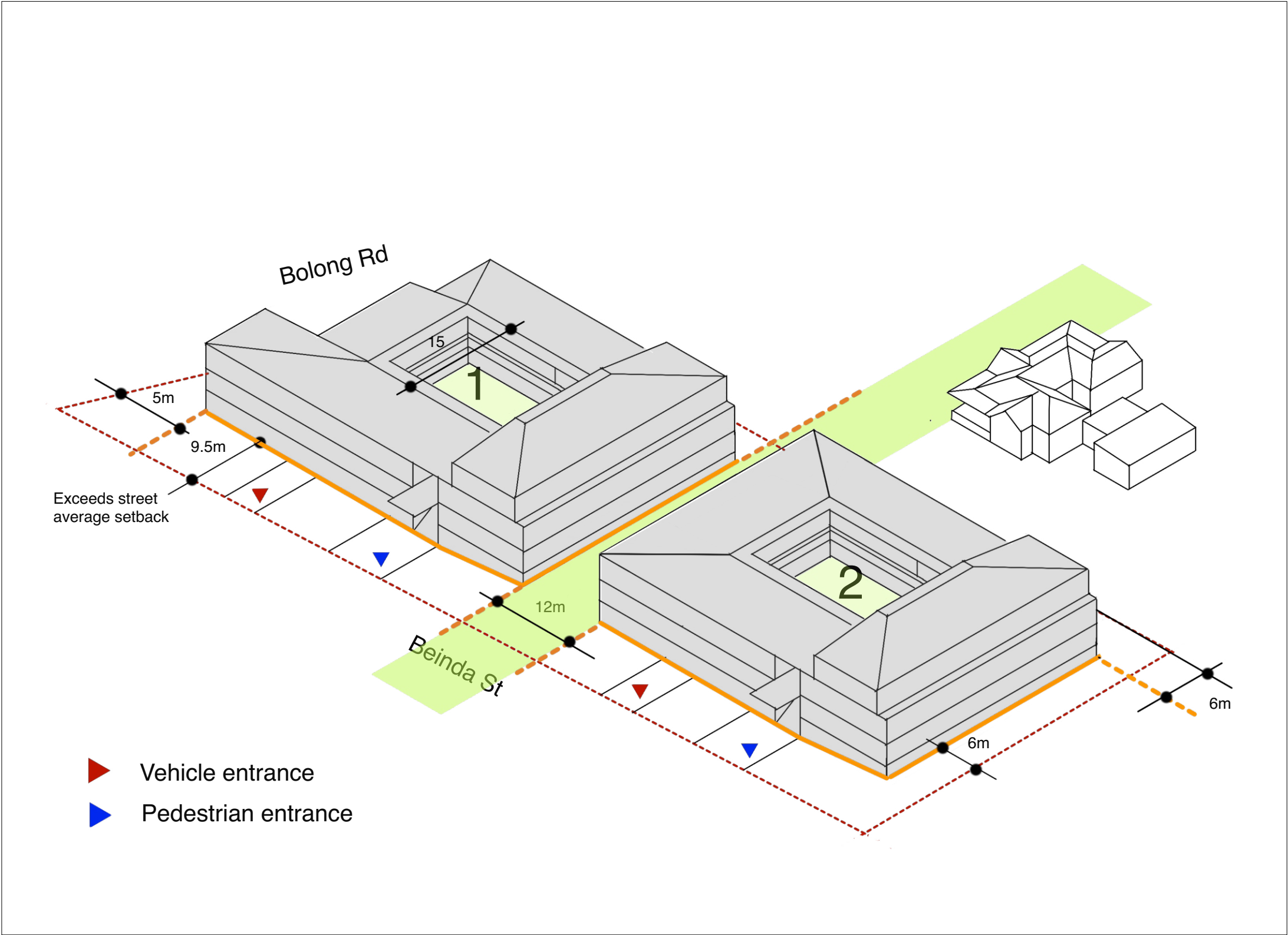
Built Form 1

Key design moves:

- + Form 2 individual buildings separated by a resident pedestrian laneway and communal green spine
- + Set back buildings 9.5m from Beinda St to preserve existing mature trees and maximise landscape amenity and streetscape for community
- + Set back buildings 6 m from neighbouring properties and provide recessed apartment balconies and screening

Benefits and opportunities:

- + Minimises building footprint and preserves through site views and access
- + Reduces building height by terracing the buildings down towards Bolong Rd to follow the topography
- + Provides appropriate scale and articulation to Beinda St and to southern boundary and heritage building "Green leaves"
- + Reduces effect of traffic and waste handling by seperating into 2 sites
- + Satisfies ADG building separation objectives
- + Promote visual privacy at boundaries
- + Maximises landscape area and deep soil
- + Reduces scale of development and promotes consistency with smaller building lots to north



Built Form 2

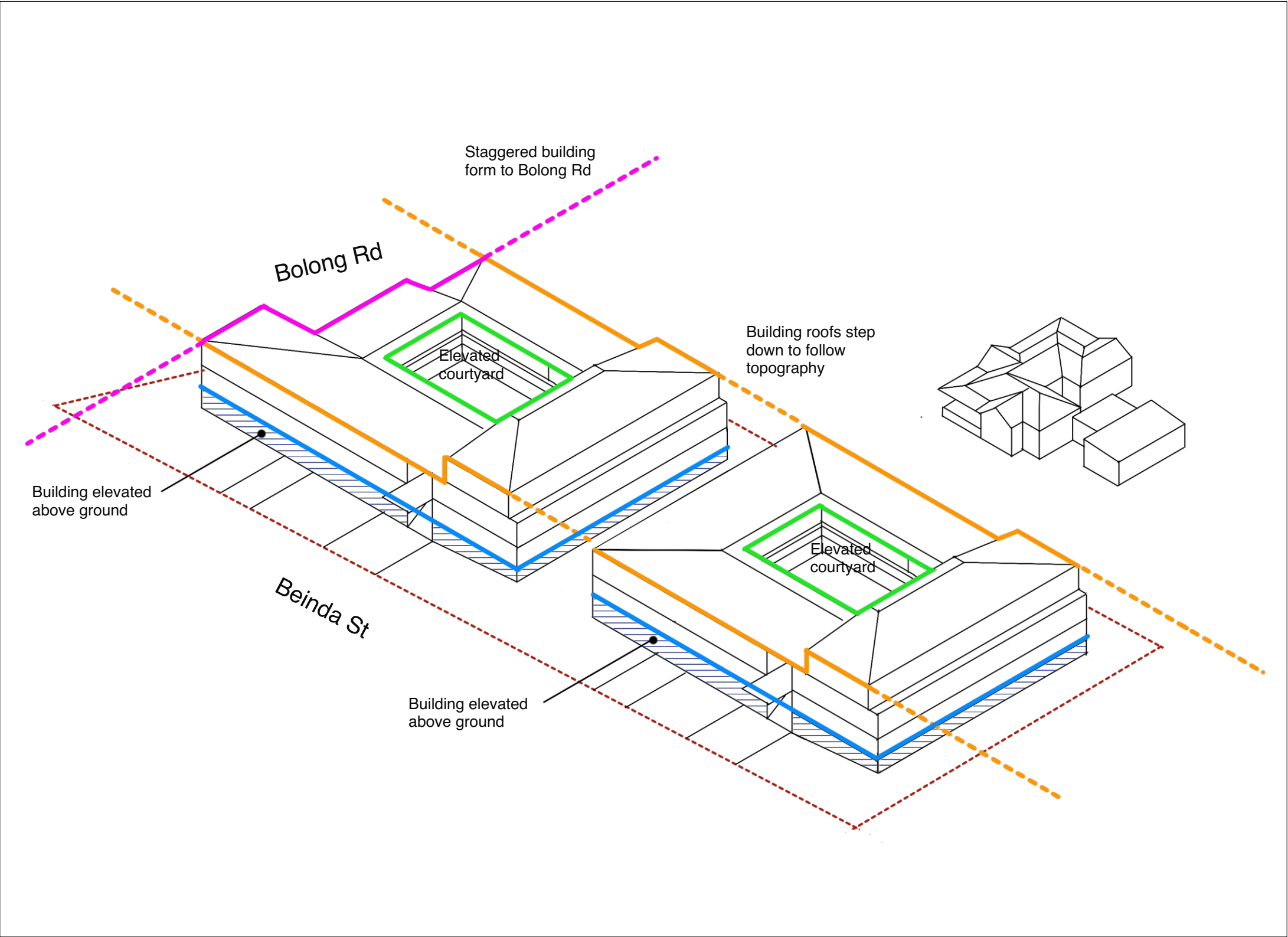
Key design moves:

- + Elevate buildings above ground to achieve ground level undercroft parking
- + Step buildings down to follow topography
- + Stagger building form to Bolong Rd
- + Provide central elevated courtyards

Benefits and opportunities:

- + Minimises building height
- + Provides varied articulated building form
- + Promotes South Coast character of elevated buildings
- + Mitigates flood management
- + Minimises rock excavation and related site impacts and costs
- + Avoids unattractive vehicle down ramps
- + Achieves naturally ventilated car parking
- + Enables cross ventilation of adjacent apartments

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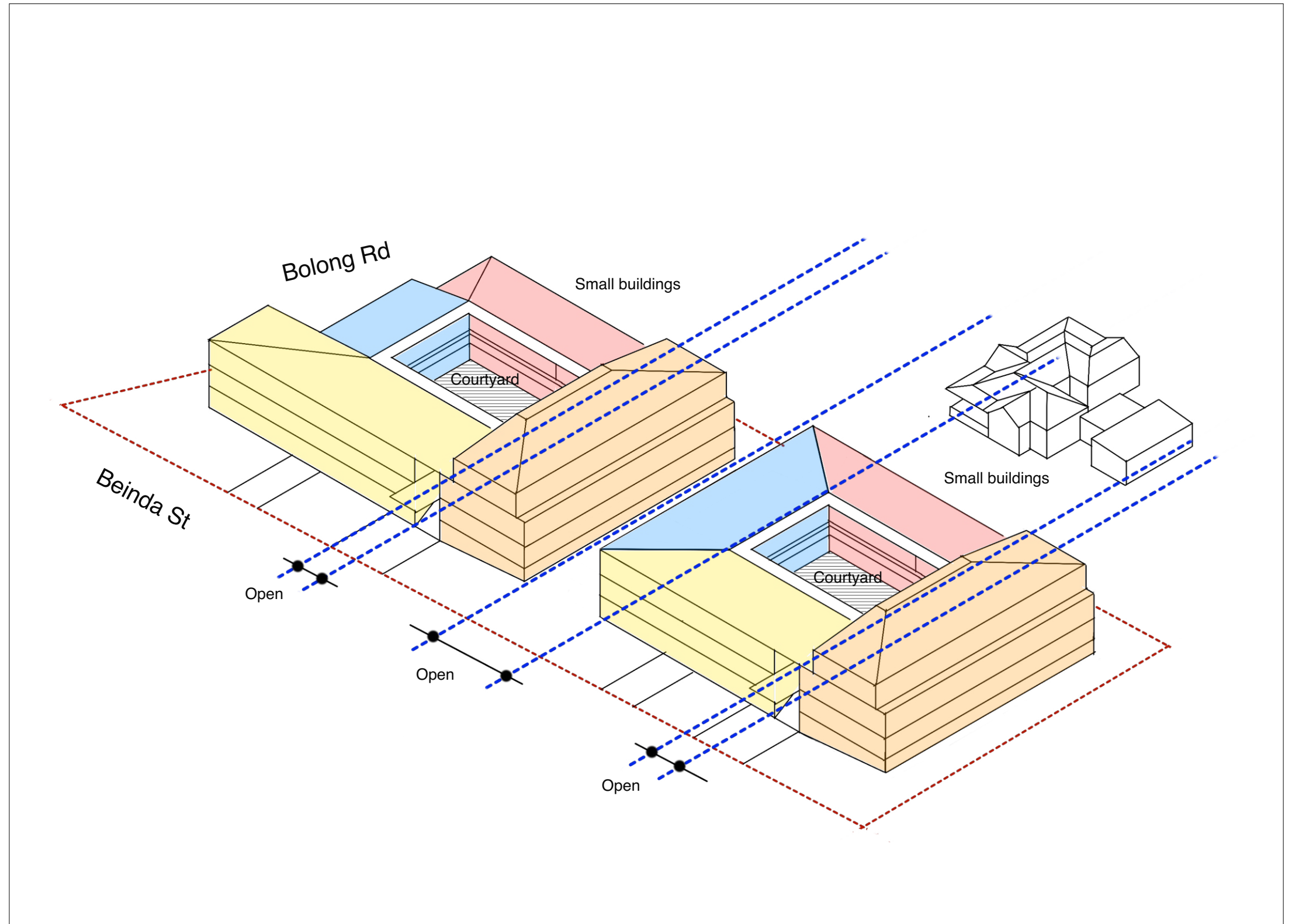
Built Form 3

Key design moves:

- + Provide a variety of small built forms collected around courtyards
- + Maintain some existing views through site

Benefits and opportunities:

- + Minimises building floor plate areas
- + Provides a variety of low and medium density building types and characters consistent with South Coast built form and scale
- + Maintains level of site permeability from street
- + Allows private communal open space
- + Promotes apartment natural ventilation
- + Provides secure outdoor space with high levels of visual surveillance



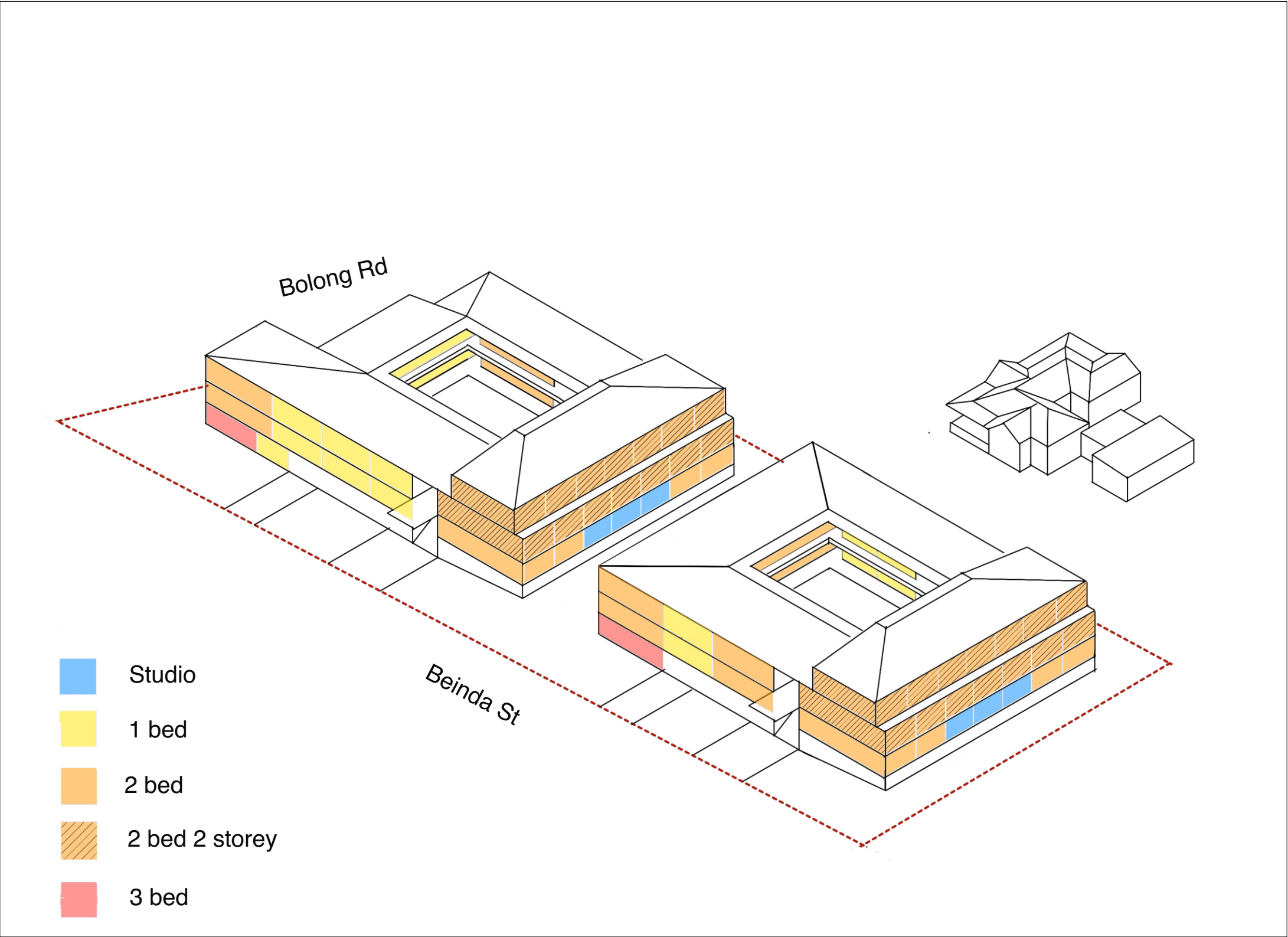
Dwelling Types

Key design moves:

- + Provide a mix of studio, 1 bed, 2 bed single-storey, 2 bed double-storey, and 3 bed apartments
- + Include ground level garden, courtyard level and upper level apartments

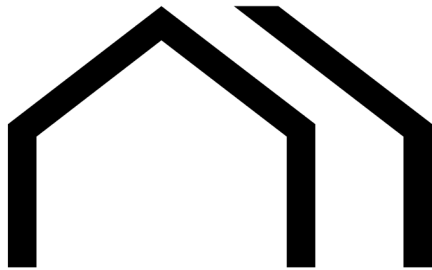
Benefits and opportunities:

- + Achieves rental accommodation for a variety of resident types
- + Addresses high level of single occupant households and popularity of 2 storey town-housing in local area
- + Satisfies Landcom's housing policy, including affordable housing and diversity targets
- + Caters to variety of residents, including families
- + Promotes use of outdoor landscape area
- + "Sleeves" ground level car parking benefiting streetscape design and street activation
- + Capitalises on views from site



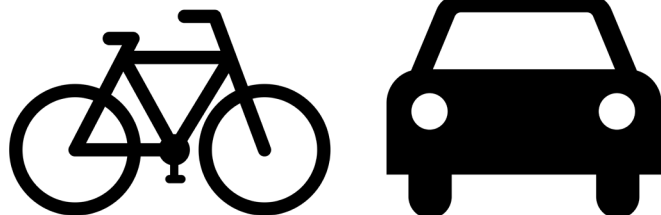
7.0 Project Targets and Compliance

Project Targets and Compliance



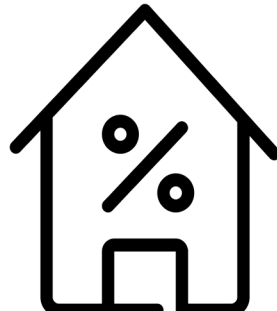
60

Dwelling Mix		
Dwelling Mix	Total	% Mix
Studio	8	13.3
1 Bed	17	28.3
2 Bed	19	31.7
2 Bed (2 storey)	14	23.4
3 Bed	2	3.3



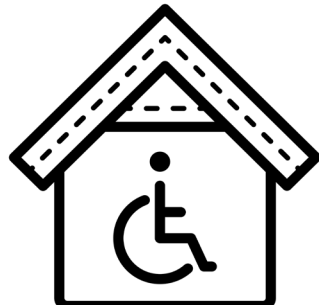
70

Parking	
Residential conventional	69
Residential tandem	1
Residential adaptable	3
Total car parking	70
Bicycle	46



20%

Regional Affordable Housing
Provide 20% affordable housing for key workers managed by on site provider
[Housing SEPP AH provisions]
[Project Brief +Landcom Housing Policy]



75%

Universal Housing
Provide min 30% universally designed accessible/adaptable housing to meet or exceed LHA Silver Certification
[Project Brief + Landcom Housing Policy]



15%

Diverse Housing
Provide 15% diverse housing types and sizes and flexible tenure within development
[Project Brief + Landcom Housing Policy]



100 %

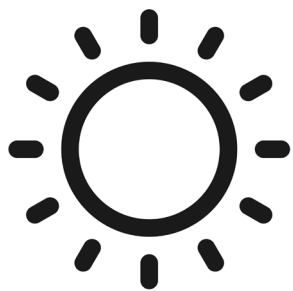
Rental Housing
Provide secure tenure rental housing managed by on site provider
Hold in single ownership as long-term revenue generating asset
[Project Brief + Housing SEPP BTR provisions]



55 m2
(subject to parking level layout)

Amenity/Unit
Target minimum 3m2 of shared resident amenities per unit including possible co-work, lounge and games room
[private BTR sector standard 3-9m2 per metropolitan unit in 2023]

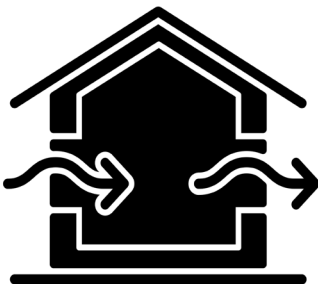
Project Targets and Compliance



73%

Solar access

Provide 70% of dwellings with 3 hours of solar access to living spaces/private open space in winter 9.00am - 3.00pm
[ADG Objective 4A.1 minimum 70%]



95%

Cross Ventilation

Provide 60% of dwellings with cross ventilation (corner or dual frontage) [ADG Objective 4B.3 minimum 60%]
Target natural ventilation to remaining 40% of dwellings to offset no a/c tbc including use of breezeways and skylights
[ADG Objective 4B.2 + Part 4F]



7% Approx

South Facing

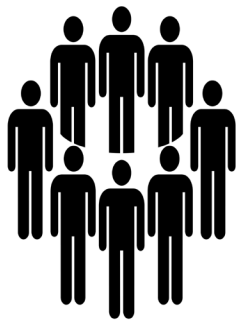
Provide less than 15% of dwellings with no direct sunlight in winter
[ADG Objective 4A.1 maximum 15%]



6 Star Nathers

Sustainability Compliance and Targets

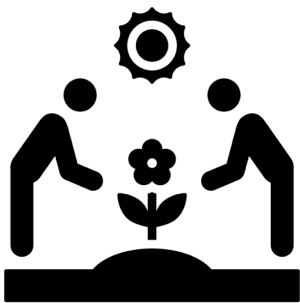
Target Landcom sustainability measures including energy reductions, on-site renewables, water savings and bio-diversity
[6 Star NABERS 4 Star Greenstar Sustainable Buildings SEPP]



62%

Public Domain Interface and Street Activation

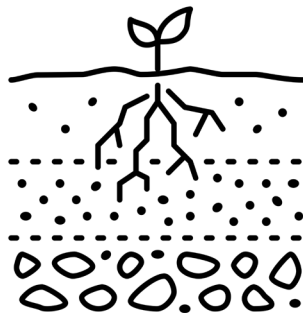
Maximise street activation to site perimeter including pedestrian entrances and stairs, laneways, communal open space, ground level apartments and balconies.
[ADG Objective 3C.1, 3C.2, 3G.1, 3G.2 and 3G.3]



85%

High retention value trees retained

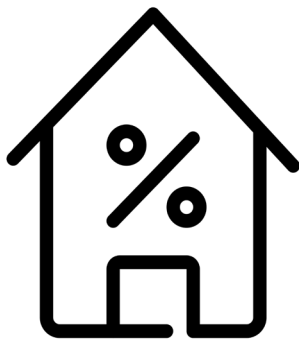
Retain high value trees and provide street setback zone for establishment of new trees and plant communities
[Project Brief/Arborist Plan]



30% +

Deep Soil

Maximise % of site area as deep soil zone with min 6m width to allow for healthy plant, tree growth, improve residential amenity and promote water and air quality
[ADG Objective 3E-1 minimum 7% of site area]



25%

Communal open space

Provide resident access to 25% of site as gardens, courtyards and open covered areas with min 50% direct sunlight in winter. Maximise quality and useability through providing varied landscape programme, privacy and safety.
[ADG Objective 3D.1 minimum 25% of site area]

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