

Liverpool Development Control Plan 2008

Part 2.11

Land Subdivision and Development in Edmondson Park

September 2024

Part 2.11 must be read in conjunction with Part 1

**LIVERPOOL
CITY
COUNCIL**



Liverpool Development Control Plan 2008

Part 2.11 Edmondson Park

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1. Preliminary

Applies to

1. Part 2.11 applies to the land, shown in Figure 1.
2. Part 1 also applies to the land shown in Figure 1.
3. Part 3.8 also applies for non-residential development on the land.
4. Parts 3.1 – 3.7 do not apply to the land.



Figure 1: Land to which this part applies

Background

1. Edmondson Park has been master planned to achieve current public policy objectives in terms of meeting the future housing needs for the changing community, reducing the environmental impact and enabling greater social interaction. The proposed development will be characterised by a greater mix of housing types, higher residential densities, vibrant communities, active streets and environmentally responsible development.
2. The vision of Edmondson Park is to create a primarily residential neighbourhood located and focused around neighbourhood centres or the Town Centre. The neighbourhood centres will provide a central node and will accommodate a mix of convenience retail, limited commercial uses and residential development. The Town Centre will be located centrally within the release area, supported by the Edmondson Park train station, part of the South West Rail Link. The Town Centre will provide a full range of retail, commercial and high density residential uses and development will be orientated around a main street. This vibrant development is to be set in a context of high value natural habitat, which is both a visual backdrop and a usable open space amenity to the residents.
3. A primary precursor to success of the development, as an attractive and vibrant place to live, will be the controls of the built form and the consideration given to safety and security, the quality of the public open space and the provision of public transport services, both bus and rail.
4. The need to respond to the potential for integrated uses, higher residential densities and higher public transport use at this location and at this time is a critical responsibility when considered in the context of:
 - Limited land resources;
 - Minimisation of the development footprint; and
 - The environmental damage caused to water systems, ecological communities and decreasing air quality by current suburban development.
5. The specific qualities of Edmondson Park provide the opportunity to create an environment that addresses future community needs while being sustainable and urban.

Objectives

- a) To facilitate urban design that responds to the physical, cultural and urban heritage of the area;
- b) To facilitate urban development that meets environmental sustainability objectives;
- c) To ensure all development achieves a high standard of urban and architectural design quality;
- d) To ensure housing density targets are met through the provision of a range of housing types that offer greater diversity and affordability;
- e) To create walkable neighbourhoods, with good access to public transport;
- f) To ensure vehicular, pedestrian and cycle ways link efficiently within and between all land uses;
- g) To accommodate access for all people throughout Edmondson Park;
- h) To maximise opportunities for local employment and business in appropriate locations;
- i) To create a compact, vibrant and successful town and village centres;
- j) To provide cultural, recreational and social infrastructure that is flexible, adaptable and accessible;
- k) To protect and enhance riparian corridors, significant trees and vegetation;

- l) To ensure the timely delivery of critical infrastructure and efficient use of land and existing infrastructure;
- m) To deliver quality places of learning to service the future educational demands of the precinct; and
- n) To provide opportunities to reduce water consumption and manage stormwater runoff.

1.1 Indicative Layout

The Indicative Layout Plan (ILP) at Figure 2 illustrates the broad level development outcomes for Edmondson Park. It outlines the development footprint, land uses, density ranges, open space and riparian corridors, heritage areas, major transport linkages and location of community facilities and schools.

Objectives

- a) To ensure that development of the precinct is undertaken in a co-ordinated manner consistent with the South West Structure Plan and the DCP.

Controls

1. All development is to be undertaken generally in accordance with the Indicative Layout Plan at Figure 2 subject to compliance with the objectives and development controls set out in this Part;
2. Where variation from the ILP is proposed, the applicant is to demonstrate that the proposed development is consistent with the Vision and Development Objectives for the precinct set out within this Part.

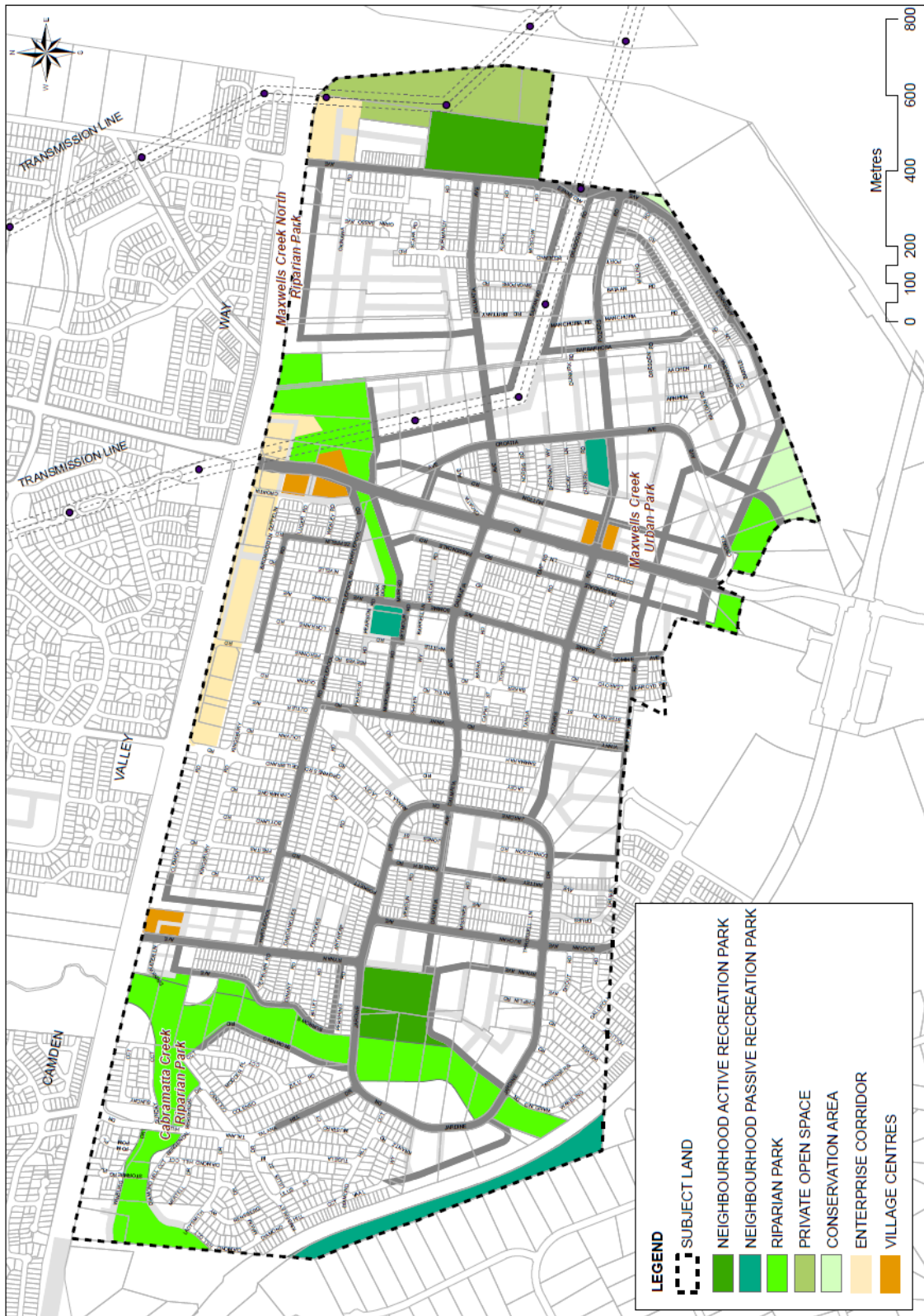


Figure 2: Indicative Edmondson Park Layout Plan

1.2 Development within Sub Precincts

Sub-Precincts are defined by the main fixed streets as show in Figure 3. While the boundary streets to the sub-precincts are fixed, there is flexibility to make layout

changes to the internal streets except those identified as 'Fixed Roads' in Figure 7, subject to meeting the Objectives and Controls below.

Objectives

- a) To allow departure from the Indicative Layout Plan should a demonstrated development and community benefit be achieved; and
- b) To ensure that access, drainage and servicing is appropriately provided

Controls

An applicant may depart from the subdivision layout within a sub-precinct provided that it is demonstrated that:

- 1. The block layout and subdivision objectives and controls outlined in Figure 3 are met.
- 2. The level of access to fixed roads is retained.
- 3. The provision of drainage and service infrastructure is retained.
- 4. There is no adverse impact on adjoining sub-precincts.

Figure 3 also shows an indicative staging of development based on the location of existing infrastructure. Development can proceed outside of this indicative staging should access to services, drainage & roads be resolved to the satisfaction of Council.

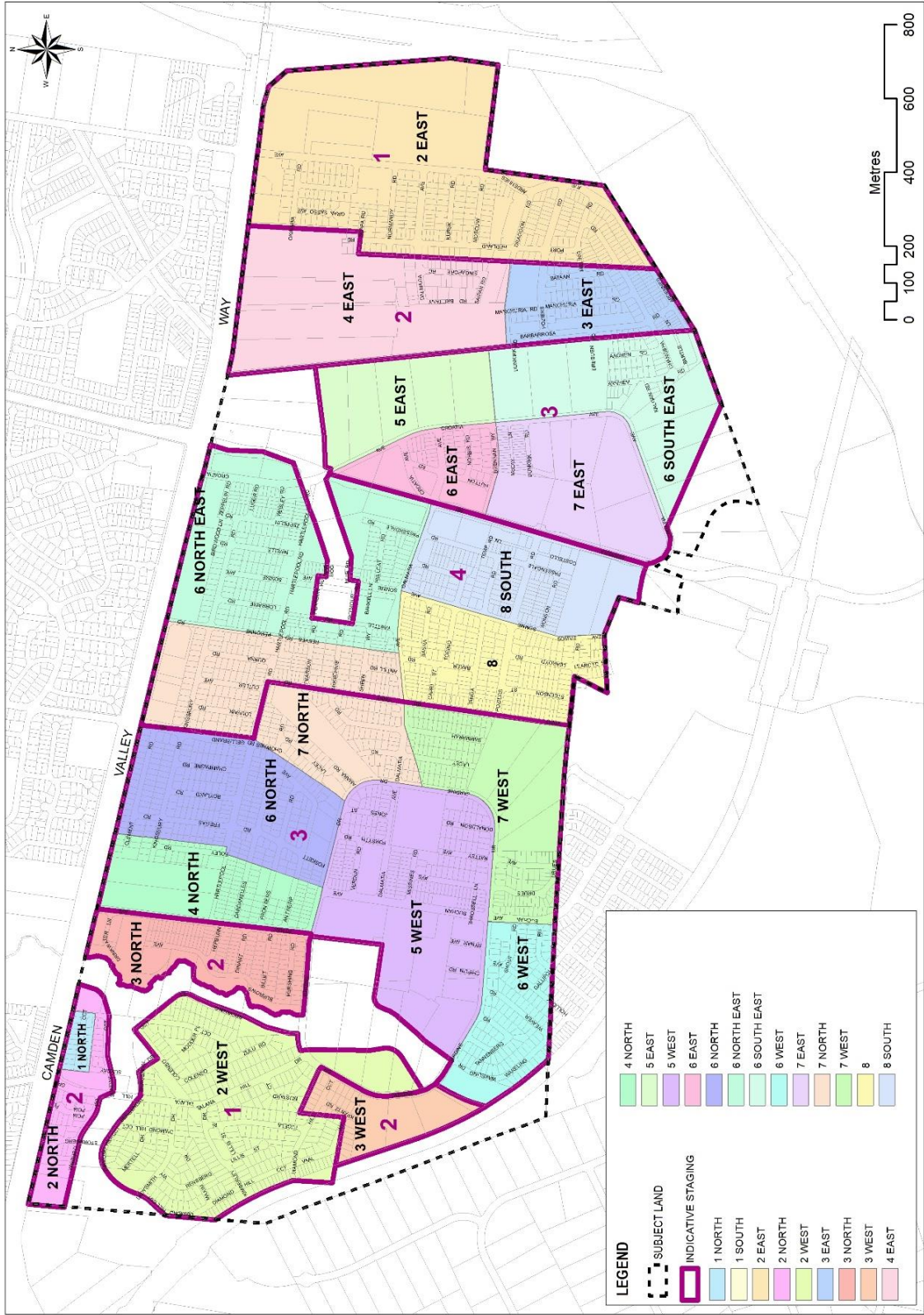


Figure 3: Sub-precincts

1.3 Hierarchy of Centres

Objectives

- a) To ensure an appropriate supply, distribution, and mix of retail, commercial and employment floor space across the precinct.
- b) To ensure that the retail floor space within Edmondson Park does not undermine the potential of existing and proposed centres within the region.
- c) To create a compact, vibrant and successful town centre and village centres.
- d) To encourage the early investment and delivery of employment generating development and retail uses to serve the population.

Controls

Development is to be consistent with the characteristics detailed as follows.

Edmondson Park Town Centre

1. Development in the Edmondson Park Town Centre is facilitated by the SEPP (State Significant Precincts) 2005 and is not subject to this Part.

Village Centres

1. Village Centres (up to 1000sqm of retail space) are not intended to act competitively with the proposed Edmondson Park Precinct town centre. Rather they provide a convenient alternative for residents who would otherwise have to invest more time and money to visit a larger centre.
2. The following criteria have been used to determine the location of the village centres:
 - 750 - 1,000 housing lots within a 500m catchment of the village centre.
 - The proximity of key destinations such as parks, water bodies and schools.
3. It is envisaged that Edmondson Park will have 3 mixed-use village centres that respond to various qualities of the site, such as environmental amenities or access routes. The character envisaged for the village centres are described in Section 6.

1.4 Character Area Statements

As the Edmondson Park Release Area will create a new town centre with large areas of surrounding residential neighbourhoods and village centres. It is important that there is variety, diversity and choice in living, working and recreational environments. There is more to development than land use and density. It is important that the built form, layout, style and public domain reinforce the desired character for each area, and gives an identity and sense of place to different areas within Edmondson Park. The character areas are:

- The Town Centre,
- Village Centres,
- Enterprise Corridor,
- Urban,
- Urban Transition,
- Suburban, and
- Residential Large Lot.

The character areas are loosely tied to the minimum dwelling density maps (LLEP 2008), refer to Figure 5 for the locations of Character Areas.

Town Centre

1. The Edmondson Park Town Centre is situated on land in Edmondson Park South and is not subject to this Part. For development controls relating to the Edmondson Park Town Centre refer to the Edmondson Park South DCP 2012.

Village Centres (Zone R3)

1. The Village Centres will form a **node** within a walkable and cycling catchment of the majority of new and existing residents. The centres will provide for daily conveniences within a pedestrian friendly setting and have a maximum of 1,000sqm of retail space. The centres are located at the confluence of community facilities to enhance the village experience and life of the centre. The Village Centre will contain small businesses at ground level that encourage a mix of small scale convenience retail uses with shop-top housing above. Medium density attached housing and apartments surrounding the village centres will reinforce the urban character.
2. The **urban form** of the villages will be compact with narrow shopfronts. Architecturally, the buildings will be urban in character reflecting the character of traditional village centres. Convenience retail uses are to front directly onto the footpath. It is envisaged that there will be a number of small shops of less than 80sqm gross floor area each. Total retail/commercial gross floor space will be 1,000sqm max. per village centre.
3. The Rynan Avenue village centre is characterised by 2 - 3 storey attached buildings. The village centre at the intersection of Camden Valley Way and the Bus Priority Corridor (Bernera Road) is characterised by 3 - 4 storey attached buildings, while the village centre at the intersection of the Bus Priority Corridor and Poziers Road is characterised by 4 - 6 storey attached buildings with a large component of shop-top housing.
4. The **public domain** of the centres is to be characterised by formal and well framed streetscapes containing formally and regularly spaced, 6 – 8m apart, large deciduous trees in hard verges and tree wells, street furniture and wide paved footpaths capable of holding outdoor café seating. Ease of pedestrian and cyclist movement and access is to be prioritised over vehicle movement, and the streetscape is to be designed to incorporate subtle urban design led traffic calming elements.



Figure 4: Artistic view of Village Centre – Neighbourhood park and community facilities

E3 – Productivity Support Zone (Area A only)

1. The Enterprise Corridor character area is located at the northern end of the locality along Camden Valley Way and at the northern end of Ardennes Avenue. It will service passing trade travelling along Camden Valley Way. A service road will run

parallel to Camden Valley Way with 45 degree parking to provide access to all properties and businesses fronting Camden Valley Way. Rear lane access is to be provided to service these businesses. The area is characterised by up to 2 storey retail and commercial premises built to the street alignment. To maximise active frontages and to minimise the scale of individual buildings, each retail unit will have a maximum street frontage of 30m and a maximum gross floor area of 1,000 sqm.

Urban (Zone R1, 28dw/Ha)

1. The Urban Character Area is a **dense, urban, but predominately residential** zone that provides a transition between the Town Centre and the medium to lower density residential areas. The character area helps define the main avenue, the Bus Priority Corridor, that leads into the Town Centre and helps frame the Urban Parkland and Maxwell's Creek Urban Park.
2. Housing types that reinforce the urban character and need for well-located higher densities predominate including apartment buildings and small lot/attached housing. A minimum net residential density of **28 dwellings per hectare is required**. Building setbacks are relatively shallow, and there is a close interaction of buildings to the surrounding streets.
3. Taller buildings are encouraged to frame the Bus Priority Corridor and the Maxwells Creek Urban Park. Buildings are predominantly between 3 - 6 storeys and massed towards the public realm.
4. The **public streetscape** is formal in arrangement consisting of wide footpaths, large deciduous trees spaced evenly every 8m max., placed in a hard landscaped verge and forming a large street canopy. To minimise the visual and physical impact of vehicle access to properties on the public streetscape, including footpath crossovers and garages, vehicle access and servicing is via side/secondary streets or rear lanes.

Urban Transition (Zone R1, 17 & 21dw/Ha)

1. The Urban Transition Character Area is a predominantly **residential zone** that provides a transition between the more urban higher density and the more suburban lower density character areas. Urban Transition reinforces the legibility and structure of Edmondson Park through the framing of the secondary routes, village centres and parkland.
2. It comprises a range of housing to cater for varying household needs including low rise apartments, attached, semi-detached and detached housing. A minimum net residential density of **17 or 21 dwellings per hectare** is required. Lots for detached residential dwellings are typically between 250 and 400sqm.
3. Buildings are predominantly 2 storeys, with potential for 3 storeys along parks, adjacent to 'Urban' Character Area, and to reinforce corners. Buildings will contain medium setbacks and good landscaping.
4. The **public streetscape** is formal in arrangement and transitional in character, containing large trees in soft verges spaced 8m apart.

Suburban (Zone R1, 14dw/Ha)

1. This predominantly **low density residential** area is characterised by 1 - 2 storey detached and semi-detached homes in a rich landscaped setting. A minimum net residential density of **14 dwellings per hectare** is required. Housing typically features verandahs fronting onto the street, overhanging eaves. Lots are typically between 400 and 700sqm.
2. The public and private domain features informal native and non-native planting that requires little watering, and attracts native flora and fauna. Verges in the public streetscape are soft landscaped, containing low level ground cover and multiple tree species spaced 8 – 12m apart.

Residential Large Lot

1. Residential Large Lot zoned land is situated on land in Edmondson Park South and is not subject to this Part. For development controls relating to the Residential Large Lot zoned land refer to the Edmondson Park South DCP 2012.

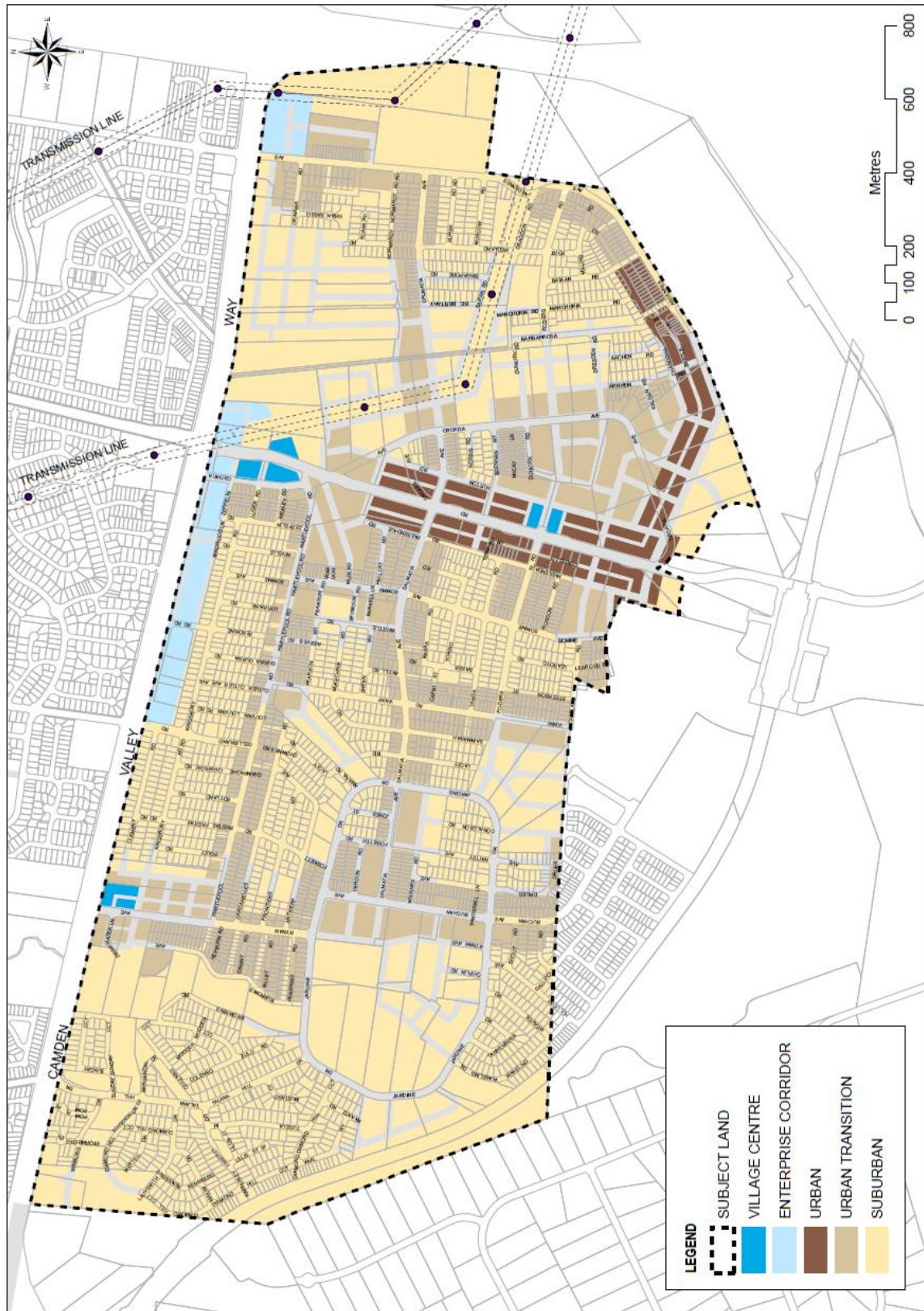


Figure 5: Locations of Character Areas

1.5 Public Transport

The construction of the train station and the bus priority corridor will provide an opportunity to integrate public transport with residential areas and the town centre in order to promote public transport usage.

Placing bus stops and providing a frequent bus service where there is a concentration of retail, commercial activity, medium density residential development, schools and community centres will encourage people to use the public transport system.

Increased availability of public transport reduces car dependency. A convenient and safe pedestrian network and the provision of attractive facilities are central to encouraging public transport use.

Objectives

- a) To provide and promote public transport that is accessible to all residents and village or town centre users and visitors.
- b) To locate public transport stops close to retail, offices, community facilities, schools, community facilities and areas of medium density residential development.
- c) To ensure clear, safe pedestrian links to all public transport stops.

Controls

1. Optimal distances between bus stops outside the town centre will be determined in consultation with the relevant bus service provider (stops in the order of every 400m).
2. Ensure bus stops and mixed use activities are co-located to provide security and activity.
3. Provide two local feeder bus routes through the release area as indicated in Figure 6. The location of feeder bus stops will serve people's travel patterns and be located in consultation with the bus service provider.
4. Public transport is to be easily accessible and located close to focal points (i.e. parks, schools, village centres etc).
5. Bus shelters are to be located at every bus stop (except within the village centres where bus stops are incorporated into the built form of the buildings, by elements such as covered walkways and awnings).
6. All roads that are bus routes are to have a minimum carriageway width of 7m.

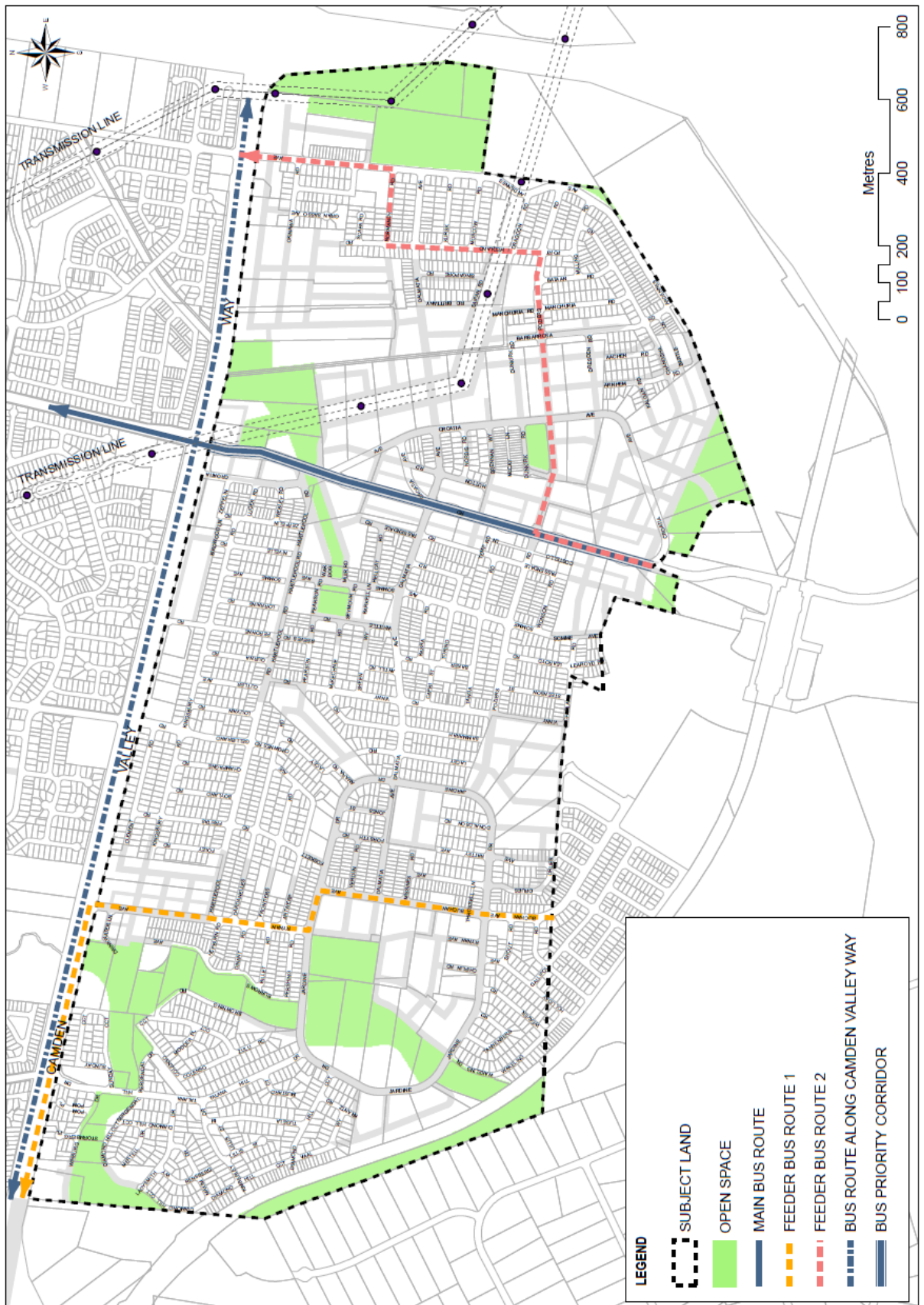


Figure 6: Possible Public Transport Routes

2. Controls for the Public Domain

The controls in this part relate to the subdivision of land. Controls on land within allotments created in this locality are located in Section 3 and 4 of this chapter.

The public domain is the part of the release area which is not privately owned and which is accessible to the public.

The design, management and safety of elements within the public domain such as public streets, parks and spaces, paving, street furniture, street trees, and gardens should be coordinated so that the character and image of the location is enhanced.

2.1 Street Network and Access

Objectives

- a) To provide an attractive residential street environment.
- b) To provide for the safe and efficient circulation of traffic.
- c) To provide for the safe and efficient movement of pedestrians with particular regard to the provision of clear and safe access routes for people who have a disability.
- d) To provide for efficient movement of local bus services and direct pedestrian access for all members of the community including those with disabilities.
- e) To provide regional district and local transport access with clear vehicular, pedestrian and cycle connections to the surrounding areas.
- f) To integrate the development with bus priority corridor and the South-West Rail Link.
- g) To ensure safe efficient and direct access to retail and commercial areas.
- h) To improve air quality by reducing local vehicular trips.

Controls

Regional Network Connections

1. Left and right in-out turns to and from Edmondson Park will be provided at the signalised intersections shown in Figure 7.
2. In addition to these intersections, a left in-out turn is permitted from Edmondson Park onto Camden Valley Way as indicated in Figure 7.

Local Street Network

1. With applicable Development Applications, a subdivision plan is to be submitted highlighting the street network. All plans must indicate street types and intersection treatments.
2. Council may require additional traffic calming measures to be incorporated into four-way intersections where traffic volumes necessitate controls in addition to signage. Measures may include roundabouts, carriageway narrowing or realignment, pedestrian islands or raised platforms. In circumstances where traffic volumes require traffic calming measures in excess to that provided in the section 94 plan, these are to be provided by the developer.
3. Subdivision plans are required to comply with the fixed roads identified in Figure 7.
4. The proposed local street networks detailed within Figure 8 are to provide a clear hierarchy for roads in the form of a modified grid road pattern.
5. Retain and incorporate existing streets into the road network where possible and practical.
6. Provide a grid-like street network pattern to facilitate walking and cycling and enable direct local vehicle trips within the neighbourhood. Cul-de-sacs will not be supported other than where alternative street patterns are not achievable.

7. Design safe pedestrian crossing points to the satisfaction of Council.
8. All intersections are to be designed in accordance with the RMS Austrroads standards.
9. Street sections are to comply with Chapters 2.2 and 2.3 of this Part.
10. Streets planned to accommodate bus routes are to have a minimum carriageway width of 7m.

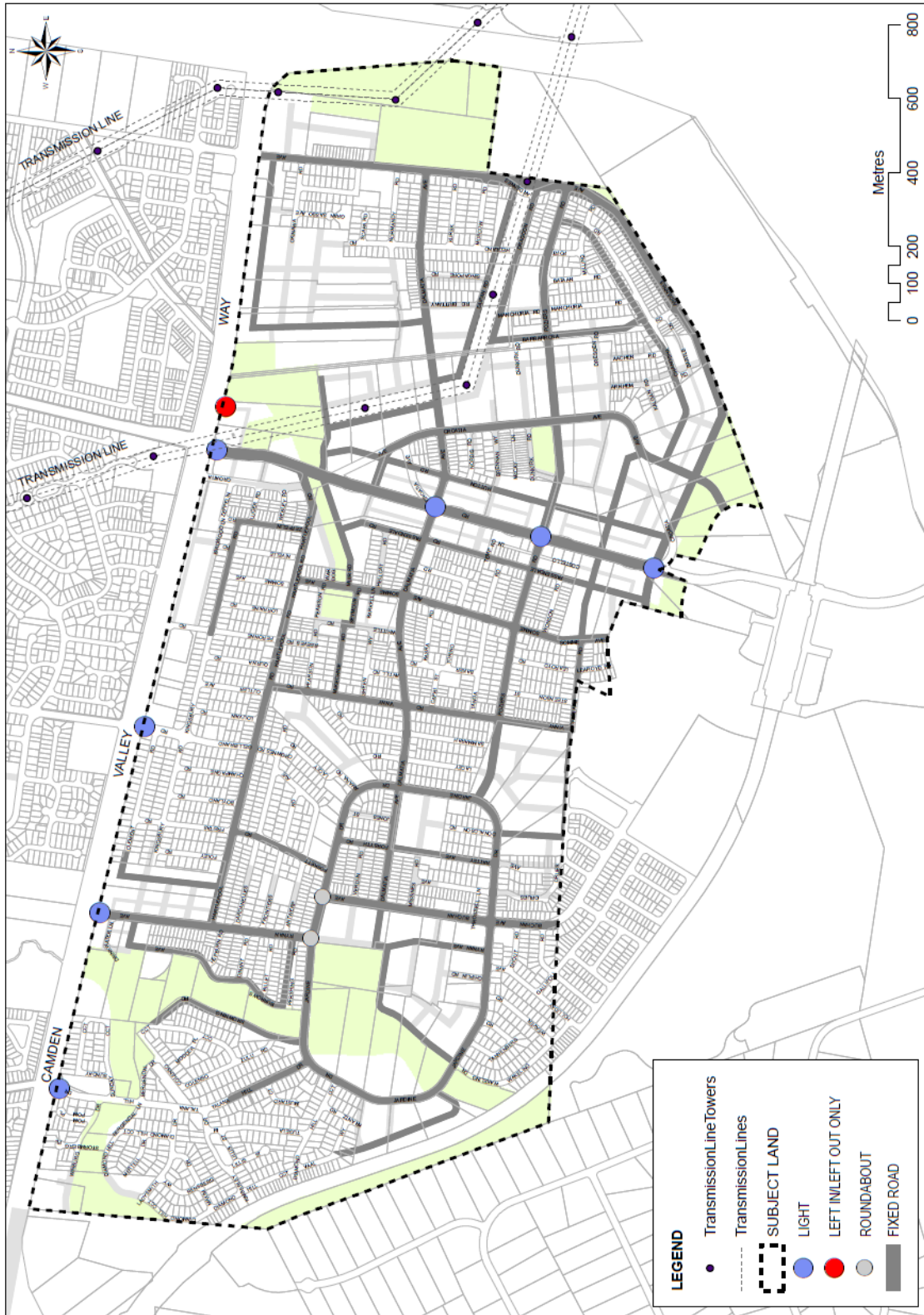


Figure 7: Fixed Roads

Street Types

Background

The proposed development comprises a network and hierarchy of streets that link the site with the surrounding urban fabric.

The location of the train line and the bus priority corridor connection to the Liverpool - Parramatta Bus Transit Way provides a good opportunity to increase the accessibility of the site through the public transport system.

A pedestrian and cycle network linking residential areas, villages and the town centre provides the opportunity to discourage the use of private vehicles and promotes exercise and enjoyment of the environment.

Objectives

- a) To encourage a low-speed traffic environment.
- b) To develop a comprehensive street network that links the site to the surrounding residential, commercial and employment areas.
- c) To provide a comprehensive pedestrian and cycle network linking residential areas with parks, recreation areas, and town and village centres.
- d) To create a high quality safe environment for walking and cycling.
- e) To provide dignified and equitable disabled access to public places, streets, public / commercial buildings and residential areas.
- f) To enhance the existing landscape character of Campbelltown Road.
- g) To improve the landscape character of Camden Valley Way.
- h) To provide highly accessible neighbourhoods with clear linkages to employment, retail and recreation areas both within and external to the suburb.
- i) To provide access to bus and rail services from commercial, residential and neighbouring areas.

Controls

1. Two main streets are to link the town centre with Camden Valley Way.
2. The extension of Bernera Road generally along a realigned Croatia Avenue will provide the main road based public transport access. This road will have a bus priority corridor linking with the train station at an interchange in the south and the Liverpool – Parramatta Bus Transitway in the north; and
3. Buchan Avenue, a diagonal north-west spine road linking the western part of the site to the town centre.
4. Edmondson Park must provide:
 - A secondary system of north-south streets, linking Camden Valley Way with the villages and the town centre,
 - A secondary system of east-west streets, and
 - A former asset protection road following the northern boundary of the conservation area. Refer to Figure 8.
5. Curved roads are to be provided along the Maxwell's Creek Riparian Park.
6. All central road medians are to be low maintenance.
7. The street network is to retain a predominantly grid-like form, facilitating walking and cycling and enabling direct local vehicle trips within the neighbourhood.
8. All streets are to be legibly signposted with streets names and property numbers.
9. All intersections are to be designed in accordance with the RMS Austroads Road Design Guide.
10. There is to be no vehicular access to properties directly from Camden Valley Way or Campbelltown Road. Access to these lots will be from a service road or alternative road.
11. Footpaths are to be provided on both sides of all streets.

12. All Development Applications for subdivision are to detail the proposed kerb type.
13. Barrier kerbs are to be used:
 - On all streets within the E3 – Productivity Support Zone (Area A only) or R3 Medium Density Residential.
 - Along The Bus Propriety Corridor, Rynan Avenue, and the Park Avenues.
 - In all areas with a density of 28 dw / ha.
 - On any street frontage to open space.
 - On any street that is a bus route.
 - Along and adjacent to schools and community facilities.
 - At all intersections (between the potential driveway location on one frontage to the potential driveway location on the alternative street frontage). Driveways are not to be located within 6m of the tangent point of any intersection.
 - Barrier kerb shall be installed for the entire length of bus zones and for 10m on the approach of the bus stop.
14. Roll kerbs may be used in other locations to the above.

Street Hierarchy

The following types of streets are provided in Edmondson Park.

Camden Valley Way

Access to businesses along Camden Valley Way on the Edmondson Park side is via a service road located parallel to Camden Valley Way within the development area. Refer to Figure 10.

Bus Priority Corridor (Bernera Road)

This road provides the main public transport access through Edmondson Park to the train station. The road will follow Bernera Road (formally known as Croatia Avenue) into the town centre. The width of this corridor gives definition to the high density larger scale development (potentially 3 to 6 storey buildings) located on both sides of the corridor. The Bus Priority Corridor has a 3m median strip allowing for tree planting and a dedicated bus lane at the intersections with Camden Valley Way and Campbelltown Road. Access to properties along the corridor should be primarily from side streets or rear laneways. Refer to Figure 11.

Buchan Avenue/Rynan Avenue

This is a main neighbourhood street that links the north-western access of Edmondson Park to the town centre. Medium density developments are encouraged along this street. Refer to Figure 12.

Collector Streets

These streets connect the outlying localities to the town centre. These streets will have a 19 / 20m wide road reserve. Some Collector Streets may have a 7m wide travel-way for buses with restricted parking and narrow verges. Refer to Figure 13.

Park Streets

This network of streets allows for pedestrian links to neighbourhood parks, schools, riparian and conservation areas. These streets have an off-road cycleway located at the edge of the verge. Refer to Figure 14.

Local Streets

These streets are designed for slow residential traffic. The road reserve is 15.2m wide. Refer to Figure 15.

Former Asset Protection Road

This road is situated between the proposed urban areas and adjoining conservation areas that may be prone to bush fires. Pedestrian and cycle paths will encourage

recreational use in what will be a scenic environment. The Former Asset protection roads will have a road reserve of 20.5m, 11.2m of which is taken by the carriageway. Refer to Figure 17.

Residential Laneways

Lanes assist in providing service vehicle access in residential areas. These are two-way carriageways 5.5m wide, with a 0.3m verge on one side and 1.2 m verge on the other side (to support street-lighting and services) with setbacks to rear garages. Small splays will be needed to cater for vehicle manoeuvring needs. Refer to Figure 16.

Pedestrian Access Way

All pedestrian access ways are to be designed in accordance with the 10m wide access way detailed in Figure 18. Any other through site links, pedestrian access paths or overland flow paths that continue the desire line of a road corridor are to be the same width of that corridor.

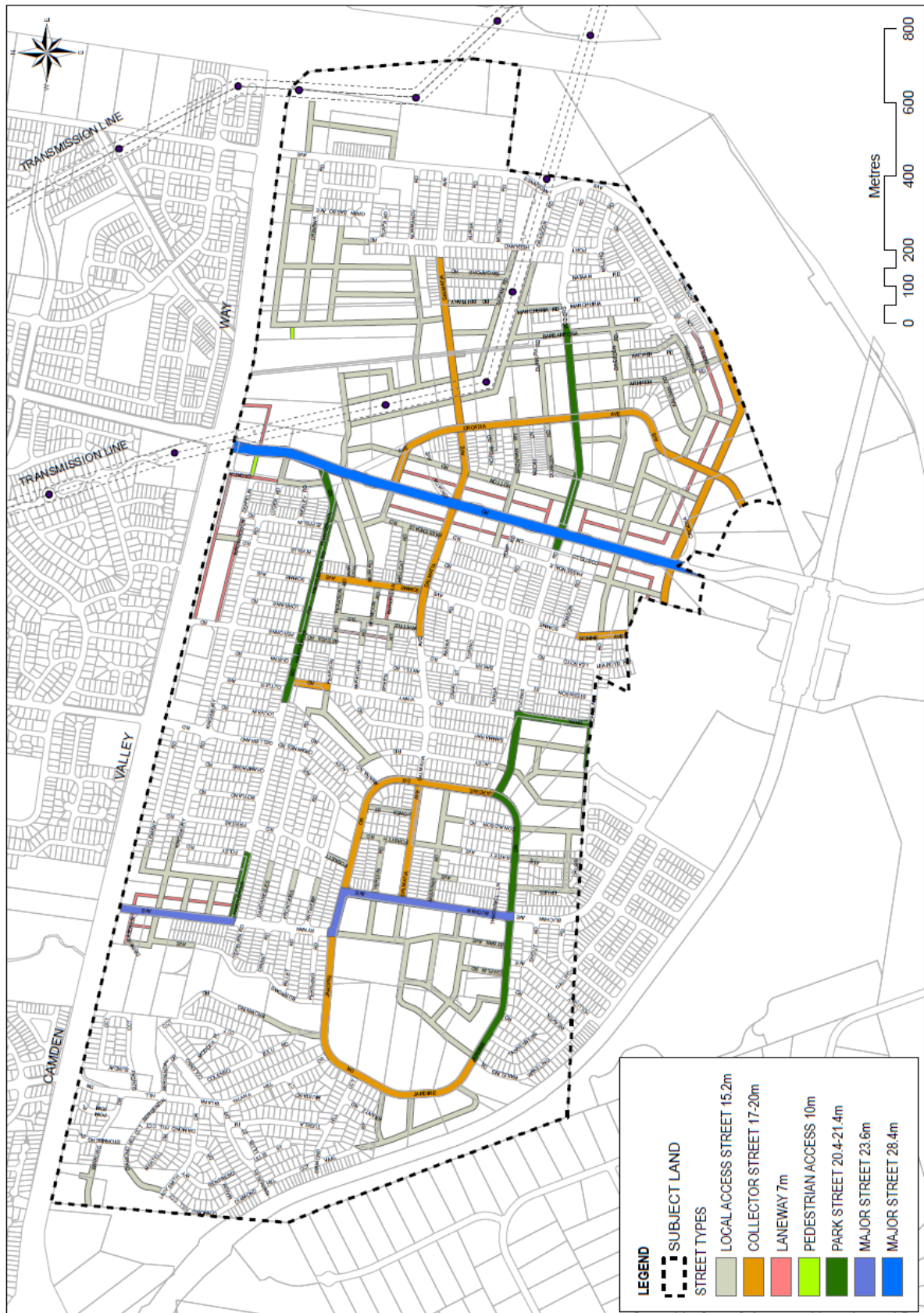


Figure 8: Street Types

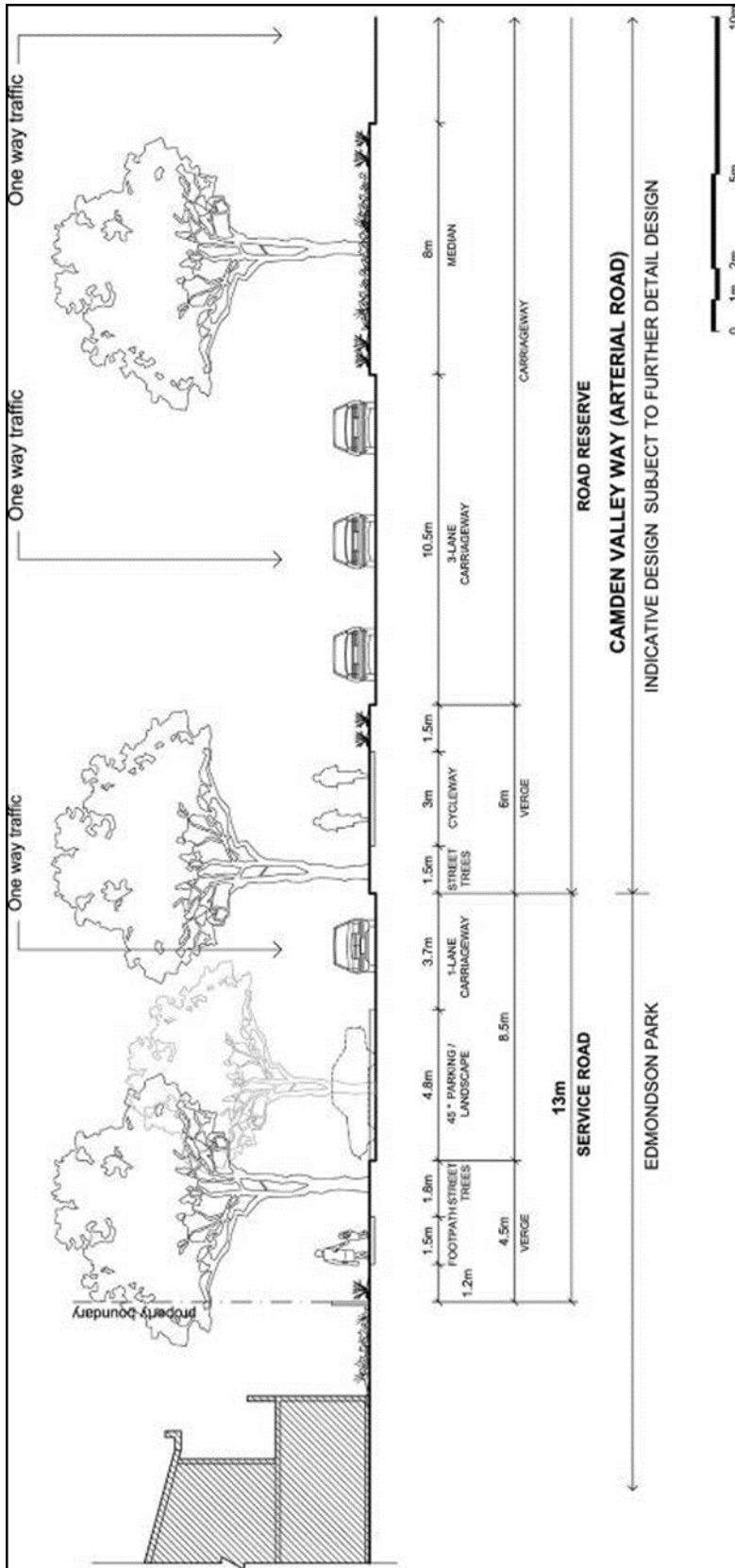


Figure 9: Camden Valley Way

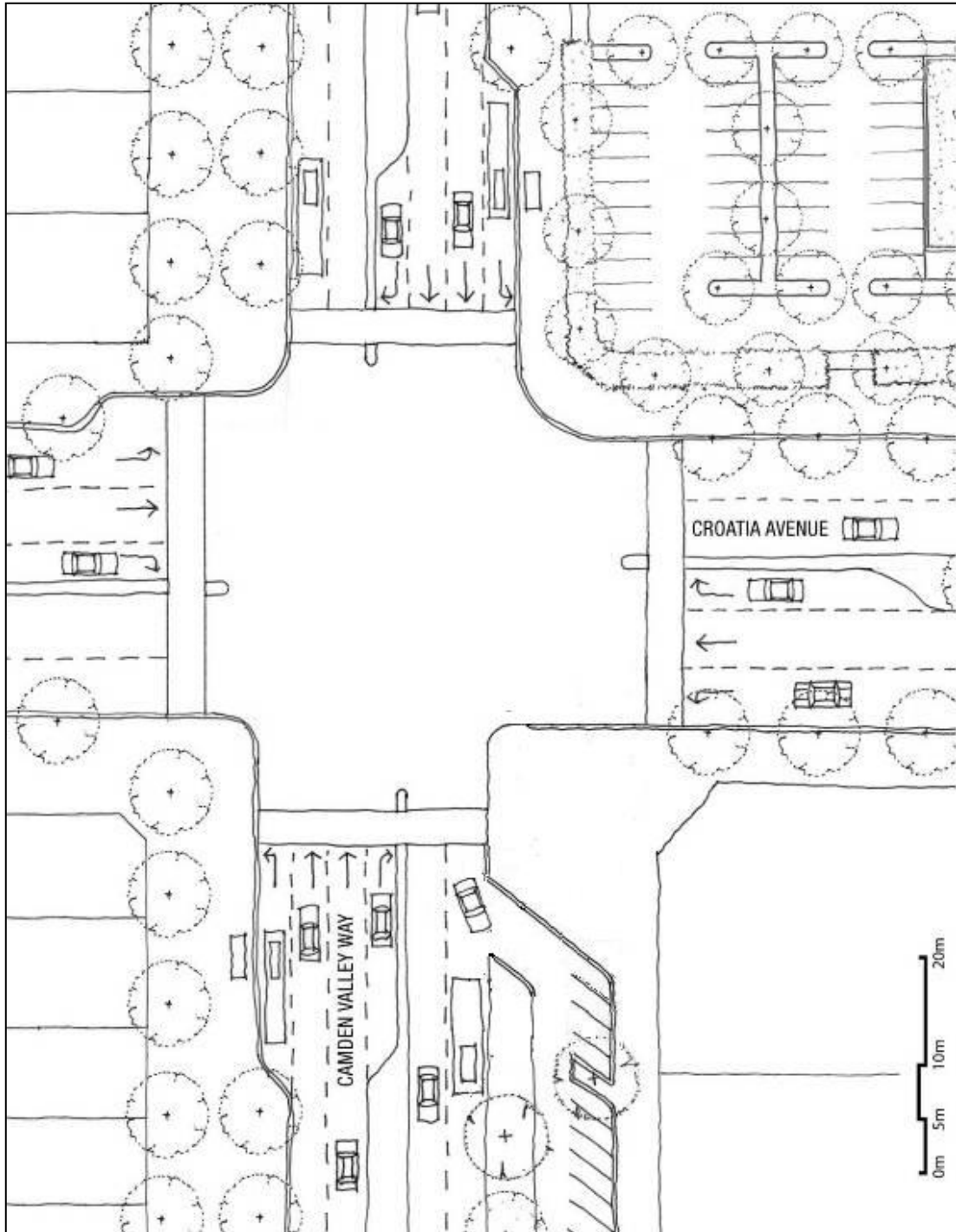


Figure 10: Camden Valley Way – Indicative Intersection and Service Road Treatment

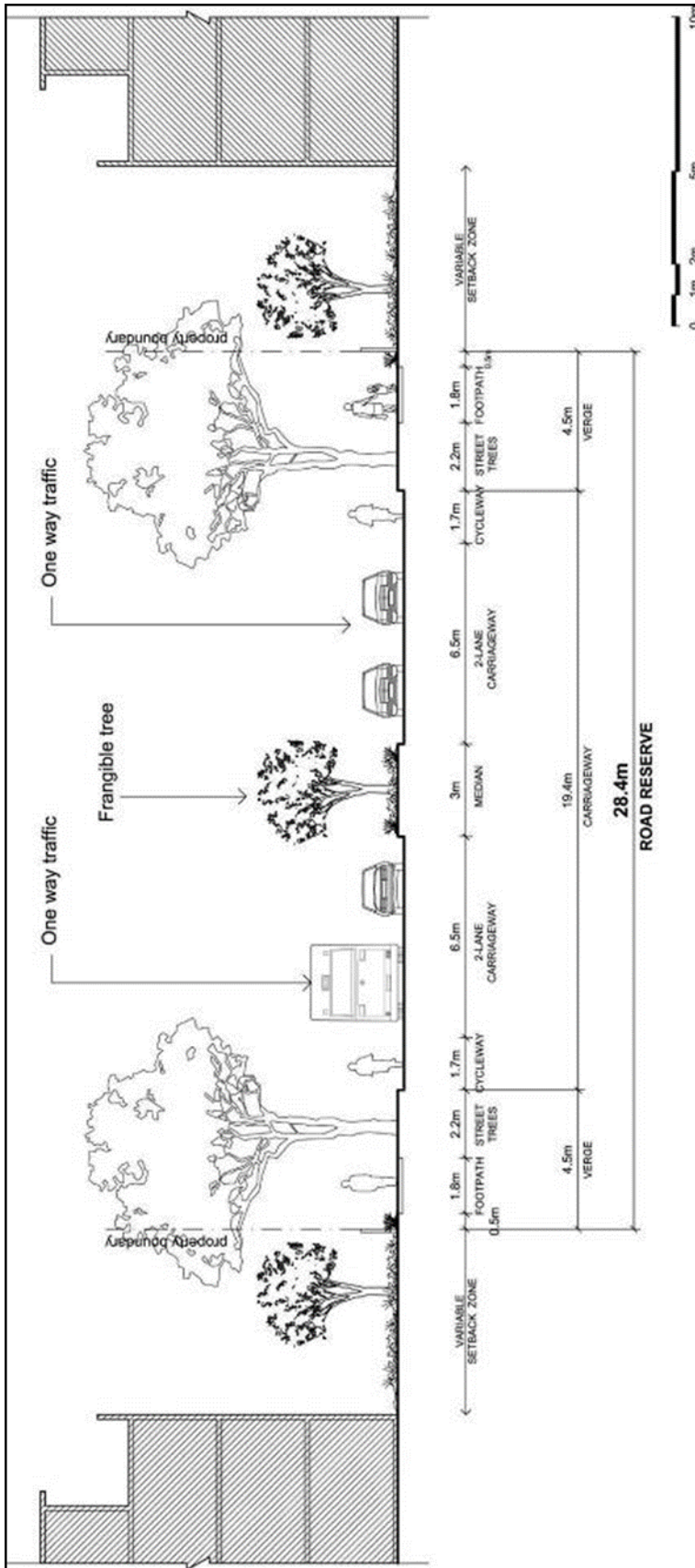


Figure 11: Bus Priority Corridor

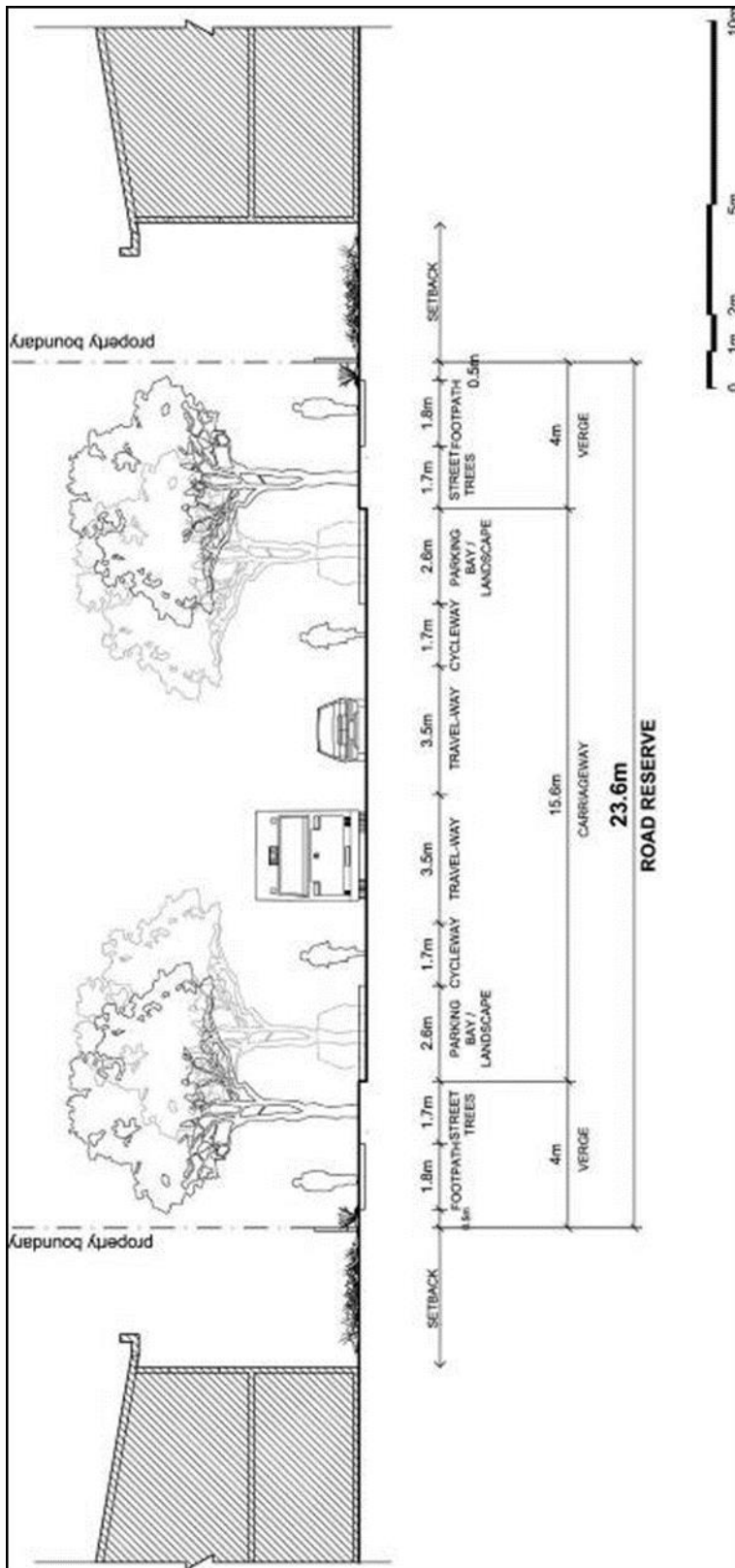


Figure 12: Buchan Ave/Rynan Ave

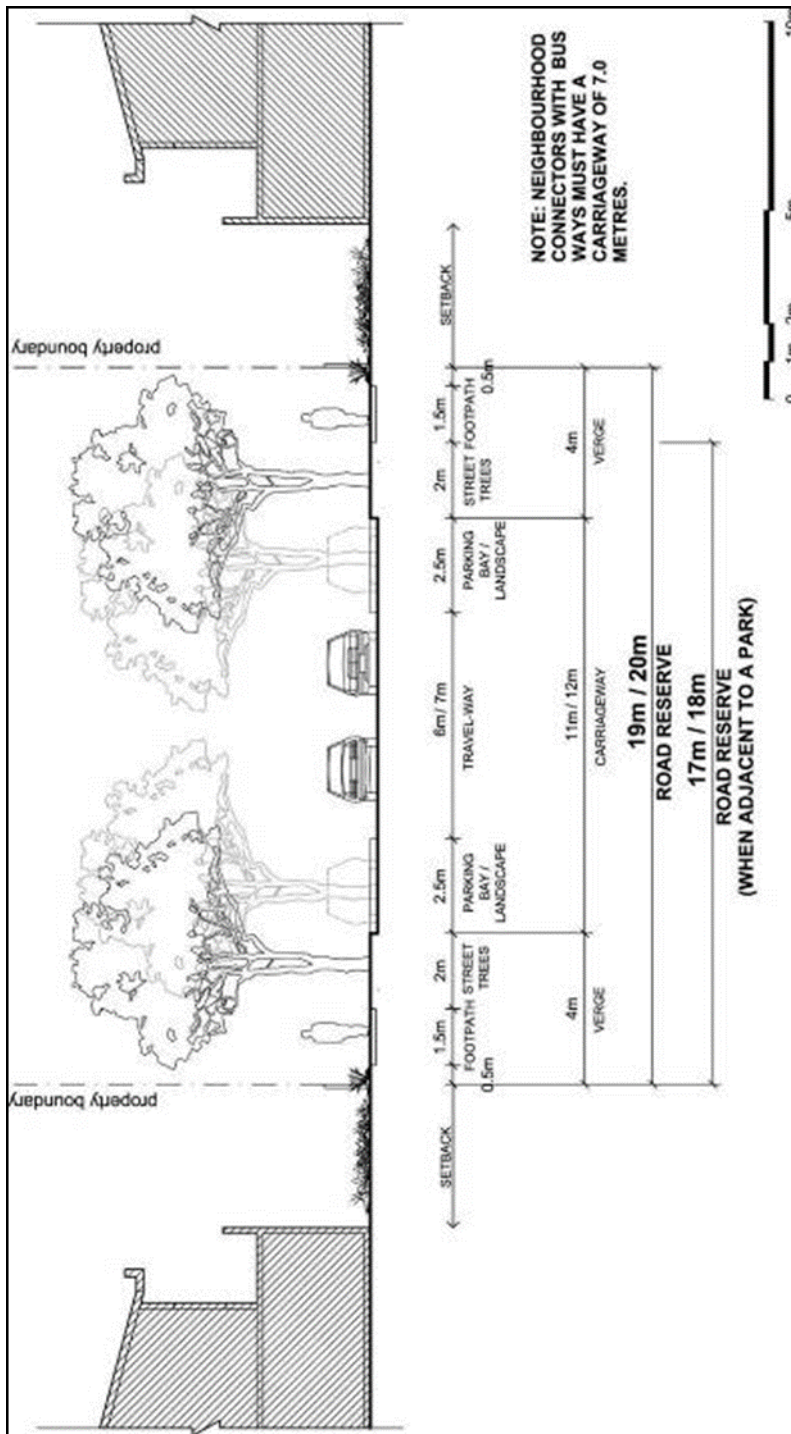


Figure 13: Collector Street

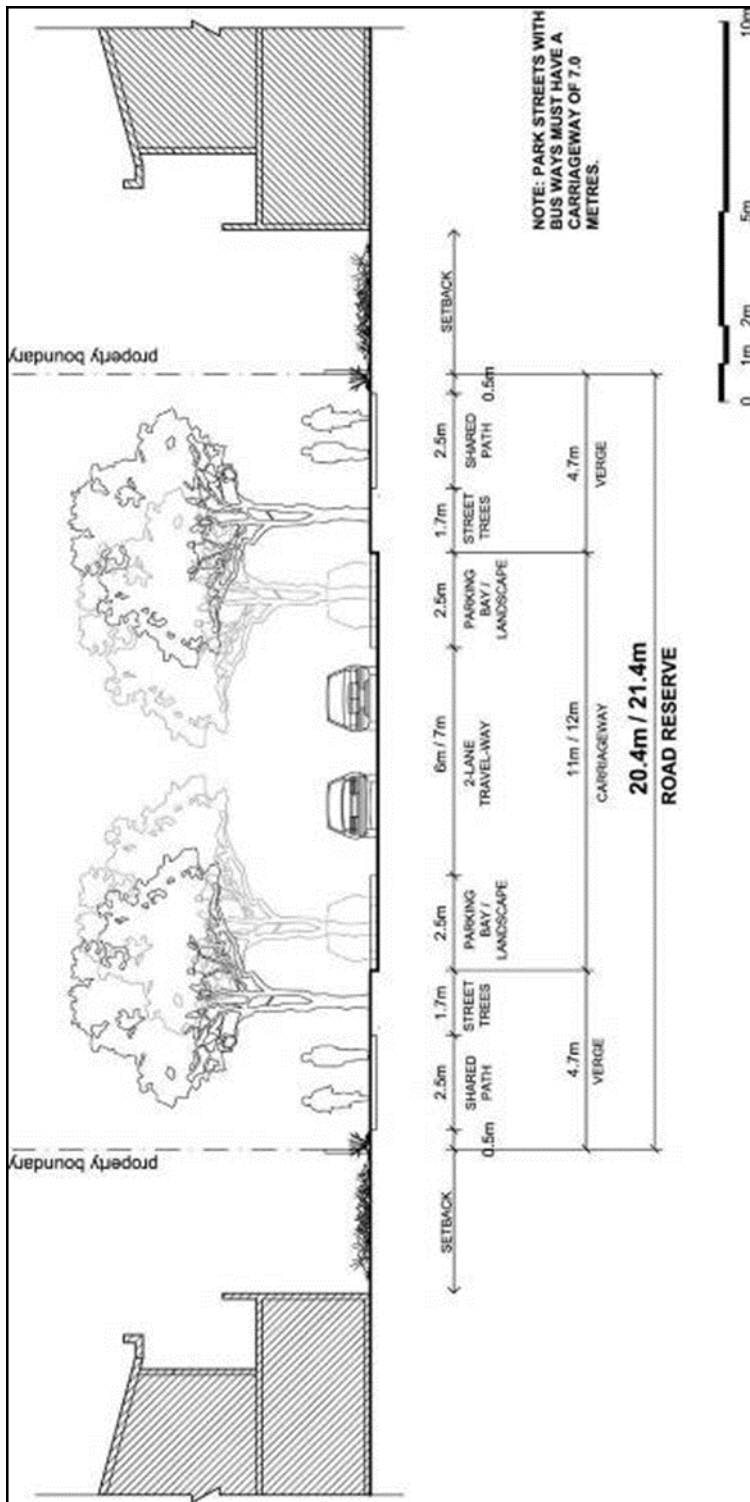


Figure 14: Park Street

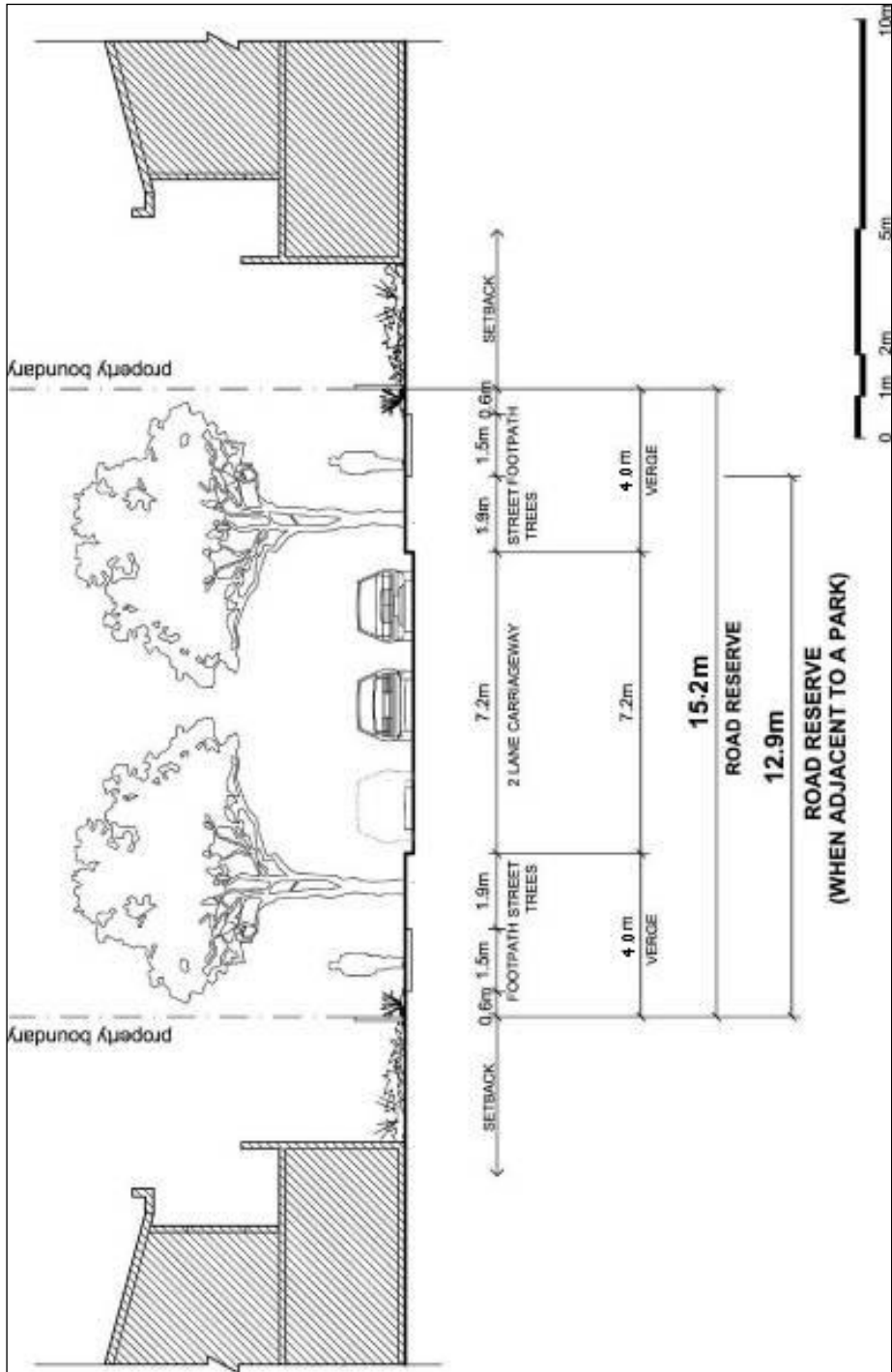


Figure 15: Local Street

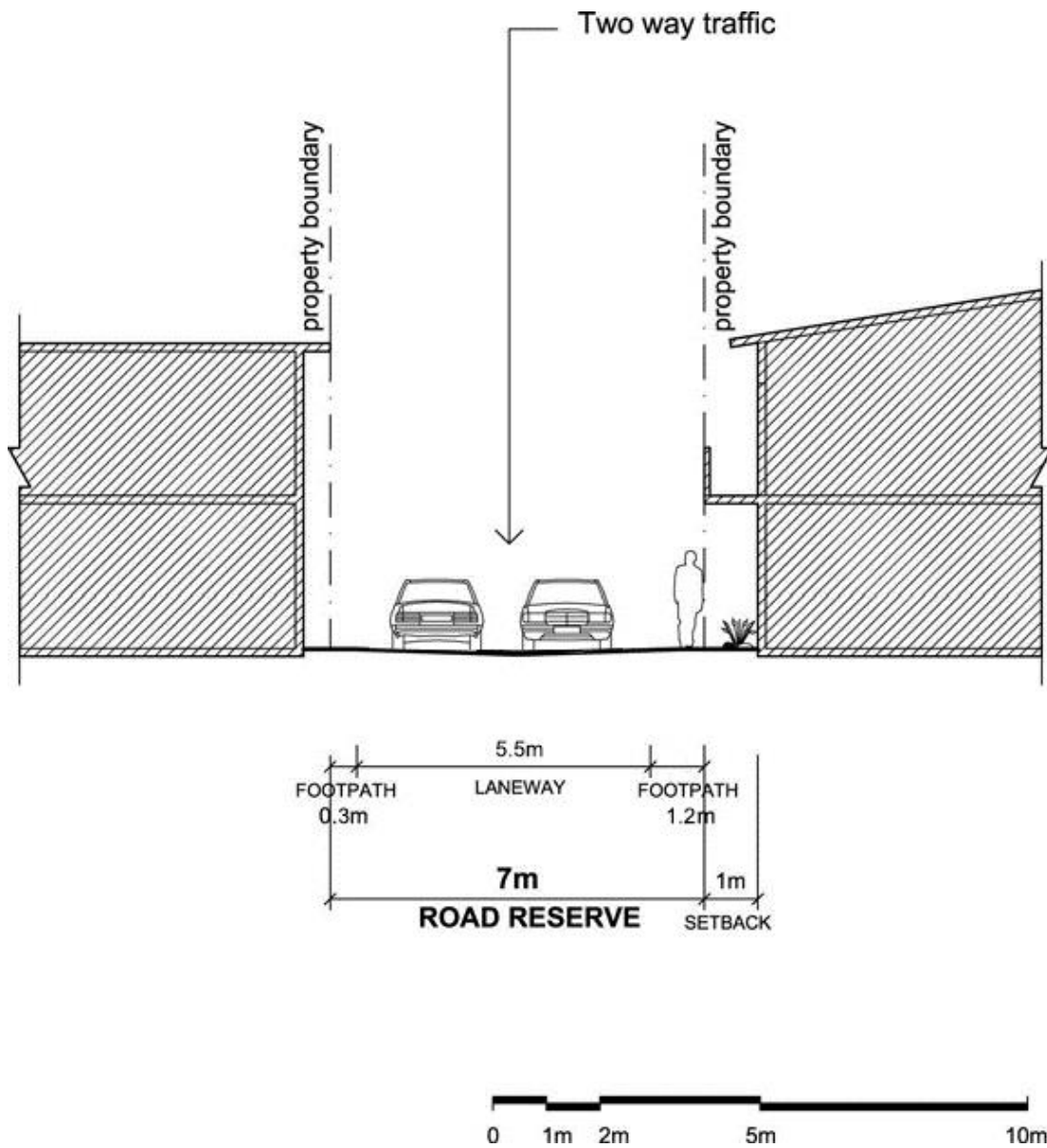


Figure 16: Residential Laneway

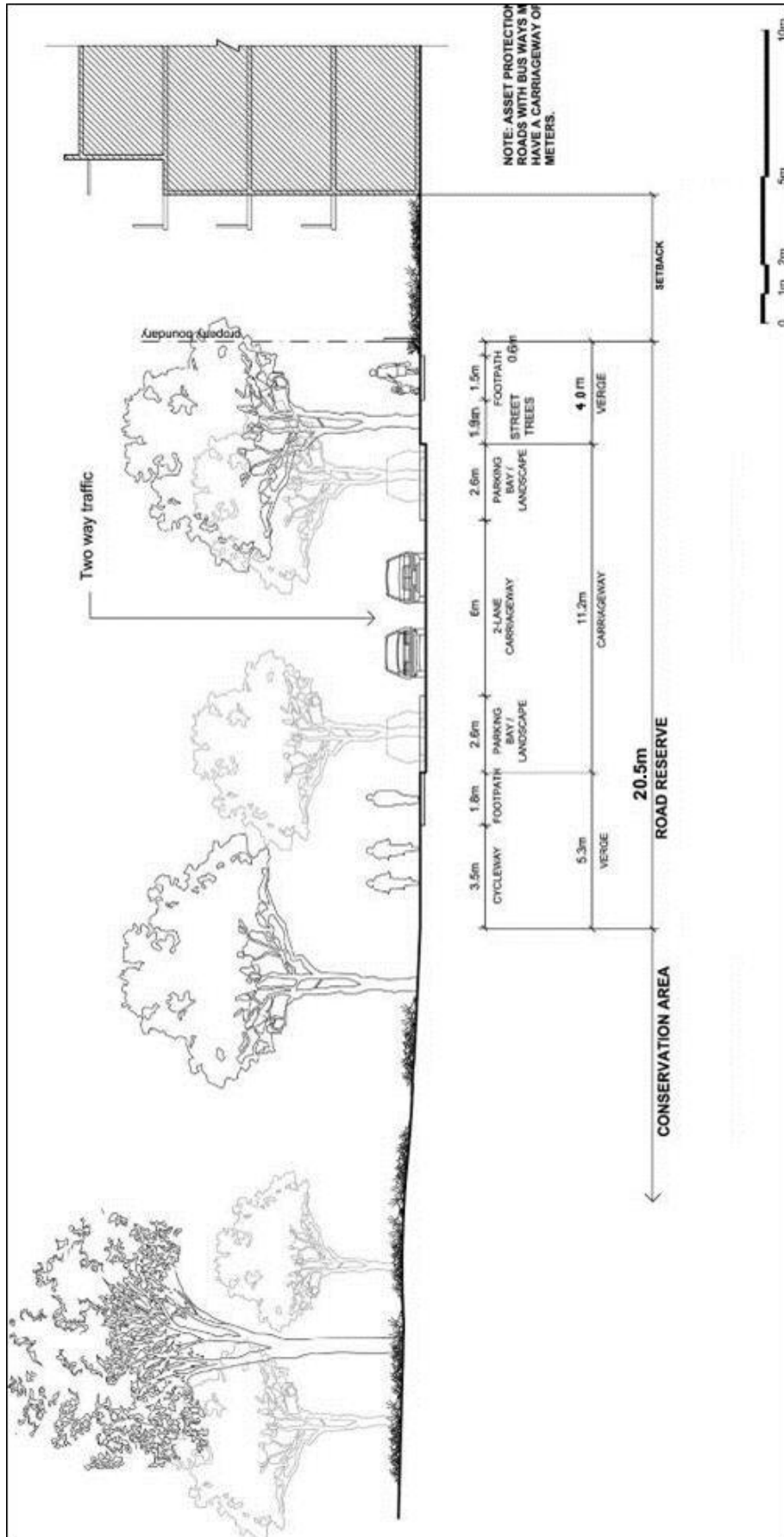


Figure 17: Former Asset Protection Road

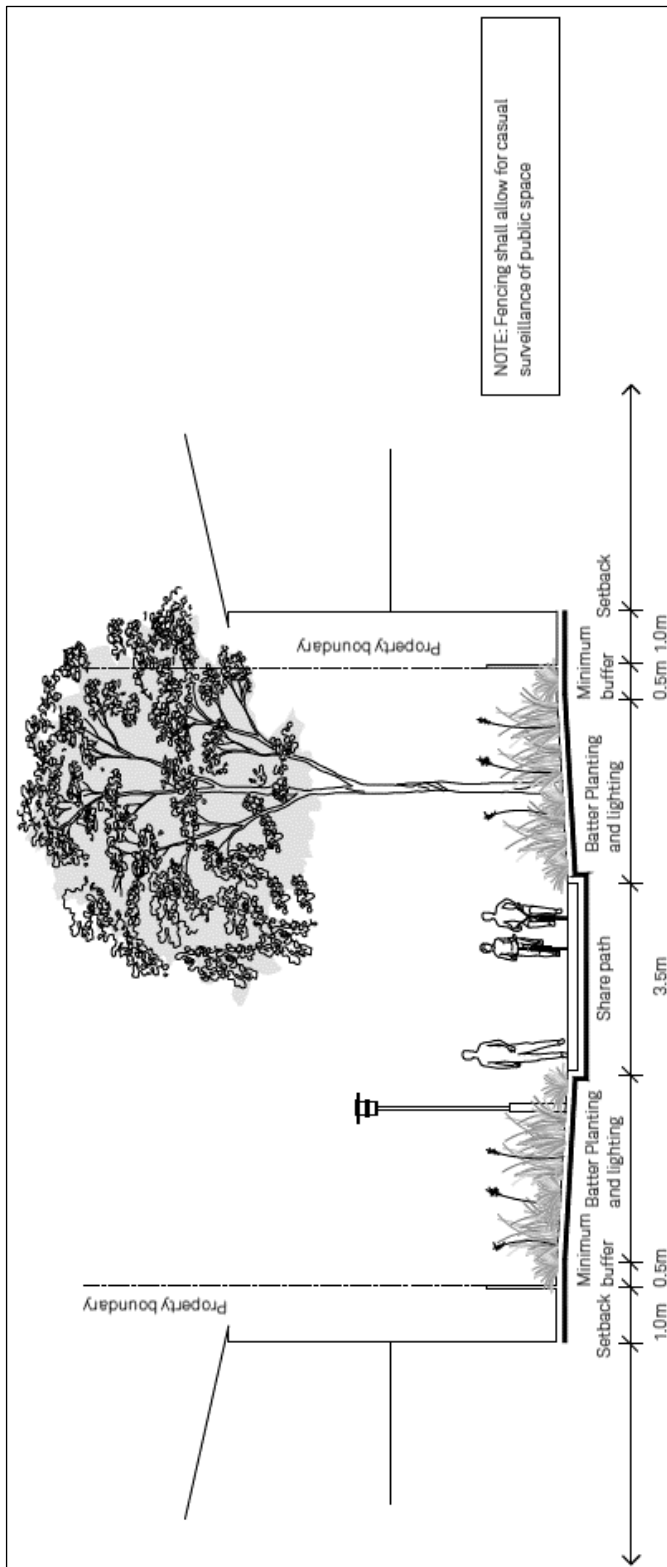


Figure 18: Pedestrian Access Way



Bus Priority Corridor



Former Asset Protection Street



Residential Street

Figure 19: Artistic views of street types

Laneways and Garage Connections

The location, type and design of vehicle access points to dwellings can have significant impacts on the streetscape, the site layout and the building façade design.

Objectives

- a) To minimise the impact of vehicle access points on the quality of the public domain.
- b) To minimise the impact of driveway crossovers on pedestrian safety and streetscape amenity.
- c) To provide safe and convenient access to garages, carports and parking areas.
- d) To clearly define public and private spaces, such that driveways are for the sole use of residents.
- e) To permit casual surveillance of private driveways from dwellings and from the street.
- f) To minimise conflict between pedestrians and vehicles at the junction of driveways and footpaths.

Controls

1. Where possible, vehicular access is to be integrated with site planning from the earliest stages of the project to eliminate or to reduce potential conflicts with the streetscape requirements and traffic patterns and to minimise potential conflicts with pedestrians.
2. The driveway crossing the verge between the property boundary and the kerb is to have a maximum width of 2.7m.
3. Private driveways are to have the smallest configuration possible to serve the required parking facilities and vehicle turning movements.
4. Communal driveways are to be constructed as one of three general types, depending on block geometry and garages to be accessed. Refer to Figure 20.
5. Access to allotments in the vicinity of roundabouts and associated splinter islands shall not be provided within 10m of the roundabout.
6. On corner allotments, driveways are not to be within 6m of the tangent to the kerb return.
7. Driveways are not to be within 0.5m of any drainage facilities on the kerb and gutter.
8. Where possible, medium and higher density developments fronting Buchan Avenue, Rynan Avenue, the Park Streets or the Collector Streets are to have vehicular access via the side streets, rear laneways, or communal driveways.
9. Rear lane access is to be provided for dwellings as indicated on the Indicative Layout Plan, including dwellings in Character Area 'Urban' and adjacent to Village Centres.
10. Where possible, rear lane access is to be provided to dwellings that front parks.
11. Corner lots on collector streets are to have access from the street perpendicular to the collector street.
12. Planting and walls adjacent to driveways must not block lines of sight for pedestrians, cyclists and vehicles.
13. Driveways are to have soft landscaped areas on either side, suitable for infiltration.
14. Driveways must be in accordance with the relevant Australian Standards for vehicular turning circles, visibility distances and gradients.

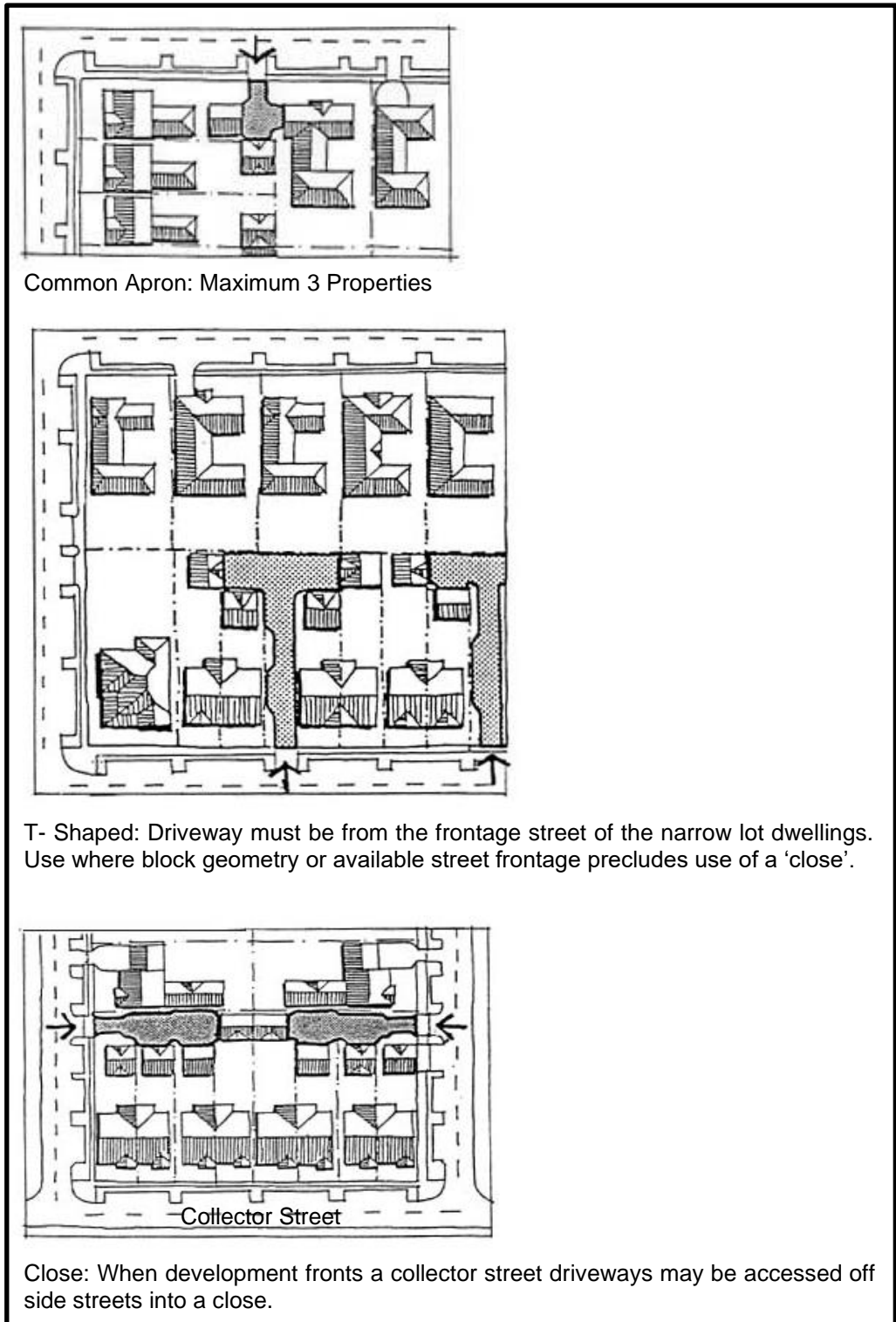


Figure 20: Communal Driveways

Carports and Garages

The provision of on-site parking is required for all residential allotments. Carports and garages are to be visually recessive and must not compromise the appearance of the dwellings from the street.

Objectives

- a) To provide sufficient and convenient parking for residents and visitors.
- b) To ensure that parked vehicles do not create traffic hazards.
- c) To reduce the visual impact of garages, carports and parking areas on the streetscape and improve dwelling presentation.

Controls

1. Minimise the visual impact of garages, as illustrated in Figure 21.
2. Front access double garages (6m max. width) are generally only permitted on lots with a street frontage* of 15m and above. Front access double garages may be considered on lots 12m or above subject to meeting all of the following criteria in addition to the primary objectives and controls:
 - Garages are not to exceed 45% of the building frontage width.
 - Garage doors are to be visually recessive and made of high quality materials such as treated timber.
 - Garages are to be designed as an integral part of the architecture of the dwelling, and must be well articulated with features such as overhanging verandahs and pergolas etc.
 - The dwelling frontage is to contain a front door and a window to a habitable room, in addition to the garage.
 - No more than three dwellings in a row can have a double garage on the narrower lots (12 m+).
 - The total number of narrower lot dwellings (12.5 m+) with double garages are not to exceed 40% of any street / block frontage.
3. The maximum width of a front access garage on lots with a street frontage below 15m is 3m (a single garage). Additional parking may be provided in carports or in hard stand areas. Stacked or tandem car parking spaces are acceptable, provided that at least one space is located 5.5m min. from the front property boundary.
4. Garages and carport entries are to be setback a min. of 1m from front setback.
5. Garage design, form and materials must be compatible with the dwelling character. Garage dominance can be reduced by use of shadows, setbacks, coloured porticos or entry roof features.
6. All parking spaces for adaptable housing units are to comply with AS 2890:1 for disabled parking.

Garage Location and Access	7.5m (nominal) Lot Width	10m-12m Lot Width	12m-15m Lot Width	15m-18m Lot Width	Notes
	Townhouse	House	House	House	
Rear Garage Mews Access			OR		Where a rear lane occurs and provides rear access to a lot, parking should be accessed from rear lane, regardless of the size of the lot.
Rear Garage Side Access (on corner lot)			OR	OR	On corner lots, the use of the side street for access to the garage is encouraged
Rear Garage Front Access	N/A	N/A		OR	Minimum width between the dwelling wall and side boundary for side driveway is 2.5m.
Front Garage Front Access	N/A				
Key	<ul style="list-style-type: none"> Primary Garage Location Secondary Garage Location Garage Door at One End Garage Door at Both Ends Carport or Hardstand Space 				Note 1: Garage not permitted in the courtyard area of this type of house

Figure 21: Garage Location and Access

Private Driveways

Objectives

- a) To provide safe and convenient access to garages, carports and parking areas.
- b) To clearly define public and private spaces, such that driveways are for the sole use of residents.

Controls

1. Private driveways shall have the smallest configuration possible to serve the required parking facilities and vehicle turning movements.
2. Private driveways shall be constructed as one of three general types, depending on block geometry and garages to be accessed, as in Figure 21.
3. Higher density development fronting to collector streets shall have rear access through laneways, car courts and the like.
4. Development on corner lots on collector streets shall have access from the street perpendicular to the collector street.

2.2 Pedestrian and Cycleway Network

The aim is to establish a non-vehicular (pedestrian and cyclist) system, which connects major activities and open spaces in a direct, safe and legible manner. Pedestrian and cycle ways should provide links from predominantly residential areas to social and cultural activities and educational facilities.

Objectives

- a) To provide a clear pedestrian and cycle way system that provides links between:
 - Residential areas,
 - Open spaces and conservation areas,
 - Educational facilities,
 - Social and cultural facilities, and
 - Town centre and the villages.
- b) To create an interconnected pedestrian and cycle network comprising streets and paths that are clear, safe, legible, and comfortable.

Controls

Location

1. The pedestrian and cycle way circulation system must provide linkages between major activity areas and streets within as well as outside the release area, such as schools, the town centre, and the open space network.
2. Provide cycle ways as illustrated in Figure 22.
3. Provide designated cycle lanes on streets in the form of on-street cycle lanes as illustrated in Figure 22.
4. Pedestrian and cycle paths must be provided as part of parks and recreation areas. However these should be provided outside the core riparian corridor areas where practical.

Safety

1. Ensure designated cycle lanes are clearly identified on streets by line-markings / surface treatment on the street surface and / or by signs beside the street.
2. Design and locate vehicular access to all developments to minimise conflicts with pedestrians and cyclists.
3. Ensure a high level of activities and surveillance is provided to off-street pathways.
4. Ensure pedestrian and cycle facilities in public spaces are safe, well lit, clearly defined, functional and accessible to all users.
5. Locate pedestrian paths and cycle ways in open spaces close to the streets to take advantage of street lighting to allow casual surveillance by residents and motorists. Where this is not practical, paths must be well lit and visible from the street.
6. Wherever practicable, provide single vehicle access to developments, perpendicular to the kerb alignment.
7. Clearly and frequently signpost shared pedestrian / cycle links, as well as cycle lanes on public streets and lanes to indicate their shared status.

Design

1. Provide shared pedestrian paths and cycle ways to a minimum of 2.5m wide. Refer to Figure 22.
2. Provide designated pedestrian pathways with a minimum width of 1.5 m, or greater as indicated in relevant street sections, on both sides of all streets.
3. Design pedestrian and cycle ways, as well as pedestrian refuge islands so that they are fully accessible by all users in terms of access points and gradients, in accordance with AS 1428 (Part 1 to 4 Design for access and mobility).

4. Pedestrian footpaths along the main school frontage are to be full verge width. Pedestrian footpaths along secondary school frontages are to be a minimum of 2.5m wide.
5. Pedestrian footpaths within the village centres are to be full verge width and paved with a Council approved paver.
6. Pram ramps are to be provided at all street corners.

Provision

1. Bicycle racks shall be provided in appropriate numbers at villages, sporting grounds, parks, community facilities and schools.

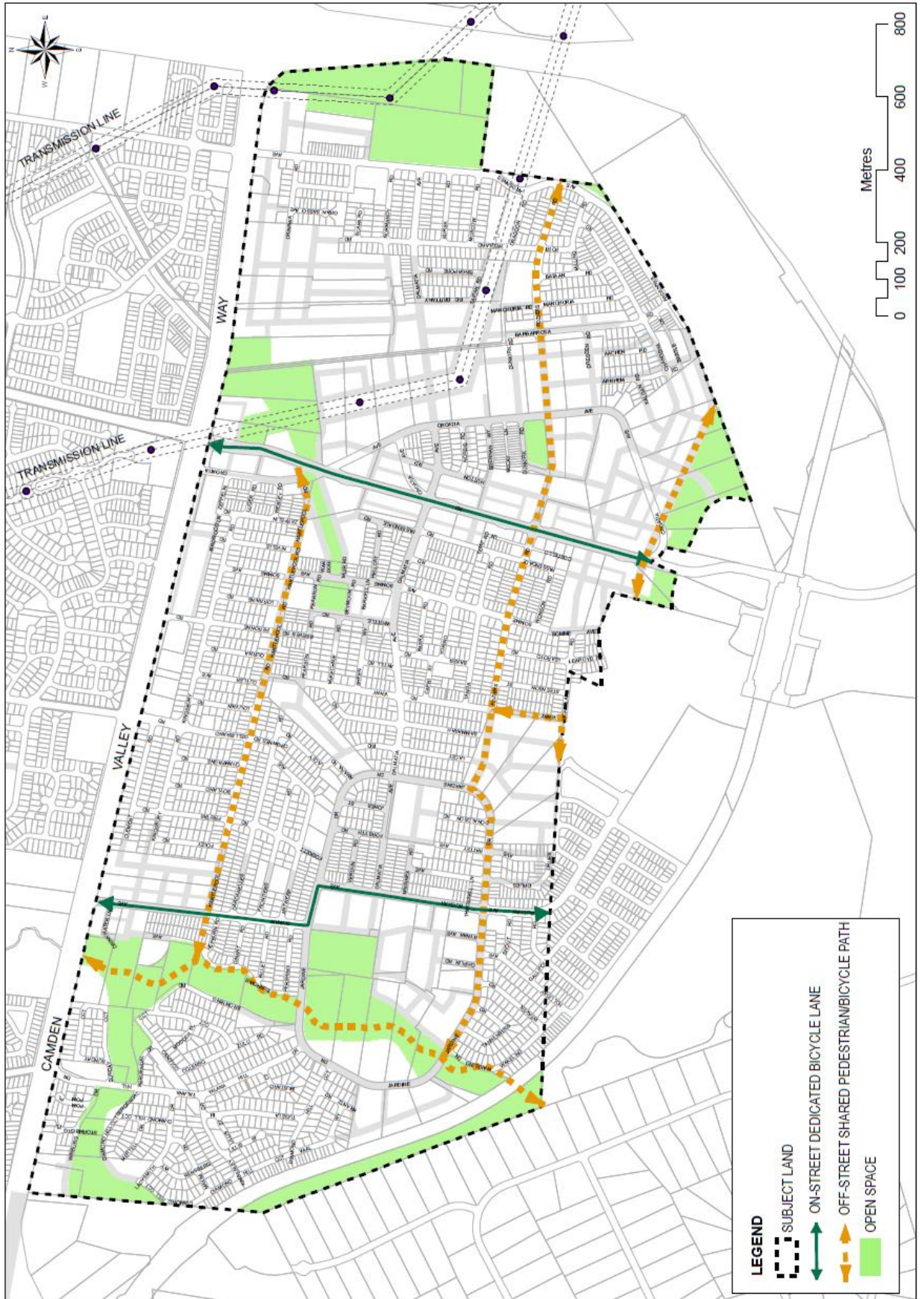


Figure 22: Bicycle Network

2.3 Streetscape and Street Trees

Background

Street furniture should maximise pedestrian comfort, convenience and amenity, create visual harmony and be used to define spaces, streets, paths and gateways. Opportunities for public art in significant public domain locations should be explored as part of the development process.

Objectives

- a) To create a sense of identity for the area.
- b) To enhance public spaces so that they are vibrant, safe and welcoming.
- c) To facilitate cultural identity through art and design in public places.
- d) To create quality streetscapes that are visually attractive and integrate with surrounding street layout.

Controls

Street Furniture

1. Street furniture is to be incorporated into the design of all public spaces and should be consistent in design and style.
2. Street furniture is to be located so as not to impede mobility, generally in accordance with AS 1428:1 - 4.
3. The location and detailing of all proposed street furniture is to be indicated on the Landscape Plan, to be submitted with the DA.

Street Tree Planting

1. Street trees shall be required to be planted in conjunction with the creation of a new street or the extension of an existing street.
2. A minimum of two trees is to be provided for every 6m of street frontage. These are to reach at least 4m at mature height.
3. The street trees shall be planted prior to the release of the subdivision certificate.
4. The trees shall be provided with protection to ensure their survival during the construction of buildings in the street. Refer to Figure 23 for details.
5. Trees and shrubs on individual streets must be of a uniform species. On streets adjacent to bushland, species indigenous to the area must be planted.

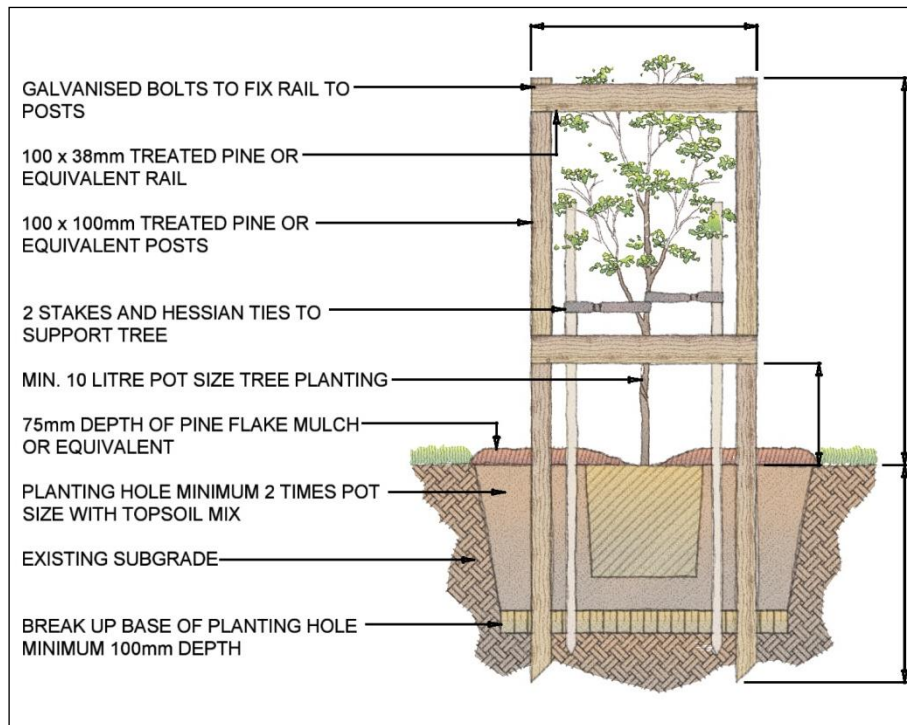


Figure 23: Tree Guard and Planting Details

2.4 Open Space

Background

1. A key element of this Part is to ensure the provision of an open space system which caters for and supports the development of Edmondson Park. Edmondson Park provides for three levels of open space plus pocket parks and conservation areas. These include:
 - Level 1 – District Park,
 - Level 2 – Neighbourhood Parks (passive and active),
 - Level 3 – Passive Parks (Riparian Parks and asset protection zones), and
 - Conservation Areas.
2. Each level of open space provides various recreational facilities for the community. Level 1 open space is centrally located and provides civic uses and active and passive recreation for the release area. Level 2 open space is neighbourhood orientated and facilitates active and passive recreation. Level 3 parks comprise Riparian Parks and asset protection zones and serve as passive recreational areas. Additionally, conservation areas of approximately 150 hectares contain areas of significant Cumberland Plain Woodland vegetation. Access to the conservation areas for passive recreational activities is an essential component of the strategy.
3. It is predicted that a higher proportion of small lot / attached housing is likely to attract first home buyers, young renters and older members of the community, hence an increased proportion of the population in the 0 - 4 year, 25 - 34 year age and in the over 50s groups is predicted.
4. Recreation requirements for the 0 - 4 year age group is predominantly private garden area, which is familiar, safe and secure and either communal open space or small parks close to the home. For the 25 - 34 year olds and the over 50s age groups, involvement in organised sports becomes less important, and there is a greater emphasis on family orientated activities and watching sports.

5. The open space provision for Edmondson Park has therefore been designed to cater for these predicted demographics. Importantly, it is intended that the Edmondson Park Release Area be seen as a whole entity, and that people from both Campbelltown and Liverpool LGAs can share facilities. Furthermore, it is envisaged that there will be a co-use of the school playing fields, to maximise the use of these facilities and encourage a community feeling for the area.

Objectives

- a) To ensure adequate provision and distribution of public open space to meet the needs of the residents.
- b) To retain and integrate existing landscape elements, such as vegetation and topographic features, in the design of new development.
- c) To provide links between the open space areas and community and retail facilities.
- d) To establish open spaces as an interconnected network incorporating conservation areas, parks, squares and streets, rather than a series of unrelated, unconnected spaces.
- e) To provide centrally located open space with a range of uses and activities in each village, which will assist in casual surveillance and promote user safety.
- f) To incorporate environmentally sensitive areas such as riparian land, bushland, and archeologically sensitive sites into the open space network and provide appropriate protection and management mechanisms.
- g) To ensure that open space is of a high quality and promotes local character and identity.
- h) To ensure that open space design is flexible and responds to changes in demand and opportunity.
- i) To ensure that the location of open space promotes equality of access and opportunity and is readily accessible by a range of transport modes.

Controls

1. The open space network for Edmondson Park must be provided in accordance with Figure 24.
2. Link the open spaces using streets, riparian corridors, pedestrian paths and cycle ways.
3. Parks within villages are to be a focal point for development and community activities.
4. Provide a street frontage on all sides of parks within the village centres.
5. Ensure the design of parks can accommodate the desired activities and that they can be adapted for a variety of potential future uses.
6. Ensure that development which surrounds open space is orientated towards the park to offer casual surveillance.
7. Perimeter streets should be provided to all parks on at least three sides of the park. Where a street frontage is not provided the development must front the park to provide surveillance.

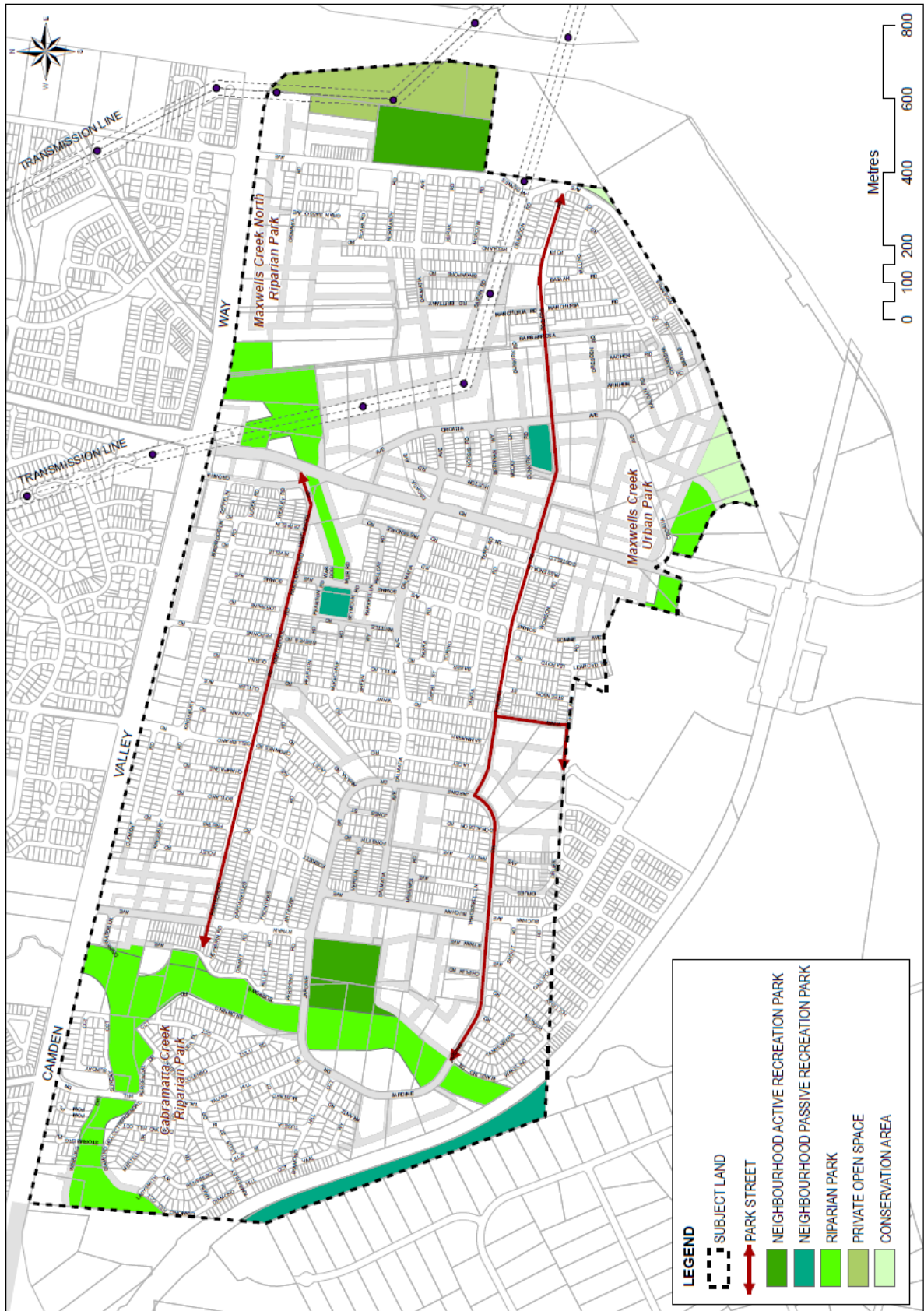


Figure 24: Open Space Network

Conservation areas

There are 3 conservation areas within Edmondson Park, which are located within Edmondson Park South. These areas are not subject to this Part.

Riparian Parks

Riparian parks provide for stormwater drainage and flood storage areas. By being enhanced and retained in a natural state they also protect native vegetation and archaeological sites, and act as natural habitat corridors outside the conservation areas. Access to watercourses, patches of high quality vegetation and any archaeological sites will be controlled in these areas. Riparian parks will have water quality swales as part of their landscape design.

There are three riparian parks in the Edmondson Park (Refer to Figure 24):

- Cabramatta Creek Riparian Park: This comprises the corridor along Cabramatta Creek north of the rail line and the tributary that runs eastward and joins Cabramatta Creek. The riparian park joins with an active recreation neighbourhood park west of Rynan Avenue.
- Maxwells Creek North Riparian Park: This park is located in the northern area adjacent to Camden Valley Way along the tributary of Maxwells Creek. The riparian park joins with a passive recreation neighbourhood park west of the Bus Priority Corridor.
- Maxwells Creek Urban Park: This park is the main landscape feature at the northern end of the town centre. The park will be a more formally landscaped urban park reflecting its relationship with the town centre and higher density residential areas.

Objectives

- a) To integrate stormwater detention basins and water quality detention basins as part of the landscape of the open space network.
- b) To manage, protect and enhance ecosystems and their biodiversity, including water quality, soil stability, fauna habitat and aquatic habitat.
- c) To ensure that important watercourses are integrated into the open space network.
- d) To maintain and promote the regeneration of native vegetation adjacent to creek lines.
- e) To protect and enhance native vegetation, archaeological and cultural values.
- f) To restore and enhance the degraded riparian remnant vegetation.
- g) To provide a landscaped passive open space area associated with riparian areas that improves amenity and provides a focus to surrounding development where appropriate.
- h) To encourage a sense of ownership over the riparian parks.
- i) To encourage educational, social and cultural opportunities and interpretation within riparian corridors.

Controls

1. Development, other than low impact recreational facilities and detention basins, is to be excluded from the CRC, including buildings, streets and car parks. Low impact recreational facilities include pathways, picnic shelters, seating, educational and interpretative features. Special attention is to be given to the location and type of facility in the core riparian corridor to minimise impact on existing vegetation and the ecological integrity.
2. Provide access to the water course at locations where the ecological integrity of the existing riparian vegetation and stream bed and bank stability will not be significantly compromised.
3. Provide educational and interpretative features and information in riparian corridors at key locations.
4. Retain aquatic connectivity through use of crossing structures consistent with the NSW Department of Primary Industries – Fisheries guidelines.

5. Remnant vegetation along the creeks is to be protected and enhanced.
6. Perimeter streets are to be provided between riparian parks and development.
7. Outer asset protection areas may be located within riparian parks. Inner protection areas must be located fully outside of riparian parks. Refer to Figure 17.

Neighbourhood Parks

Neighbourhood parks have been designed for either passive or active recreational uses.

Neighbourhood passive recreation parks are small in scale in order to create intimate spaces adjacent to residential areas. Edmondson Park has three neighbourhood passive recreation parks, two located in close proximity to the village centres, and one to the west of Maxwell's Creek North Riparian Park and Croatia Avenue.

Active recreation parks contain a mix of competition standard sporting fields and passive recreation spaces. Edmondson Park has two neighbourhood active recreation parks, one to the east of Ash Road adjacent to Maxwell's Creek North Conservation Area, and one to the west of Rynan Avenue adjacent to Cabramatta Creek Riparian Park.

Objectives

- a) To provide open space areas for the enjoyment of the local population.
- b) To ensure that open space is of a high quality and, where appropriate, promotes local character and identity.
- c) To provide open space which can be used by a range of users, linked with other activities and services.

Controls

1. Neighbourhood parks are to be provided as illustrated in Figure 24.
2. Neighbourhood active recreation parks are to have a mix of the following activities:
 - Car parking,
 - Collection of competition standard specialised playing fields,
 - Kick-about areas,
 - Informal recreation areas,
 - Play equipment,
 - Footpaths and cycle ways,
 - Electric or gas BBQ facilities,
 - Planting / formal gardens, and
3. Retain, wherever possible and practical, existing endemic vegetation.

District Park

The Edmondson Park Release Area includes a district park which is located in Edmondson Park South and not subject to this Part.

Safety and Security

For Edmondson Park to be a desirable place to live, work and visit, it will need to be perceived as a safe place. A safe and secure environment encourages activity, vitality and therefore viability. Two major principles are involved in achieving a secure environment, casual surveillance of public space and the avoidance of physical threats to safety.

Objectives

- a) To provide personal and property security for residents and visitors in the public domain.
- b) To enhance perceptions of community safety.
- c) To provide pedestrians with safe, clear and direct routes of travel.

- d) To provide clear views of the street by adjoining buildings and passing traffic, providing a high level of passive surveillance.

Controls

Design

1. Landscape planting should not obscure visibility, and should avoid opportunities for concealment.
2. Appropriate evening and night-time lighting is to be provided in all streets, public spaces and parks, particularly along pedestrian and cyclist routes.
3. In parks, provide pedestrian pathways that are direct with clear sightlines. This will be particularly important to join the residential areas across Maxwell's Creek Urban Park to the town centre.
4. Provide adequate signage describing pathways and facilities.
5. The design of streets and location of street furniture is to allow adequate sight lines for motorists.
6. The design and maintenance of paving and other ground plane treatments is to ensure the avoidance of trip hazards and be approved by Council.
7. Driveway entry-exits are to provide adequate sight lines to adjacent footpaths, streets and cycle ways. Shared driveways are to be used wherever possible.

Casual Surveillance

1. All public spaces including streets, parks, squares and plazas must be directly overlooked by adjacent development.
2. Active uses must be orientated to streets in commercial or mixed-use areas. In residential areas, living rooms, verandahs and / or kitchens are encouraged to be orientated to the street.
3. Locate perimeter streets to each neighbourhood park. Where a street frontage is not provided the development is to front the park to provide surveillance.

2.5 Environmental Management

Vegetation within Riparian Corridors

1. Provide for the protection of the riparian environment, including water quality, soil stability and creek bed habitat.
2. Regenerate vegetation using local provenance Alluvial Woodland and Shale Plains Woodland species.
3. Bush fire asset protection zones to be incorporated into boundary street design and outside the conservation areas and riparian zones. Refer to Figure 17.
4. Maximise opportunities for the public to experience remnant native bushland.

Vegetation in Developable Areas

1. Require that canopy trees where possible and some saplings are retained through the Development Application process.
2. Avoid tree root damage to retained trees throughout development.
3. Avoid the removal of existing trees in the following zones:
 - R5 – Large Lot Residential
 - RE1 - Recreation - Public,
 - RE2 - Recreation - Private,
 - W1 – Natural Waterways
 - C1– National Parks and Nature Reserves, and
 - C2– Environmental Conservation.

Core Riparian Corridors

Core Riparian Corridors (CRCs) are areas of protected land along both sides of a creek that allows for the protection of riparian vegetation, water quality and bed and bank stability.

To create an interface between the CRCs and developable areas, it is necessary to provide an additional buffer area which forms the outer protection zone part of the Asset Protection Zone.

Objectives

The objectives of this Part with regard to Core Riparian Corridor (CRC) management are:

- a) To maximise opportunities for stream / creek restoration and enhancement that mimics natural stream processes.
- b) To conserve, protect and enhance riparian corridors and biological connectivity through the provision of continuous, vegetated riparian protection zones along either side of the creeks.
- c) To enable existing watercourses to contribute to and be enhanced by a coordinated approach to development within the area.
- d) To provide for appropriate traffic cycle and pedestrian circulation throughout the release area while providing for the protection of the riparian zone and its environmental functions.
- e) To ensure the rehabilitation of creek corridors is integrated into floodplain management planning.
- f) To encourage a sense of ownership over riparian corridors.
- g) To encourage educational, social and cultural opportunities and interpretation within riparian corridors.

Controls

Stream and Riparian Management Plan

1. A Stream and Riparian Management Plan (SRMP) is to be prepared as part of the Water Cycle Management Plan and submitted with the subdivision Development Application for the full extent of each creek corridor within the subdivision being developed. These SRMPs are to be prepared in consultation with Council and Department of Natural Resources, and require the approval of Council.
2. The SRMPs are to include the following:
 - Plans showing, in detail, the existing creek channels, riparian vegetation (including remnant native vegetation), geomorphic features and aquatic habitats (reed beds, snags etc).
 - Detailed plans of any channel modification and stabilisation works.
 - A longitudinal stream survey section (if stream works are proposed) of the existing and proposed creek channel bed in sufficient detail to identify changes in bed level and hydraulic features (i.e. pools and riffles).
 - Details on the staging and sequencing of any works within the riparian zone.
 - Recommendations on how to address the modified drainage system and reaches.
 - A vegetation management plan is to be incorporated into the SRMP for the establishment of riparian corridors. It must use natural and assisted regeneration and planting of locally native vegetation (trees, shrubs and groundcover species).
3. Proposed crossings to creeks must be designed to facilitate the movement of aquatic and terrestrial species, and are to incorporate features that allow for light penetration beneath the structure.
4. The design of the 3 structures crossing Cabramatta Creek and Maxwell's Creek are to ensure the following:
 - 1% AEP flood conveyance.

- Flora and fauna connectivity.
- Scour protection.

Core Riparian Corridors in Edmondson Park Creeks

Controls

1. The following describes the Core Riparian Corridor (CRC) and inner protection zone to be provided for each creek. The CRC will be measured from the top of the existing creek's embankment as identified by appropriate survey plans. The minimum requirements to be provided adjacent to each creek.

Cabramatta Creek:

- Provide an average 20m wide CRC on each side of the creek (measured from the top of the bank).
- Provide a minimum 10m wide buffer from the CRC to developable land. This area can include the outer protection zone.

North western tributary to Cabramatta Creek:

- Provide an average 20m wide CRC on each side of the creek (measured from the top of the bank),
- Provide a minimum 10m wide Inner Protection Zone from the CRC to developable land.

Maxwell's Creek:

- Provide a 20m wide CRC on each side of the western tributary of Maxwell's Creek (measured from the top of the embankment).
- Provide a 10m wide buffer zone from the CRC to developable land.
- Develop a formal urban park open space for passive and active recreational use by the adjacent residents and workers from the town centre.
- Drainage channel to be re-engineered. Soft engineering solutions are preferred. Stream bed and bank stabilisation to be utilised as appropriate. Permanent water bodies to be "off stream" where possible.

Northern tributary of Maxwell's Creek:

- Establish an urban drainage corridor within the zoned open space,
- Re-engineer the entire corridor to Camden Valley Way. Soft engineering solutions are preferred. Stream bed and bank stabilisation to be utilised as appropriate, and
- Locate water quality treatment facilities "off stream" but within the open space zoned corridor.

2. All remnant vegetation along the CRC must be protected and enhanced unless required to be removed as part of the re-engineering works to improve the system.
3. Development, other than low impact recreational facilities and detention basins, is to be excluded from the CRC, including buildings, streets and car parks. Low impact recreational facilities include pathways, picnic shelters, seating, educational and interpretative features. Special attention is to be given to the location and type of facility in the core riparian corridor to minimise impact on existing vegetation and the ecological integrity.
4. Provide access to the water course at locations where the ecological integrity of the existing riparian vegetation and stream bed and bank stability will not be significantly compromised.
5. Provide educational and interpretative features and information in riparian corridors at key locations.
6. Any bank stabilisation measures are to use soft engineering techniques that promote sustainability and naturalness.

7. Perimeter streets are to be provided between the riparian corridor and residential / commercial development.
8. Any assessment of flood impacts and flood modelling must take into account the establishment of a fully structured vegetated riparian corridor along the CRCs. The Manning “n” roughness coefficients are to be such that they represent a diverse and fully structured riparian corridor (trees, shrubs and groundcover) for discharge determinations.
9. Any hydraulic assessment must consider not only the initial vegetation density in CRCs but also the final growth, with due allowance for debris build up before and during flooding.
10. Service utilities can only be provided within CRC's if no other practical or feasible opportunity exists to cross the corridor at designated crossing points, such as streets and pedestrian crossings.

2.6 Water Cycle Management

The stormwater quantity and quality management seeks to reduce the impact of rapid stormwater conveyance on streams and wetlands, remove pollutants to improve water quality, retain habitats, conserve water, integrate landscape and recreational opportunities and protect downstream development from inundation. Water quality detention / bio-retention basins will be an integral part of stormwater management.

Objectives

- a) To integrate water management measures with innovative urban design.
- b) To ensure that there are no adverse impact on existing flood regimes in the surrounding areas, as a result of the proposed development.
- c) To provide an urban water management system for both stormwater quantity and quality
- d) To minimise hydrological impacts on the environment.
- e) To protect and enhance the natural water systems and water quality.
- f) To ensure no net increase in peak discharges.
- g) To mitigate flood damage to the built environment, inundation of dwellings and stormwater damage to properties.
- h) To provide for urban water management through multiple use systems where feasible and where efficient use of urban land and structuring principles are met.
- i) To ensure that the quality of stormwater discharge from the site complies with the Georges River Stormwater Management Plan and the Growth Centres Commission Development Code.
- j) To provide an urban water management system that will be economically maintained and to ensure that arrangements are in place for on-going maintenance.

Controls

1. Provide off line water quality control bio-retention systems to trap pollutants and fine sediment.
2. Provide structural water quality management devices, including, gross pollutant and sediment traps and litter management devices.
3. Provide bio-retention systems in accordance with the Water Sensitive Urban Design Strategy. Provision of swales, buffer strips, storage tanks, and rooftop planting is also encouraged where appropriate.
4. Encourage areas of deep soil planting in the design of external areas and landscaping.
5. Create water efficient landscape design through the selection of tolerant plant species and efficient irrigation technology.

6. Where any construction adjacent to a creek, natural watercourse, drainage depression, or an enclosed drainage system is proposed, the DA should be consistent with the SRMP and is to be accompanied by a full hydrologic and hydraulic assessment. The assessment is to include:
 - External and internal catchment hydrology for rainfall events including the 1.5, 5, 20 and 100 year ARI (Average Recurrence Interval) design event.
 - An estimation of the capacity of the existing drainage system.
 - Predicted extents of flood inundation, depths, and velocities of predicted flood flows to allow effective hazard categorisation.
7. The trunk drainage system shall be designed to convey the 1% AEP flood. Streets adjacent to trunk drains or utilised as part of the drainage system shall meet the safety requirements of the current flood plain development manual for vehicles and pedestrians (normally depth x velocity < 0.4). Where the street system is used as part of the drainage system a minimum of 3.5m of the width of the street shall be above the 1% flood level.
8. Native vegetation is preferred, particularly in saline areas where deep-rooted vegetation can assist with salinity hazard reduction.
9. Where drainage routes pass through a property, adequate provision must be made for the passage of stormwater runoff with adequate freeboard to building floor levels. In the event of Council being requested to approve the location of a piece of infrastructure on its land, it will require:
 - Documentation that such an activity will not prejudice the use of the land for the purpose for which it exists.
 - A possible preparation or amendment to the Plan of Management for the land, and if this action is necessary a fee may be required.
10. Fill is permitted with Council consent in flood plains in the areas shown in Figure 25.



Figure 25: Areas which may be filled with Council Consent

2.7 Contamination

In the consideration of any Development Application, Council must consider whether the land is likely to be contaminated. Refer to Contaminated Land Risk in Part 1 for controls. Refer to Figure 26.

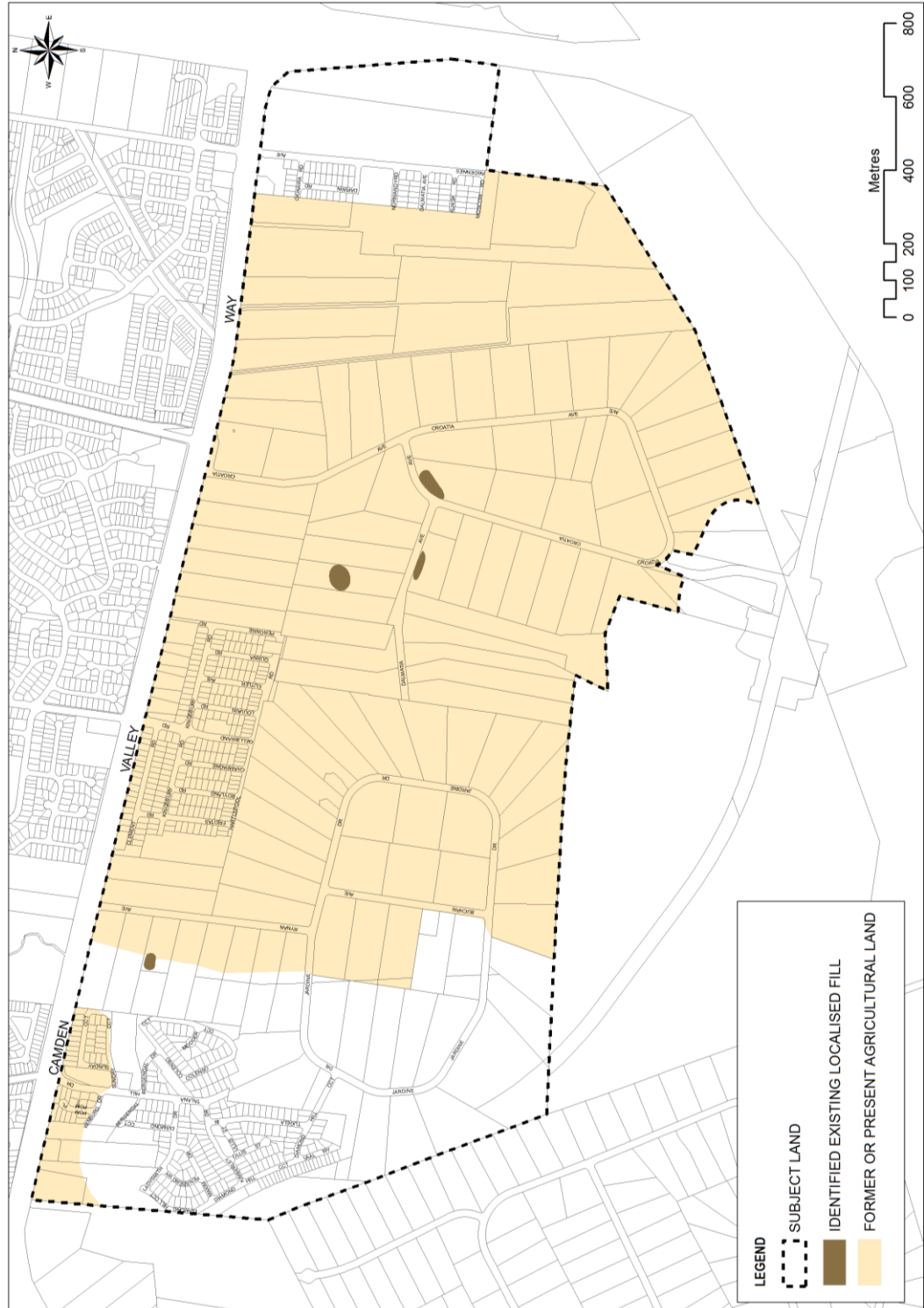


Figure 26: Contamination

3. Controls for Residential Development in Urban areas (28 Dwellings/Hectare) and Residential Flat Buildings

3.1 Preliminary

Applies to

This section applies to land identified in Liverpool LEP 2008 Dwelling Density Map as having a minimum density of 28 Dwellings / Hectare.

Background

Development within the 28 dwellings/hectare area is primarily intended for the Residential Flat Buildings and Multi Dwelling Housing. Development for detached dwellings is strongly discouraged within this area. However detached dwellings are permitted if desired on lots that do not front or back onto the bus priority corridor, any parks or parkland (the C1, C2, C3, RE1 or RE2 zones).

3.2 Site Planning

Objectives

- a) To ensure that the residential flat buildings or dwellings(s) are sensitive to site attributes, such as streetscape character, natural landform, drainage, existing vegetation, land capability, slope, solar access and if relevant, heritage items.
- b) To ensure privacy for residents and neighbours.

Controls

1. The dwelling layout must be designed around the site attributes such as slope, existing vegetation, land capability and/or solar access (See Figure 27 for a site analysis plan).
2. Basement car parking (if applicable) should be unobtrusive and blend into the general façade of the building.
3. There must be a direct link from at least one living area to the principal private open space, which for residential flat buildings is the balcony or terrace.
4. The siting of windows of habitable rooms on the first floor shall minimise overlooking to the principal private open space of neighbouring properties.
5. Stormwater from the site must be able to be drained satisfactorily. Where the site falls away from the street, it may be necessary to obtain an easement over adjoining property to drain water satisfactorily to a Council stormwater system. Where stormwater drains directly to the street, there may also be a need to incorporate on-site detention of stormwater where street drainage is inadequate. Refer to Water cycle management in Part 1.

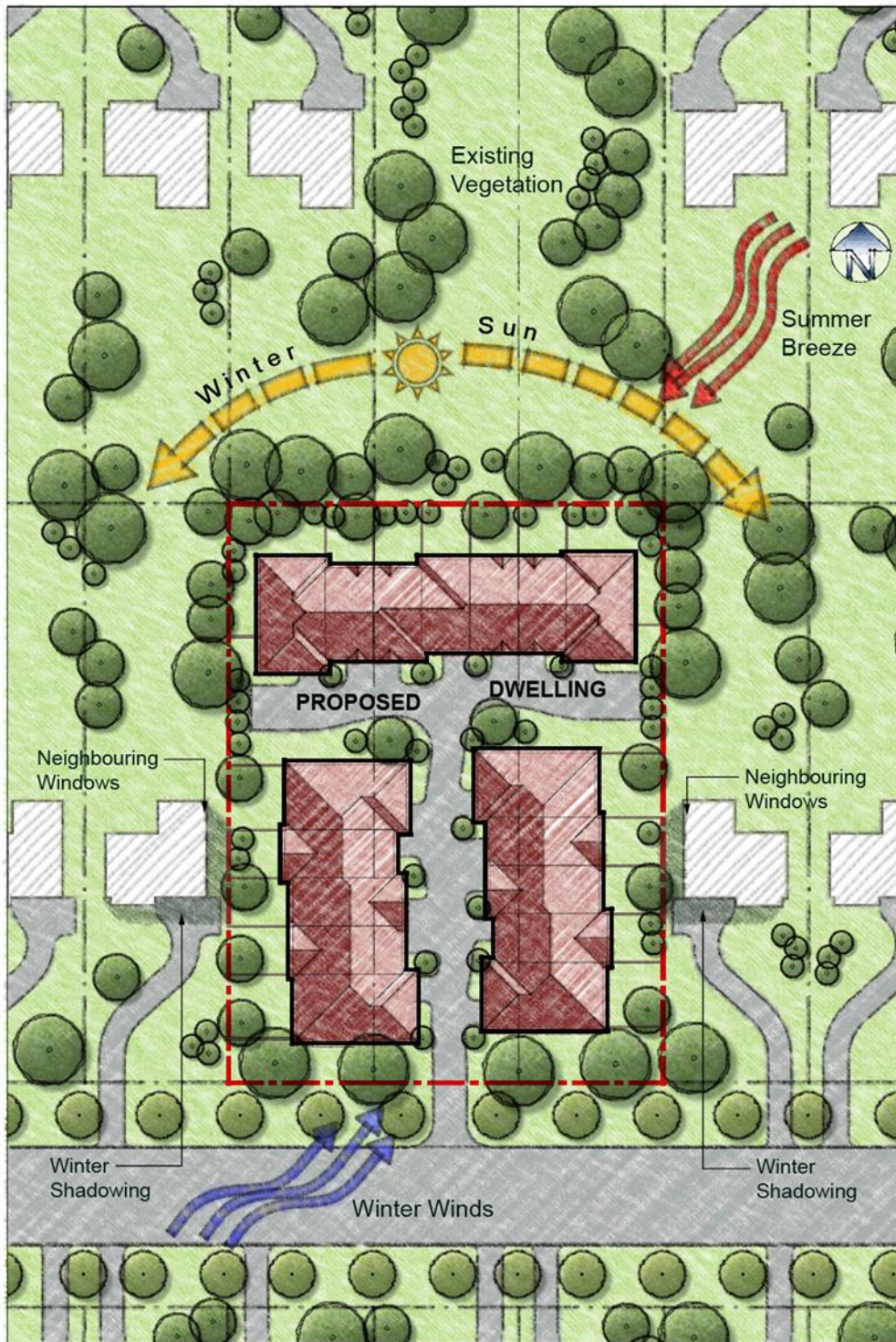


Figure 27: Example of a Site Analysis Plan

3.3 Setbacks

Objectives

- a) To set dwellings back from the street and adjacent properties to provide reasonable space for landscaping, private open space and solar access.
- b) To set dwellings back from each other to provide visual and acoustic privacy.
- c) To create a streetscape that provides a desirable and safe environment.
- d) To establish a streetscape of a scale and sense of enclosure appropriate to the locality.
- e) To maximise the amount of area capable of allowing the growth of trees and shrubs.

Controls

Front and Secondary Setbacks

1. Buildings shall be setback in accordance with Table 1.

Table 1: Setbacks within the 28 dw / ha area

Front Setback	Secondary Setback
4.5 m	2.5 m

2. For lots containing a dwelling house, the secondary setback is generally along the longest length boundary. For multi-dwelling housing or residential flat buildings, the secondary setback faces the secondary road, which is likely to be the shorter boundary(s).
3. Garages shall be setback 5.5m from any street frontage, or 1.0m from a secondary boundary when consistent with a typology shown in Figure 21.
4. Articulation features such as verandahs, eaves and other sun control devices may encroach on the front and secondary setback by up to 1m.
5. Corner sites shall provide a frontage to both streets and should articulate their corner location with an architectural feature such as a wraparound verandah, bay window, corner entry or roof feature. The maximum distance for articulation is 1m.

Side and Rear Setbacks

1. Buildings shall be setback from the side and rear boundaries in accordance with Table 2.

Table 2: Side and Rear setbacks within the 28 dw / ha area

Item	Side Setback			Rear Setback		
	Residential Flat Building	Multi Dwelling Housing	Dwelling house Attached dwelling Semi-detached dwelling	Residential Flat Building	Multi Dwelling Housing	Dwelling house Attached dwelling Semi-detached dwelling
Party Wall	0m	0 m	0 m	n/a	n/a	n/a
1 storey	3 m	0.9 m	0.9 m	6 m	4 m	4 m

2 storey	3 m	1.2 m	1.2 m	6 m	6 m	6 m
3 storeys and above	Refer to Apartment Design Guide (or equivalent)	1.4 m	1.4 m	Refer to Apartment Design Guide (or equivalent)	7 m	6 m

Note: In a terrace style attached dwelling development the upper storey setbacks do not apply to the terraces unless by having the zero lot line will create unreasonable solar shading - (that the adjacent lot's dwelling will not receive the minimum 3 hours sunlight to 50% between 9am and 3pm on the 21st June)

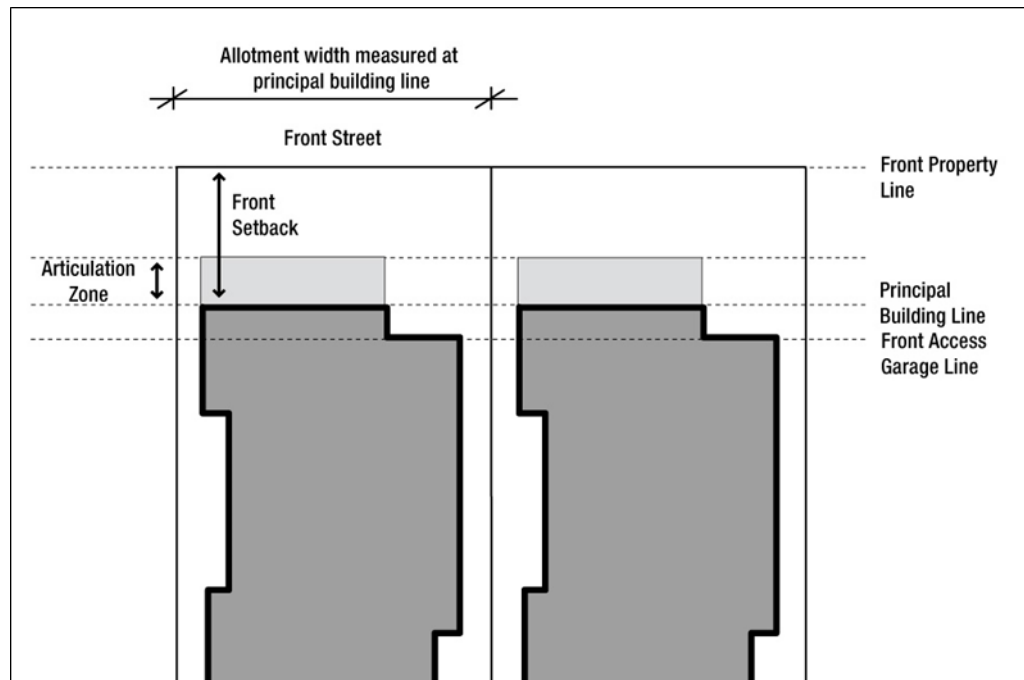


Figure 28: Front Setback Line

Zero lot lines for attached and semi-detached dwellings

This zero lot line control only applies to the end dwellings, in a multi-zero lot line multi dwelling development, such as terraces. It also applies to dwellings that have a zero lot lines. It does not apply to Residential flat buildings.

1. Walls are generally to be 180 mm clear of the side boundary to allow for gutter and eaves overhang.
2. The length of a zero lot line wall is limited to 50% of the lot length.
3. No windows are permitted in a zero lot line wall.
4. A maintenance easement of at least 0.9m shall be provided on the adjoining boundary. This is shown in Figure 29.

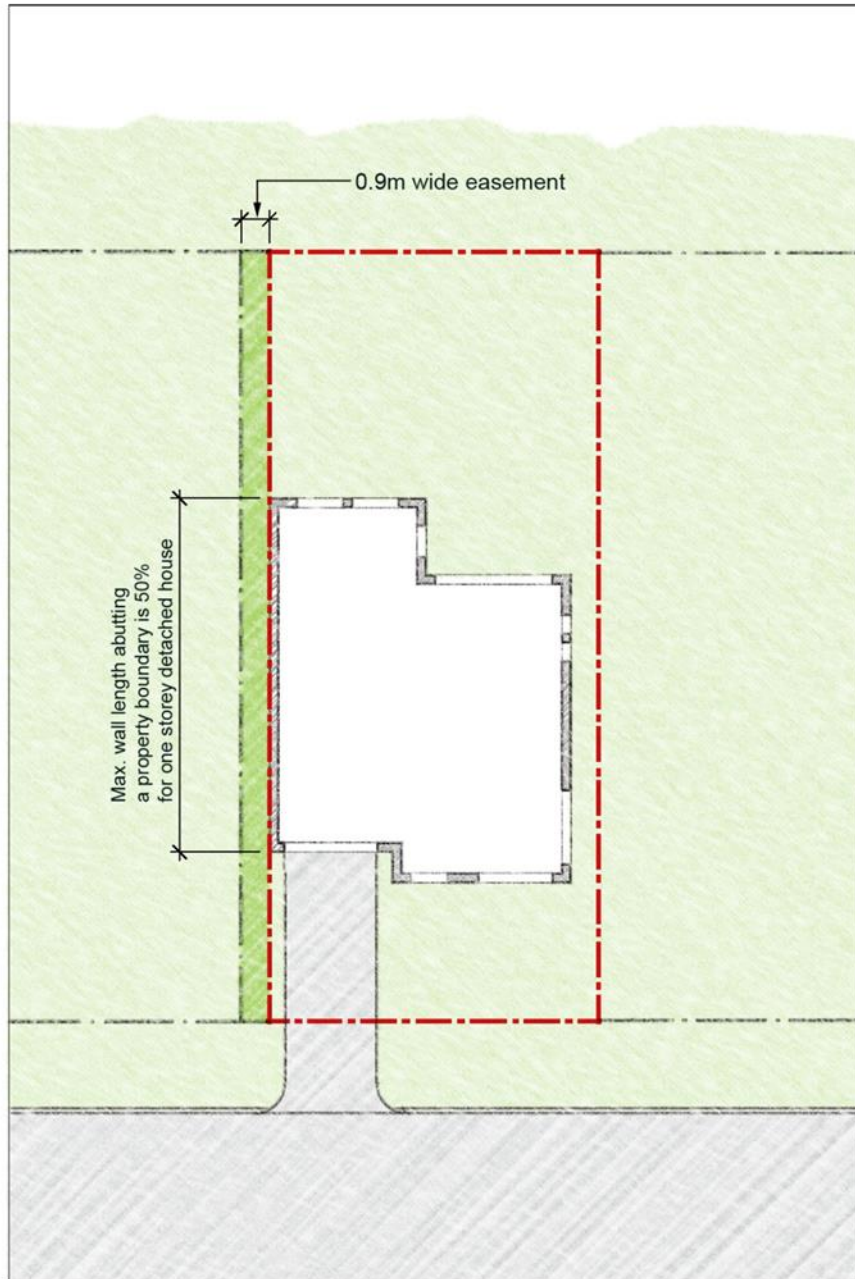


Figure 29: Zero Lot Lines

3.4 Landscaped Area and Private Open Space

Landscaped area is defined in Liverpool LEP 2008.

Landscaped Area (deep soil area)

Objectives

- a) To provide an area to allow vegetation to mature.
- b) To assist with management of the water table.
- c) To assist with management of water quality.
- d) To enhance the existing streetscape and soften the visual appearance of the buildings.

Controls

1. A minimum of 20% of the site area shall be landscaped area.
2. Optimise the provision of consolidated landscaped area within a site by:
 - The design of basement and sub-basement car parking, so as not to fully cover the site.
 - The use of side and rear setbacks.
 - Optimise the extent of landscaped area beyond the site boundaries by locating them contiguous with the landscaped area of adjacent properties.
3. Promote landscape health by supporting for a rich variety of vegetation type and size.
4. Increase the permeability of paved areas by limiting the area of paving and/or using pervious paving materials.

Open Space

Open space includes Landscaped Areas and hard paved areas such as footpaths and barbeque areas. It does not include driveways, drying areas or waste storage areas.

Objectives

- a) To provide residents with passive and active recreational opportunities.
- b) To provide an area on site that enables soft landscaping and deep soil planting.
- c) To ensure that communal open space is consolidated, configured and designed to be useable and attractive.
- d) To provide a pleasant outlook.

Controls

1. Provide communal open space, which is appropriate and relevant to the context and the building's setting.
2. Where communal open space is provided, facilitate its use for the desired range of activities by:
 - Locating it in relation to buildings to optimise solar access to dwellings.
 - Consolidating open space on the site into recognisable areas with reasonable space, facilities and landscape.
 - Designing its size and dimensions to allow for the range of uses it will contain.
 - Minimising overshadowing.
 - Carefully locating ventilation duct outlets from basement car parking.
3. Locate open space to increase the potential for residential amenity.

Private Open Space

Objective

- a) To ensure that private open space is clearly defined, usable and meets user requirements for privacy, solar access, outdoor activities, accessibility and landscaping.
- b) To provide all dwellings with private open space.

Controls

1. Private open space for residential flat buildings shall be consistent with the Apartment Design Guide (or equivalent document).
2. Private open space shall be provided for in accordance with Table 3 for Multi Dwelling Housing, Attached dwellings, Semi-detached dwellings and Dwelling houses.

Table 3: Private open space in the 28 dw / ha area for all other dwellings

Dwelling Size	Private Open Space Area	Minimum Width
Less than 65 m ²	30sqm	3m
Between 65 and 100	40sqm	3m
Between 101 and 150	50sqm	4m
Between 151 and 200	60sqm	4m
Greater than 200 m ²	70sqm	4.5m

3. Private open space may be provided as a courtyard for ground floor dwellings or as balconies for dwellings above the ground floor.
4. Private open space areas should be an extension of indoor living areas and be functional in size to accommodate seating and the like.
5. Private open space should be clearly defined for private use.

For balconies refer to Building Design, Streetscape and Layout for controls on their design.

Drying areas

Objective

To provide adequate clothes drying areas for residents.

Controls

1. Clothes drying facilities must be provided. Clothes drying areas should not be visible from a public place.

3.5 Building Design and Streetscape

Dwelling Houses and Dual Occupancies

Building Envelopes

1. A Dwelling House, Semi-detached dwelling or attached dwelling shall have a maximum of three storeys plus an attic.
2. Attics do not constitute a storey if they are included in a roof space and having a roof slope not greater than 36 degrees pitched from the ceiling level of the uppermost floor; provided that:

- All windows face the street.
- Access to the attic must be via permanent stairs.
- Attics are to be provided with skylights, or a dormer window. A dormer window shall be a maximum of 1.5m wide and must maintain the privacy of the adjoining residents.

Building Design

The built form must be uniform in bulk and scale but seek some variety in terms of building elements such as balconies, entrances, carports and roof forms.

The controls aim to ensure that a level of consistency is maintained in those building elements.

Objectives

- a) To promote an architectural style that is contemporary and innovative
- b) To encourage designs that will enhance the character of the neighbourhood.
- c) To promote variation of building facade and design.
- d) That the building enhances the streetscape through the use of suitable built form design and landscaping.
- e) To ensure buildings address all street frontages.
- f) To discourage garages and in particular garage doors, from visually dominating the streetscape.
- g) To ensure that the building design, detailing, colour and finish shall add visual interest to the street and shall compliment the street.
- h) To ensure habitable rooms address the street.
- i) To encourage balconies over garages on two storey dwellings.

Controls

Building Appearance

1. Simply articulated building forms are preferred
2. Dwellings must address the street frontage
3. Mirror imaging of a Semi-detached dwelling is not permitted
4. One building must be set back a minimum of 1m behind the other building in Semi-detached dwellings.
5. Attached dwellings or Semi-detached dwellings are not permitted to zero lot line, except to the other dwelling.
6. Dwellings corner sites must address both street frontages.
7. Use of verandas and balconies are encouraged.
8. Vertically proportioned windows are encouraged.
9. Abutting dwellings within the 28 dwellings / hectare area should provide for a high variety of different building designs, making an eclectic yet coherent streetscape with examples shown in Figure 30.

Building Materials

1. External walls of dwellings can be constructed with the following materials:
 - Face brickwork,
 - Rendered brickwork,
 - Stone,
 - Concrete wall,

- Glass, and
 - Lightweight materials such as, weatherboards, timber boarding or fibre cement.
2. External walls are to display a mix of materials.
 3. Lightweight materials are only permitted on upper storey external walls.

Retaining Walls

1. Retaining walls can be either built of masonry or sandstone.

Roofs

1. Simple use of gables and pitched and hipped roofs is encouraged.
2. Pitched and hipped roofs are to have a minimum of 450mm eaves unless the dwelling has zero metre side setbacks.
3. Roof pitch must not be lower than 22.5 degrees or higher than 45 degrees.
4. Skillion and vaulted roofs are permitted.
5. Flat roofs must not dominate the built form.
6. Flat roofs must not occupy more than 50% of the total roof area.

Balconies

1. Decks and balconies can be built to form framed porticos or entrances.
2. Balconies should incorporate simple railing and balustrade detailing.

Levels

1. Dwellings are to follow the slope of the land.

Building Depth

Objectives

To achieve the development of working and living environments with good internal amenity and that minimise the need for artificial heating, cooling and lighting.

Controls

Maximum building depths for houses are 16m, unless internal courtyards are provided.

Internal Design of Dwellings

Objectives

- a) The internal design must contribute to personal safety and to the protection of property by permitting casual surveillance of public spaces from private windows and entries.
- b) To provide passive surveillance from rooms addressing the street or any adjoining open space.
- c) To encourage the internal design of the dwelling to take advantage of cross ventilation.
- d) To locate amenity rooms (such as laundries, bathrooms, toilets) to the side and rear of the development.
- e) To ensure that each dwelling shall provide a sufficient amount of storage for elements such as garden and sports equipment.

Controls

1. All dwellings shall have habitable rooms located to the front of the dwelling for security and surveillance to the street.
2. Living rooms should take advantage of northern aspects.

3. Access to private open space must be from at least one living room.
4. The internal layout of the dwelling must incorporate cross ventilation.
5. Bathrooms, ensuites, laundries and walk in wardrobes should be located to the side or rear of the dwelling.
6. Each dwelling must provide a minimum storage area of 8m³.
7. Locate active use rooms or habitable rooms with windows overlooking communal/public areas (e.g. playgrounds, gardens).
8. Dwelling entries must be oriented to the street.



Figure 30: Examples of variable attached building design

Multi Dwelling Housing

Building Design

Objectives

- a) To encourage designs that will enhance the character of the neighbourhood.
- b) To promote variation of building facade and design.
- c) That the building enhances the streetscape through the use of suitable built form design and landscaping.
- d) To ensure buildings address all street frontages.
- e) To discourage garages and in particular garage doors, from visually dominating the streetscape.
- f) To ensure that the building design, detailing, colour and finish shall add visual interest to the street and shall compliment the street.
- g) To ensure habitable rooms address the street.
- h) To encourage balconies over garages in two storey dwellings.
- i) To encourage steep or sloping site to build split level or stepped development.

Controls

1. Unit/s with a street frontage shall orientate the main entrance and where possible at least one living area towards the street.
2. Entry points shall be enhanced/emphasised to all dwellings especially those facing the street.
3. The first floor of the townhouse developments must be no greater than two thirds of the ground floor area.
4. Building facades shall be articulated and roof form is to be varied to provide visual variety.
5. Walls shall be a mix of masonry, rendered and or bagged, and painted, lightweight clad and painted and/or flush face brick. Justification will be required for 100% face brick facades or 100% rendered and painted brick and will be assessed on merit.
6. Facades can be articulated by:
 - The use of different materials and detailing.
 - The inclusion of balconies, verandahs, pergolas and landscaped beds.
7. A sidewall must be articulated if the wall has a continuous length of over 10m.
8. The entrance of each dwelling shall be emphasised.
9. Units built at the rear of the allotment must be single storey.
10. Driveways should avoid a 'gun barrel' effect by curving and siting of buildings, which create a driveway form with the divided carriageway separated by soft landscaping.
11. Attic floor space may be used when it is contained wholly within the roof pitch and will not be counted as a storey provided that the attic space is part of the dwelling unit.
12. Space used for car parking shall be included as a storey if the ceiling of the car parking level exceeds more than 1m above the natural ground level.
13. The maximum roof pitch shall be 36 degrees.
14. Townhouses built on steep or sloping lots should be built of split-level construction.

15. Row housing dwellings within the 28 dwellings / hectare area should provide for a high variety of different building designs, making an eclectic yet coherent streetscape with examples shown in Figure 30.

Internal Design

Objectives

- a) The internal design must contribute to personal safety and to the protection of property by permitting casual surveillance of public spaces from private windows and entries.
- b) To provide natural surveillance from a room addressing the street.
- c) To encourage the internal design of the dwelling to take advantage of cross ventilation.
- d) To locate amenity rooms (such as laundries, bathrooms, toilets) to the side and rear of the development.
- e) To ensure that each unit provides a sufficient amount of storage for elements such as garden and sports equipment.

Controls

1. Townhouses and villa's located on street boundaries shall have habitable rooms located to the front of the dwelling for security and surveillance to the street.
2. Living rooms should take advantage of northern aspects where possible.
3. Access to private open space must be from at least one living room.
4. The internal layout of the dwelling must incorporate cross ventilation.
5. Bathrooms, ensuites, laundries and walk in wardrobes should be located to the side and the rear of the development.
6. Each dwelling must provide a minimum storage area of 8m³.
7. Locate active use rooms or habitable rooms with windows overlooking communal/public areas (e.g. playgrounds, gardens).

Residential Flat Buildings

Building Design

Objectives

- a) To ensure an attractive streetscape that is consistent with the environment of residential flat buildings.
- b) To promote high architectural quality in residential flat buildings.
- c) To ensure that new developments have facades which define and enhance the public domain and desired street character.
- d) To ensure that building elements are integrated into the overall building form and facade design.

Controls

1. Residential Flat Buildings shall comply with State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development, and should consider the Apartment Design Guide (ADG) or equivalent.
2. Building facades shall be articulated and roof form is to be varied to provide visual variety.
3. The pedestrian entrance to the building shall be emphasised.
4. A sidewall must be articulated if the wall has a continuous length of over 14m.

5. Driveway walls adjacent to the entrance of a basement car park are to be treated so that their appearance is consistent with the basement or podium walls.
6. Sensitive design of basement car parking areas can assist in ensuring that podiums and vehicle entry areas do not dominate the overall design of the building or the streetscape and optimise areas for deep soil planting.
7. The integration of podium design should be an integral part of the design of the development, and as far as possible should not visibly encroach beyond the building footprint.
8. A master antenna shall be provided for any development of more than three dwellings and be located so that it is not visible from the street or any public open space.
9. Consider the relationship between the whole building form and the facade and / or building elements. The number and distribution of elements across a façade determine simplicity or complexity. Columns, beams, floor slabs, balconies, window openings and fenestrations, doors, balustrades, roof forms and parapets are elements, which can be revealed or concealed and organised into simple or complex patterns.
10. Compose facades with an appropriate scale, rhythm and proportion, which respond to the building's use and the desired contextual character. This may include but are not limited to:
 - Defining a base, middle and top related to the overall proportion of the building.
 - Expressing key datum lines in the context using cornices, a change in materials or building set back.
 - Expressing the internal layout of the building, for example, vertical bays or its structure, such as party wall-divisions.
 - Expressing the variation in floor-to-floor height, particularly at the lower levels.
 - Articulating building entries with awnings, porticos, recesses, blade walls and projecting bays.
 - Selecting balcony types which respond to the street context, building orientation and residential amenity.
 - Cantilevered, partially recessed, wholly recessed, or Juliet balconies will all create different facade profiles.
 - Detailing balustrades to reflect the type and location of the balcony and its relationship to the façade detail and materials.
11. Design facades to reflect the orientation of the site using elements such as sun shading, light shelves and bay windows as environmental controls, depending on the facade orientation.
12. Express important corners by giving visual prominence to parts of the facade, for example, a change in building articulation, material or colour, roof expression or increased height.
13. Co-ordinate and integrate building services, such as drainage pipes, with overall facade and balcony design.
14. Co-ordinate security grills/screens, ventilation louvres and car park entry doors with the overall facade design

Internal design

Objective

To ensure that the internal design of buildings provide a pleasant environment for the occupants and residents of adjoining properties.

Controls

1. All staircases should be internal.
2. Minimise the length of common walls between dwellings.
3. Basement car parking shall be located beneath the building footprint.
4. Where possible natural ventilation shall be provided to basement car parking.
5. Design building layouts to minimise direct overlooking of rooms and private open spaces adjacent to dwellings
6. Minimise the location of noise sensitive rooms such as bedrooms adjoining noisier rooms such as bathrooms or kitchens or common corridors and stairwells.
7. Where a site has boundary to a Classified Road, locate bedrooms away from that boundary.
8. Where common walls are provided they must be carried to the underside of the roof and be constructed in accordance with Part F5 of the Building Code of Australia.
9. Locate active use rooms or habitable rooms with windows overlooking communal/public areas (e.g. playgrounds, gardens).

Ground Floor Dwellings

Objectives

- a) To contribute to the desired streetscape of an area and to create active safe streets.
- b) To increase the housing and lifestyle choices available in dwelling buildings.

Controls

1. Design front gardens or terraces, which contribute to the spatial and visual structure of the street while maintaining adequate privacy for dwelling occupants. This can be achieved by animating the street edge, for example, by promoting individual entries for ground floor dwellings.
2. Create more pedestrian activity along the street and articulate the street edge by:
 - Balancing privacy requirements and pedestrian accessibility.
 - Providing appropriate fencing, lighting and/ or landscaping to meet privacy and safety requirements of occupants while contributing to a pleasant streetscape.
 - Utilising a change in level from the street to the private garden or terrace to minimise site lines from the streets into the dwelling for some dwellings.
 - Increasing street surveillance with doors and windows facing onto the street.
3. Planting along the terrace edge contributes to a quality streetscape.
4. Ground floor dwellings are special because they offer the potential for direct access from the street and on-grade private landscape areas. They also provide opportunities for the dwelling building and its landscape to respond to the streetscape and the public domain at the pedestrian scale. Ground floor dwellings also support housing choice by providing accessibility to the elderly and/or disabled and support families with small children.
5. Optimise the number of ground floor dwellings with separate entries and consider requiring an appropriate percentage of accessible units. This relates to the desired streetscape and topography of the site.
6. Provide ground floor dwellings with access to private open space, preferably as a courtyard.

Natural Ventilation

Objectives

- a) To ensure that dwellings are designed to provide all habitable rooms with direct access to fresh air and to assist in promoting thermal comfort for occupants.
- b) To provide natural ventilation in non-habitable rooms, where possible.
- c) To reduce energy consumption by minimising the use of mechanical ventilation, particularly air conditioning.

Controls

1. Utilise the building layout and section to increase the potential for natural ventilation. Design solutions may include:
 - Facilitating cross ventilation by designing narrow building depths and providing dual aspect dwellings, for example, cross through dwellings and corner dwellings.
 - Facilitating convective currents by designing units, which draw cool air in at lower levels and allow warm air to escape at higher levels, for example, maisonette dwellings and two-storey dwellings.
2. Select doors and windows (that open) to maximise natural ventilation opportunities established by the dwelling layout.
3. Provide narrow building depths to support cross ventilation.
4. Avoid single-aspect dwellings with a southerly aspect.
5. Design the internal dwelling layout to promote natural ventilation by:
 - Minimising interruptions in air flow through an dwelling.
 - Grouping rooms with similar usage together, for example, keeping living spaces together and sleeping spaces together. This allows the dwelling to be compartmentalised for efficient summer cooling or winter heating.
 - Select doors and operable windows to maximise natural ventilation opportunities established by the dwelling layout.

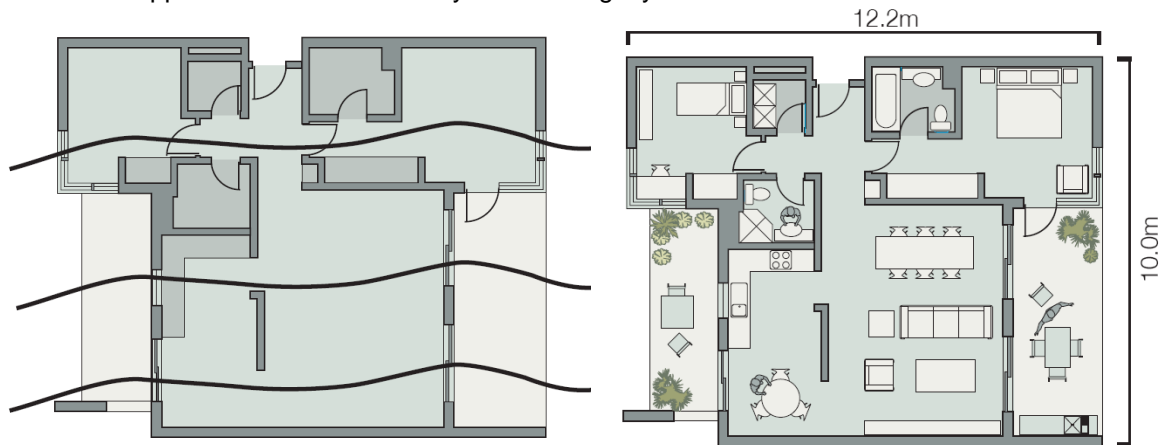


Figure 31: Cross Ventilation

Storage Areas

Objective

To provide for the need of residents to be able to store personal items adjacent to the car parking area.

Controls

1. A secure storage space is to be provided for each dwelling with a minimum volume 8m³ (minimum dimension 2m). This must be set aside exclusively for storage as part of the basement or garage.
2. Storage areas must be adequately lit and secure. Particular attention must be given to security of basement and garage storage areas.

All Residential Development

Roof Design

Objectives

- a) To provide quality roof designs, which contribute to the overall design and performance of residential flat buildings.
- b) To integrate the design of the roof into the overall facade, building composition and desired contextual response.
- c) To increase the longevity of the building through weather protection.

Controls

1. Relate roof design to the desired built form. This may include:
 - Articulating the roof, or breaking down its massing on large buildings, to minimise the apparent bulk or to relate to a context of smaller building forms.
 - Using a similar roof pitch or material to adjacent buildings, particularly in existing special character areas or heritage conservation areas.
 - Minimising the expression of roof forms gives prominence to a strong horizontal datum in the adjacent context, such as an existing parapet line.
 - Using special roof features, which relate to the desired character of an area, to express important corners.
2. Design the roof to relate to the size and scale of the building, the building elevations and three-dimensional building form. This includes the design of any parapet or terminating elements and the selection of roof materials.
3. Design roofs to respond to the orientation of the site, for example, by using eaves and skillion roofs to respond to sun access.
4. Minimise the visual intrusiveness of service elements by integrating them into the design of the roof. These elements include lift over-runs, service plants, chimneys, vent stacks, telecommunication infrastructures, gutters, downpipes and signage.
5. Where habitable space is provided within the roof, optimise residential amenity in the form of attics or penthouse dwellings.

Building Entry

Objectives

- a) To create entrances which provide a desirable residential identity for the development.
- b) To orient the visitor.
- c) To contribute positively to the streetscape and building facade design.

Controls

1. Improve the presentation of the development to the street by:
 - Locating entries so that they relate to the existing street and subdivision pattern, street tree planting and pedestrian access network.
 - Designing the entry as a clearly identifiable element of the building in the street.
 - Utilising multiple entries-main entry plus private ground floor dwelling entries-where it is desirable to activate the street edge or reinforce a rhythm of entries along a street.
2. Provide as direct a physical and visual connection as possible between the street and the entry.
3. Achieve clear lines of transition between the public street, the shared private, circulation spaces and the dwelling unit.
4. Ensure equal access for all.
5. Provide safe and secure access by:
 - Avoiding ambiguous and publicly accessible small spaces in entry areas.
 - Providing a clear line of sight between one circulation space and the next.
 - Providing sheltered well-lit and highly visible spaces to enter the building, meet and collect mail.
6. Generally provide separate entries from the street for:
 - Pedestrians and cars.
 - Different uses, for example, for residential and commercial users in a mixed-use development.
 - Ground floor dwellings, where applicable.
7. Design entries and associated circulation space of an adequate size to allow movement of furniture between public and private spaces.
8. Provide and design letterboxes to be convenient for residents and not to clutter the appearance of the development from the street by:
 - Locating them adjacent to the major entrance and integrated into a wall, where possible.
 - Setting them at 90 degrees to the street, rather than along the front boundary.

Daylight Access

Objectives

- a) To ensure that daylight access is provided to all habitable rooms and encouraged in all other areas of residential flat development.
- b) To provide adequate ambient lighting and minimise the need for artificial lighting during daylight hours.
- c) To provide residents with the ability to adjust the quantity of daylight to suit their needs.

Controls

1. Plan the site so that new dwellings are oriented to optimise northern aspect.
2. Ensure direct daylight access to communal open space between March and September and provide appropriate shading in summer.
3. Optimise the number of dwellings receiving daylight access to habitable rooms and principal windows.

4. Ensure daylight access to habitable rooms and private open space, particularly in winter - use skylights, clerestory windows and fanlights to supplement daylight access.
5. Promote two-storey and mezzanine, ground floor dwellings or locations where daylight is limited to facilitate daylight access to living rooms and private open spaces.
6. Ensure single aspect, single-storey dwellings have a northerly or easterly aspect - locate living areas to the north and service areas to the south and west of the development.
7. Avoid south facing dwellings.
8. Design for shading and glare control, particularly in summer, by:
 - Using shading devices, such as eaves, awnings, colonnades, balconies, pergolas, external louvres and planting.
 - Optimising the number of north-facing living spaces.
 - Providing external horizontal shading to north-facing windows.
 - Providing vertical shading to east or west windows.
9. Consider higher ceilings and higher window heads to allow deeper sunlight penetration.
10. On west facing windows, vertical louvre panels or sliding screens protect from glare and low afternoon sun.
11. On north facing windows, projecting horizontal louvres admit winter sun while shading summer sun.
12. Use high performance glass but minimise external glare off windows, by:
 - Avoiding reflective films.
 - Using a glass reflectance below 20%.
 - Considering reduced tint glass.
13. Limit the use of lightwells as a source of daylight by limiting their use as the primary source of daylight in habitable rooms. Where they are used:
 - Relate lightwell dimensions to building separation, for example, if non-habitable rooms face into a light well less than 12m high, the lightwell should measure 6 x 6m.
 - Conceal building services and provide appropriate detail and materials to visible walls.
 - Ensure light wells are fully open to the sky.
 - A combination of louvres provides shading for different times of the day.

3.6 Car Parking and Access

Residential Flat Buildings

Objectives

- a) To provide convenient, accessible and safe on site car parking for residents and visitors.
- b) To minimise driveway crossings to maximise on street parking and landscaped nature strips.
- c) To integrate the location and design of car parking with the design of the site and building without compromising street character, landscape or pedestrian amenity and safety.
- d) To integrate the location and design of car parking with the design of the site and the building.

Controls

1. Visitor car parking shall be clearly identified and may not be stacked or tandem car parking.
2. Visitor car parking shall be located between any roller shutter door and the front boundary.
3. Pedestrian entries and driveways shall be separated.
4. Driveways shall be designed to accommodate removalist vehicles.
5. Where possible vehicular entrances to the basement car parking shall be from the side of the building. As an alternative a curved driveway to an entrance at the front of the building may be considered if the entrance is not readily visible from the street.
6. Give preference to underground parking, whenever possible by:
 - Retaining and optimising the consolidated areas of deep soil zones.
 - Facilitating natural ventilation to basement and sub-basement car parking areas, where possible.
 - Integrating ventilation grills or screening devices of car park openings into the facade design and landscape design.
 - Providing safe and secure access for building users, including direct access to residential dwellings, where possible.
 - Providing a logical and efficient structural grid. There may be a larger floor area for basement car parking than for upper floors above ground. Upper floors, particularly in slender residential buildings, do not have to replicate basement car parking widths.
7. Where above ground enclosed parking cannot be avoided, ensure the design of the development mitigates any negative impact on streetscape and street amenity by:
 - Avoid exposed parking on the street frontage.
 - Hiding car parking behind the building facade. Where wall openings (windows, fenestrations) occur, ensure they are integrated into the overall facade scale, proportions and detail.



Figure 32: Car parking at ground level

Pedestrian Access

Objectives

- a) To promote residential flat development and multi dwelling housing that is well connected to the street and contributes to the accessibility of the public domain.
- b) To ensure that residents, including users of strollers and wheelchairs and people with bicycles, are able to reach and enter their dwelling and use communal areas via minimum grade ramps, paths, access ways or lifts.

Controls

1. Utilise the site and it's planning to optimise accessibility to the development.
2. Provide high quality accessible routes to public and semi-public areas of the building and the site, including major entries, lobbies, communal open space, site facilities, parking areas, public streets and internal streets.
3. Promote equity by:
 - Ensuring the main building entrance is accessible for all from the street and from car parking areas.
 - Integrating ramps into the overall building and landscape design.
 - Design ground floor dwellings to be accessible from the street, where applicable, and to their associated private open space.
4. Maximise the number of accessible and adaptable dwellings in a building by:
 - Providing more than one accessible entrance where a development contains clusters of buildings.
 - Separating and clearly distinguish between pedestrian accessways and vehicle accessways.
 - Locating vehicle entries away from main pedestrian entries and on secondary frontages.

Dwelling Houses, Attached dwellings or Semi-detached dwellings

Objectives

- a) To provide car parking facilities on site that are convenient, safe and have sufficient space for vehicular manoeuvrability, whilst being visually unobtrusive.
- b) To minimise the need for on street car parking from new dwellings.

Controls

1. Two car parking spaces shall be provided for each dwelling.
2. At least one car parking must be provided behind the front setback.
3. A car parking space is to have a minimum dimension of 2.5 x 5.5m.
4. A single garage is to be a minimum of 3m wide internally and unobstructed.

3.7 Amenity and Environmental Impact

Overshadowing

Objective

To minimise overshadowing of neighbouring dwellings and their private open space.

Controls

Adjoining properties must receive a minimum of three hours of sunlight between 9am and 5pm on 21 June to at least:

- One living, rumpus room or the like; and
- 50% of the private open space.

Privacy

Objectives

- a) To locate and design buildings to meet projected user requirements for visual and acoustic privacy and to protect privacy of nearby residents.
- b) To avoid any external impacts of a development, such as overlooking of adjoining sites.
- c) To provide reasonable levels of visual privacy externally and internally, during the day and at night.
- d) To maximise outlook and views from principal rooms and private open space.

Controls

1. Building siting, window location, balconies and fencing should take account of the importance of the privacy of on site and adjoining buildings and outdoor spaces.
2. Windows to habitable rooms should be located so they do not overlook such windows in adjoining properties, other dwellings within the development or areas of private open space.
3. Landscaping should be used where possible to increase visual privacy between dwellings and adjoining properties.
4. Where possible the ground floor dwellings should be located above ground level to ensure privacy for occupants of the dwellings.

5. Design building layouts to minimise direct overlooking of rooms and private open spaces adjacent to dwellings by:
 - Balconies to screen other balconies and any ground level private open space.
 - Separating communal open space, common areas and access routes through the development from the windows of rooms, particularly habitable rooms.
 - Changing the level between ground floor dwellings with their associated private open space, and the public domain or communal open space.
6. Use detailed site and building design elements to increase privacy without compromising access to light and air by:
 - Offsetting windows of dwellings in new development and adjacent development windows.
 - Recessed balconies and/or vertical fins between adjacent balconies.
 - Solid or semi-solid balustrades to balconies - louvres or screen panels to windows and/or balconies.
 - Fencing.
 - Vegetation as a screen between spaces.
 - Incorporating planter boxes into walls or balustrades to increase the visual separation between areas.
 - Utilising pergolas or shading devices to limit overlooking of lower dwellings or private open space.



Figure 33: Screening and lower level balconies

Acoustic Impact

Objective

To ensure a high level of amenity by protecting the privacy of residents within residential flat buildings.

Controls

1. Noise attenuation measures should be incorporated into building design to ensure acoustic privacy between on-site and adjoining buildings.
2. Buildings having frontage to a Classified Road or a railway and impacted upon by rail or traffic related noises must incorporate the appropriate noise and vibration mitigation measures into the design in terms of the site layout, building materials and design, orientation of the buildings and location of sleeping and recreation areas.
3. The proposed buildings must comply with the Environment Protection Authority criteria and the current relevant Australian Standards for noise and vibration and quality assurance.
4. Arrange dwellings within a development to minimise noise transition between dwellings by:
 - Locating busy, noisy areas next to each other and quieter areas next to other quiet areas, for example, living rooms with living rooms, bedrooms with bedrooms.
 - Using storage or circulation zones within a dwelling to buffer noise from adjacent dwellings, mechanical services or corridors and lobby areas.
 - Minimising the amount of common walls with other dwellings.
 - Design the internal dwelling layout to separate noisier spaces from quieter spaces by grouping uses within an dwelling - bedrooms with bedrooms and service areas like kitchen, bathroom, and laundry together.

3.8 Site Services

Objectives

- a) To ensure that the required services are provided.
- b) To ensure that the services provided are easily protected or maintained.

Controls

Letterboxes

1. Letterboxes shall to be provided for each dwelling on site, easily accessible from the street, able to be securely locked and provided in accordance with Australia Post's requirements.
2. Freestanding letterbox structures should be designed and constructed of materials that relate to the main building.
3. Residential numbering should be attached to the letterbox so that it is clearly visible from the street frontage. Numbers should be 75mm in height, reflective and in contrast to the backing material.

Waste management

1. Waste disposal facilities shall be provided for development. These shall be located adjacent to the driveway entrance to the site.
2. Any structure involving waste disposal facilities shall be located as follows:
 - Setback 1m from the front boundary to the street.
 - Landscaped between the structure and the front boundary and adjoining areas to minimise the impact on the streetscape.
 - Not be located adjacent to an adjoining residential property.
 - Details of the design of waste disposal facilities are shown in Part 1 of the DCP.

Frontage works and damage to Council infrastructure

1. Where a footpath, road shoulder or new or enlarged access driveway is required to be provided this shall be provided at no cost to Council.
2. Council must be notified of any works that may threaten Council assets. Council must give approval for any works involving Council infrastructure.
3. Where there are no existing street trees in front of the site and contributions have not been collected for street tree planting it may be a condition of consent that street trees be provided in the footpath area immediately in front of the site.

Electricity Sub Station

1. In some cases it may be necessary to provide an electricity substation at the front of the development adjacent to the street frontage. This will involve dedication of the area as a public street to allow access by the electricity provider. The front boundary treatment used elsewhere on the street frontage.

3.9 Residential Choice and Mix for Apartment Buildings

A mix of apartment types and sizes is proposed to cater for a variety of socio-economic groups. A range of dwelling sizes and types creates a housing mix that will cater for a diverse population, as well as provide for changing use over time.

Objectives

- a) To ensure development provides a mix of apartment types and sizes to accommodate a range of household types and needs.
- b) To ensure apartment sizes and room proportions are adequate to meet the needs of the occupants and to afford a range of changing activities over time.
- c) Ensure a sufficient proportion of dwellings include accessible layouts and features to accommodate changing requirements of residents.
- d) Ensure the provision of housing that will, in its adaptable features, meet the access and mobility needs of any occupant.

In addition to the provisions for apartment mix as per Part 4 of the Apartment Design Guide (ADG) or equivalent, the following additional controls apply.

Controls

1. Provide a variety of residential unit mix, sizes, and layouts within each residential development, particularly in larger buildings. It is recognised that the dwelling mixes may not be possible in smaller developments of less than six dwellings.
2. To achieve a mix of living styles, sizes and layouts within each residential development, comply with the following:

- Provide a mix of studio, 1 bedroom, 2 bedroom and 3 bedroom units.
 - Studios and 1 bedroom units are not to be greater than 25% and not less than 5% of the total mix of apartments within each development.
 - Two bedroom units are not to be more than 75% of the total mix of apartments within each development.
3. Provide apartments that are flexible enough to support a change in their use. The applicant will be required to demonstrate that a studio unit can be combined with other units to enable this to occur.
 4. 10% of all apartments are to be designed to be capable of adaptation for disabled or elderly residents. Dwellings must be designed in accordance with the Australian Adaptable Housing Standard (AS 4299-1995), which includes 'pre-adaptation' design details to ensure visit ability is achieved.
 5. Where possible, adaptable dwellings are to be located on the ground floor, for ease of access. Dwellings located above the ground level of a building may only be provided as adaptable dwellings where lift access is available within the building. The lift access must provide access from the basement to allow access for people with disabilities.
 6. The development application must be accompanied by certification from an accredited Access Consultant confirming that the adaptable dwellings are capable of being modified, when required by the occupant, to comply with the Australian adaptable Housing Standard (AS 4299-1995).
 7. Car parking and garages allocated to adaptable dwellings must comply with the requirements of the relevant Australian Standard for disable parking spaces.

3.10 Studio dwellings

Studio dwelling means a small self-contained dwelling that is erected above a garage facing a rear lane or a secondary road.

For the purpose of definition under the Liverpool Local Environmental Plan 2008, a Type 1 studio dwelling is a secondary dwelling.

For the purpose of definition under the Liverpool Local Environmental Plan 2008, a Type 2 studio dwelling is a dual occupancy or multi-dwelling housing.

Objectives

- a) To provide an alternate form of housing in master planned neighbourhoods that include community facilities.
- b) To provide for a variety of housing types to cater for varied socio-demographic households.
- c) To provide for passive surveillance to laneways and private accessways.

Controls

Type 1 Studio

Type 1 Studios are a room or rooms constructed above a detached garage associated with the main dwelling on the lot. The studio is primarily designed to be used by the occupants of the main dwelling. The studio shall comply with the following:

1. The studio shall be located on corner blocks or addressing secondary streets and on laneway entries and bends to improve surveillance.
2. Located on lots with a minimum size of 300sqm.
3. Must be detached from other studios.
4. Maximum gross floor area: 45sqm.

5. No additional car parking space is required.
6. The studio shall be located above the garage, carport or like structure for the principal dwelling on the land.
7. There may be no subdivision of the studio from the principal dwelling on the land.
8. Windows are not permitted on elevations which directly face the adjoining lots private open space.
9. Garages with studios above are to be constructed 1.5m from the rear boundary and may have a zero lot setback to one side boundary.
10. A studio must have a minimum separation of 4m from the first floor of the principal dwelling on the lot.
11. Studios shall not reduce the minimum required amount of solar access to any dwelling's (adjoining or on the principal dwelling) private open space as stipulated in Section 3.5 of this Part.

Type 2 Studio

Type 2 Studios are a room or rooms constructed above a detached garage that is intended to be separately strata titled to allow for independent living from the principal dwelling on the lot. The studio shall comply with the following:

1. The studio shall be located on corner blocks with laneway vehicle access.
2. Located on lots with a minimum size of 350sqm.
3. Maximum gross floor area: 75sqm.
4. Studio to be located above the garage, carport or like structure for the principal dwelling on the land and are to be detached from other studios.
5. One additional dedicated on-site car parking space is required to be associated with the Type 2 studio.
6. Car parking space is not to be located in front building setback of the principal dwelling.
7. Car parking space is not to be in a stacked configuration.
8. The studio must include provision of a balcony accessed directly off living space having minimum size of 6sqm, plus a minimum 10sqm ground level service yard with space for clothes drying facilities. The balcony shall not protrude over any property boundary.
9. Type 2 studios may be strata subdivided from the principal dwelling, or dwellings on the land.
10. Garages with studios are to be constructed 1.5m from the rear boundary and may have a zero lot setback to one side boundary.
11. A studio must have a minimum separation of 4m from the first floor of the principal dwelling on the lot.
12. Pedestrian access to studios is to be from the street frontage and not the laneway.
13. Provision for separate services and an on-site garbage storage area e.g. separate letter box.
14. Studios shall not reduce the minimum amount of solar access to any dwelling's (adjoining or on the principal dwelling) private open space as stipulated in Section 3.5 of this Part.
15. Windows are not permitted on elevations which directly face the adjoining lots private open space. Windows may be permitted on the elevation facing the principal dwelling on the lot where they have a minimum sill height of 1.7m.
16. Screened access ways (e.g. staircases) for studios to prevent viewing into adjoining private open space areas.

4. Controls for Residential Development Urban Transition areas (17&21 Dwellings/Hectare)

4.1 Preliminary

Applies to

This section applies to land identified in Liverpool LEP 2008 Dwelling Density Map as having a minimum density of 17 or 21 Dwellings / Hectare.

Background

Development within the 17 and 21 dwellings/hectare areas are primarily intended for Multi Dwelling Housing, Semi-detached dwellings and Detached dwellings. Residential Flat Buildings are not preferred in the 17 or 21 dwellings/hectare areas (however, if proposed, they are subject to objectives and controls for the urban 28 dwellings/hectare area).

4.2 Site Planning

Objectives

- a) To ensure that the dwelling(s) are sensitive to site attributes, such as streetscape character, natural landform, drainage, existing vegetation, land capability, slope, solar access and if relevant, heritage items.
- b) To ensure privacy for residents and neighbours.

Controls

1. The dwelling layout must be designed around the site attributes such as slope, existing vegetation, land capability and/or solar access (See Figure 34 for a site analysis plan).
2. Basement car parking (if applicable) should be unobtrusive and blend into the general façade of the building.
3. There must be a direct link from at least one living area to the principal private open space.
4. The siting of windows of habitable rooms on the first floor shall minimise overlooking to the principal private open space of neighbouring properties.
5. Stormwater from the site must be able to be drained satisfactorily. Where the site falls away from the street, it may be necessary to obtain an easement over adjoining property to drain water satisfactorily to a Council stormwater system. Where stormwater drains directly to the street, there may also be a need to incorporate on-site detention of stormwater where street drainage is inadequate. Refer to Water cycle management in Part 1.

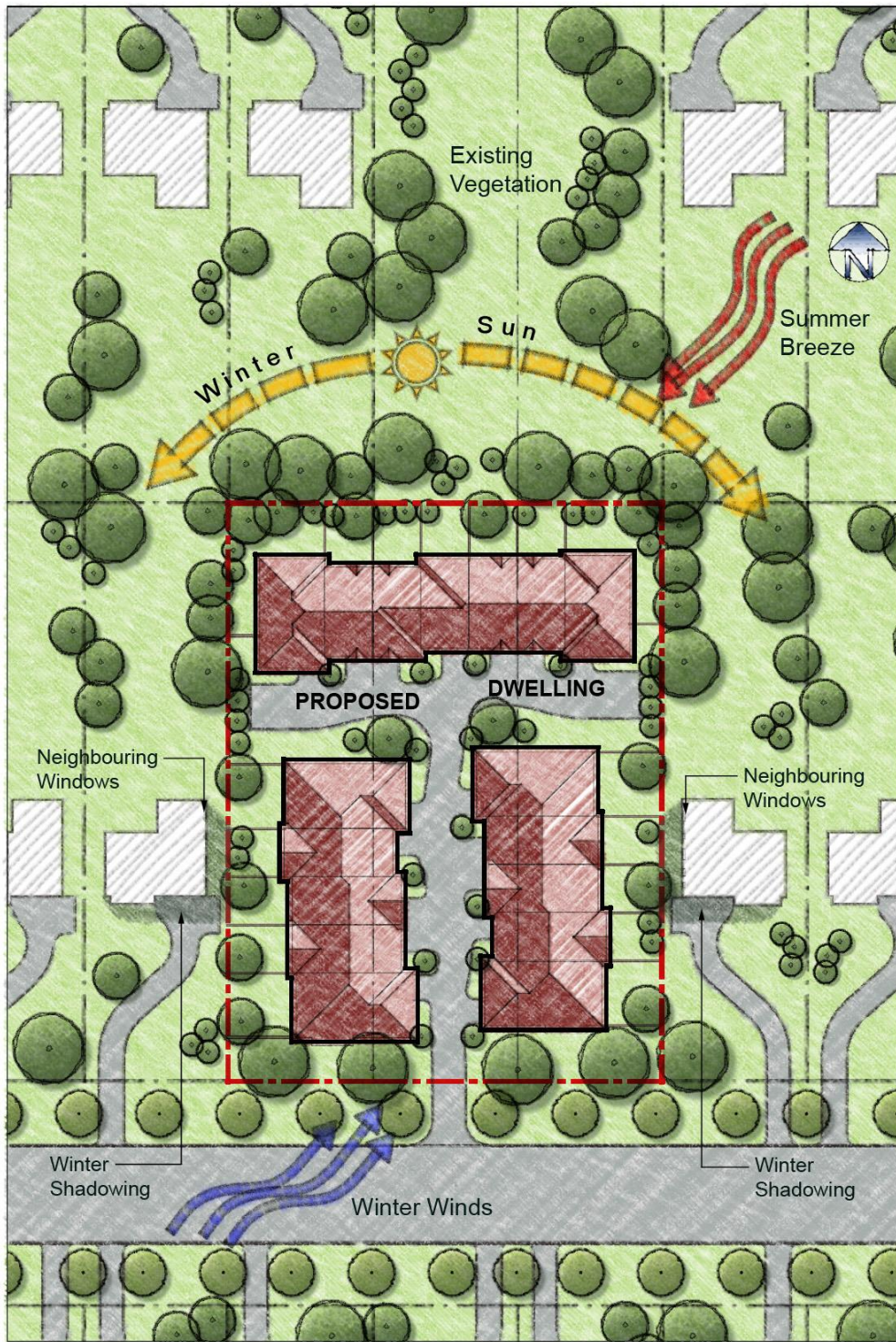


Figure 34: Example of a Site Analysis Plan

4.3 Setbacks

Objectives

- a) To set dwellings back from the street and adjacent properties to provide reasonable space for landscaping, private open space and solar access.
- b) To set dwellings back from each other to provide visual and acoustic privacy.
- c) To create a streetscape that provides a desirable and safe environment.
- d) To establish a streetscape of a scale and sense of enclosure appropriate to the locality.
- e) To maximise the amount of area capable of allowing the growth of trees and shrubs.

Controls

Front and Secondary Setbacks

1. Buildings shall be setback in accordance with Table 4.

Table 4: Setbacks within the 17 dw/ha area

Front Setback	Secondary Setback
4.5 m	2.5 m

2. For lots containing a dwelling house, the secondary setback is generally along the longest length boundary. For multi-dwelling housing, the secondary setback faces the secondary road, which may be the shorter boundary(s).
3. Garages shall be setback 5.5m from the street frontage, or 1.0m from a secondary boundary when consistent with a typology shown in Figure 21.
4. Articulation features such as verandahs, eaves and other sun control devices may encroach on the front and secondary setback by up to 1m.
5. Corner sites shall provide a frontage to both streets and should articulate their corner location with an architectural feature such as a wraparound verandah, bay window, corner entry or roof feature.



Figure 35: Small lot housing corner lot articulation

Side and Rear Setbacks

- Buildings shall be setback from the side and rear boundaries in accordance with Table 5.

Table 5: Side and rear setbacks within the 17 & 21 dw/ha areas

Item	Side Setback		Rear Setback	
	Multi Dwelling Housing	Dwelling House, Attached dwelling and Semi-detached dwelling	Multi Dwelling Housing	Dwelling House, Attached dwelling and Semi-detached dwelling
Party Wall	0 m	0 m	n/a	n/a
1 storey	0.9 m	0.9 m	5 m	4 m
2 storey	1.2 m	1.2 m	8 m	8 m
3 storeys and above	1.4 m	1.4 m	8 m	8 m

Note: In a terrace style attached dwelling development the upper storey setbacks do not apply to the terraces unless by having the zero lot line will create unreasonable solar shading - (that the adjacent lot's dwelling will not receive the minimum 3 hours sunlight to 50% between 9am and 3pm on the 21st June)

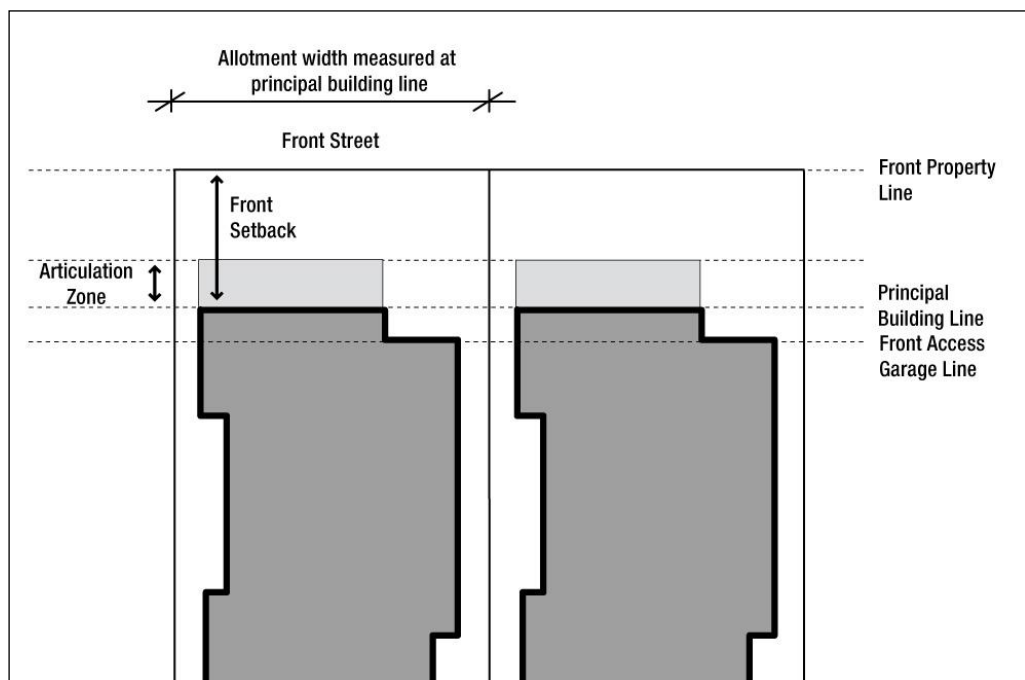


Figure 36: Front Setback

Zero lot lines for attached and semi-detached dwellings

This zero lot line control only applies to the end dwellings, in a multi-zero lot line multi dwelling development, such as terraces. It also applies to dwellings that have a zero lot line.

- Walls are generally to be 180mm clear of the side boundary to allow for gutter and eaves overhang.
- The length of a zero lot line wall is limited to 50% of the lot length.

3. No windows are permitted in a zero lot line wall.
4. A maintenance easement of at least 900mm shall be provided on the adjoining boundary.
5. This is shown in Figure 38.

Zero Lot Lines

Objectives

- a) To allow flexibility in the distribution of side setbacks in residential areas in order to achieve varying dwelling types and to maximise solar access.
- b) To create attractive and cohesive streetscapes and the efficient use of land.
- c) To maintain appropriate amenity between dwellings.

Controls

1. Zero lot line dwellings are not permitted on an ad-hoc basis. They must form part of a subdivision plan for at least one complete block/street frontage so that a consistent streetscape is achieved and that the privacy and solar access of adjoining dwellings are not adversely impacted upon.
2. Zero lot line dwellings are to provide a side setback on the non zero lot line side that equals to at least twice the minimum side setback requirement in Table 5 Side Setbacks.
3. Zero lot line development is to follow the lot orientation principles as shown in Figure 37 to maximise solar access.
4. Zero lot line development is not permitted on lots that are 15m wide or greater.
5. An easement for maintenance of the zero lot line walls (and any services along the side of the dwelling) is to be provided on the adjoining property. No overhanging eaves or services will be permitted within the easement. The S88b instrument supporting the maintenance easement is to be worded so that Council is removed from any dispute resolution process.

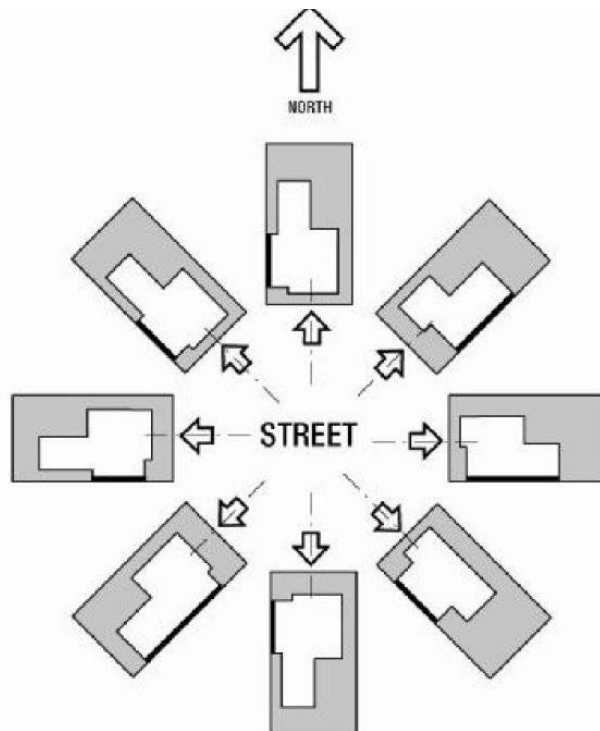


Figure 37: Lot orientation principles

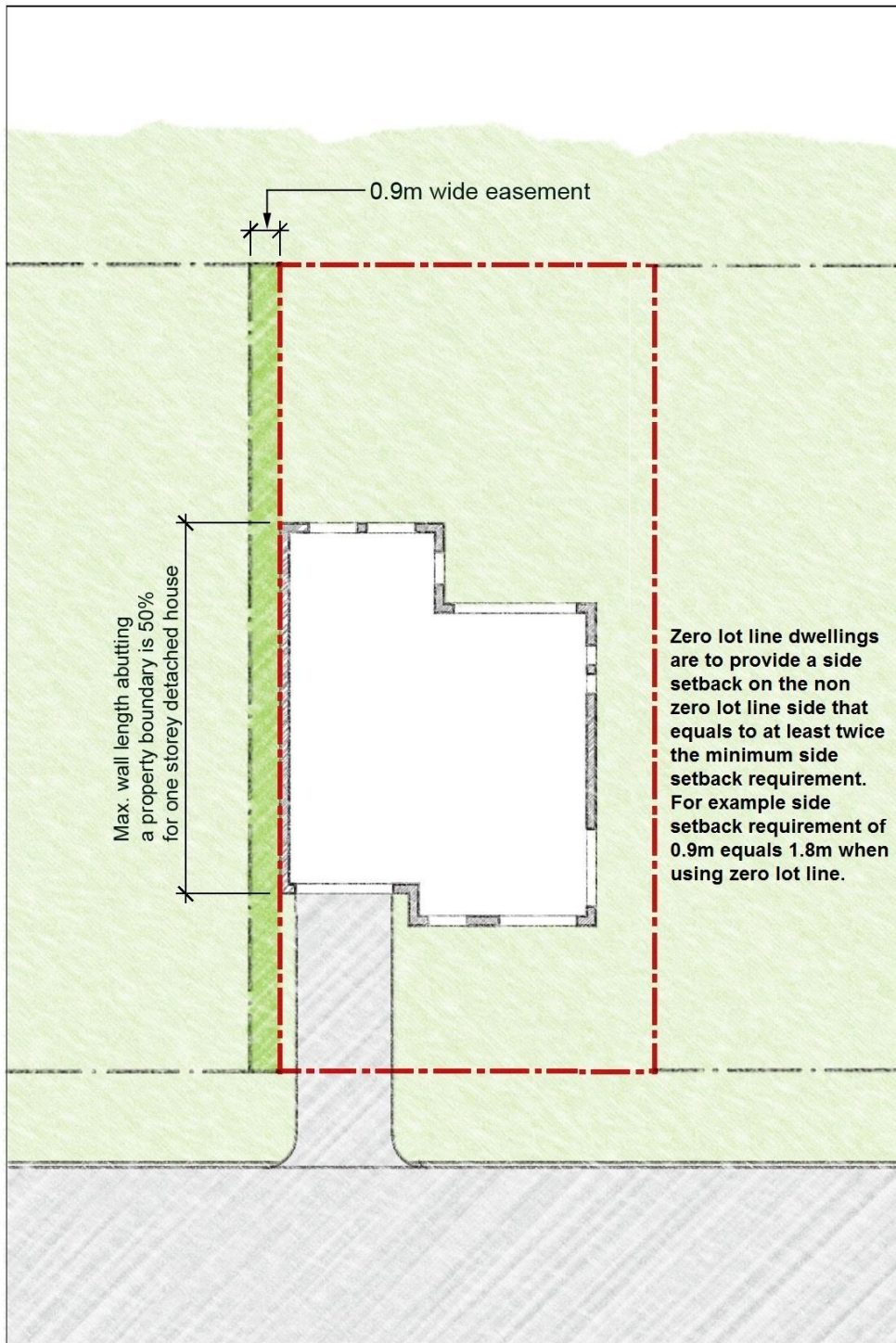


Figure 38: Zero Lot Line

4.4 Landscaped Area and Private Open Space

Landscaped area is defined in Liverpool LEP 2008.

Landscaped Area (deep soil area)

Objectives

- a) To provide an area to allow vegetation to mature.
- b) To assist with management of the water table.
- c) To assist with management of water quality.
- d) To enhance the existing streetscape and soften the visual appearance of the buildings.

Controls

1. A minimum of 20% of the site area shall be landscaped area.
2. Optimise the provision of consolidated landscaped area within a site by:
 - The design of basement and sub-basement car parking, so as not to fully cover the site.
 - The use of side and rear setbacks.
 - Optimise the extent of landscaped area beyond the site boundaries by locating them contiguous with the landscaped area of adjacent properties.
3. Promote landscape health by supporting for a rich variety of vegetation type and size.
4. Increase the permeability of paved areas by limiting the area of paving and/or using pervious paving materials.

Open Space

Open space includes Landscaped Areas and hard paved areas such as footpaths and barbeque areas. It does not include driveways, drying areas or waste storage areas.

Objectives

- a) To provide residents with passive and active recreational opportunities.
- b) To provide an area on site that enables soft landscaping and deep soil planting.
- c) To ensure that communal open space is consolidated, configured and designed to be useable and attractive.
- d) To provide a pleasant outlook.

Controls

1. Provide communal open space, which is appropriate and relevant to the context and the building's setting.
2. Where communal open space is provided, facilitate its use for the desired range of activities by:
 - Locating it in relation to buildings to optimise solar access to dwellings.
 - Consolidating open space on the site into recognisable areas with reasonable space, facilities and landscape.
 - Designing its size and dimensions to allow for the range of uses it will contain.
 - Minimising overshadowing.
 - Carefully locating ventilation duct outlets from basement car parking.
3. Locate open space to increase the potential for residential amenity.

Private Open Space

Objective

- a) To ensure that private open space is clearly defined, usable and meets user requirements for privacy, solar access, outdoor activities, accessibility and landscaping.
- b) To provide all dwellings with private open space.

Controls

1. Private open space shall be provided for in accordance with Table 6 for Multi Dwelling Housing, Attached dwellings and Semi-detached dwellings and Dwelling houses.

Table 6: Private open space in the 17 & 21 dw/ha area

Dwelling Size	Private Open Space Area	Minimum Width
Less than 65 m ²	30sqm	3m
Between 65 and 100m ²	40sqm	3m
Between 101 and 150m ²	50sqm	4m
Between 151 and 200m ²	60sqm	4m
Greater than 200m ²	70sqm	4.5m

2. Private open space areas should be an extension of indoor living areas and be functional in size to accommodate seating and the like.
3. Private open space should be clearly defined for private use.

Drying areas

Objective

To provide adequate clothes drying area for residents.

Controls

1. Clothes drying facilities must be provided. Clothes drying areas should not be visible from a public place.

4.5 Cut and Fill, Building Design and Streetscape

Cut and Fill of Land

Objectives

- a) To reduce the incidence of change in natural ground levels.
- b) To encourage the architectural designs of dwellings which suit the contours of the land.
- c) To provide controls for cut and fill of land designed to minimise the incidence of soil erosion and subsequent sedimentation of waterways.
- d) To ensure that development on adjoining properties is not threatened or prejudiced by proposed cut and fill practices.
- e) To discourage and eliminate, where possible, the construction of retaining walls on allotment boundaries.
- f) To minimise overshadowing of neighbouring dwellings, their private open space or any solar panelling.

Controls

1. The maximum cut on a site must not exceed 600mm.
2. All retaining wall structures shall be masonry construction and designed by a suitably qualified person, or constructed as specified by the manufacturer of the product. The retaining wall shall be constructed wholly inside (within) the boundary of the site.
3. All slab constructions for dwellings that are above natural ground level are to be constructed using dropped edge beams to retain fill. The maximum fill within the confines of the slab must not exceed 1m. All fill must be contained within the dwelling footprint.
4. Contaminated fill, either imported or found on site is not permitted.

Note: In the event of approval being granted to the erection of retaining wall(s) to contain proposed cut, Council will require the completion of such retaining wall(s) PRIOR TO the release of the occupation certificate.

5. Where an applicant considers that an allotment has characteristics which warrant exemption from this policy, an application for exemption may be made by the submission of a development application to Council for consideration. In addition to normal requirements the submission should include:
 - A plan showing existing contours (at 0.5m intervals) of the subject site and all adjoining sites.
 - A plan showing future contours (after proposed cut and fill) of the subject site and all adjoining sites.
 - Full details of any proposed retaining wall(s).

Note: In the event of approval being granted to the erection of retaining wall(s) to contain proposed cut and fill, Council will require the completion of such retaining wall(s) PRIOR TO the commencement of any building works.

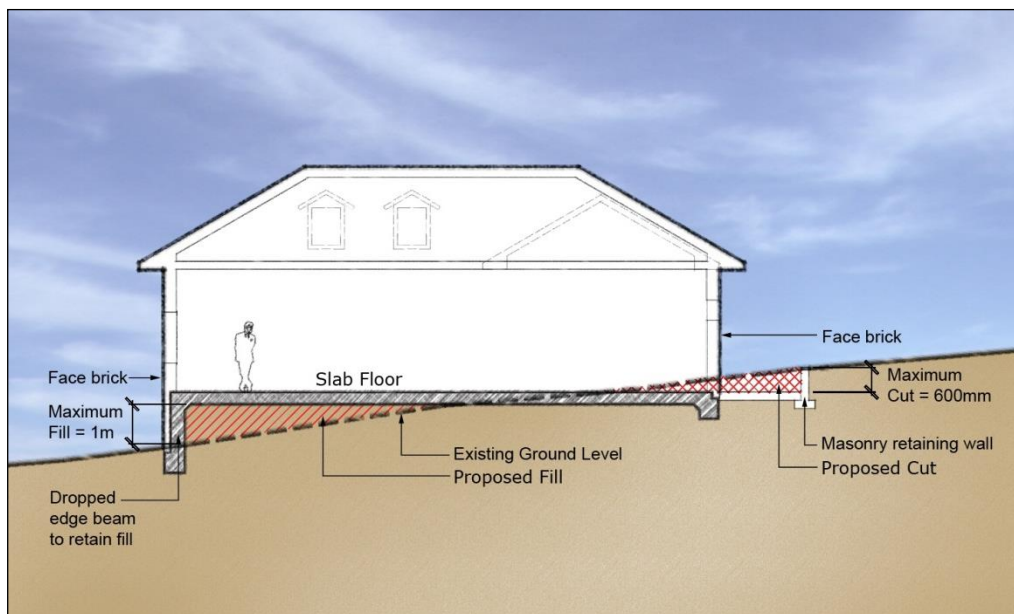


Figure 39: An example of Cut and Fill

Dwelling Houses and Semi-detached dwellings and Detached dwellings

Building Envelopes

1. A Dwelling House, Semi-detached dwellings and attached dwellings may have a maximum of three storeys plus an attic, where building height limits permit.
2. Attics do not constitute a storey if they are included in a roof space and having a roof slope not greater than 36 degrees pitched from the ceiling level of the uppermost floor; provided that:
 - All windows face the street.
 - Access to the attic must be via permanent stairs.
 - Attics are to be provided with skylights, or a dormer window. A dormer window shall be a maximum of 1.5m wide and must maintain the privacy of the adjoining residents.

Building Design

The built form must be uniform in bulk and scale but seek some variety in terms of building elements such as balconies, entrances, carports and roof forms.

The controls aim to ensure that a level of consistency is maintained in those building elements.

Objectives

- a) To promote an architectural style that is contemporary and innovative
- a) To encourage designs that will enhance the character of the neighbourhood.
- b) To promote variation of building facade and design.
- c) That the building enhances the streetscape through the use of suitable built form design and landscaping.
- d) To ensure buildings address all street frontages.
- e) To discourage garages and in particular garage doors, from visually dominating the streetscape.
- f) To ensure that the building design, detailing, colour and finish shall add visual interest to the street and shall compliment the street.
- g) To ensure habitable rooms address the street.
- h) To encourage balconies over garages on two storey dwellings.

Controls

Building Appearance

1. Simply articulated building forms are preferred
2. Dwellings must address the street frontage
3. Mirror imaging of Attached dwellings is not permitted
4. One building must be set back a minimum of 1m behind the other building in an Attached dwelling.
5. Attached dwellings must only be attached to one other dwelling.
6. Dwellings corner sites must address both street frontages.
7. Use of verandas and balconies are encouraged.
8. Vertically proportioned windows are encouraged.

Building Materials

1. External walls of dwellings can be constructed with the following materials:
 - Face brickwork,

- Rendered brickwork,
 - Stone,
 - Concrete wall,
 - Glass, and
 - Lightweight materials such as, weatherboards, timber boarding or fibre cement.
2. External walls are to display a mix of materials.
 3. Lightweight materials are only permitted on upper storey external walls.

Retaining Walls

Retaining walls can be either built of masonry or sandstone.

Roofs

1. Simple use of gables and pitched and hipped roofs is encouraged.
2. Pitched and hipped roofs are to have a minimum of 450mm eaves unless the dwelling has zero metre side setbacks.
3. Roof pitch must not be lower than 22.5 degrees or higher than 45 degrees.
4. Skillion and vaulted roofs are permitted.
5. Flat roofs must not dominate the built form.
6. Flat roofs must not occupy more than 50% of the total roof area.

Balconies

1. Decks and balconies can be built to form framed porticos or entrances.
2. Balconies should incorporate simple railing and balustrade detailing.

Levels

Dwellings are to follow the slope of the land.

Building Depth

Objectives

To achieve the development of working and living environments with good internal amenity and that minimise the need for artificial heating, cooling and lighting.

Controls

Maximum building depths for houses are 16m, unless internal courtyards are provided.

Internal Design of Dwellings

Objectives

- a) The internal design must contribute to personal safety and to the protection of property by permitting casual surveillance of public spaces from private windows and entries.
- b) To provide passive surveillance from rooms addressing the street or any adjoining open space.
- c) To encourage the internal design of the dwelling to take advantage of cross ventilation.
- d) To locate amenity rooms (such as laundries, bathrooms, toilets) to the side and rear of the development.
- e) To ensure that each dwelling shall provide a sufficient amount of storage for elements such as garden and sports equipment.

Controls

1. All dwellings shall have habitable rooms located to the front of the dwelling for security and surveillance to the street.
2. Living rooms should take advantage of northern aspects.
3. Access to private open space must be from at least one living room.
4. The internal layout of the dwelling must incorporate cross ventilation.
5. Bathrooms, ensuites, laundries and walk in wardrobes should be located to the side or rear of the dwelling.
6. Each dwelling must provide a minimum storage area of 8m³.
7. Locate active use rooms or habitable rooms with windows overlooking communal/public areas (e.g. playgrounds, gardens).
8. Dwelling entries must be oriented to the street.

Multi Dwelling Housing

Building Design

Objectives

- a) To encourage designs that will enhance the character of the neighbourhood.
- b) To promote variation of building facade and design.
- c) That the building enhances the streetscape through the use of suitable built form design and landscaping.
- d) To ensure buildings address all street frontages.
- e) To discourage garages and in particular garage doors, from visually dominating the streetscape.
- f) To ensure that the building design, detailing, colour and finish shall add visual interest to the street and shall compliment the street.
- g) To ensure habitable rooms address the street.
- h) To encourage balconies over garages in two storey dwellings.
- i) To encourage steep or sloping site to build split level or stepped development.

Controls

1. Dwellings with a street frontage shall orientate the main entrance and where possible at least one living area towards the street.
2. Entry points shall be enhanced/emphasised to all dwellings especially those facing the street.
3. The first floor of the townhouse developments must be no greater than two thirds of the ground floor area.
4. Building facades shall be articulated and roof form is to be varied to provide visual variety.
5. Walls shall be a mix of masonry, rendered and or bagged, and painted, lightweight clad and painted and/or flush face brick. Justification will be required for 100% face brick facades or 100% rendered and painted brick and will be assessed on merit.
6. Facades can be articulated by:
 - The use of different materials and detailing and / or.
 - The inclusion of balconies, verandahs, pergolas and landscaped beds.
7. A sidewall must be articulated if the wall has a continuous length of over 10m.

8. The entrance of each dwelling shall be emphasised.
9. Dwellings built at the rear of the allotment must be single storey.
10. Driveways should avoid a 'gun barrel' effect by curving and siting of buildings, which create a driveway form with the divided carriageway separated by soft landscaping.
11. Attic floor space may be used when it is contained wholly within the roof pitch and will not be counted as a storey provided that the attic space is part of the dwelling.
12. Space used for car parking shall be included as a storey if the ceiling of the car parking level exceeds more than 1m above the natural ground level.
13. The maximum roof pitch shall be 36 degrees.
14. Multi dwelling housing built on steep or sloping lots should be built of split-level construction.

Internal Design

Objectives

- a) The internal design must contribute to personal safety and to the protection of property by permitting casual surveillance of public spaces from private windows and entries.
- b) To provide natural surveillance from a room addressing the street.
- c) To encourage the internal design of the dwelling to take advantage of cross ventilation.
- d) To locate amenity rooms (such as laundries, bathrooms, toilets) to the side and rear of the development.
- e) To ensure that each dwelling provides a sufficient amount of storage for elements such as garden and sports equipment.

Controls

1. Townhouses and villa's located on street boundaries shall have habitable rooms located to the front of the dwelling for security and surveillance to the street.
2. Living rooms should take advantage of northern aspects where possible.
3. Access to private open space must be from at least one living room.
4. The internal layout of the dwelling must incorporate cross ventilation.
5. Bathrooms, ensuites, laundries and walk in wardrobes should be located to the side and the rear of the development.
6. Each dwelling must provide a minimum storage area of 8 m³.
7. Locate active use rooms or habitable rooms with windows overlooking communal/public areas (e.g. playgrounds, gardens).

All Residential Development

Roof Design

Objectives

- a) To provide quality roof designs, which contribute to the overall design and quality of the subdivision;
- b) To integrate the design of the roof into the overall facade, building composition and desired contextual response;
- c) To increase the longevity of the building through weather protection.

Controls

1. Relate roof design to the desired built form. This may include:

- Articulating the roof, or breaking down its massing on large buildings, to minimise the apparent bulk or to relate to a context of smaller building forms.
 - Using a similar roof pitch or material to adjacent buildings, particularly in existing special character areas or heritage conservation areas.
 - Minimising the expression of roof forms gives prominence to a strong horizontal datum in the adjacent context, such as an existing parapet line.
 - Using special roof features, which relate to the desired character of an area, to express important corners.
2. Design the roof to relate to the size and scale of the building, the building elevations and three-dimensional building form. This includes the design of any parapet or terminating elements and the selection of roof materials.
 3. Design roofs to respond to the orientation of the site, for example, by using eaves and skillion roofs to respond to sun access.
 4. Minimise the visual intrusiveness of service elements by integrating them into the design of the roof. These elements include lift over-runs, service plants, chimneys, vent stacks, telecommunication infrastructures, gutters, downpipes and signage.
 5. Where habitable space is provided within the roof, optimise residential amenity in the form of attics or penthouse dwellings

Building Entry

Objectives

- a) To create entrances which provide a desirable residential identity for the development.
- b) To orient the visitor.
- c) To contribute positively to the streetscape and building facade design.

Controls

1. Improve the presentation of the development to the street by:
 - Locating entries so that they relate to the existing street and subdivision pattern, street tree planting and pedestrian access network.
 - Designing the entry as a clearly identifiable element of the building in the street.
 - Utilising multiple entries-main entry plus private ground floor dwelling entries-where it is desirable to activate the street edge or reinforce a rhythm of entries along a street.
2. Provide as direct a physical and visual connection as possible between the street and the entry.
3. Achieve clear lines of transition between the public street, the shared private circulation spaces and the dwelling.
4. Ensure equal access for all.
5. Provide safe and secure access by:
 - Avoiding ambiguous and publicly accessible small spaces in entry areas.
 - Providing a clear line of sight between one circulation space and the next.
 - Providing sheltered well-lit and highly visible spaces to enter the building, meet and collect mail.
6. Generally provide separate entries from the street for:
 - Pedestrians and cars.

- Different uses, for example, for residential and commercial users in a mixed-use development.
 - Ground floor dwellings, where applicable.
7. Design entries and associated circulation space of an adequate size to allow movement of furniture between public and private spaces.
 8. Provide and design letterboxes to be convenient for residents and not to clutter the appearance of the development from the street by:
 - Locating them adjacent to the major entrance and integrated into a wall, where possible.
 - Setting them at 90 degrees to the street, rather than along the front boundary.

Daylight Access

Objectives

- a) To ensure that daylight access is provided to all habitable rooms and encouraged in all other areas of the dwelling(s).
- b) To provide adequate ambient lighting and minimise the need for artificial lighting during daylight hours.
- c) To provide residents with the ability to adjust the quantity of daylight to suit their needs.

Controls

1. Plan the site so that new dwellings are oriented to optimise northern aspect.
2. Ensure direct daylight access to communal open space between March and September and provide appropriate shading in summer.
3. Optimise the number of dwellings receiving daylight access to habitable rooms and principal windows.
4. Ensure daylight access to habitable rooms and private open space, particularly in winter - use skylights, clerestory windows and fanlights to supplement daylight access.
5. Ensure single aspect, single-storey dwellings have a northerly or easterly aspect - locate living areas to the north and service areas to the south and west of the development.
6. Avoid south facing dwellings.
7. Design for shading and glare control, particularly in summer, by:
 - Using shading devices, such as eaves, awnings, colonnades, balconies, pergolas, external louvres and planting.
 - Optimising the number of north-facing living spaces.
 - Providing external horizontal shading to north-facing windows.
 - Providing vertical shading to east or west windows.
8. Consider higher ceilings and higher window heads to allow deeper sunlight penetration.
9. On west facing windows, vertical louvre panels or sliding screens protect from glare and low afternoon sun.

10. On north facing windows, projecting horizontal louvres admit winter sun while shading summer sun.
11. Use high performance glass but minimise external glare off windows, by;
 - Avoiding reflective films.
 - Using a glass reflectance below 20%.
 - Considering reduced tint glass.
12. Limit the use of lightwells as a source of daylight by prohibiting their use as the primary source of daylight in habitable rooms. Where they are used:
 - Relate lightwell dimensions to building separation, for example, if non-habitable rooms face into a light well less than 12m high, the lightwell should measure 6 x 6m.
 - Conceal building services and provide appropriate detail and materials to visible walls.
 - Ensure light wells are fully open to the sky.
 - A combination of louvres provides shading for different times of the day.

4.6 Car Parking and Access

Multi Dwelling Housing

Objectives

- a) To provide convenient, accessible and safe on site car parking for residents and visitors.
- b) To minimise driveway crossings to maximise on street parking and landscaped nature strips.
- c) To integrate the location and design of car parking with the design of the site and building without compromising street character, landscape or pedestrian amenity and safety.
- d) To integrate the location and design of car parking with the design of the site and the building.

Controls

1. Visitor car parking shall be clearly identified and may not be stacked or tandem car parking.
2. Visitor car parking shall be located between any roller shutter door and the front boundary.
3. The extent of paved area for driveways shall be kept to a minimum. Driveways abutting dwellings shall be kept to a minimum.
4. Avoid large expanses of driveways, including concentrating double garages adjacent to each other.
5. Land that is unlikely to be used for manoeuvring shall be used for landscaping or for pedestrian areas and be distinguished by different materials and levels.
6. Refer to Figure 40.

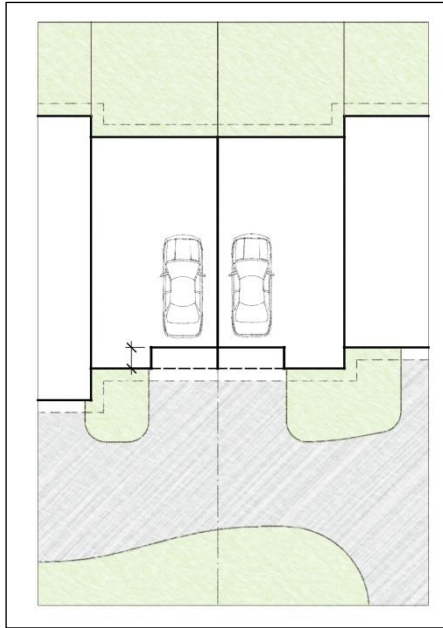


Figure 40: Garage and Driveway design

Basement Car parking

1. Basement car parking is permitted but will be included as a storey if the ceiling is located more than 1m above the natural ground level.
2. On sites that slope away from the street, underground car parking structures that protrude more than 1m above the natural ground level towards the rear will not be included as a storey where topographical features warrant and the streetscape is not adversely affected. The car parking area should be adequately obscured from visible sight by the screen planting.

Access Driveways

1. Driveways to the street shall be kept to a minimum.
2. Driveways may be permitted to individual dwellings provided that the streetscape is not adversely affected and the application complies elsewhere with the DCP.
3. Kerbs shall be provided along the edge of all internal driveways. All traffic must be able to enter and exit the site in a forward direction.
Refer to Part 1 for other controls on Access Driveways

Pedestrian Access

Objectives

- a) To promote multi dwelling housing that is well connected to the street and contributes to the accessibility of the public domain.
- b) To ensure that residents, including users of strollers and wheelchairs and people with bicycles, are able to reach and enter their dwelling and use communal areas via minimum grade ramps, paths, access ways or lifts.

Controls

1. Utilise the site and it's planning to optimise accessibility to the development.
2. Provide high quality accessible routes to public and semi-public areas of the building and the site, including major entries, lobbies, communal open space, site facilities, parking areas, public streets and internal streets.

3. Promote equity by:
 - Ensuring the main building entrance is accessible for all from the street and from car parking areas.
 - Integrating ramps into the overall building and landscape design.
4. Maximise the number of accessible and adaptable dwellings in a building by:
 - Providing more than one accessible entrance where a development contains clusters of buildings.
 - Separating and clearly distinguish between pedestrian accessways and vehicle accessways.
 - Locating vehicle entries away from main pedestrian entries and on secondary frontages.

Dwelling Houses, Attached dwellings and Semi-detached dwellings

Objectives

- a) To provide car parking facilities on site that are convenient, safe and have sufficient space for vehicular manoeuvrability, whilst being visually unobtrusive.
- b) To minimise the need for on street car parking from new dwellings.

Controls

1. Two car parking spaces shall be provided for each dwelling.
2. At least one car parking must be provided behind the front setback.
3. A car parking space is to have a minimum dimension of 2.5 x 5.5m.
4. A single garage is to be a minimum of 3m wide internally and unobstructed.

4.7 Landscaping and Fencing

Landscaping

Objectives

- a) To retain existing mature trees within the site in a way which ensures their ongoing health and vitality.
- b) To provide privacy, summer shade and allow winter sun.
- c) To enhance the existing streetscape and visual appearance of dwellings.
- d) To encourage landscaping that is appropriate to the natural, cultural and heritage characteristics of its locality.
- e) To ensure the visual impact of development is minimised and integrated into the streetscape.

Controls

1. The front and rear setback areas of development are to be utilised for canopy tree planting. The landscape design for all development must include canopy trees that will achieve a minimum 8m height at maturity within the front and rear setback areas.
2. At least one tree shall be planted in the landscaped areas. The tree must reach a mature height of over 8m.
3. Landscape planting should be principally comprised of native species to maintain the character of Liverpool and provide an integrated streetscape appearance. However, Council will consider the use of deciduous trees in small private open space areas such as courtyards for control of local microclimate and to improve solar access.

4. Any tree with a mature height over 8m should be planted a minimum distance of 3m from the building or utility services.

Note: It is important to retain significant vegetation to maintain an existing streetscape and enhance the visual appearance of new dwellings.

Fencing

Objectives

- a) To provide a clear transition between public and private areas.
- b) To provide a visual element within the streetscape.
- c) To ensure fencing enhances the streetscape.

Controls

1. Wall finishes must have low reflectivity.
2. Where noise insulation is required, consider the installation of double-glazing or other noise attenuation measures at the front of the building rather than construction of a high solid form fence.

Primary Frontage

1. The maximum height of a front fence is 1.2m.
2. The front fence may be built to a maximum height of 1.5m if the fence is setback 1m from the front boundary with suitable landscaping in front of the proposed fence.
3. Fences should not prevent surveillance by the dwelling's occupants of the street or communal areas.
4. The front fence must be 30% transparent.
5. Front fences shall be constructed in masonry, timber, metal pickets and/or vegetation and must be compatible with the proposed design of the dwelling.
6. The front fence may be built to a maximum of 1.8m only if:
 - The primary frontage is situated on a Classified Road.
 - The fence is articulated by 1m for 50% of its length and has landscaping in front of the articulated portion.
 - The fence does not impede safe sight lines from the street and from vehicles entering and exiting the site.

Secondary Frontage

1. Side fences and walls must be a maximum of 1.8m in height, and constructed of masonry, timber and/or landscaped (See Figure 41).
2. For side walls or fences along the secondary frontage, a maximum height of 1.2m is required for the first 9m measured from the front boundary, the remaining fence / wall may then be raised to a maximum of 1.8m (See Figure 41). The secondary setback is generally the longest length boundary for detached dwelling houses.
3. Side fencing facing a public street or open space must not be constructed of sheet metal.

Boundary Fences

1. The maximum height of side boundary fencing within the setback to the street is 1.2m.
2. Internal boundary fences shall be lapped and capped timber, masonry or metal sheeting.

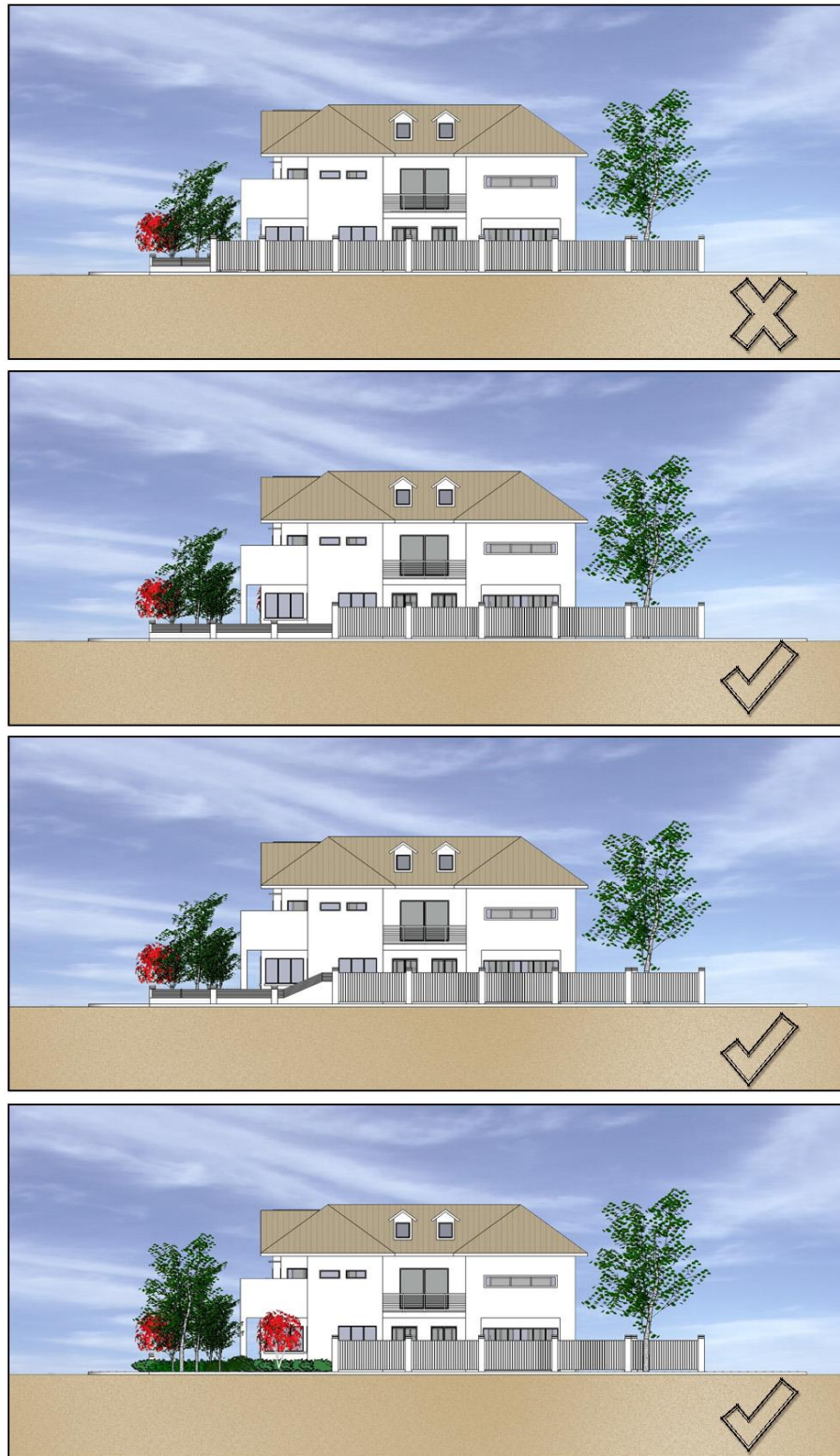


Figure 41: Fence treatments on secondary frontage

4.8 Amenity and Environmental Impact

Overshadowing

Objective

To minimise overshadowing of neighbouring dwellings and their private open space.

Controls

Adjoining properties must receive a minimum of three hours of sunlight between 9am and 5pm on 21 June to at least:

- One living, rumpus room or the like; and
- 50% of the private open space.

Privacy

Objectives

- a) To locate and design buildings to meet projected user requirements for visual and acoustic privacy and to protect privacy of nearby residents.
- b) To avoid any external impacts of a development, such as overlooking of adjoining sites.
- c) To provide reasonable levels of visual privacy externally and internally, during the day and at night.
- d) To maximise outlook and views from principal rooms and private open space.

Controls

1. Building siting, window location, balconies and fencing should take account of the importance of the privacy of on site and adjoining buildings and outdoor spaces.
2. Windows to habitable rooms should be located so they do not overlook such windows in adjoining properties, other dwellings within the development or areas of private open space.
3. Landscaping should be used where possible to increase visual privacy between dwellings and adjoining properties.
4. Where possible the ground floor dwellings should be located above ground level to ensure privacy for occupants of the dwellings.
5. Design building layouts to minimise direct overlooking of rooms and private open spaces adjacent to dwellings by:
 - Balconies to screen other balconies and any ground level private open space.
 - Separating communal open space, common areas and access routes through the development from the windows of rooms, particularly habitable rooms.
 - Changing the level between ground floor dwellings with their associated private open space, and the public domain or communal open space.
6. Use detailed site and building design elements to increase privacy without compromising access to light and air by:
 - Offsetting windows of dwellings in new development and adjacent development windows.
 - Recessed balconies and/or vertical fins between adjacent balconies.
 - Solid or semi-solid balustrades to balconies - louvres or screen panels to windows and/or balconies.
 - Fencing.
 - Vegetation as a screen between spaces.

- Incorporating planter boxes into walls or balustrades to increase the visual separation between areas.
- Utilising pergolas or shading devices to limit overlooking of private open space.

4.9 Site Services

Objectives

- a) To ensure that the required services are provided.
- b) To ensure that the services provided are easily protected or maintained.

Controls

Letterboxes

1. Letterboxes shall to be provided for each dwelling on site, easily accessible from the street, able to be securely locked and provided in accordance with Australia Post's requirements.
2. Freestanding letterbox structures should be designed and constructed of materials that relate to the main building.
3. Residential numbering should be attached to the letterbox so that it is clearly visible from the street frontage. Numbers should be 75mm in height, reflective and in contrast to the backing material.

Waste management

1. Waste disposal facilities shall be provided for development. These shall be located adjacent to the driveway entrance to the site.
2. Any structure involving waste disposal facilities shall be located as follows:
 - Setback 1m from the front boundary to the street.
 - Landscaped between the structure and the front boundary and adjoining areas to minimise the impact on the streetscape.
 - Not be located adjacent to an adjoining residential property.
 - Details of the design of waste disposal facilities are shown in Part 1 of the DCP.

Frontage works and damage to Council infrastructure

1. Where a footpath, road shoulder or new or enlarged access driveway is required to be provided this shall be provided at no cost to Council.
2. Council must be notified of any works that may threaten Council assets. Council must give approval for any works involving Council infrastructure.
3. Where there are no existing street trees in front of the site and contributions have not been collected for street tree planting it may be a condition of consent that street trees be provided in the footpath area immediately in front of the site.

Electricity Sub Station

In some cases it may be necessary to provide an electricity substation at the front of the development adjacent to the street frontage. This will involve dedication of the area as a public street to allow access by the electricity provider. The front boundary treatment used elsewhere on the street frontage.

4.10 Studio dwellings

Studio dwelling means a small self-contained dwelling that is erected above a garage facing a rear lane or a secondary road.

For the purpose of definition under the Liverpool Local Environmental Plan 2008, a Type 1 studio dwelling is a secondary dwelling.

For the purpose of definition under the Liverpool Local Environmental Plan 2008, a Type 2 studio dwelling is a dual occupancy or multi-dwelling housing.

Objectives

- a) To provide an alternate form of housing in master planned neighbourhoods that include community facilities.
- b) To provide for a variety of housing types to cater for varied socio-demographic households.
- c) To provide for passive surveillance to laneways and private accessways.

Controls

Type 1 Studio

Type 1 Studios are a room or rooms constructed above a detached garage associated with the main dwelling on the lot. The studio is primarily designed to be used by the occupants of the main dwelling. The studio shall comply with the following:

1. The studio shall be located on corner blocks or addressing secondary streets and on laneway entries and bends to improve surveillance.
2. Located on lots with a minimum size of 300sqm.
3. Must be detached from other studios.
4. Maximum gross floor area: 45sqm.
5. No additional car parking space is required.
6. The studio shall be located above the garage, carport or like structure for the principal dwelling on the land.
7. There may be no subdivision of the studio from the principal dwelling on the land.
8. Windows are not permitted on elevations which directly face the adjoining lots private open space.
9. Garages with studios above are to be constructed 1.5m from the rear boundary and may have a zero lot setback to one side boundary.
10. A studio must have a minimum separation of 4m from the first floor of the principal dwelling on the lot.
11. Studios shall not reduce the minimum required amount of solar access to any dwelling's (adjoining or on the principal dwelling) private open space as stipulated in Section 4.4 of this Part.

Type 2 Studio

Type 2 Studios are a room or rooms constructed above a detached garage that is intended to be separately strata titled to allow for independent living from the principal dwelling on the lot. The studio shall comply with the following:

1. The studio shall be located on corner blocks with laneway vehicle access.
2. Located on lots with a minimum size of 350sqm.
3. Maximum gross floor area: 75sqm.
4. Studio to be located above the garage, carport or like structure for the principal dwelling on the land and are to be detached from other studios.

5. One additional dedicated on-site car parking space is required to be associated with the Type 2 studio.
6. Car parking space is not to be located in front building setback of the principal dwelling.
7. Car parking space is not to be in a stacked configuration.
8. The studio must include provision of a balcony accessed directly off living space having minimum size of 6sqm, plus a minimum 10sqm ground level service yard with space for clothes drying facilities. The balcony shall not protrude over any property boundary.
9. Type 2 studios may be strata subdivided from the principal dwelling, or dwellings on the land.
10. Garages with studios are to be constructed 1.5m from the rear boundary and may have a zero lot setback to one side boundary.
11. A studio must have a minimum separation of 4m from the first floor of the principal dwelling on the lot.
12. Pedestrian access to studios is to be from the street frontage and not the laneway.
13. Provision for separate services and an on-site garbage storage area e.g. separate letter box.
14. Studios shall not reduce the minimum amount of solar access to any dwelling's (adjoining or on the principal dwelling) private open space as stipulated in Section 3.5 of this Part.
15. Windows are not permitted on elevations which directly face the adjoining lots private open space. Windows may be permitted on the elevation facing the principal dwelling on the lot where they have a minimum sill height of 1.7m.
16. Screened access ways (e.g. staircases) for studios to prevent viewing into adjoining private open space areas.

5. Controls for Residential Development in Suburban areas (14 Dwellings/Hectare)

5.1 Preliminary

Applies to

This section applies to land identified in Liverpool LEP 2008 Dwelling Density Map as having a minimum density of 14 Dwellings / Hectare.

Background

Development within the 14 Dwellings / Hectare area is primarily intended for Dwelling houses, Semi detached dwellings and Attached dwellings. Whilst multi-dwelling housing and residential flat buildings are permitted in the R1 zone, they are not favoured in the 14 dwellings/Hectare area. Refer to controls in the Urban (28dw/Ha) section for multi-dwelling housing and residential flat buildings

5.2 Site Planning

Objectives

- a) To ensure that the dwelling is sensitive to site attributes, such as streetscape character, natural landform, drainage, existing vegetation, land capability, slope, solar access and if relevant, heritage items.
- b) To ensure privacy for residents and neighbours.

Controls

1. The dwelling layout must be designed around the site attributes such as slope, existing vegetation, land capability and/or solar access (See Figure 42 for a site analysis plan).
2. Basement car parking (if applicable) should be unobtrusive and blend into the general façade of the building.
3. There must be a direct link from at least one living area to the principal private open space.
4. The siting of windows of habitable rooms on the first floor shall minimise overlooking to the principal private open space of neighbouring properties.
5. Stormwater from the site must be able to be drained satisfactorily. Where the site falls away from the street, it may be necessary to obtain an easement over adjoining property to drain water satisfactorily to a Council stormwater system. Where stormwater drains directly to the street, there may also be a need to incorporate on-site detention of stormwater where street drainage is inadequate. Refer to Water cycle management in Part 1.

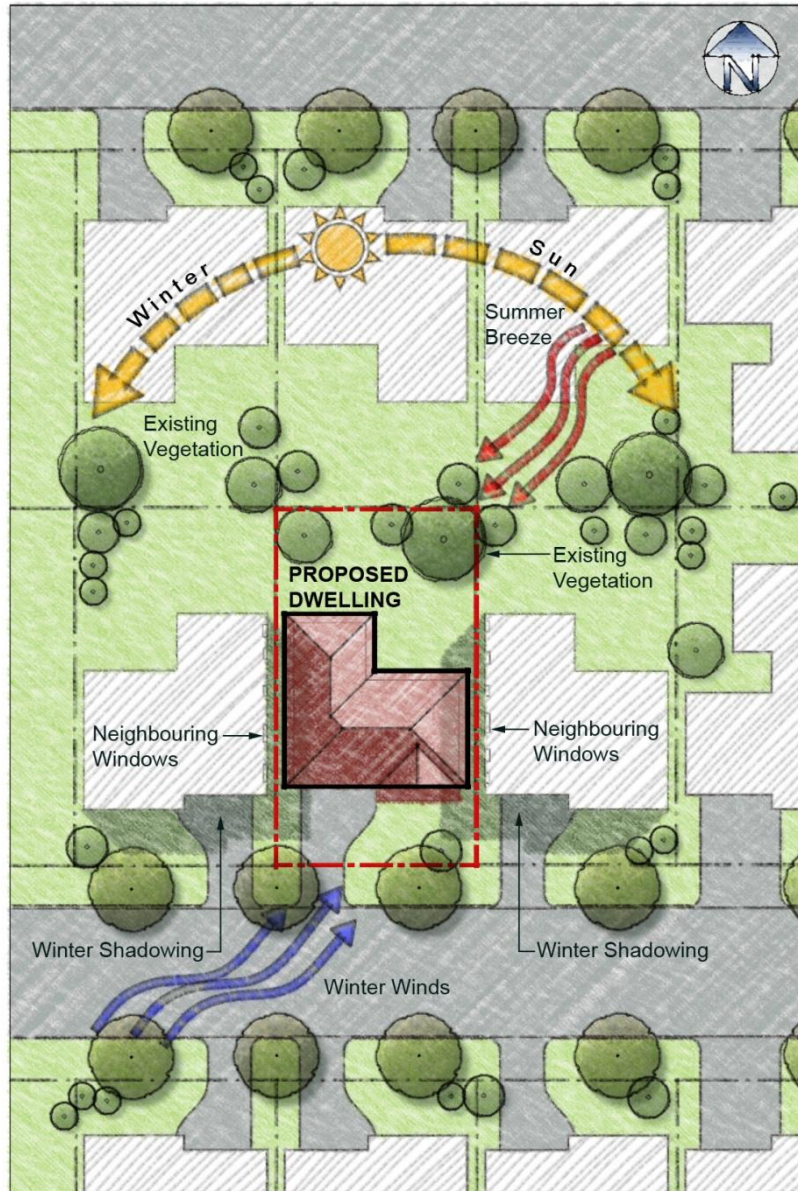


Figure 42: Example of a Site Analysis Plan

5.3 Setbacks

Setbacks

Objectives

- a) To set dwellings back from the street and adjacent properties to provide reasonable space for landscaping, private open space and solar access.
- b) To set dwellings back from each other to provide visual and acoustic privacy.
- c) To create a streetscape that provides a desirable and safe environment.
- d) To establish a streetscape of a scale and sense of enclosure appropriate to the locality.
- e) To maximise the amount of area capable of allowing the growth of trees and shrubs.

Controls

Front Setbacks

1. Buildings shall be setback in accordance with Table 7.

Table 7: Setbacks within the 14 dw/ha area

Front Setback	Secondary Setback
4.5m	2.5m

2. The secondary setback is along the longest length boundary.
3. Garages shall be setback 5.5m from any frontage, or 1.0m from a secondary boundary when consistent with a typology shown in Figure 21.
4. Articulation features such as verandahs, eaves and other sun control devices may encroach on the front and secondary setback by up to 1m.
5. Corner sites shall provide a frontage to both streets and should articulate their corner location with an architectural feature such as a wraparound verandah, bay window, corner entry or roof feature.

Side and Rear Setbacks

Buildings shall be setback from the side and rear boundaries in accordance with the Table 8.

Table 8: Side and rear setbacks within the 14 dw/ha area

Item	Side Setback	Rear Setback
1 storey	0.9m	4m
2 storey	1.2m	8m

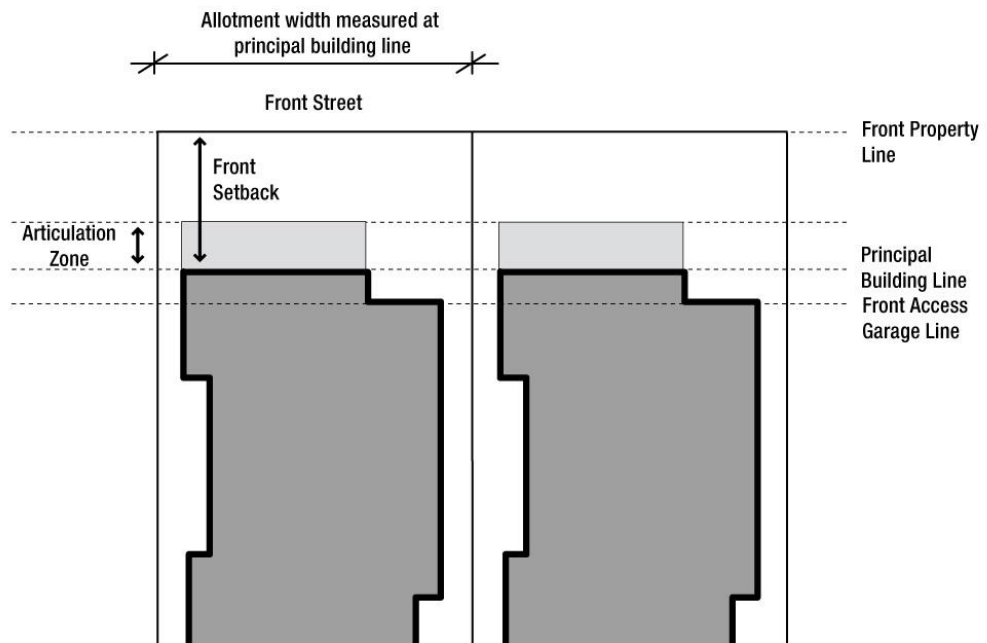


Figure 43: Front Setback

Zero Lot Lines

Objectives

- a) To allow flexibility in the distribution of side setbacks in residential areas in order to achieve varying dwelling types and to maximise solar access.
- b) To create attractive and cohesive streetscapes and the efficient use of land.
- c) To maintain appropriate amenity between dwellings.

Controls

1. Zero lot line dwellings are not permitted on an ad-hoc basis. They must form part of a subdivision plan for at least one complete block/street frontage so that a consistent streetscape is achieved and that the privacy and solar access of adjoining dwellings are not adversely impacted upon.
2. Zero lot line dwellings are to provide a side setback on the non zero lot line side that equals to at least twice the minimum side setback requirement in Table 8 Side Setbacks.
3. Zero lot line development is to follow the lot orientation principles as shown in Figure 37 to maximise solar access.
4. Zero lot line development is not permitted on lots that are 15m wide or greater.
5. An easement for maintenance of the zero lot line walls (and any services along the side of the dwelling) is to be provided on the adjoining property. No overhanging eaves or services will be permitted within the easement. The S88b instrument supporting the maintenance easement is to be worded so that Council is removed from any dispute resolution process.

5.4 Landscaped Area and Private Open Space

Landscaped area is defined in Liverpool LEP 2008.

Landscaped Area (deep soil area)

Objectives

- a) To provide an area to allow vegetation to mature.
- b) To assist with management of the water table.
- c) To assist with management of water quality.
- d) To enhance the existing streetscape and soften the visual appearance of the buildings.

Controls

1. A minimum of 20% of the site area shall be landscaped area.
2. Optimise the provision of consolidated landscaped area within a site by:
 - The use of side and rear setbacks.
 - Optimise the extent of landscaped area beyond the site boundaries by locating them contiguous with the landscaped area of adjacent properties.
3. Promote landscape health by supporting for a rich variety of vegetation type and size.
4. Increase the permeability of paved areas by limiting the area of paving and/or using pervious paving materials.

Open Space

Open space includes Landscaped Areas and hard paved areas such as footpaths and barbeque areas. It does not include driveways, drying areas or waste storage areas.

Objectives

- a) To provide residents with passive and active recreational opportunities.
- b) To provide an area on site that enables soft landscaping and deep soil planting.
- c) To ensure that communal open space is consolidated, configured and designed to be useable and attractive.
- d) To provide a pleasant outlook.

Controls

1. Provide communal open space, which is appropriate and relevant to the context and the building's setting.
2. Where communal open space is provided, facilitate its use for the desired range of activities by:
 - Locating it in relation to buildings to optimise solar access to dwellings.
 - Consolidating open space on the site into recognisable areas with reasonable space, facilities and landscape.
 - Designing its size and dimensions to allow for the range of uses it will contain.
 - Minimising overshadowing.
 - Carefully locating ventilation duct outlets from basement car parking.
3. Locate open space to increase the potential for residential amenity.

Private Open Space

Objective

- a) To ensure that private open space is clearly defined, usable and meets user requirements for privacy, solar access, outdoor activities, accessibility and landscaping.
- b) To provide all dwellings with private open space.

Controls

1. Private open space shall be provided for in accordance with Table 9 for Multi Dwelling Housing, Attached dwellings, Semi detached dwellings and Dwelling houses.

Table 9: Private open space in the 14 dw / ha area

Dwelling Size	Private Open Space Area	Minimum Width
Less than 65m ²	30sqm	3m
Between 65 and 100m ²	40sqm	3m
Between 101 and 150m ²	50sqm	4m
Between 151 and 200m ²	60sqm	4m
Greater than 200m ²	70sqm	4.5m

2. Private open space may be provided as a courtyard for ground floor dwellings or as balconies for dwellings above the ground floor.
3. Private open space areas should be an extension of indoor living areas and be functional in size to accommodate seating and the like.
4. Private open space should be clearly defined for private use.

For balconies refer to Building Design, Streetscape and Layout for controls on their design.

Drying areas

Objective

To provide adequate clothes drying area for residents.

Controls

1. Clothes drying facilities must be provided. Clothes drying areas should not be visible from a public place.

5.5 Cut and Fill, Building Design, Streetscape and Layout

Cut and Fill of Land

Objectives

- a) To reduce the incidence of change in natural ground levels.
- b) To encourage the architectural designs of dwellings which suit the contours of the land.
- c) To provide controls for cut and fill of land designed to minimise the incidence of soil erosion and subsequent sedimentation of waterways.
- d) To ensure that development on adjoining properties is not threatened or prejudiced by proposed cut and fill practices.
- e) To discourage and eliminate, where possible, the construction of retaining walls on allotment boundaries.
- f) To minimise overshadowing of neighbouring dwellings, their private open space or any solar panelling.

Controls

1. The maximum cut on a site must not exceed 600mm.
2. All retaining wall structures shall be masonry construction and designed by a suitably qualified person, or constructed as specified by the manufacturer of the product. The retaining wall shall be constructed wholly inside (within) the boundary of the site.
3. All slab constructions for dwellings that are above natural ground level are to be constructed using dropped edge beams to retain fill. The maximum fill within the confines of the slab must not exceed 1m. All fill must be contained within the dwelling footprint.
4. Contaminated fill, either imported or found on site is not permitted.

Note: In the event of approval being granted to the erection of retaining wall(s) to contain proposed cut, Council will require the completion of such retaining wall(s) PRIOR TO the release of the occupation certificate.
5. Where an applicant considers that an allotment has characteristics which warrant exemption from this policy, an application for exemption may be made by the submission of a development application to Council for consideration. In addition to normal requirements the submission should include:
 - A plan showing existing contours (at 0.5m intervals) of the subject site and all adjoining sites.
 - A plan showing future contours (after proposed cut and fill) of the subject site and all adjoining sites.
 - Full details of any proposed retaining wall(s).

Note: In the event of approval being granted to the erection of retaining wall(s) to contain proposed cut and fill, Council will require the completion of such retaining wall(s) PRIOR TO the commencement of any building works.

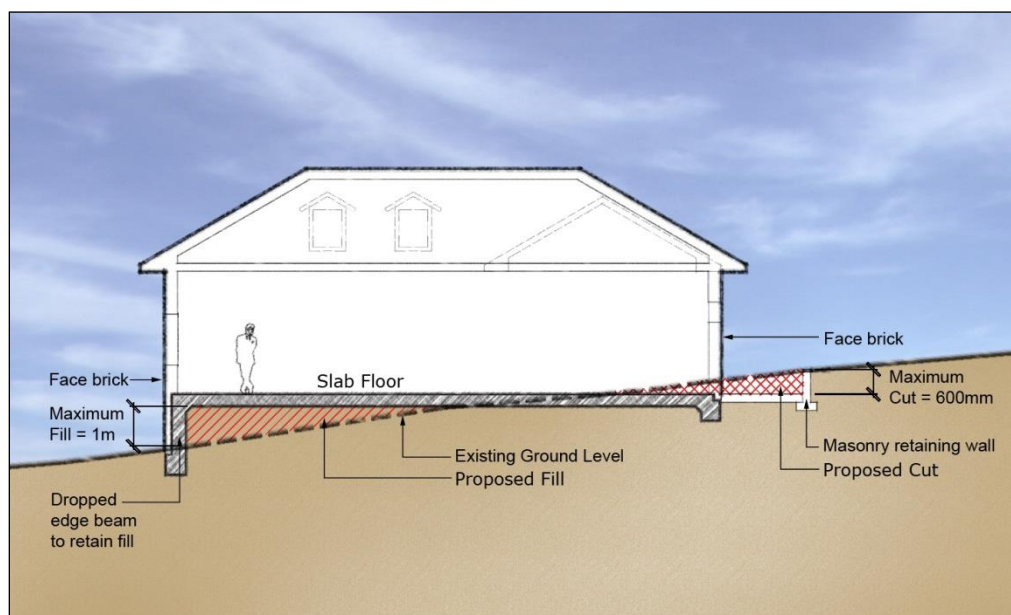


Figure 44: An example of Cut and Fill

Building Envelopes

Background

The orientation and site cover of a building has significant implications for residential amenity. Building envelopes determine the orientation and footprint of a dwelling, as well as the total volume of the dwelling.

Objectives

- a) To facilitate the efficient use of the site area.
- b) To maximise private amenity within the building.
- c) To minimise the impacts of development on neighbouring properties in regard to views, privacy and overshadowing.
- d) To ensure that buildings are sited so as to provide for solar access and both visual and acoustic privacy.

Controls

1. The building footprint for detached dwelling houses is not to occupy more than 55% of the site and the total impervious area is not to exceed 70% of the total site area. A minimum of 30% of the site area must be pervious surfaces.
2. The building footprint for denser development is not to occupy more than 60% of the site and the total impervious area is not to exceed 80% of the total site area. A minimum of 20% of the total site area must be pervious surfaces.

Building Height

Objectives

- a) To ensure that development minimises the impact on neighbouring properties in terms of building bulk, overshadowing and privacy.
- b) To maintain a scale of development, which is compatible with the existing or likely future character of the locality.

Controls

1. A Dwelling House, Attached dwelling or Semi detached dwelling may have a maximum of two storeys plus an attic.
2. Attics do not constitute a storey if they are included in a roof space and having a roof slope not greater than 36 degrees pitched from the ceiling level of the uppermost floor; provided that:
 - All windows face the street.
 - Access to the attic must be via permanent stairs.
 - Attics are to be provided with skylights, or a dormer window. A dormer window shall be a maximum of 1.5m wide and must maintain the privacy of the adjoining residents.
3. For sloping sites the height of a dwelling house must follow the slope of the land.

Building Depth

Objectives

To ensure working and living environments have good internal amenity that minimises the need for artificial heating, cooling and lighting.

Controls

1. Maximum building depths for houses are 16m, unless internal courtyards are provided.

Building Design and Appearance

Objectives

- a) To encourage designs that will enhance the character of the neighbourhood.
- b) To promote variation of building facade and design.
- c) That the building enhances the streetscape through the use of suitable built form design and landscaping.
- d) To ensure buildings address all street frontages.
- e) To discourage garages and in particular garage doors, from visually dominating the streetscape.
- f) To ensure that the building design, detailing, colour and finish shall add visual interest to the street and shall compliment the street.
- g) To ensure habitable rooms address the street.
- h) To encourage balconies over garages on two storey dwellings.

Controls

1. All dwelling houses, Attached dwellings and Semi detached dwellings are to be orientated to the street (See Figure 45).
2. The front pedestrian entrance must be visible from the street.

3. The front Building facades shall be articulated, this articulation may include front porches, entries, wall indents, changes in finishes, balconies and/or verandahs.
4. For two storey or greater height developments, the side walls shall be articulated if the wall has a continuous length of over 10m.
5. Eave overhang must provide for sun shading and protect windows and doors. Eaves should have a minimum overhang of 400mm and be provided to a minimum of 70% of the dwelling.
6. Dwelling houses, Attached dwellings or Semi detached dwellings that face two street frontages or a street and public space shall address both frontages by the use of verandahs, balconies, windows or similar modulating elements.
7. Balconies facing the street on two or more storey dwellings are encouraged.

Two storey detached or attached dwellings

To break up the bulk of two or more storey dwellings balconies, built above garages are encouraged (See Figure 45).

Garages and Carports

1. The maximum width of garage doors or carports must be no greater than 45% of the building frontage width.
2. Garages and carports must be designed to be the minor element of the façade
3. Garage roofs shall be incorporated into the roof design of the house. Separate roofs for garages are discouraged, unless actually separated from the dwelling.
4. Garages and carports are to be compatible with the building design in terms of height, roof form, detail, materials and colours.
5. Carports may be built in front of the garage only if the carport:
 - Is no larger than 5.5 x 6m.
 - Is built of a similar colour and materials of the house.
 - Is setback 2m from the front property boundary.
 - Is compatible with the local streetscape.
6. The conversion of garages to living space may only be permitted if:
 - At least one car parking space is provided behind the front setback.
 - The additional living area does not result in the building exceeding the maximum permitted floor space ratio.



Figure 45: Example of Building Appearance

Internal Design

Objectives

- a) The internal design must contribute to personal safety and to the protection of property by permitting casual surveillance of public spaces from private windows and entries.
- b) To provide natural surveillance from a room addressing the street.
- c) To encourage the internal design of the dwelling to take advantage of cross ventilation.
- d) To locate amenity rooms (such as laundries, bathrooms, toilets) to the side and rear of the development.
- e) To ensure that each dwelling provides a sufficient amount of storage for elements such as garden and sports equipment.

Controls

1. Townhouses and villa's located on street boundaries shall have habitable rooms located to the front of the dwelling for security and surveillance to the street.
2. Living rooms should take advantage of northern aspects where possible.
3. Access to private open space must be from at least one living room.
4. The internal layout of the dwelling must incorporate cross ventilation.
5. Bathrooms, ensuites, laundries and walk in wardrobes should be located to the side and the rear of the development.
6. Each dwelling must provide a minimum storage area of 8m³.
7. Locate active use rooms or habitable rooms with windows overlooking communal/public areas (e.g. playgrounds, gardens).

Roof Design

Objectives

- a) To provide quality roof designs, which contribute to the overall design and performance of the dwelling(s);
- b) To integrate the design of the roof into the overall facade, building composition and desired contextual response;
- c) To increase the longevity of the building through weather protection.

Controls

1. Relate roof design to the desired built form. This may include:
 - Articulating the roof, or breaking down its massing on large buildings, to minimise the apparent bulk or to relate to a context of smaller building forms.
 - Using a similar roof pitch or material to adjacent buildings, particularly in existing special character areas or heritage conservation areas.
 - Minimising the expression of roof forms gives prominence to a strong horizontal datum in the adjacent context, such as an existing parapet line.
 - Using special roof features, which relate to the desired character of an area, to express important corners.
2. Design the roof to relate to the size and scale of the building, the building elevations and three-dimensional building form. This includes the design of any parapet or terminating elements and the selection of roof materials.
3. Design roofs to respond to the orientation of the site, for example, by using eaves and skillion roofs to respond to sun access.
4. Minimise the visual intrusiveness of service elements by integrating them into the design of the roof. These elements include lift over-runs, service plants, chimneys, vent stacks, telecommunication infrastructures, gutters, downpipes and signage.
5. Where habitable space is provided within the roof, optimise residential amenity in the form of attics or penthouse dwellings

Storage Areas

Objective

To provide for the need of residents to be able to store personal items adjacent to the car parking area.

Controls

1. A secure storage space is to be provided for each dwelling with a minimum volume 8m³ (minimum dimension 1sqm). This must be set aside exclusively for storage as part of the basement or garage.
2. Storage areas must be adequately lit and secure. Particular attention must be given to security of basement and garage storage areas.

5.6 Car Parking and Access

Objectives

- a) To provide car parking facilities on site that are convenient, safe and have sufficient space for vehicular manoeuvrability, whilst being visually unobtrusive.
- b) To minimise the need for on street parking from new dwellings.

Controls

1. Two car parking spaces shall be provided for each dwelling.
2. At least one car parking must be provided behind the front setback.
3. A parking space is to be a minimum of 2.5 x 5.5m.
4. A single garage is to be a minimum of 3m wide internally and unobstructed.
5. Kerbs shall be provided along the edge of all internal driveways.

5.7 Landscaping and Fencing

Landscaping

Objectives

- a) To retain existing mature trees within the site in a way which ensures their ongoing health and vitality.
- b) To provide privacy, summer shade and allow winter sun.
- c) To enhance the existing streetscape and visual appearance of dwellings.
- d) To encourage landscaping that is appropriate to the natural, cultural and heritage characteristics of its locality.
- e) To ensure the visual impact of development is minimised and integrated into the streetscape.

Controls

1. The front and rear setback areas of development are to be utilised for canopy tree planting. The landscape design for all development must include canopy trees that will achieve a minimum 8m height at maturity within the front and rear setback areas.
2. At least one tree shall be planted in the landscaped areas. The tree must reach a mature height of over 8m.
3. Landscape planting should be principally comprised of native species to maintain the character of Liverpool and provide an integrated streetscape appearance. However, Council will consider the use of deciduous trees in small private open space areas such as courtyards for control of local microclimate and to improve solar access.
4. Any tree with a mature height over 8m should be planted a minimum distance of 3m from the building or utility services.

Note: It is important to retain significant vegetation to maintain an existing streetscape and enhance the visual appearance of new dwellings.

Fencing

Objectives

- a) To provide a clear transition between public and private areas.
- b) To provide a visual element within the streetscape.
- c) To ensure fencing enhances the streetscape.

Controls

1. Wall finishes must have low reflectivity.
2. Where noise insulation is required, consider the installation of double-glazing or other noise attenuation measures at the front of the building rather than construction of a high solid form fence.

Primary Frontage

1. The maximum height of a front fence is 1.2m.
2. The front fence may be built to a maximum height of 1.5m if the fence is setback 1m from the front boundary with suitable landscaping in front of the proposed fence.
3. Fences should not prevent surveillance by the dwelling's occupants of the street or communal areas.
4. The front fence must be 30% transparent.
5. Front fences shall be constructed in masonry, timber, metal pickets and/or vegetation and must be compatible with the proposed design of the dwelling.
6. The front fence may be built to a maximum of 1.8m only if:
 - The primary frontage is situated on a Classified Road.
 - The fence is articulated by 1m for 50% of its length and has landscaping in front of the articulated portion.
 - The fence does not impede safe sight lines from the street and from vehicles entering and exiting the site.

Secondary Frontage

1. Side fences and walls must be a maximum of 1.8m in height, and constructed of masonry, timber and/or landscaped (See Figure 46).
2. For side walls or fences along the secondary frontage, a maximum height of 1.2m is required for the first 9m measured from the front boundary, the remaining fence / wall may then be raised to a maximum of 1.8m (See Figure 46). The secondary setback is the longest length boundary.
3. Side fencing facing a public street or open space must not be constructed of sheet metal.

Boundary Fences

1. The maximum height of side boundary fencing within the setback to the street is 1.2m.
2. Internal boundary fences shall be lapped and capped timber, masonry or metal sheeting.

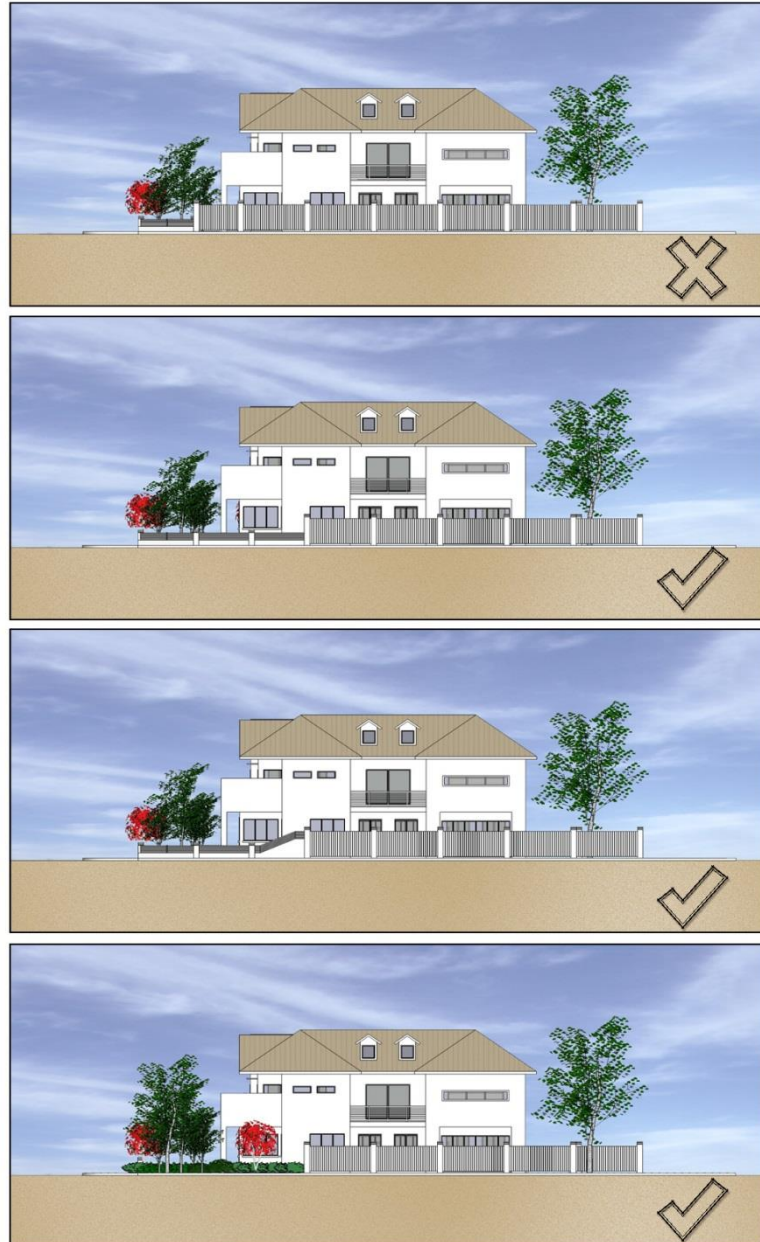


Figure 46: Fence treatments on secondary frontage

5.8 Amenity and Environmental Impact

Overshadowing

Objectives

To minimise overshadowing of neighbouring dwellings and their private open space.

Controls

1. Adjoining properties must receive a minimum of three hours of sunlight between 9am and 5pm on 21 June to at least:
 - One living, rumpus room or the like; and
 - 50 % of the private open space.

Privacy and Amenity Privacy

Objective

To site and design buildings to meet projected user requirements for visual and acoustic privacy and to protect privacy of nearby residents.

Controls

1. Building siting, window location and balconies should take account of the importance of the privacy of on site and adjoining buildings and outdoor spaces.
2. Landscaping should be used where possible to increase visual privacy between dwellings and adjoining properties.
3. Windows of habitable rooms facing side boundaries are to be offset by at least 1m from any adjoining facing window.
4. Except where they face a street or public open space, habitable room windows to the side are to avoid unreasonable overlooking by having a minimum sill height of 1.5m.

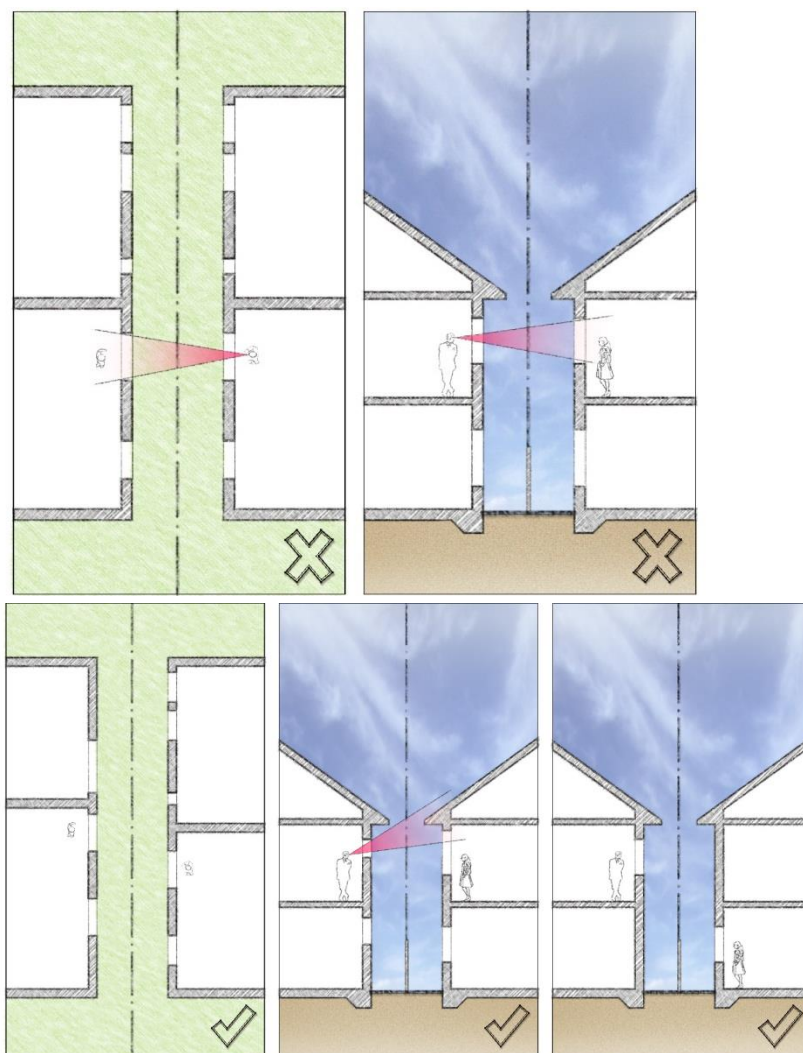


Figure 47: Privacy and Amenity Privacy

Acoustic Privacy

Objective

To ensure appropriate noise and vibration attention measures are incorporated into residential development.

Controls

1. Noise attenuation measures should be incorporated into building design to ensure acoustic privacy between on-site and adjoining buildings.
2. Developments in areas adversely impacted upon by rail or traffic related noises must incorporate the appropriate noise and vibration mitigation measures into the design in terms of the site layout, building materials and design, orientation of the buildings and location of sleeping and recreation areas.
3. Where party walls are provided they must be carried to the underside of the roof and be constructed in accordance with Part F5 of the Building Code of Australia.
4. The proposed buildings must comply with the Environment Protection Authority criteria and the current relevant Australian Standards for noise and vibration and quality assurance.

5.9 Site Services

Objectives

- a) To ensure that the required services are provided.
- b) To ensure that the services provided are easily protected or maintained.

Controls

Letterboxes

1. Letterboxes shall to be provided for each dwelling on site, easily accessible from the street, able to be securely locked and provided in accordance with Australia Post's requirements.
2. Freestanding letterbox structures should be designed and constructed of materials that relate to the main building.
3. Residential numbering should be attached to the letterbox so that it is clearly visible from the street frontage. Numbers should be 75mm in height, reflective and in contrast to the backing material.

Frontage works and damage to Council infrastructure

1. Where a footpath, road shoulder or new or enlarged access driveway is required to be provided this shall be provided at no cost to Council.
2. Council must be notified of any works that may threaten Council assets. Council must give approval for any works involving Council infrastructure.
3. Where there are no existing street trees in front of the site and contributions have not been collected for street tree planting it may be a condition of consent that street trees be provided in the footpath area immediately in front of the site.

5.10 Studio Dwellings

Studio dwelling means a small self-contained dwelling that is erected above a garage facing a rear lane or a secondary road.

For the purpose of definition under the Liverpool Local Environmental Plan 2008, a Type 1 studio dwelling is a secondary dwelling.

For the purpose of definition under the Liverpool Local Environmental Plan 2008, a Type 2 studio dwelling is a dual occupancy or multi-dwelling housing.

Objectives

- a) To provide an alternate form of housing in master planned neighbourhoods that include community facilities.
- b) To provide for a variety of housing types to cater for varied socio-demographic households.
- c) To provide for passive surveillance to laneways and private accessways.

Controls

Type 1 Studio

Type 1 Studios are a room or rooms constructed above a detached garage associated with the main dwelling on the lot. The studio is primarily designed to be used by the occupants of the main dwelling. The studio shall comply with the following:

1. The studio shall be located on corner blocks or addressing secondary streets and on laneway entries and bends to improve surveillance.

2. Located on lots with a minimum size of 300sqm.
3. Must be detached from other studios.
4. Maximum gross floor area: 45sqm.
5. No additional car parking space is required.
6. The studio shall be located above the garage, carport or like structure for the principal dwelling on the land.
7. There may be no subdivision of the studio from the principal dwelling on the land.
8. Windows are not permitted on elevations which directly face the adjoining lots private open space.
9. Garages with studios above are to be constructed 1.5m from the rear boundary and may have a zero lot setback to one side boundary.
10. A studio must have a minimum separation of 4m from the first floor of the principal dwelling on the lot.
11. Studios shall not reduce the minimum required amount of solar access to any dwelling's (adjoining or on the principal dwelling) private open space as stipulated in Section 5.4 of this Part.

Type 2 Studio

Type 2 Studios are a room or rooms constructed above a detached garage that is intended to be separately strata titled to allow for independent living from the principal dwelling on the lot. The studio shall comply with the following:

1. The studio shall be located on corner blocks with laneway vehicle access.
2. Located on lots with a minimum size of 350sqm.
3. Maximum gross floor area: 75sqm.
4. Studio to be located above the garage, carport or like structure for the principal dwelling on the land and are to be detached from other studios.
5. One additional dedicated on-site car parking space is required to be associated with the Type 2 studio.
6. Car parking space is not to be located in front building setback of the principal dwelling.
7. Car parking space is not to be in a stacked configuration.
8. The studio must include provision of a balcony accessed directly off living space having minimum size of 6sqm, plus a minimum 10sqm ground level service yard with space for clothes drying facilities. The balcony shall not protrude over any property boundary.
9. Type 2 studios may be strata subdivided from the principal dwelling, or dwellings on the land.
10. Garages with studios are to be constructed 1.5m from the rear boundary and may have a zero lot setback to one side boundary.
11. A studio must have a minimum separation of 4m from the first floor of the principal dwelling on the lot.
12. Pedestrian access to studios is to be from the street frontage and not the laneway.
13. Provision for separate services and an on-site garbage storage area e.g. separate letter box.

14. Studios shall not reduce the minimum amount of solar access to any dwelling's (adjoining or on the principal dwelling) private open space as stipulated in Section 3.5 of this Part.
15. Windows are not permitted on elevations which directly face the adjoining lots private open space. Windows may be permitted on the elevation facing the principal dwelling on the lot where they have a minimum sill height of 1.7m.
16. Screened access ways (e.g. staircases) for studios to prevent viewing into adjoining private open space areas.

6. Controls on Land in the R3 Zone “The Village Centres”

6.1 Preliminary

Applies to

This section applies to land in the R3 zone.

Background

The creation of a vibrant centre is essential for the sustainability of the community. The neighbourhood centre shall be a key social focal point and public transport node within the locality. It serves local retail demand without detracting from large nearby centres. The neighbourhood centre incorporates other community facilities such as a primary school, community centre and family and children centre.

The incorporation of appropriate residential uses in commercial/retail developments is desirable.

Objectives

- a) To create a lively focal point for the community, which is economically and socially viable.
- b) To encourage a mix of uses – residential, retail, commercial and community.
- c) To encourage architectural features that creates a distinctive identity and sense of place for the locality.
- d) To create an area that by its scale, street relationship, built form, detailed design and materials, contrasts with the surrounding residential area to create an urban focus.
- e) To encourage upper floor uses in the form of commercial offices, suites and shop-top apartments.
- f) To ensure a uniform approach to signage and street furniture throughout the neighbourhood centre.
- g) To encourage the development of active street frontages to provide a pedestrian friendly environment.

6.2 Subdivision, Frontage and Allotment Size

Background

Development in the village centres may also incorporate shop top housing. A site will need to be wide enough to provide for window space for the occupants of the dwellings. The site will also need to be sufficient size to provide an adequate internal layout and private open space for the dwellings.

Objectives

- a) To ensure that land in village centres can accommodate the use including the car parking and loading provisions.
- b) To ensure that there is sufficient frontage and area for any dwellings in conjunction with the business use.

Controls

Sites must have a minimum street frontage of 20m.

6.3 Site Planning

Objectives

- a) To ensure that the development is compatible with amenity to nearby residential areas and open space.
- b) To ensure that the development is compatible with the adjoining business development.
- c) To ensure that the development reflects the character of the locality and environment.
- d) To ensure that the development contributes to the public domain and attractiveness of the centre for its users.

Controls

The siting of buildings and the development should:

1. Provide safe pedestrian, cycle and vehicle access to and from the public street.
2. Be compatible with nearby residential development in terms of appearance, overshadowing, privacy, views, setbacks and height.
3. Address the street and consider its presentation to the public domain.
4. Consider the impact on existing and potential pedestrian links.
5. Stormwater from the site must be able to be drained satisfactorily. Where the site falls away from the street, it may be necessary to obtain an easement over adjoining property to drain water satisfactorily to a Council stormwater system. Refer to Water Cycle Management in Part 1.

6.4 Setbacks

Objectives

- a) To ensure the height and scale of a development complements neighbouring development, and/or the desired character of a commercial centre.
- b) To ensure a development does not detrimentally affect the amenity of adjoining residential development.

Controls

Street Frontage

Buildings should be built to the front boundary.

Rear Setbacks

1. Where the site has rear lane access the building may be built to the rear boundary, at ground and first floor level. Any floors above the first floor shall be setback equal to the height of the additional floors.
2. Where there is no rear lane access and the site adjoins land that is in a residential zone, the building shall be setback from the rear boundary as follows:
 - 5m for non-residential component of building up to 10m high.
 - 8m otherwise for components of building up to 15m high.

Side Setbacks

1. Where the site adjoins land that is also in a village centres there is no setback requirement.
2. Where the side boundary of the site adjoins land that is in a residential zone, the building may be required to be setback from the side boundary or limited to one storey

near the boundary. Any floors above the ground floor shall be setback equal to the height of the additional floors.

6.5 Landscaped Areas and Pedestrian Areas

Background

Active street and building frontages provide safety and security to a street or shopping centre by enabling casual surveillance. Having access from the street or public areas to as many uses as possible provides active and lively streets and public areas.

Pedestrian areas within the Neighbourhood Centre can provide an attractive meeting place for residents and shoppers. It also has the potential to generate additional business for retailers by providing areas for outdoor eating, display of retailers merchandise and a place for local community group promotions. Public footpaths can also provide a place for outdoor eating.

Objectives

- a) To ensure active street frontages on public streets.
- b) To encourage provision of attractive pedestrian areas.
- c) To encourage linkages between centres and any adjacent public areas such as open space.

Controls

1. Pedestrian areas should minimise any changes in levels and allow wheelchair access to the shops from the car parking area and public footpaths.
2. Pedestrian areas should be separate from loading areas.
3. Sufficient area shall be provided to permit landscaping and tree planting within pedestrian areas and car parking areas.
4. Outdoor Eating Areas may be permitted in public footpath areas. Refer to the section on Outdoor Eating Areas.

6.6 Building Form, Streetscape and Layout

Objectives

- a) To ensure the height and scale of a development complements neighbouring development, and/or the desired character of a village centre.
- b) To provide adequate amenity to the occupants and residents of a development in terms of solar access, visual and acoustic privacy, and natural ventilation.
- c) To ensure a development does not detrimentally affect the amenity of nearby residential development.
- d) To ensure a development is integrated with the public domain and contribute to an active pedestrian-orientated environment.
- e) To maximise natural surveillance so that people feel safe at all times.
- f) To ensure pedestrian entrances and exits are clearly visible from the street.
- g) To promote high quality architectural design.
- h) To ensure corner sites are developed as visually significant elements in order to promote a strong and legible character.
- i) To ensure weather protection to pedestrians.
- j) To ensure roof forms contribute to the proposed character of the centre and residential areas.

- k) To ensure working and living environments have good internal amenity that minimises the need for artificial heating, cooling and lighting.

Controls

Layout of Village Centres

1. Streets are to be public, and organised and designed in order of descending priority for people, bikes and cars.
2. Streets are to be located on the ground and not above car parking.
3. Streets are to be a suitable width for traffic and pedestrians and are to have pavements of sufficient width for awnings and street tree planting.
4. The street network is to:
 - Form a regular grid with dimension related to the proposed densities and building typologies.
 - Be organised to form a street and block pattern that creates:
 - Regular orthogonal patterns for lots and/or building sites (where the existing street pattern allows).
 - Street blocks, lots and/or building sites that relate to the selected building typologies.
 - Be connected and provide a choice of movement for people and cars.
 - Reveal the topography, have clear sight lines and aid legibility.
 - Connect to the existing street pattern in a seamless transition.
 - Provide views and view corridors where possible to open space, special places and/or significant trees.
 - Provide a street frontage for every building and unobtrusive parking for cars, service vehicles, bikes and scooters.
5. The street network is to be designed so as to enable buildings to be located and sited so that:
 - Positive spaces are created with adjacent and neighbouring buildings.
 - Fronts of buildings can face fronts of buildings (usually across a street).
 - Backs of buildings can face backs of buildings (usually at the rear of a street block).
 - Buildings address open spaces and streets both within the site and adjoining the site.
 - Buildings align with the streets.
6. Any variations should be fully justified and will be assessed on merit against the objectives of the precinct.

Building Appearance and Streetscape

1. Buildings shall be modulated to create a vertical rhythm to the street facade. Modules of around 6m are expected which allow for typical construction techniques. No long, unbroken facades will be permitted.
2. Development adjoining open space shall address the open space and avoid blank walls.
3. All buildings to be designed and built to have upper floors. Buildings shall be a minimum of two storeys in height. Single storey buildings are not permitted.

4. Floor to ceiling heights of the ground floor shall be a minimum of 3.5m to allow for adaptive re-use.
5. All residential and mixed use developments shall be at least two storeys with the lowest habitable floor level at least 500mm above the crown of the road. Alternatively, the ground floor shall be above undercroft parking or garages with rear lane or car court access.
6. Shop top housing and Residential Flat Buildings shall comply with State Environmental Planning Policy No 65 [Design Quality of Residential Apartment Development](#) and the Apartment Design Guide (ADG) or equivalent..
7. Building facades shall be articulated and roof form is to be varied to provide visual variety.
8. The pedestrian entrance to shop top housing shall be from the front of the site.
9. Driveway walls adjacent to the entrance of a basement car park are to be treated so that their appearance is consistent with the basement or podium walls.
10. A master antenna shall be provided for any development of more than three dwellings and be located so that it is not visible from the street or any public open space.
11. Consider the relationship between the whole building form and the facade and / or building elements. The number and distribution of elements across a façade determine simplicity or complexity. Columns, beams, floor slabs, balconies, window openings and fenestrations, doors, balustrades, roof forms and parapets are elements, which can be revealed or concealed and organised into simple or complex patterns.
12. Compose facades with an appropriate scale, rhythm and proportion, which respond to the building's use and the desired contextual character. This may include but are not limited to:
 - Defining a base, middle and top related to the overall proportion of the building.
 - Expressing key datum lines in the context using cornices, a change in materials or building set back.
 - Expressing the internal layout of the building, for example, vertical bays or its structure, such as party wall-divisions.
 - Expressing the variation in floor-to-floor height, particularly at the lower levels.
 - Articulating building entries with awnings, porticos, recesses, blade walls and projecting bays.
 - Selecting balcony types which respond to the street context, building orientation and residential amenity.
 - Cantilevered, partially recessed, wholly recessed, or Juliet balconies will all create different facade profiles.
 - Detailing balustrades to reflect the type and location of the balcony and its relationship to the façade detail and materials.
13. Design facades to reflect the orientation of the site using elements such as sun shading, light shelves and bay windows as environmental controls, depending on the facade orientation.
14. Express important corners by giving visual prominence to parts of the facade, for example, a change in building articulation, material or colour, roof expression or increased height.
15. Co-ordinate and integrate building services, such as drainage pipes, with overall facade and balcony design.

16. Co-ordinate security grills/screens, ventilation louvres and car park entry doors with the overall facade design.

Entrances

1. Orientate entrances to buildings towards the public street and provide clear lines of sight between entrances, foyers and the street.
2. The common lobby to shop top housing should face the street.
3. Where the ground floor of a business development, mixed-use development, and shop-top housing faces the street, the ground floor must incorporate shopfront style windows with clear glazing so that pedestrians can see into the premises and vice versa.
4. Provide as direct a physical and visual connection as possible between the street and the entry.
5. Achieve clear lines of transition between the public street, the shared private circulation spaces and the dwelling unit.

Street Frontage

1. All developments must address the street and provide a quality street frontage. Retail and commercial developments must have active street frontages and entries fronting the street.
2. Ground floor uses are to be at the same general level as the footpath and be accessible directly from the street.
3. Provide predominately glazed shop fronts to all ground floor retail areas.
4. Developments on corner sites shall address the corner and the secondary street frontage.
5. Avoid blank or solid walls and the use of dark or obscured glass on street frontages.
6. Roller shutters that obscure windows are not permitted.
7. Provide opportunities for table seating along shop frontages.
8. Any Automatic Teller Machine (ATM) must be located at a highly visible location at street level, and must be well lit at night and incorporate mirrors or reflective materials so that users can observe people behind them.
9. The street number of a building must be visible from the street and made of a reflective material to allow visitors and emergency vehicles to easily identify the location of the building.

Awnings

1. Provide continuous street frontage awnings to all new developments.
2. Wrap awnings around corners on street corner buildings.
3. Awnings must be complementary to each other.
4. Canvas blinds along the street edge are permitted.

Roof Forms

1. Minimise the bulk and mass of roofs and the potential for overshadowing from roofs.
2. Provide eaves with a minimum length of 400mm in dwellings with pitched roofs.
3. Where flat roofs are proposed, lift overruns and rooftop plant and machinery are to be obscured from view by parapets or designed to be incorporated within rooftop activities/features.

4. Incorporate lift overruns and service plant etc into the design of the roof.
5. Wherever possible provide landscaped and shaded areas on roofs to serve as communal private open space for residents of the building.

Building Material and Finishes

1. Avoid expanses of any single material.
2. Utilise high quality and durable materials and finishes, such as face brick with / without coloured render; and plain glass windows.
3. Avoid large wall tiles, rough textured render, polished metal and curtain walls or reflective glass.
4. Highly reflective finishes are not permitted above the ground floor.
5. Colour & materials of the buildings shall be consistent with the existing adjoining development.

Balconies

1. A minimum of 12sqm of open space in the form of a balcony shall be provided for each dwelling. Primary balconies for all dwellings shall have a minimum depth of 2m.
2. Private open space areas should be an extension of indoor living areas and be functional in size to accommodate seating and the like.
3. Balustrades must be compatible with the façade of the building.
4. Ensure balconies are not so deep that they prevent sunlight entering the dwelling below.
5. Design balustrades to allow views and casual surveillance of the street.
6. Balustrades on balconies at lower levels shall be of solid construction.
7. Balconies should where possible should be located above ground level to maximise privacy for occupants, particularly from the street.
8. Solid or semi solid louvres are permitted.
9. Primary balconies should be:
 - Located adjacent to the main living areas, such as living room, dining room or kitchen to extend the dwelling living space.
 - Sufficiently large and well-proportioned to be functional and promote indoor/outdoor living. A dining table and two chairs (smaller dwelling) and four chairs (larger dwelling) should fit on the majority of balconies in any development.
10. Consider secondary balconies, including Juliet balconies or operable walls with balustrades, for additional amenity and choice in larger dwellings, adjacent to bedrooms or for clothes drying, site balconies off laundries or bathrooms.
11. Design and detail balconies in response to the local climate and context thereby increasing the usefulness of balconies. This may be achieved by:
 - Locating balconies facing predominantly north, east or west to provide solar access.
 - Utilising sunscreens, pergolas, shutters and operable walls to control sunlight and wind.
12. Design balustrades to allow views and casual surveillance of the street while providing for safety and visual privacy. Design considerations may include:
 - Detailing balustrades using a proportion of solid to transparent materials to address site lines from the street, public domain or adjacent development. Full

glass balustrades do not provide privacy for the balcony or the dwelling's interior, especially at night.

- Detailing balustrades and providing screening from the public, for example, for a person seated looking at a view, clothes drying areas, bicycle storage or air conditioning units.

13. Operable screens increase the usefulness of balconies by providing weather protection, daylight control and privacy screening.

Daylight Access

1. Plan the site so that new shop top housing is oriented to optimise northern aspect.
2. Ensure direct daylight access to communal open space between March and September and provide appropriate shading in summer.
3. Optimise the number of dwellings receiving daylight access to habitable rooms and principal windows.
4. Ensure daylight access to habitable rooms and private open space, particularly in winter use skylights, clerestory windows and fanlights to supplement daylight access.
5. Avoid south facing dwellings.
6. Design for shading and glare control, particularly in summer, by:
 - Using shading devices, such as eaves, awnings, colonnades, balconies, pergolas, external louvres and planting.
 - Optimising the number of north-facing living spaces.
 - Providing external horizontal shading to north-facing windows.
 - Providing vertical shading to east or west windows.
7. Consider higher ceilings and higher window heads to allow deeper sunlight penetration.
8. On west facing windows, vertical louvre panels or sliding screens protect from glare and low afternoon sun.
9. On north facing windows, projecting horizontal louvres admit winter sun while shading summer sun.
10. Use high performance glass but minimise external glare off windows, by:
 - Avoiding reflective films.
 - Using a glass reflectance below 20%.
 - Considering reduced tint glass.
11. Limit the use of lightwells as a source of daylight by prohibiting their use as the primary source of daylight in habitable rooms. Where they are used:
 - Relate lightwell dimensions to building separation, for example, if non-habitable rooms face into a light well less than 12m high, the lightwell should measure 6 x 6m.
 - Conceal building services and provide appropriate detail and materials to visible walls.
 - Ensure that light wells are fully open to the sky.
 - A combination of louvres provides shading for different times of the day.

Internal design

1. All staircases should be internal.
2. Minimise the length of common walls between dwellings.

3. Basement car parking shall be located beneath the building footprint.
4. Where possible natural ventilation shall be provided to basement car parking.
5. Design building layouts to minimise direct overlooking of rooms and private open spaces adjacent to dwellings.
6. Minimise the location of noise sensitive rooms such as bedrooms adjoining noisier rooms such as bathrooms or kitchens or common corridors and stairwells.
7. Where common walls are provided they must be carried to the underside of the roof and be constructed in accordance with Part F5 of the Building Code of Australia.
8. Locate active use rooms or habitable rooms with windows overlooking communal/public areas (e.g. playgrounds, gardens).

Ground Floor Dwellings

1. Design front gardens or terraces, which contribute to the spatial and visual structure of the street while maintaining adequate privacy for dwelling occupants. This can be achieved by animating the street edge, for example, by promoting individual entries for ground floor dwellings.
2. Create more pedestrian activity along the street and articulate the street edge by:
 - Balancing privacy requirements and pedestrian accessibility.
 - Providing appropriate fencing, lighting and/ or landscaping to meet privacy and safety requirements of occupants while contributing to a pleasant streetscape.
 - Utilising a change in level from the street to the private garden or terrace to minimise site lines from the streets into the dwellings.
 - Increasing street surveillance with doors and windows facing onto the street.

Security

1. Entrances to buildings should be orientated towards the front of the site and facing the street.
2. The main entrance to dwellings or other premises should not be from rear lanes and should be designed with clear directions and signage.
3. Reinforce the development boundary to strengthen the distinction between public and private space by:
 - Employing a level change at the site and/or building threshold (subject to accessibility requirements).
 - Signage.
 - Entry awnings.
 - Fences, walls and gates.
 - Change of material in paving between the street and the development.
4. Improve the opportunities for casual surveillance by:
 - Orienting living areas with views over public or communal open spaces, where possible.
 - Using bay windows and balconies, which protrude beyond the main facade and enable a wider angle of vision to the street.
 - Using corner windows, which provide oblique views of the street.
 - Providing casual views of common internal areas, such as lobbies and foyers, hallways, recreation areas and car parks.
5. Minimise opportunities for concealment by:

- Avoiding blind or dark alcoves near lifts and stairwells, at the entrance and within indoor car parks, along corridors and walkways.
 - Providing well-lit routes throughout the development.
 - Providing appropriate levels of illumination for all common areas.
 - Providing graded illumination to car parks and illuminating entrances higher than the minimum acceptable standard.
6. Control access to the development by:
- Making dwellings inaccessible from the balconies, roofs and windows of neighbouring buildings.
 - Separating the residential component of a development's car parking from any other building use and controlling car park access from public and common areas.
 - Providing direct access from car parks to dwelling lobbies for residents.

Natural Ventilation

1. Utilise the building layout and section to increase the potential for natural ventilation. Design solutions may include:
 - Facilitating cross ventilation by designing narrow building depths and providing dual aspect dwellings, for example, cross through dwellings and corner dwellings.
 - Facilitating convective currents by designing units, which draw cool air in at lower levels and allow warm air to escape at higher levels, for example, maisonette dwellings and two-storey dwellings.
2. Select doors and windows (that open) to maximise natural ventilation opportunities established by the dwelling layout.
3. Provide narrow building depths to support cross ventilation.
4. Avoid single-aspect dwellings with a southerly aspect.
5. Design the internal dwelling layout to promote natural ventilation by:
 - Minimising interruptions in air flow through a dwelling.
 - Grouping rooms with similar usage together, for example, keeping living spaces together and sleeping spaces together. This allows the dwelling to be compartmentalised for efficient summer cooling or winter heating.
 - Selecting doors and openable windows to maximise natural ventilation opportunities established by the dwelling layout.

Building Depth

1. Maximum building depths for ground floor uses is 20m in the neighbourhood centres. Speciality retail shops should not exceed 15m in depth from the street frontage.
2. All points on an office floor should be no more than 12.5m from a source of daylight (e.g. window, atria or light wells).
3. Maximum building depths for houses are 16m, unless internal courtyards are provided.
4. For apartment development, see Apartment Design Guide (ADG) or equivalent for building depth guidance.

Storage Areas

1. A secure storage space is to be provided for each dwelling with a minimum volume 8m³ (minimum dimension 1sqm). This must be set aside exclusively for storage as part of the basement or garage.

2. Storage areas must be adequately lit and secure. Particular attention must be given to security of basement and garage storage areas.

Adjoining Residential Areas

1. Development should minimise impact of the privacy of adjoining and nearby dwellings.
2. Development should be compatible with any adjoining and nearby dwellings.

6.7 Landscaping and Fencing

Objectives

- a) To ensure appropriate landscaping in village centres.
- b) To ensure the protection of existing trees on neighbouring residential zoned land.
- c) To ensure the visual impact of development is minimised and integrated into the streetscape.
- d) To improve the amenity of commercial centres.

Controls

1. Where trees are planted around high use facilities such as car park areas, children's play areas and walkways, they should have clean trunks to height of 1.8m.
2. Landscaping on any podium level or planter box shall be appropriately designed and irrigated.
3. Where landscaping is to be provided a detailed landscape plan shall accompany a development application. A suitably qualified Landscape architect must prepare all Landscape Plans submitted with the development application. Refer to Part 1 for requirements for Detailed Landscape Plans.
4. Landscaped areas within the Village Centres shall generally involve the provision of trees and shrubs in mulched garden beds around car parking areas and where pedestrian areas are provided. In particular the landscaping shall involve the following:
 - Mulched garden beds shall incorporate ground covers that will cover the ground area.
 - Large shrubs shall be used as screen planting where there is a need to screen certain areas such as outside storage.
 - Shrubs shall only be planted in mulched garden beds.

6.8 Car Parking and Access

Objectives

- a) To ensure the provision of appropriate off-street parking for village centres.
- b) To ensure car parking and loading facilities are in the most appropriate location given the urban design needs for the centre.
- c) To ensure that car parking areas are attractive and don't dominate the streetscape.
- d) To locate loading in appropriate locations.
- e) To provide convenient, accessible and safe on-site car parking for residents and visitors.
- f) To minimise driveway crossings to maximise on street parking and landscaped nature strips.

- g) To integrate the location and design of car parking with the design of the site and building without compromising street character, landscape or pedestrian amenity and safety.
- h) To integrate the location and design of car parking with the design of the site and the building.

Controls

1. Car parking and loading areas shall be located at the rear of buildings or in laneways.
2. Visitor car parking shall be clearly identified and may not be stacked or tandem car parking.
3. Visitor car parking shall be located between any roller shutter door and the front boundary.
4. Pedestrian ways and driveways shall be separated.
5. Driveways shall be designed to accommodate removalist vehicles.
6. Give preference to underground parking, whenever possible by:
 - Facilitating natural ventilation to basement and sub-basement car parking areas, where possible.
 - Integrating ventilation grills or screening devices of car park openings into the facade design and landscape design.
 - Providing safe and secure access for building users, including direct access to residential dwellings, where possible.
7. Where above ground enclosed parking cannot be avoided, ensure the design of the development mitigates any negative impact on streetscape and street amenity by:
 - Avoiding exposed parking on the street frontage.
 - Hiding car parking behind the building facade. Where wall openings (windows, fenestrations) occur, ensure they are integrated into the overall facade scale, proportions and detail.

6.9 Amenity and Environmental Impact

Objectives

- a) To provide adequate amenity to the occupants of buildings and to neighbouring residential development in terms of solar access, and visual and acoustic privacy.
- b) To ensure buildings and businesses provide safe and easy access for people.

Controls

Lighting

External lighting to a development must give consideration to the impact of glare on the amenity of adjoining and nearby residents.

Safety

1. Where the hours of operation are after sunset, the car parking areas and any other public areas shall be provided with lighting to provide a safe environment for users of the premises after hours.
2. A Noise Impact Assessment Statement prepared by a qualified Acoustics Engineer may be required to be submitted with the application depending on the scale and location of the proposed use to show that the use can operate satisfactorily in the neighbourhood centre.

6.10 Site Services

Objectives

- a) To ensure that the required services are provided.
- b) To ensure that the services provided are easily protected or maintained.

Controls

Letterboxes and House Numbering

1. A common letterbox structure must be located close to the main pedestrian entrance of a building.
2. The street number of a building must be visible from the street and made of a reflective material to allow visitors and emergency vehicles to easily identify the location of the building.

Frontage works and damage to Council assets

1. All verges within the neighbourhood centre shall be paved by the developer for the full verge width.

Electricity Sub Station

In some cases it may be necessary to provide an electricity substation at the front of the development adjacent to the street frontage. This will involve dedication of the area as a public street to allow access by the electricity provider. The front boundary treatment used elsewhere on the street frontage shall be used at the side and rear of the area.

Waste management

1. Development involving dwellings shall provide at least two waste storage areas to separately cater for the dwellings and non-residential uses on an allotment.
2. A development must provide a waste storage area inside every food premises, and inside any shop that is capable of accommodating a food premises.
3. A development must locate a waste storage area inside the building, or adjacent to a lane where it is convenient and safe for residents, tenants, and waste collection trucks to access the waste storage area and the location and floor level are to the satisfaction of Council.

7. Controls for Land in the E3 – Productivity Support Zone (Area A only)

7.1 Site Planning

Applies to

This section applies to land in the E3 – Productivity Support Zone (Area A only).

Objectives

- a) To ensure that the development is compatible with amenity to nearby residential areas and open space.
- b) To ensure that the development is compatible with the adjoining business development.
- c) To ensure that the development reflects the character of the locality and environment.
- d) To ensure that the development contributes to the public domain and attractiveness of the centre for its users.

Controls

The siting of buildings and the development should:

1. Provide safe pedestrian, cycle and vehicle access to and from the public street.
2. Be compatible with nearby residential development in terms of appearance, overshadowing, privacy, views, setbacks and height.
3. Address the street and consider its presentation to the public domain.
4. Consider the impact on existing and potential pedestrian links.
5. Stormwater from the site must be able to be drained satisfactorily. Where the site falls away from the street, it may be necessary to obtain an easement over adjoining property to drain water satisfactorily to a Council stormwater system. Refer to Water Cycle Management in Part 1.
6. Be compatible with existing business development in terms of scale, bulk, setbacks, materials and visual amenity.
7. Address the street and consider its presentation to the Classified road environment

7.2 Setbacks

Objectives

- a) To ensure the height and scale of a development complements neighbouring development, and/or the desired character of a commercial centre.
- b) To ensure a development does not detrimentally affect the amenity of adjoining residential development.

Controls

Rear Setbacks

1. Where the site has rear lane access the building may be built to the rear boundary, at ground and first floor level. Any floors above the first floor shall be setback equal to the height of the additional floors.

2. Where there is no rear lane access and the site adjoins land that is in a residential zone, the building may be required to be setback from the rear boundary or limited to one storey near the boundary. Any floors above the ground floor shall be setback equal to the height of the additional floors.

Side Setbacks

1. Where the site adjoins land that is also in the E3 – Productivity Support Zone (Area A only) there is no setback requirement.
2. Where the side boundary of the site adjoins land that is in a residential zone, the building may be required to be setback from the side boundary or limited to one storey near the boundary. Any floors above the ground floor shall be setback equal to the height of the additional floors.

Front Setbacks

1. The minimum setback from the front boundary is 10m for the ground floor and 7.5m for the first floor.
2. Any floors above the ground floor shall be setback equal to the height of the additional floors.

7.3 Landscaped Areas and Pedestrian Areas

Objectives

- a) To ensure active street frontages on public streets.
- b) To encourage provision of attractive pedestrian areas.
- c) To encourage linkages between centres and any adjacent public areas such as open space.

Controls

1. Pedestrian areas should minimise any changes in levels and allow wheelchair access to the shops from the car parking area and public footpaths.
2. Pedestrian areas should link all major activity areas of the centre.
3. Pedestrian areas should be separate from loading areas.
4. Separate pedestrian access should be provided to adjoining public footpaths, community facilities and open space.
5. Sufficient area shall be provided to permit landscaping and tree planting within pedestrian areas and car parking areas.

7.4 Building Form, Streetscape and Layout

Achieving a high amenity of urban design is greatly dependent on the design and appearance of individual buildings. Well-designed new buildings not only enhance character and appearance, but also contribute to the coherence of the public domain. In particular:

- Building corners are important both in terms of “way finding” and “place making”. They are often used as markers or signs that contribute to place making and or marking an important intersection.
- The relative consistency in roof height and form assists in defining streets. A range of roof forms and parapets contribute to the skyline.
- The palette of materials contributes to the perceived image of the built environment and assists in creating a unified and memorable streetscape.

Objectives

- a) To ensure that new buildings contribute positively to the streetscape and public domain by means of high quality architecture and robust selection of materials and finishes.
- b) To address the streetscape by providing a consistent and appropriate street frontage in the town and neighbourhood centres.
- c) To ensure corner sites are developed as visually significant elements in order to promote a strong and legible character.
- d) To ensure working and living environments have good internal amenity that minimises the need for artificial heating, cooling and lighting.

Controls

1. External walls are to be constructed of high quality and durable materials and finishes, with low maintenance costs.
2. Articulate facades so that they address and add visual interest. Buildings four storeys and above are to be articulated to differentiate between base, middle and top in design.
3. Buildings on corner sites are to be designed to address the two adjacent streets in a similar way.
4. Limit opaque or blank walls for ground floor uses to 20% of the street frontage.
5. Highly reflective finishes and curtain wall glazing are not permitted above the ground floor.
6. Incorporate changes in level within retail development and civic facilities such that they are accessible to the people with disabilities.
7. Maximise glazing for retail uses, but break glazing into sections to avoid large expanses of glass.

Roof Forms

1. Minimise the bulk and mass of roofs and the potential for overshadowing from roofs.
2. Roof top structures, such as air conditioning, lift motor rooms and the like are to be incorporated into the architectural design of the building and to be screened from public view.
3. Communication towers, such as mobile phone towers and the like, are not to be located on buildings with a residential component.

Material and Finishes

1. Avoid expanses of any single material.
2. Utilise high quality and durable materials and finishes.
3. The following materials are preferred:
 - Face brick with / without coloured render; and
 - Plain glass windows.
4. The following materials must be avoided:
 - Large wall tiles,
 - Rough textured render,
 - Polished metal and curtain walls, and
 - Reflective glass.

Building Depth

1. Maximum building depths for ground floor uses are 40m for Enterprise Corridor. Speciality retail shops should not exceed 15m in depth from the street frontage.
2. All points on an office floor should be no more than 12.5m from a source of daylight (e.g. window, atria or light wells).

7.5 Landscaping and Fencing

Objectives

- a) To ensure appropriate landscaping in commercial centres; and
- b) To ensure the protection of existing trees on neighbouring residential zoned land.
- c) To ensure the visual impact of development is minimised and integrated into the streetscape.
- d) To improve the amenity of commercial centres.

Controls

1. Where trees are planted around high use facilities such as car park areas, children's play areas and walkways, they should have clean trunks to height of 1.8m.
2. Landscaping on any podium level or planter box shall be appropriately designed and irrigated.
3. Where landscaping is to be provided a detailed landscape plan shall accompany a development application. A suitably qualified Landscape architect must prepare all Landscape Plans submitted with the development application. Refer to Part 1 for requirements for Detailed Landscape Plans.
4. Landscaped areas within Business Development shall generally involve the provision of trees and shrubs in mulched garden beds. In particular the landscaping shall involve the following:
 - The trees shall provide a canopy for the streetscape and soften the appearance of the Enterprise Corridor environment, without unduly concealing approved site signage.
 - Mulched garden beds shall incorporate ground covers that will cover the ground area.
 - Shrubs shall be used to soften appearance of the area but still allow viewing between the street and the development.
 - Large shrubs shall be used as screen planting where there is a need to screen certain areas such as outside storage.
 - Shrubs shall only be planted in mulched garden beds.
 - Grassed areas may be considered in limited areas in conjunction with mulched garden beds.
 - Trees shall only be planted in grass where there is a border around the tree separating it from the grassed area.
 - Figure 48 illustrates these requirements.



Figure 48: Landscaping around a Local Centre

7.6 Car Parking and Access

Background

Car parking and safe access provision is fundamental for all sites in the business areas. The layout of car parking areas may in the case of Local Centres may reflect the street environment. Refer to Part 1 for additional information about car parking and access requirements.

Objectives

- a) To ensure the provision of appropriate off-street parking for business areas.
- b) To ensure car parking and loading facilities are in the most appropriate location given the urban design needs for the centre.
- c) To ensure that car parking areas that are attractive and don't dominate the streetscape.
- d) To locate loading in appropriate locations.

Controls

1. Car parking shall generally be located toward the front of the site.
2. Car Parking must meet the requirements of Part 1 of this DCP.

7.7 Amenity and Environmental Impact

Background

Business Areas are centres of activity for residents, workers and visitors. The level of activity varies depending on size, location and land uses in the centre. This activity may take for long periods of the day each day of the week. They are also increasingly the location of residential development. While this presents opportunities to add to activity it also presents some potential amenity issues and impacts on transport.

Objectives

- a) To provide adequate amenity to the occupants of buildings and to neighbouring residential development in terms of solar access, and visual and acoustic privacy.
- b) To ensure buildings and businesses provide safe and easy access for people.
- c) To provide useable private open space for dwellings.

Controls

Privacy

Development shall be designed to minimise overlooking of adjoining and nearby residential development.

Access to sunlight

Dwellings above shops shall be designed to maximise solar access.

Acoustic privacy

1. Where an allotment adjoins a Classified Road, dwellings must comply with the requirements of the SEPP (Infrastructure).
2. Dwellings should be located to minimise the impact of noise from car parking and loading areas.

Lighting

External lighting to a development must give consideration to the impact of glare on the amenity of adjoining and nearby residents

7.8 Site Services

Objectives

- a) To ensure that the required services are provided.
- b) To ensure that the services provided are easily protected or maintained.

Controls

Letterboxes and House Numbering

1. A common letterbox structure must be located close to the main pedestrian entrance of a building.
2. The street number of a building must be visible from the street and made of a reflective material to allow visitors and emergency vehicles to easily identify the location of the building.

Frontage works and damage to Council assets

1. Where a footpath, road shoulder, new or enlarged access driveway or is required to be provided this shall be provided at no cost to Council.
2. Council must be notified of any works that may threaten Council assets. Council must give approval for any works involving Council infrastructure.

Electricity Sub Station

1. In some cases it may be necessary to provide an electricity substation at the front of the development adjacent to the street frontage. This will involve dedication of the area as a public street to allow access by the electricity provider. The front boundary treatment used elsewhere on the street frontage shall be used at the side and rear of the area.

Waste management

1. Development involving dwellings shall provide at least two waste storage areas to separately cater for the dwellings and non-residential uses on an allotment.
2. A development must provide a waste storage area inside every food premises, and inside any shop that is capable of accommodating a food premises.
3. A development must locate a waste storage area inside the building, or adjacent to a lane where it is convenient and safe for residents, tenants, and waste collection trucks to access the waste storage area and the location and floor level are to the satisfaction of Council and Part 1.

Storage Facilities

1. A multi-unit development must provide a minimum storage area of 8m³ to each dwelling. The storage area may be attached to the car parking space or spaces to each dwelling.

8. Controls for Certain Sites

8.1 North of Maxwell's Creek urban park

Background

Two gateway style buildings are proposed to the northern edge of Maxwell's Creek Urban Park along Bernera Road. Due to the sensitive and highly visible location, special design guidelines are to apply to any buildings proposed on these sites in addition to the applicable objectives and controls already contained in this Plan. It is envisaged that two apartment buildings are proposed, one on each site flanking Bernera Road. A small corner café or other active use will be encouraged on the corner of the parkland and Bernera Road.

Objectives

- a) To provide surveillance over Maxwell's Creek Urban Park and to increase the perception of safety and security in the area.
- b) To shorten the walking distance and increase connections between the Urban and Town Centre Character Areas.
- c) To provide a built form and architectural quality that reflects the special gateway location and parkland setting.

Controls

1. Buildings are to address the Bernera Avenue section of the Bus Priority Corridor, Maxwell's Creek Urban Park and the street running to the north of the site. Site servicing and vehicular access is to be provided from:
 - The western or north-western edge of the site for the western building, or
 - The eastern or north-eastern edge of the site for the eastern building. Refer to Figure 49.
2. The gateway buildings are to provide a strong contemporary urban form and be of architectural merit.
3. Minimum street wall heights are 4 storeys. Additional storeys may be set back behind the primary building line up to a maximum height of 6 storeys.
4. Car-parking and servicing is to be predominantly located underground or in semi-basements. Any surface parking areas are to be well integrated into the landscape treatment and be made of semi-pervious paving materials.
5. Sub-basement parking areas are not permitted to be raised greater than 750mm above existing ground level to maximise opportunities for ground floor interface between the public and the private domain and to minimise the negative visual impact of exposed parking and ventilation structures.
6. Landscape features such as terraced planter beds, wall and fence treatments up to 1.2m high are to be used to define the public and private domain.
7. Additional communal open space will be encouraged on the roof top.

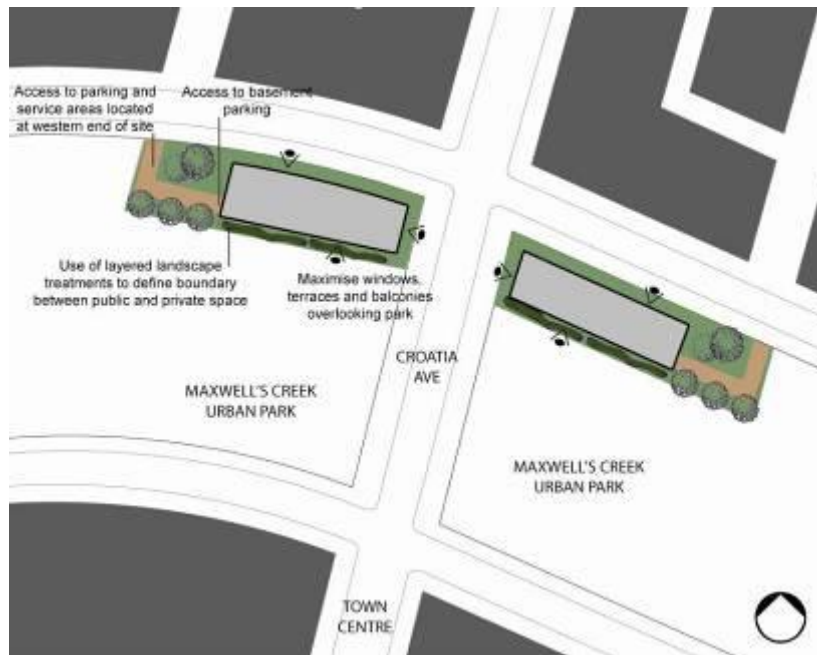


Figure 49: Design guidelines for development to the north of Maxwell's Creek Urban Park

8.2 Lots backing onto Camden Valley Way and the Rail Corridor

Background

As a number of properties will back onto Camden Valley Way and the South West Rail Link (SWRL) corridor, the presentation of the back of the lot to the public domain and the travelling public, as well as the amenity of the lot resident, is important to the overall quality of the precinct.

As part of the detailed design for the SWRL, and in accordance with the Conditions of Consent, the Transport Infrastructure Development Corporation (TIC) has investigated all reasonable and feasible noise mitigation options for existing and planned future receivers.

Objectives

- a) To ensure that a high quality, low maintenance, solid and consistent rear boundary treatment to lots backing onto Camden Valley Way and the rail corridor.
- b) To minimise the noise impacts to lots backing onto Camden Valley Way and the rail corridor.
- c) To provide security and privacy to the rear of lots backing onto Camden Valley Way and the rail corridor.
- d) To encourage a high quality architectural treatment to the rear façade of the property as visible to the public domain and travelling public.

Controls

1. Lots are to have a minimum depth of 30m.
2. An 8m minimum setback is required from the back of the lot to the rear, or side, façade of the dwelling.

3. Architecturally the rear façade of the building (and side façade if visible from the public domain) are to be articulated and modulated to reduce the bulk of the dwelling and to add visual interest.
4. Internal dwelling layouts should be designed to minimise noise in living and sleeping areas.
5. Double glazed windows are to be used on the rear façade of the dwelling to minimise noise impacts.
6. Where naturally ventilated (windows open) conditions cannot be achieved, due to noise levels, mechanical ventilation or air-conditioning systems are to be provided compliant with AS1668 and the National Construction Code.

Lots backing onto Camden Valley Way only

1. All allotments with a boundary to Camden Valley Way are to provide a wall to limit noise along that boundary. Walls are to be 2m high, of solid masonry construction, and provided along the length of all lots backing or siding onto Camden Valley Way.
2. Rear walls are to be vertically modulated at least every 5m on the side facing Camden Valley Way.
3. A coping is to be provided along the rear wall with a drip edge on the Camden Valley Way side (10 degree slope to coping).
4. The walls and footings are to be constructed on the boundary or entirely within the lot boundary.

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