ITEM-3 PLANNING PROPOSAL 153 BOUNDARY ROAD BOX HILL - WATER RECYCLING FACILITY (3/2016/PLP)

A MOTION WAS MOVED BY COUNCILLOR PRESTON AND SECONDED BY COUNCILLOR HAY OAM THAT the Recommendation contained in the report be adopted.

THE MOTION WAS PUT AND CARRIED.

104 RESOLUTION

1. A planning proposal be forwarded to the Department of Planning and Environment for a Gateway Determination to amend the Land Zoning Map to rezone part of 153 Boundary Road, Box Hill (Part Lot 10 DP 593517) from R3 Medium Density Residential to SP2 Infrastructure.

2. The draft amendments to DCP 2012 (Part D Section 17 – Box Hill North) be exhibited in conjunction with the exhibition of the planning proposal.

Being a planning matter, the Mayor called for a division to record the votes on this matter

VOTING FOR THE MOTION
Clr Dr M R Byrne Adjunct Professor
Clr Keane
Clr Preston
Clr A N Haselden
Clr Thomas
Clr Dr Gangemi
Clr Harty OAM
Clr Dr Lowe
Clr Jefferies
Clr Hay OAM

VOTING AGAINST THE MOTION
Clr Tracey

ABSENT
Clr Taylor MP

ITEM-4 SYDNEY METRO NORTHWEST URBAN TRANSFORMATION - CHERRYBROOK PRECINCT

A MOTION WAS MOVED BY COUNCILLOR HARTY OAM AND SECONDED BY COUNCILLOR TRACEY THAT the Recommendation contained in the report be adopted.

THE MOTION WAS PUT AND CARRIED UNANIMOUSLY.

ITEM-3	**PLANNING PROPOSAL 153 BOUNDARY ROAD BOX HILL - WATER RECYCLING FACILITY (3/2016/PLP)**
THEME:	Balanced Urban Growth
OUTCOME:	7 Responsible planning facilitates a desirable living environment and meets growth targets.
STRATEGY:	7.1 The Shire's natural and built environment is well managed through strategic land use and urban planning that reflects our values and aspirations.
MEETING DATE:	**15 MARCH 2016** EXTRAORDINARY MEETING
GROUP:	**STRATEGIC PLANNING**
AUTHOR:	**FORWARD PLANNING COORDINATOR** BRENT WOODHAMS
RESPONSIBLE OFFICER:	**MANAGER FORWARD PLANNING** STEWART SEALE

EXECUTIVE SUMMARY

This report recommends that a planning proposal for land at 153 Boundary Road be forwarded to the Department of Planning and Environment for Gateway Determination. The planning proposal seeks to rezone approximately 1 hectare of the south eastern portion of the site from an R3 Medium Density Residential zone to an SP2 Infrastructure (Sewerage System).

The purpose of the rezoning is to facilitate the development of a water recycling facility on the site to provide sewer treatment and recycled water infrastructure for the Box Hill North Precinct. The system will supplement Sydney Water's provision of drinking water to the Precinct.

It is further recommended that a new control be included within DCP 2012 (Part D Section 17 – Box Hill North) to ensure that a 15 metre separation distance is provided between the eastern boundary of the site and the boundary of future residential development within the vicinity of the site.

Rezoning the site to SP2 Infrastructure would enable the proponent to utilise the provisions of *State Environmental Planning Policy (Infrastructure) 2007* as a private provider under the *Water Industry Competition Act 2006* (WICA) and construct a water recycling facility without the need for development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Rather future development on the site would require assessment under Part 5 of the EP&A Act.

The current proposal is supported as it will facilitate additional housing supply to accommodate population growth through the provision of water and wastewater services through an alternative infrastructure supplier. The proposal is also consistent with the objectives of the WICA legislation which is to promote economically efficient use and operation of, and investment in, significant water industry infrastructure, thereby promoting effective competition in upstream or downstream markets.

APPLICANT
Flow Systems Pty Ltd

OWNERS
Mr J Sant

THE HILLS LOCAL ENVIRONMENTAL PLAN 2012

Zone:	R3 Medium Density Residential
Minimum Lot Size:	450m^2
Maximum Height:	10m
Maximum Floor Space Ratio:	N/A

POLITICAL DONATIONS
Nil disclosures.

HISTORY
10/11/2015 Councillors briefed on the proposal.

REPORT
The purpose of this report is to consider a planning proposal to amend the land zoning applying to land at 153 Boundary Road, Box Hill (Part Lot 10 DP 593517).

1. THE SITE
The site is located near the corner of Boundary Road and Red Gables Road within the Box Hill North Precinct which was rezoned for urban development on 20 February 2015.

The site is currently zoned R3 Medium Density Residential and is an irregular rectangular shaped parcel of land with an area of one (1) hectare which forms part of a larger parent lot of approximately 10 hectares, zoned part R3 Medium Density Residential and part RE1 Public Recreation. The subject site is located within the south east corner of the parent lot and has a road frontage to Red Gables Road.

Figure 1
Locality Plan

The following figure is an overlay of the existing land zoning map and DCP road layout, which identifies the location of the subject site.

Figure 2
Existing Land Zoning and Road Layout Plan

2. PLANNING PROPOSAL

The planning proposal seeks to rezone the site from R3 Medium Density Residential to SP2 Infrastructure (Sewerage System) to facilitate the development of a Water Recycling Facility to provide sewer treatment and recycled water infrastructure for the Box Hill North Precinct. The system will supplement Sydney Water's provision of drinking water to the Precinct.

The figures below illustrate the existing and proposed zoning for the site.

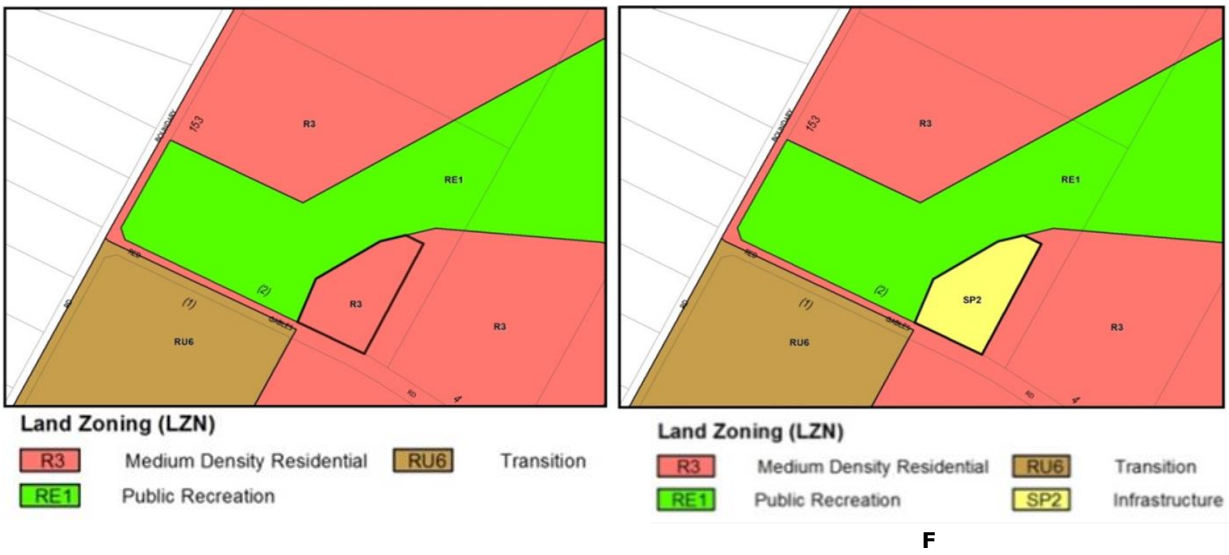

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Figure 3
Existing and Proposed Land Zoning Map

The original Box Hill North Planning Proposal identified a number of potential sewer servicing options to the Precinct in consultation with Sydney Water, noting, that the delivery of the Box Hill North infrastructure was not included in Sydney Water Growth Plans or funding program at the time of the assessment thereby requiring any infrastructure to be developer funded. The assessment at the time envisaged the installation of a traditional gravity fed sewer system.

The installation of a recycled water system for the Precinct was not previously proposed or anticipated. The proposed system utilises a pressure sewer network linked to a water recycling facility.

The proponent has indicated that this system has the following benefits over a traditional system:

- Six to eight times smaller than a traditional gravity fed system;
- Creates a smaller footprint and a more cost effective scheme;
- Less odorous;
- Creates a dual water supply resulting in a water efficient community;
- Creates a more secure water supply; and
- Scalable to allow supply to increase with demand.

The proposed concept includes two (2) processing buildings, two (2) 3.6 metre high recycled water storage tanks, two (2) 5 metre high recycled water storage tanks, recycled water pump shed, access road and pump shed. The concept identifies landscaping along the sensitive interfaces, however limited detail has been submitted on the type of landscaping which will be provided. The facility will operate 24 hours, 7 days a week. An indicative concept and site plan for the facility are shown in the following figures.

Figure 4
Indicative Perspective of Proposed Plant

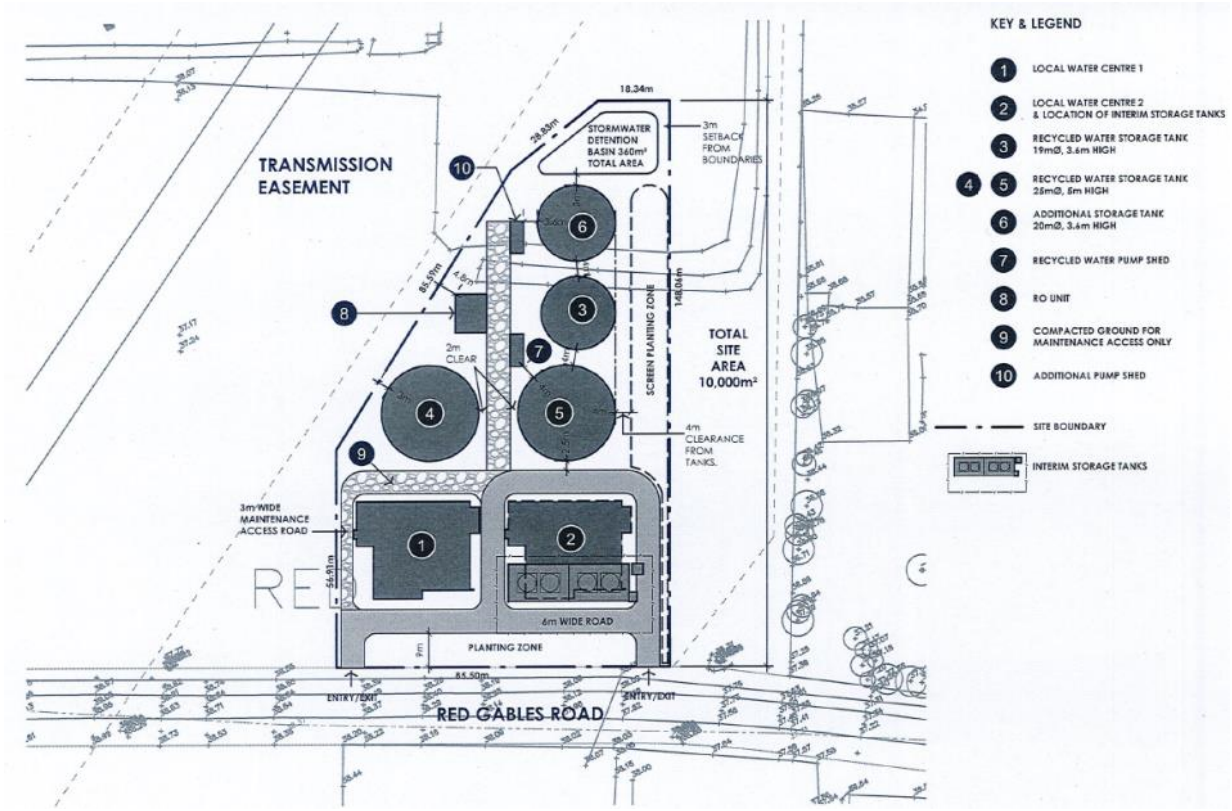


Figure 5
Proposed site plan

Under the provisions of LEP 2012 water recycling facilities are a type of sewerage system and are not permitted within the current R3 Medium Density zoning. Rezoning the site

to SP2 Infrastructure enables the proponent to utilise the provisions of *State Environmental Planning Policy (Infrastructure) 2007* as a private provider under the Water Industry Competition Act 2006 (WICA) and construct a water recycling facility without the need for development consent under Part 4 of the *Environmental Planning and Assessment Act 1979*.

Water Industry Competition Act 2006 (WICA)
The Water Industry Competition Act 2006 (WICA) and Regulations were introduced in 2006 have to encourage competition in the water industry and facilitate innovative recycling projects in the provision of water and wastewater services. The provisions under the WICA include:

- a licensing regime for private sector providers of reticulated drinking water, recycled water and sewerage services;
- a third-party access regime for water and sewerage infrastructure; and
- authorisation of the Independent Pricing and Regulatory Tribunal (IPART) to arbitrate certain disputes.

The WICA legislation encourages competition and investment by:

- promoting new water recycling businesses;
- establishing a comprehensive access regime to help new suppliers negotiate arrangements for the transportation and storage of water and sewerage using existing water networks;
- ensuring private schemes and the public water utilities face similar obligations, where like services are provided;
- providing equality between private and public water utilities for activities such as laying pipes in public roads and reading meters.

The regulations set out licensing rules to ensure that water meets Australian standards, that recycled water is 'fit for purpose', and that all services are delivered in a safe, reliable manner with minimal environmental impacts.

3. STRATEGIC CONTEXT

A Plan for Growing Sydney
On 14 December 2014, the NSW Minister for Planning released *A Plan for Growing Sydney*. The Plan is intended to guide land use planning decisions for the next 20 years and presents a strategy for accommodating Sydney's forecast population growth over this time. To achieve the Government's vision for Sydney as a "strong global City and a great place to live", the Plan sets out four (4) main goals, for Sydney to be:

- A competitive economy with world-class services and transport,
- A City of housing choice with homes that meet our needs and lifestyles,
- A great place to live with strong, healthy and well-connected communities, and
- A sustainable and resilient City that protects the natural environment and has a balanced approach to the use of land and resources.

The key principles for growth include increasing the housing choice around the centres by accelerating the housing supply and renewal and by improving housing choice. The planning proposal seeks to facilitate the delivery of housing close to open space, shopping facilities and public transport services. The provision of a water recycling facility will support the rollout of new homes and provide a water efficient water and wastewater service to new residents.

Local Strategy
Council's Draft Local Strategy was adopted in 2008, it is the principal document for communicating the future planning of the Shire and includes the objectives of longer term planning projects of the State Government as well as responding to, and planning for, local needs such as employment, housing and transport. The Strategy identifies a demand for 36,000 dwellings to meet the Shire's needs by 2031.

The draft Local Strategy was adopted principally as a land use planning document to guide local planning and reflect the following five key themes of "Hills 2026 Community Strategic Direction: Looking Towards the Future":

- Resilient Local Leadership;
- Vibrant Communities;
- Balanced Urban Growth;
- Protected Environment; and
- Modern Local Economy.

The Local Strategy continues to provide a clear statement of the overall strategic land use management and planning objectives for the Hills Shire. However, it is noted that the dwelling and job growth targets detailed within the Local Strategy represent Council's projected growth targets as at June 2008. The key directions and objectives of the Local Strategy relating to residential outcomes include the following:

- R1 – Accommodation of population growth;
- R2 – Respond to changing housing needs; and
- R4 – Facilitate quality housing outcomes.

The proposal will achieve these objectives as it will facilitate additional housing supply to accommodate population growth through the provision of water and wastewater services through an alternative infrastructure supplier. The provisions of this infrastructure will support the rollout of new homes and other development within the Box Hill North Precinct.

4. MATTERS FOR CONSIDERATION

Site Selection
Traditional sewage treatment plants are usually located at the lowest point of the catchment that it serves as these are usually fed by gravity sewerage systems which must deliver sewer by gravity to those treatment plants. This locational requirement is not needed for pressure sewer systems. It is noted that the subject site is not located within the lowest point of the Precinct. In this regard advice has been sought from the proponent on the rationale for the selection of the site and whether any alternative sites were investigated. As the Box Hill Local Water Centre will be fed by pressure sewer, the sewage can be pumped to any elevation necessary. The other locations considered for the LWC are listed below and identified in figure 6:

- Old Pitt Town Road near to the current sales centre;
- Old Pitt Town Road near to the proposed zone substation and Mt Carmel Road intersection; and
- A site at the northern end of the development off Maguires Road.

Figure 6
Site Selection Map

The following criteria were used to select the location for the water recycling facility:

- Immediate distance from first precinct: Ensure that the precinct is located away from existing homes and the first stages proposed for development. It is intended that the facility will be built and commissioned before houses are sold and built nearby;
- Proximity to service first precinct: The facility should not be located too far from the first development Precinct;
- Centrally located in project to ensure efficiency in design: This allows for the pipe sizes of the sewerage and recycled water reticulation networks to be minimised. If the facility is located at the extremities of the development, the volume of sewage being collected from the development necessitates a larger diameter trunk pipes to be installed;
- Land use and value impacts: The value of the land being provided for the facility should be minimised;
- Topography: A generally flat site minimises construction cost through reducing bulk earthworks and minimising the land area required that would otherwise need to be left for embankments;

- Distance from environmentally sensitive land and town centre: Potential impact on environmentally sensitive areas should be minimised;
- Immediate Access to Roads and Services: This allows immediate direct access for maintenance and for traffic and associated services (power, telecommunications, water) to service the development.

Based on an analysis of the potential sites, the folowing materix was prepared by the proponet.

Matrix indicating Rating for Site Selection

Test Condition		Proposed Site	Option 1	Option 2	Option 3
1	Distance from first precincts				
2	Proximity to service first precincts				
3	Centrally located in project to ensure efficiency in design				
4	Land Use and Value Impacts				
5	Topography				
6	Distance from Environmentally Sensitive Lands and Town Centre				
7	Immediate access to roads and services				

Figure 7
Site Selection Matrix

The subject site on Red Gables Road was chosen as it had the highest score as part of the assessment and has the following characteristics:

- Central to the development area, meaning reticulation pipe sizes are minimised;
- Located on relatively low value land being relatively low-lying and next to the Transgrid overhead transmission lines;
- Located away from the first development precinct, meaning that the facility will be built and commissioned before houses are built in that location;
- In a location where the site is flat. This assists the ability to visually screen and landscape the local water centre site, therefore minimising any visual impact the site may have or be perceived to have.

Environmental Impact
As with any sewage treatment facility there is potential for an environment impact, and this potential impact would need to be appropriately managed.

It is noted that one of the principal benefits of pressure sewer system is that it a closed system and does not overflow sewage during heavy rain. Heavy rain or flooding will not impact the system or site because the:

- sewer network is under pressure and so it does not allow inflow of stormwater into the network; and
- the local water centre will be designed and constructed above the required flood control levels for the development.

Notwithstanding, the Environment Protection Authority (EPA) regulates sewage treatment systems under the *Protection of the Environment Operations Act 1997* (POEO Act). Schedule 1 of the POEO Act requires that sewage treatment systems, including the treatment plan and reticulation system, with a processing capacity of 750KL/day or 2,500 equivalent persons be licenced.

As the proposed facility would service approximately 13,335 equivalent persons, an environment protection licence would be required. Licence conditions relate to pollution prevention and monitoring, and cleaner production through recycling and reuse and the implementation of best practice. The licence would include legally enforceable conditions with the objective to protect and minimise harm to the environment and public health from sewage discharges. These licences generally include environmental performance requirements for the sewerage systems, including the required level of sewerage treatment for the plant and limits on pollutants permitted to be discharged.

Amenity Impact and Proximity to Future Development

As the site is located within an urban release Precinct, the proposal should be assessed having regard to the intended future use of surrounding land, rather than the existing semi-rural context of the site. Based on the land zoning map, the land to the east and south of the site will contain medium density residential development. Accordingly, the context of the site will be urban, which could increase the potential for amenity impacts once the surrounding land has been developed for its intended use.

Both an odour assessment and noise assessment have been submitted with the application. The findings of these assessments are included below. Although, if the proposal does progress, further consultation with the Office of Environment and Heritage should be undertaken on the odour and noise generation from the facility and the management of potential interface conflicts.

Odour

The NSW EPA Guideline titled 'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW' lists the statutory methods for modelling and assessing emissions of air pollutants from stationary sources.

The Guidelines set a measure (odour units (OU)) that any odour emitting facility should be designed to achieve, which provide additional protection for individuals with a heightened response to odours. The criteria for complex mixtures of odorous air pollutants are included within the following table.

Population of affected community	Impact assessment criteria for complex mixtures of odorous air pollutants (OU)
Urban (≥~2000) and/or schools and hospitals	2.0
~500	3.0
~125	4.0
~30	5.0
~10	6.0
Single rural residence (≤~2)	7.0

Odour Unit: Indicates the concentration of odorous mixtures (such as sulphur) within an air sample.

Figure 8

Criteria for complex mixtures of odorous air pollutants (EPA, 2005)

In accordance with the EPA requirements, no sensitive receiver should be subject to odour above 2 odour units.

An odour assessment, prepared by Pacific Environment Limited, was submitted with the Planning Proposal. The purpose of the assessment was to assess the air quality impacts of the facility. The modelling within the assessment indicates that odour emissions from the system would be below the criteria of 2.0 OU. The following diagram identifies the projected extend of the 1OU and 2OU (99th percentile) for the facility.

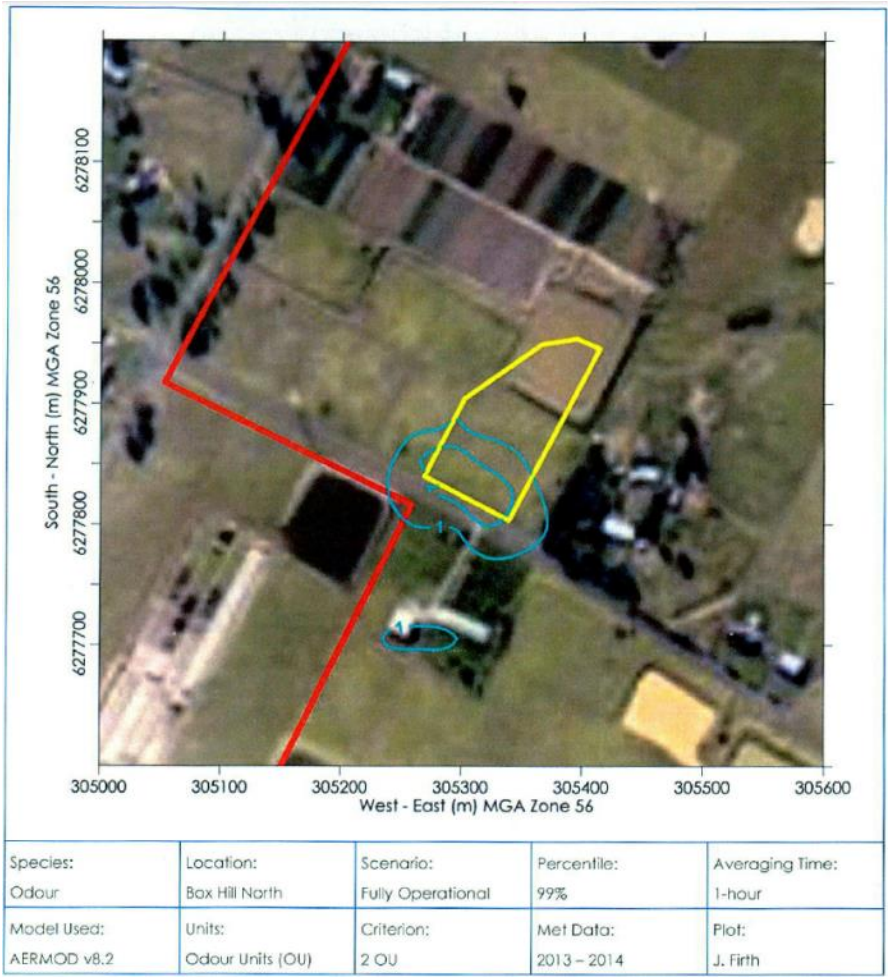


Figure 9
Predicted 99th Percentile Odour Concentration (OU) for the Fully Operation Plant

In accordance with the results of the assesment it is not anticipated there there will be a significant odour impact on sensitive adjoining land uses.

Noise
A Noise assessment, prepared by Wilkinson Murray, was submitted with the Planning Proposal. The purpose of the assessment was to provide an operational noise assessment of the proposed Local Water Centre. The noise assessment evaluates potential noise and vibration impacts associated with the operation of the facility in accordance with a number of EPA guidelines and policies including the Industrial Noise Policy. The assessment notes that the acceptable amenity noise levels which apply over the entire day, are as follows:

- Daytime: 55dBA
- Evening: 45dBA
- Night Time: 40dBA

The overall industrial noise from all industrial noise sources in the area should not exceed the above amenity levels over the day, evening or night periods. However, it is noted that the project specific noise criterion which is applied to this development is 41dBA.

Impact without generator
Based on the results of the acoustic assessment the operational noise emission levels (excluding the backup generator) and including noise mitigation measures, would comply with the noise criteria mentioned above. Noise mitigation measures are proposed to include an air gap to accommodate 50mm thick polyester or glasswool insulation. The noise generation contours for the facility (excluding the backup generator) is included in the following figure.

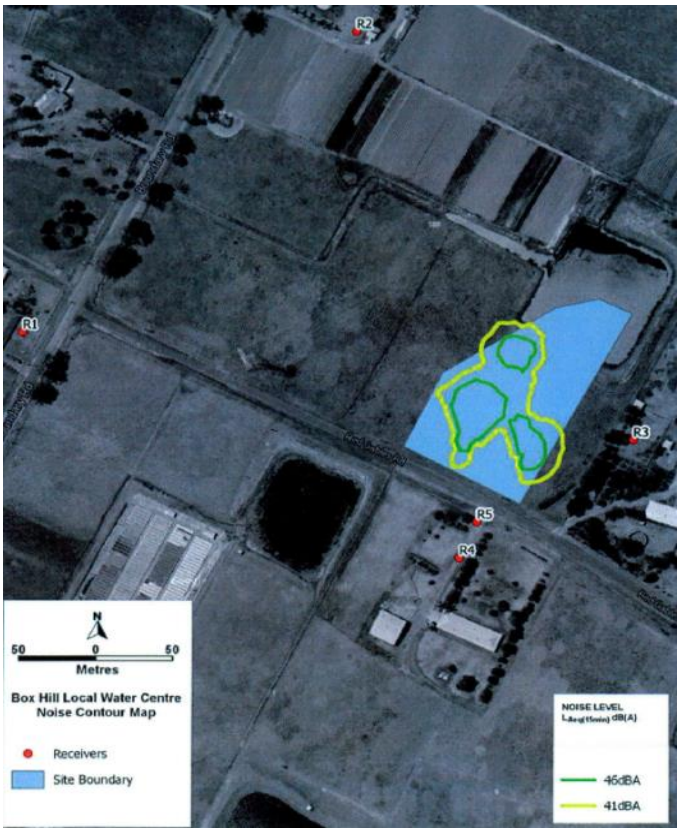


Figure 10
Operational Noise Generation – Without Backup Generator

Impact Including Generator
The facility will include a backup generator. During emergency situations where all power to the facility drops out, the on-site generator starts up which will increase the noise generation from the site, albeit for a shorty period of time. The Industrial Noise Policy permits adjustments to the acceptable amenity noise level noise sources that are infrequent and which occur for a short period of time. An extract of the 'adjustments for duration' criteria from the EPA Industrial Noise Policy are included in the following table.

Duration of noise (one event in any 24 hour period)	**Increase in acceptable noise level at receptor, dB(A)**	
	Daytime and evening (0700–2200 h)	**Night-time (2200–0700 h)**
1.0 to 2.5 hours	2	Nil
15 minutes to 1 hour	5	Nil
6 minutes to 15 minutes	7	2
1.5 minutes to 6 minutes	15	5
less than 1.5 minutes	20	10

Figure 11
Adjustments for Duration Criteria

The generator is only forecast to be tested during daytime hours either once a month for 30 minutes, or once every 2 months for one hour, a positive adjustment of 5db has been applied to the project specific criteria of 41dBA. Based on the adjustment, the adjusted daytime acceptable level is 46dBA. The results of the assessment indicate the predicted noise levels from all noise sources with the backup generator is compliant with the adjusted daytime acceptable noise level of 46dBA at the nearest sensitive receiver. The noise generation contours for the facility (including the backup generator is included in the following figure.

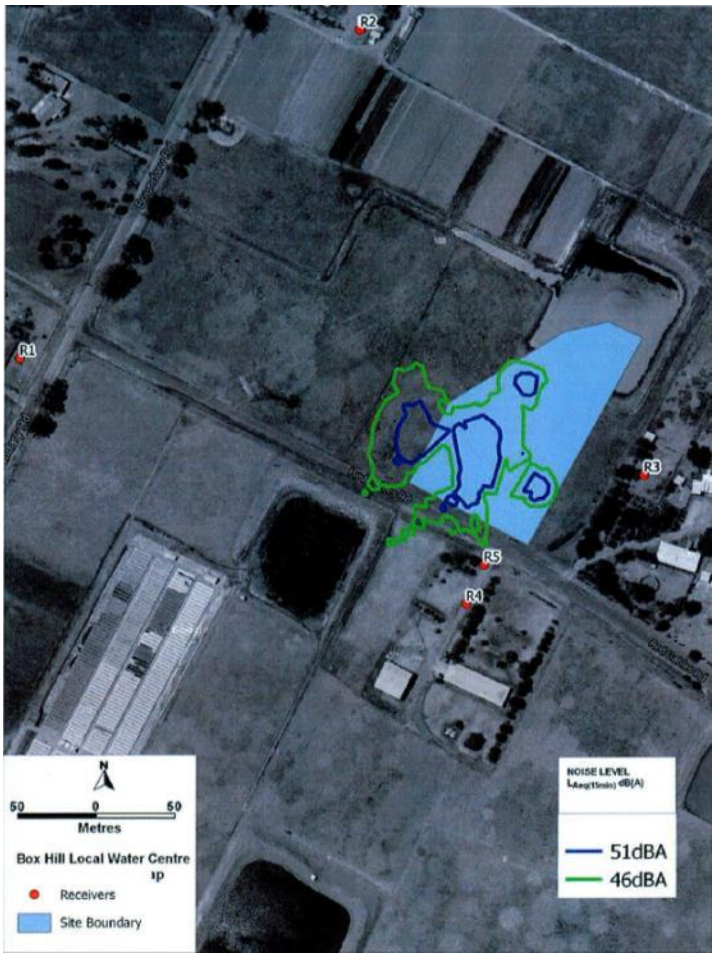


Figure 12
Operational Noise Generation – With Backup Generator

Interface with Adjoining Uses

Whilst the existing development is rural in nature it is anticipated that once development occurs the surrounding context will be highly urbanised. This could potentially lead to land use conflicts between the water recycling facility and future residential development to the east and south.

On 9 February 2016 a master plan development application (1397/2015/JP) was approved by the Joint Regional Planning Panel. The master plan approval is a concept development application pursuant to section 83B of the Environmental Planning & Assessment Act 1979. The approval was not for any physical works. Accordingly, future works (subdivision and built form) will occur through subsequent development applications. The preparation and approval of the master plan development application was a requirement of the Voluntary Planning Agreement applying to the Precinct.

Twelve development applications have been lodged with Council for the Box Hill North Precinct, primarily relating to bulk earthworks and subdivisions primarily across the southern portion of the Precinct. A further six pre-lodgement meetings have occurred recently for further applications to be lodged shortly by the applicant.

The Plans within the master plan now supersede the plans within DCP 2012 - Part D Section 17 Box Hill North. In order to retain some flexibility in the layout of roads, the master plan approval only identifies Collector Roads and Riparian Roads. The Road Network Plan which was approved is included below.

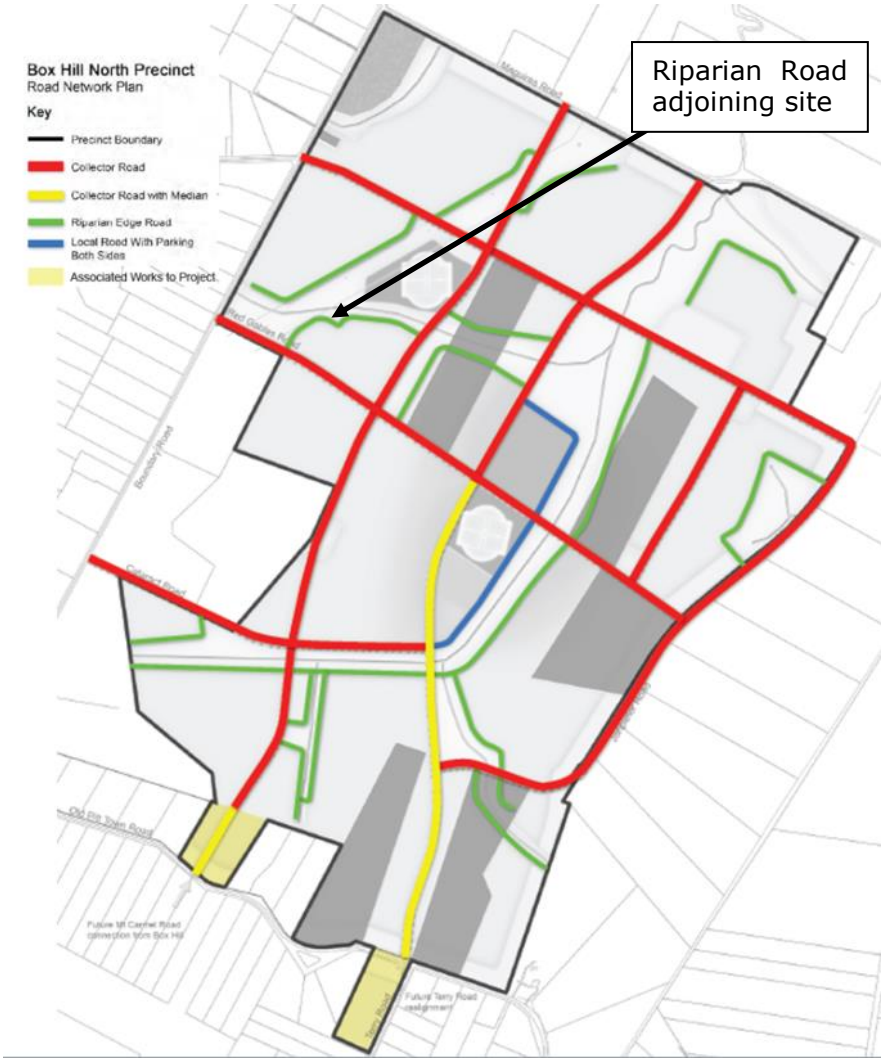


Figure 13
Approved Road Network – DA1397/2015/JP

As can be seen, the approval identifies a riparian road along the riparian corridor adjoining the north and west of the site. The master plan approval does not have regard to the potential for a water recycling facility at the subject site. Accordingly, if the proposal is to proceed, future applications for subdivision would need to consider an alternative road layout. The master plan approval is intended to provide guidance for future applications. Whilst it does include a road layout, there is some flexibility to amend the location of roads as part of future subdivision applications.

Future Road Buffer

In order to manage the perception of reduced amenity and to facilitate the efficient movement of traffic around this 1 hectare lot for the local water centre, an alternative lot layout would be required which would include a road along the eastern boundary of the site (see below).

Figure 14
Preliminary Road Layout

The distance of the road reserve would be approximately 15 metres. The distances of the nearest water processing building to the front boundary of future residential lots would be approximately 30 metres and the distance of the Interim Storage Tanks would be approximately 24 metres. The road would facilitate the following separation distances.

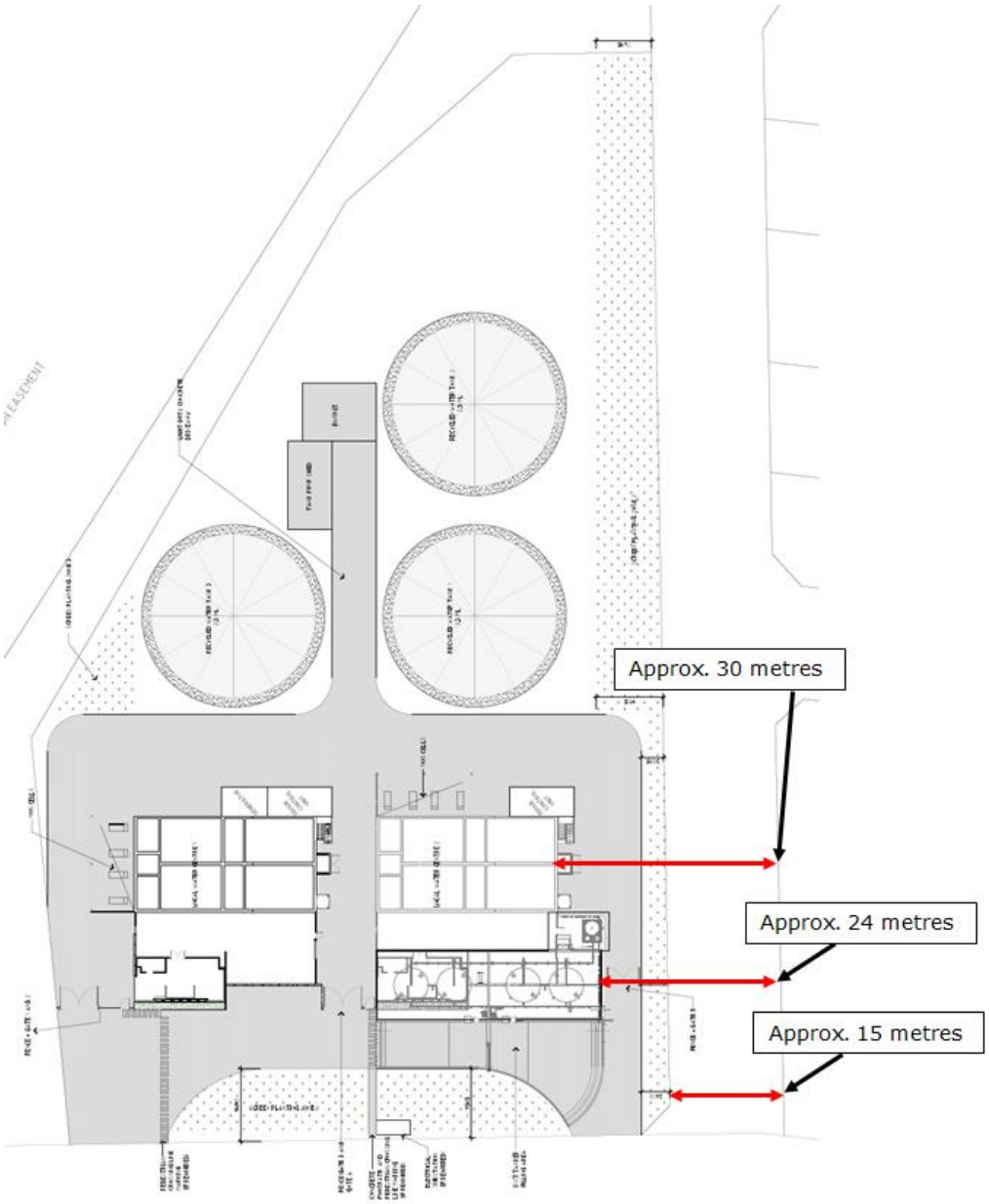


Figure 15
Site Plan and Distances to Residential Development

In order to ensure that a road is provided along the eastern boundary of the site, it is recommended that an additional control be included within Part D Section 17 of the DCP to require a distance of at least 15 metres from the boundary of the site to any residential boundary within the vicinity of the site. This will ensure that as the land around the site develops into the future, appropriate separation will be incorporated within the subdivision layout.

Orderly Development

Whilst it is acknowledged that the installation of a water recycling facility may have merit, and may be a viable alternative to the traditional gravity fed sewerage system, it is essential that the provision of infrastructure and utility services facilitates orderly development. Whilst a majority of the Precinct is under single ownership by the ('principal developer'), there are six (6) lots that are under separate ownership. The location of these sites is included on the following map.

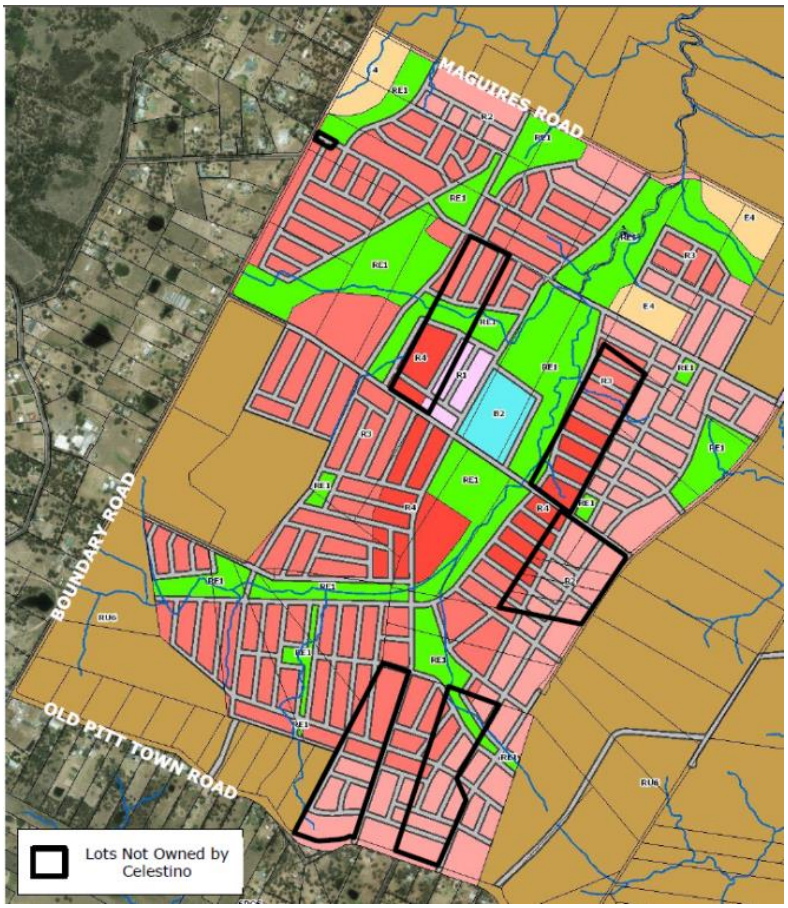


Figure 16
Lots not controlled by the Principal Developer

When a single servicing plan applies to an entire precinct there are economies of scale whereby the costs of the necessary infrastructure can be distributed over the entire precinct reducing the servicing cost per development. Accordingly, it is essential that the remaining sites are not unreasonably burdened by the costs of servicing their own sites, whether they elect to service their developments through Flow Systems or through Sydney Water. If the principal developer's land is serviced by the water recycling facility, then it would be highly unlikely that the remaining sites would elect to provide sewer services to their developments through Sydney Water, as the cost of providing the necessary infrastructure to service their individual developments would be cost prohibitive. Whilst the developers would have the option of choosing Sydney Water as the service provider, they may have little option but to proceed with Flow Systems.

The planning for the Box Hill North Precinct anticipated approximately 4,100 dwellings on land owned by the principal developer (as per the Voluntary Planning Agreement) and approximately 750 dwellings on land not owned by the principal developer (based on the forecast densities on the net developable area of each site).

Based on advice from the proponent, Flow Systems will provide a decentralised wastewater solution with capacity to service 5,000 residential dwellings (equivalent treatment ET) in the nominated Water Industry Competition Act (WICA) 2006 licenced area of operations. This is made up of 4,100 residential dwellings (ET) and approximately 100 ET of ancillary facilities such as retail, school and community uses which are initially provided to the principal developer's development, with the remaining 800 ET thereafter becoming available capacity for the lots within the WICA area of operations not controlled by the principal developer. Accordingly, the proposed facility would have capacity to accommodate the anticipated demand by all future development within the Box Hill North Precinct, including land not owned by the developer.

Flow Systems has identified that they will be delivering the capacity of the Water Recycling Facility in 2 phases to a total of 5,000 ET capacity:

- Phase 1: 2,500 ET
- Phase 2: 2,500 ET

Other landowners within the WICA licence area are able to secure wastewater services by:

- Making application with Sydney Water Corporation (SWC) for services
  The Box Hill North Precinct has Precinct Accelerated Protocol status, allowing other landowners to apply to Sydney Water for reimbursement of costs incurred to service the land. Any application will require a servicing strategy acceptable to Sydney Water, and dedication of land and infrastructure assets to Sydney Water. Landowners may make enquiry on timing of regional trunk infrastructure to be provided by Sydney Water, to determine connection arrangements of infrastructure provided by the landowner.

- Connecting to Flow Systems for services when Phase 2 is provided
  The provisions for Phase 2 capacity may need to be instigated by the principal developer in 2020 and capacity may be available to the 800 lots by 2024. Surplus capacity will be made available to other landowners to proportion the scheme establishment costs (including initial land dedication for the LWC) on a per lot basis once the initial capacity is exhausted. Flow Systems would facilitate Developer Services Plan charges in some circumstances, including reimbursements schemes for third party connection.

It is noted that IPART's on-going regulation of the facility, including the issuing of the network operator's licence, would not include the regulation of connection charges. Rather the cost that developers would pay to connect to the facility would be determined by the market.

With respect to the rural land which is not included within the Box Hill North release area, but which could be released for urban development in the future, appropriate servicing arrangements would need to be investigated as part of any future rezoning proposal for this land.

Service Implications on Endeavour Energy
Flow Systems' power requirements for the Local Water Centre have been committed to by the principal developer in a commercial agreement with Flow Systems. The developer is arranging the power supply for the site and upgrading the supply for the whole development including facilitating the construction of a new zone substation. These proposed upgrades would have the capacity to service the Local Water Centre. Additionally, the Local Water Centre will have solar panels on the roof to augment the power supply.

The power use of the individual pressure sewer pumps on each property would be powered by a 1.1kW motor and operate within a 160mm height between cut-in and cut-out levels in the base of the tank (with the remainder of the tank available for up to 48 hours emergency storage). For an average house, the pump will operate about 6 times per day for less than 3 minutes at a time and so they use only about 0.25kWh/day. These would operate in lieu of the network sewage pumping stations that would have been required otherwise by a gravity sewerage system.

Based on a recent IPART household survey of energy consumption, households containing 3-4 residents used approximately 2,100 kWh/quarter (approximately 23 kWh/day) and households with 5 or more residents used approximately 2,700 kWh/quarter (approximately 29.5kWh/day). Accordingly, an estimated additional energy usage of 0.25kWh/day is considered to be reasonable.

Approval Process
Under the existing R3 Medium Density Residential development of 'sewerage systems' or 'water recycling facilities' are prohibited. In order for the site to be developed for its intended use, the rezoning of the site is considered necessary.

The proposal seeks to rezone the site to SP2 Infrastructure which is as a prescribed zone under s105 *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP). Licenced network operators would then develop water recycling facilities without requiring consent under Part 4 of the EP&A Act. Rather the future development would need to be assessed under Part 5 of the EP&A Act through the preparation of a Review of Environmental Factors (REF).

A REF examines the significance of likely environmental impacts of a proposal and the measures required to mitigate any adverse impacts to the environment. An REF precedes the granting of an approval (included leases or licences) for an activity and an approval cannot be granted until the REF is determined. A REF serves two purposes:

1. It assists and documents the determination of whether an activity should be approved, taking into account to the fullest extent possible all matters affecting or likely to affect the environment (s.111 EP&A Act). It further assists in the development of appropriate conditions should approval be given.
2. It assists the determination of whether the activity is likely to have a significant effect on the environment or significantly affect threatened species, populations or ecological communities or their habitats, in which case an environmental impact statement (EIS) and/or species impact statement (SIS) will need to be prepared and considered before approval may be granted (s.112 EP&A Act).

Under Part 5 of the EP&A Act, any public authority whose approval is required to carry out the construction and operation of the facility must assess the environmental impact of the proposal before granting that approval. In this instance, IPART would be the determining authority for the Part 5 assessment as it will be assessing the application for the network operator's licence for the development and approval to operate. It is noted that whilst IPART will be assessing the application, the Minister for Land and Water will have the final signoff of the licence and approval to operate.

It is noted that under Part 5 of the EP&A Act if the determining authority considers that the activity is likely to significantly affect the environment or threatened species, populations or ecological communities or their habitats, then the authority cannot carry out the activity or grant an approval for the activity unless an environmental impact statement has been provided.

Designated Development
If the site is rezoned to SP2 Infrastructure, development for the purpose of a 'sewerage system' would not be assessed as designated development as the designated development provisions of the EP&A Act only apply to development which requires consent under Part 4 of the EP&A Act.

Designated Development is development that is declared to be designated development by an environmental planning instrument (State Environmental Planning Policy or local environmental plans) or the *Environmental Planning and Assessment Regulation 2000*. Such development includes heavy industry with the potential to pollute, intensive livestock industries, extractive industries, mining operations, marinas, and aircraft facilities. This type of development requires a greater level of rigour and must be supported by an Environmental Impact Statement with any development application.

Designated development may be either local development where the consent authority is the local authority, or state significant development where the consent authority is the Minister. It also has greater notification requirements. A list of developments and criteria which are classified as designated development can be found in Schedule 3 of the *Environmental Planning and Assessment Regulation 2000*. The designated development criteria for 'sewerage systems and sewer mining systems' are included below.

29 Sewerage systems and sewer mining systems

(1) Sewerage systems or works (not being development for the purpose of sewer mining systems or works):
- *(a) that have an intended processing capacity of more than 2,500 persons equivalent capacity or 750 kilolitres per day, or*
- *(b) that have an intended processing capacity of more than 20 persons equivalent capacity or 6 kilolitres per day and are located:*
  - *i. on a flood plain, or*
  - *ii. within a coastal dune field, or*
  - *iii. within a drinking water catchment, or*
  - *iv. within 100 metres of a natural waterbody or wetland, or*
  - *v. within 250 metres of a dwelling not associated with the development.*

(2) Sewerage systems or works that incinerate sewage or sewage products.

(3) Sewer mining systems or works that extract and treat more than 1,500 kilolitres of sewage per day.

(4) This clause does not apply to:
- *(a) the pumping out of sewage from recreational vessels, or*
- *(b) sewer mining systems or works that distribute treated water that is intended to be used solely for industrial purposes.*

If the development was 'permitted with consent' within the intended zone, and required assessment under Part 4 of the EP&A Act, the proposed works would trigger the designated development criteria and would require the preparation of an Environmental Impact Assessment. However, the only way in which the development could be considered as 'designated development' is if 'sewerage systems' and 'water recycling facilities' are identified as 'permitted with consent' on the site. This could occur if the site retained its existing R3 Medium Density Residential zone with an amendment to Schedule 1 of LEP 2012 to identify 'sewerage systems' and 'water recycling facilities' as an additional permitted uses.

Whilst the above approach is an option, it is considered unnecessary and unreasonable to require the proponent to be subject to a more rigorous assessment process to that which Sydney Water would be subjected to if it was the proponent. This would be counter to the intent of the WICA Act.

It is also considered that if the existing zone was retained, the additional permitted uses may be inconsistent with the zone objectives for the R3 Medium Density Residential zone which are as follows:

- To provide for the housing needs of the community within a medium density residential environment.
- To provide a variety of housing types within a medium density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To encourage medium density residential development in locations that are close to population centres and public transport routes

The environmental impact assessment requirements under Part 5 of the EP&A Act are considered appropriate to ensure that the potential environmental impacts of the facility are appropriately managed.

Appropriate Regulatory Authority

An Environmental Protection Licence from the EPA would be required for the facility as it is considered to be a Schedule 1 Activity under the *Protection of the Environment and Operations Act 1997*. As an Environment Protection Licence from the EPA is required, the EPA will be the appropriate regulatory authority.

The key roles and responsibilities with respect to the approval and on-going management of the water recycling facility is included within the following table.

	Council	**IPART**	**EPA (ARA)**
Rezoning	√		
Approvals to Install and Operate		√[1]	
Pollution Control			√
Regulatory/Audits		√	

Note 1 – Whilst IPART will be assessing the application to install and operate, the Minister for Land and Water will sign off on the issuing of a network licence and approval to operate.

Figure 17
Roles and Responsibilities

On-going Viability of Operator

Flow Systems Operations will be licensed by the NSW Government and subject to regular compliance audits to ensure its technical, financial and organisational capacity to operate the system. In the event that Flow Systems is unable to operate the facility in the future, the WICA legislation has provisions for the Minister for Land and Water to appoint an 'Operator of Last Resort' who will carry out the on-going management of the facility. The Operator of Last Resort could be Sydney Water Corporation or an alternative provider. The Minister has full discretion with respect to this decision.

CONCLUSION

It is recommended that a planning proposal for land at 153 Boundary Road be forwarded to the Department of Planning and Environment for Gateway Determination. The planning proposal seeks to rezone approximately 1 hectare of the south eastern portion

of the site from an R3 Medium Density Residential zone to an SP2 Infrastructure (Sewerage System).

The purpose of the rezoning is to facilitate the development of a water recycling facility on the site to provide sewer treatment and recycled water infrastructure for the Box Hill North Precinct. The system will supplement Sydney Water's provision of drinking water to the Precinct.

It is further recommended that a new control be included within DCP 2012 (Part D Section 17 – Box Hill North) to ensure that a 15 metre separation distance is provided between the eastern boundary of the site and the boundary of future residential development within the vicinity of the site.

Rezoning the site to SP2 Infrastructure would enable the proponent to utilise the provisions of *State Environmental Planning Policy (Infrastructure) 2007* as a private provider under the *Water Industry Competition Act 2006* (WICA) and construct a water recycling facility without the need for development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Rather future development on the site would require assessment under Part 5 of the EP&A Act.

The proposal is supported as it will facilitate additional housing supply to accommodate population growth through the provision of water and wastewater services through an alternative infrastructure supplier. The proposal is also consistent with the objectives of the WICA legislation which is to promote economically efficient use and operation of, and investment in, significant water industry infrastructure, thereby promoting effective competition in upstream or downstream markets.

If the proposal does progress, further consultation with the Office of Environment and Heritage would occur with respect to the management and mitigation of odour and noise generation from the facility and the management of potential interface conflicts.

IMPACTS
Financial
This matter has no direct financial impact upon Council's adopted budget or forward estimates.

The Hills Future - Community Strategic Plan
The planning proposal to rezone the site to SP2 Infrastructure (Sewerage System) will facilitate an alternative water and wastewater management facility within the Box Hill North Precinct. The provision of this infrastructure will facilitate the rollout of new homes and will facilitate balanced urban growth.

RECOMMENDATION
1. A planning proposal be forwarded to the Department of Planning and Environment for a Gateway Determination to amend the Land Zoning Map to rezone part of 153 Boundary Road, Box Hill (Part Lot 10 DP 593517) from R3 Medium Density Residential to SP2 Infrastructure.

2. The draft amendments to DCP 2012 (Part D Section 17 – Box Hill North) be exhibited in conjunction with the exhibition of the planning proposal.

ATTACHMENTS
1. Draft The Hills Development Control Plan 2012 (Part D Section 17 – Box Hill North (35 pages)

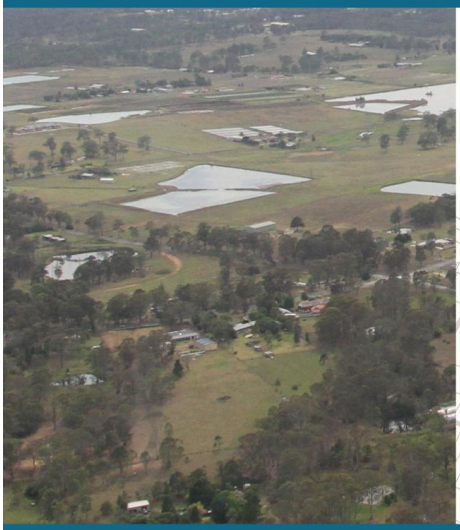
ATTACHMENT 1

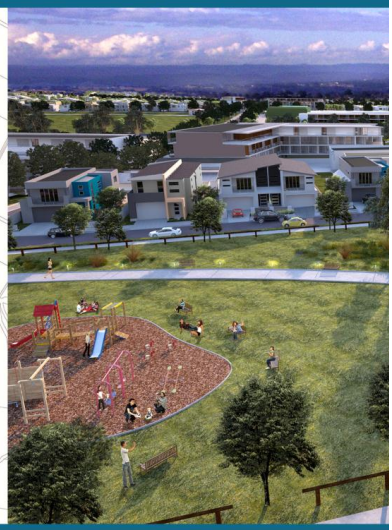
The Hills Development Control Plan (DCP) 2012

www.thehills.nsw.gov.au

THE HILLS Sydney's Garden Shire

DRAFT





Part D Section 17
Box Hill North

D17

INDEX

1. INTRODUCTION

This section of the Development Control Plan should be read in conjunction with the following parts of The Hills Development Control Plan (DCP) 2012:

- Part A - Introduction
- Part B
  - Section 2 - Residential
  - Section 3 - Dual Occupancy
  - Section 4 - Multi-Dwelling Housing
  - Section 5 - Residential Flat Building
  - Section 6 - Business
- Part C
  - Section 1 - Parking
  - Section 2 - Signage
  - Section 3 - Landscaping
  - Section 4 - Heritage
  - Section 5 - Telecommunication Facilities
  - Section 6 – Flood Control Lots
- Appendix A - Waste Management Plan
- Appendix B - Water Sensitive Urban Design

Consideration should also be given to the plans and policies that apply to the Box Hill Release Area (which adjoins the subject Box Hill North Precinct), particularly in relation to road connectivity through the precincts.

In the event of any inconsistency between this section of the Development Control Plan and any other sections of the Development Control Plan, the provisions of this section shall prevail only to the extent of the inconsistency.

1.1 LAND TO WHICH THIS SECTION OF THE PLAN APPLIES

The Plan applies to the area outlined in red, as shown in Figure 1 and referred to as Box Hill North.

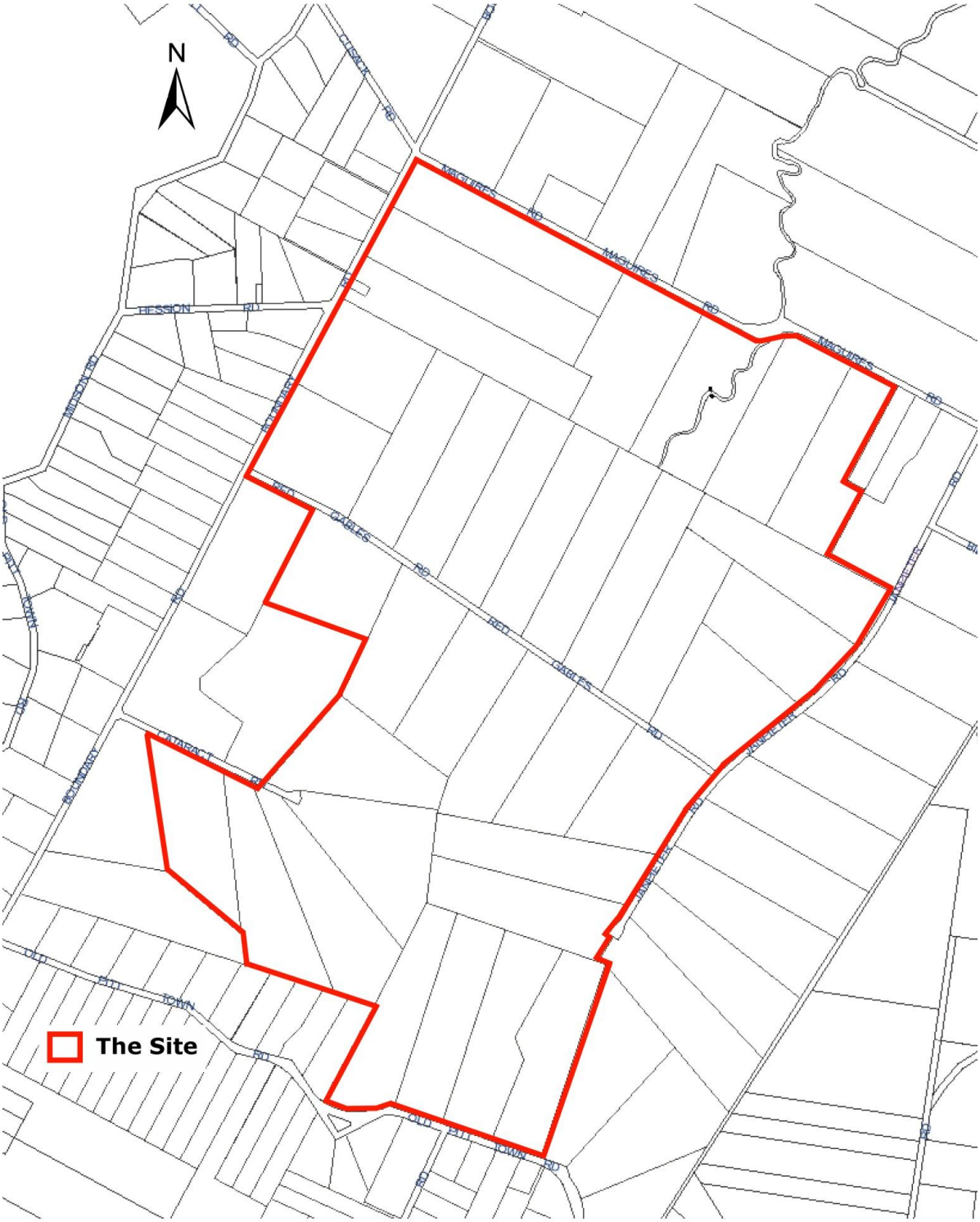


Figure 1 – Land to which this section of the DCP applies

1.2 THE PURPOSE OF THIS DCP

The purpose of this DCP is to:

- Communicate the planning, design and environmental objectives and controls against which The Hills Shire Council will assess future Development Applications;
- Promote high quality urban design outcomes within the context of environmental, social and economic sustainability;
- Ensure that development will not detrimentally affect the environment by ensuring that satisfactory measures are incorporated to ameliorate any impacts arising from the proposed development; and
- Provide safe and high quality environments for the residents, workers and visitors of Box Hill North.

1.3 AIM, VISION AND OBJECTIVES OF THIS SECTION OF THE DCP

AIM

The aim of this section of the Development Control Plan is to identify the built form parameters for Box Hill North and to facilitate the development of residential, open space, recreation, retail and commercial uses within the site. This section will identify Council's objectives for development within Box Hill North and provide relevant controls to ensure the vision and objectives are achieved.

VISION

To create a high quality, integrated and ecologically sustainable urban environment integrated with good public transport accessibility, open space, community facilities and employment opportunities.

OBJECTIVES

The objectives for development within Box Hill North in addition to those specified in Part A of this DCP are:

(i) To focus business and community activities in and around the Town Centre with a mix of retail, commercial and community uses.

(ii) To create a mixed use Town Centre which has main street characters, is pedestrian friendly and offers high levels of amenity for residents, workers and visitors.

(iii) To accommodate up to 10,000m^2 of non-residential floor space principally within the Town Centre.

(iv) Accommodate approximately 4,000 dwellings within a range of housing products and densities.

(v) Promote innovative housing types/design.

(vi) Encourage walking and cycling and use of public transport.

(vii) Provide a hierarchy of roads and paths with links to the surrounding area.

(viii) Create safe and walkable neighbourhoods.

(ix) Provide community and social infrastructure including schools, local parks, district sporting fields that provide for a range of facilities and opportunities.

(x) Accommodate water sensitive urban design measures, including the use of recycled water and integrated options for water supply, wastewater and stormwater servicing.

(xi) Protect and rehabilitate waterways and riparian corridors as natural systems.

2. INDICATIVE LAYOUT PLAN

The Indicative Layout Plan illustrates the broad level development outcomes for Box Hill North, and outlines the development footprint, land uses, open space, key transport linkages and location of community facilities and the proposed primary school.

OBJECTIVE

(i) To ensure development of Box Hill North is undertaken in a coordinated manner generally consistent with the structure of the Box Hill North Indicative Layout Plan in Figure 2.

DEVELOPMENT CONTROLS

a) All development is to be undertaken generally in accordance with the Indicative Layout Plan in Figure 2 subject to compliance with the objectives and development controls set out in this Development Control Plan.

b) Where variation from the Indicative Layout Plan is proposed, the applicant is to justify in writing indicating how the development is meeting the intention of the objectives of the relevant control and/or is generally consistent with the Indicative Layout Plan, the vision and development objectives for the area and the objectives and controls in Section 1.3 of this part of the DCP.

Figure 2 – Box Hill North Indicative Layout Plan

2.1 SITE ANALYSIS

OBJECTIVES

(i) To encourage a comprehensive approach to site planning, design and assessment of development.

(ii) To facilitate assessment of how future buildings relate to their immediate surroundings and to each other.

(iii) To facilitate development of a design that minimises the negative impacts on the amenity of adjoining development.

(iv) To ensure development is compatible with land capability

(v) To minimise adverse impacts on the environment.

DEVELOPMENT CONTROLS

a) Where variation is proposed from the Development Control Plan the applicant is to demonstrate that the proposed development is consistent with the vision and development objectives for the area and the objectives and controls in Section 1.2 of this part of the Development Control Plan.

b) Development should be designed to respect site characteristics such as topography, drainage, soil, landscapes, flora, fauna, salinity and bushfire hazard.

c) Watercourses should be protected from further degradation and their environmental function is to be improved to mimic natural systems. Disturbance to existing natural vegetation and landforms is to be minimised and disturbance to natural watercourses, wetlands and overland flow paths should be avoided.

d) Development on land adjoining bushland reserves should incorporate measures (such as setbacks and buffers) to prevent any impact on the reserves.

e) Development should be sited on the area of land requiring minimal earthworks.

f) Development should be sited away from steep slopes (particularly those containing natural vegetation) so that, where possible, these features can be kept in a natural state.

2.2 DEVELOPER CONTRIBUTIONS

Applicants should refer to Council's Section 94 Contribution Plan No.16.

2.3 TOWN CENTRE

Indicative layouts of the Box Hill North Town Centre are shown at Figure 3 & 4. The Town Centre is the key activity centre within Box Hill North. This section outlines the objectives and design principles relating to the Local Town Centre.

OBJECTIVES

(i) To create a compact, vibrant, safe and prosperous town centre.

(ii) To ensure an appropriate supply, distribution and mix of land uses within the town centre.

(iii) To encourage higher density living around transport, open space and service nodes.

(iv) To ensure development within the town centre is compatible with an integrated access network that encourages walking, cycling and the use of public transport.

(v) To ensure that the detailed design of the town centre is coordinated, and achieves a high quality urban design.

(vi) To provide a range of retail, commercial, entertainment, recreation and community uses.

(vii) Consider the needs of health and aged care providers, facilities for young people, civic and emergency services within the Town Centre.

(viii) To ensure that pedestrian streetscapes are provided through the Town Centre which are of a high amenity and provide effective pedestrian and cycle connections, and minimise walking distances.

DEVELOPMENT CONTROLS

a) The future design for the Box Hill North Town Centre is to incorporate the following key requirements:

- Street level activation is required in the core of the Town Centre, in particular, fronting the main street and open space.
- Concentrate small retail uses along and fronting key streets/plazas.

- The street layout is to emphasise sight lines to local landscape features, parks, places of key cultural significance, civic buildings and public open space.
- A range of building heights (up to 5 storeys, or 16m) with a transition to surrounding residential areas.
- A range of higher density housing is to be provided within the town centre, including apartments, terraces, multi-unit housing and small lot housing.
- All large format retail premises and decked parking areas, visible from prominent public areas, are to be sleaved with active uses. Blank walls visible from the public domain are to be limited.
- Bicycle parking shall be provided in accordance with Council's requirements as set out in Part C Section 1 - Parking of The Hills Shire Council Development Control Plan.

2.4 STREET NETWORK

OBJECTIVES

(i) To provide for the safe and efficient circulation of pedestrians, bicycles and motor traffic and on street parking requirements.

(ii) To provide a hierarchy of streets with good connectivity that utilises features and landmarks to enhance way-finding for pedestrians, buses, and private vehicles.

(iii) To minimise vehicular usage by enhancing pedestrian and bicycle connections to the Town Centre, schools and parks.

(iv) To ensure connectivity with Box Hill Release Area.

DEVELOPMENT CONTROLS

a) Street Network is generally to be in accordance with Figure 5.

b) Street design is to be in accordance with the indicative street cross sections at Figure 5 and Table 1. Alternative street designs may be permitted on a case by case basis if they preserve the functional objectives and requirements of the design standards.

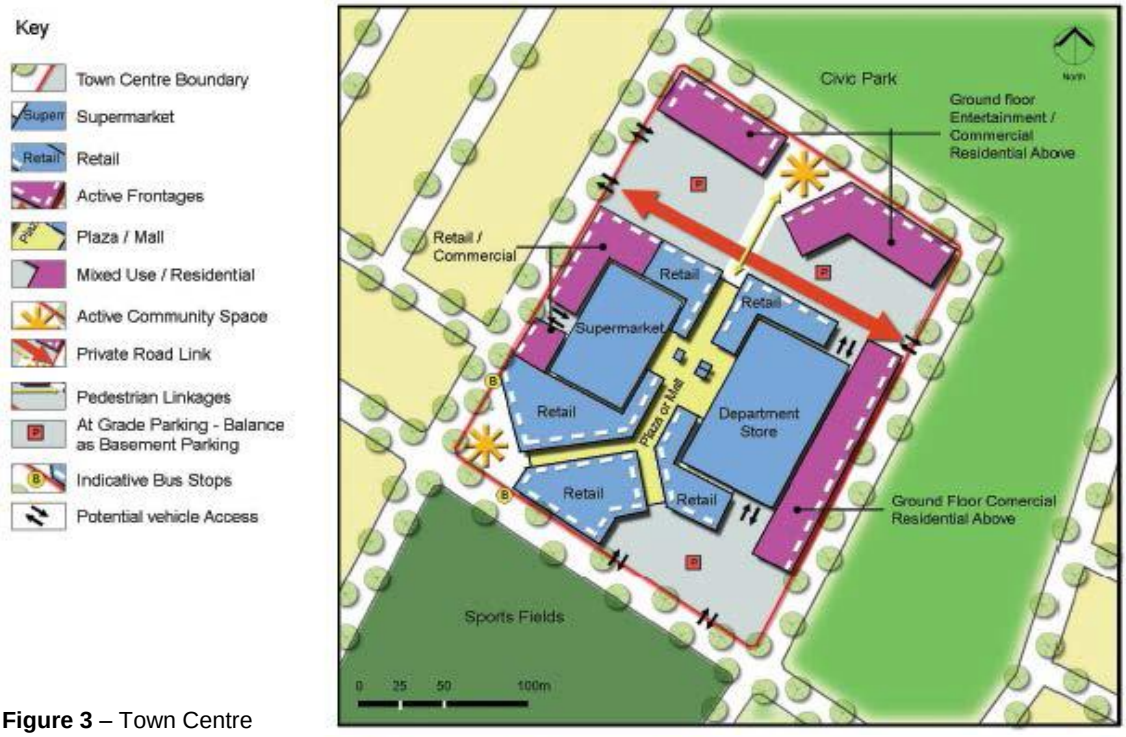


Figure 3 – Town Centre

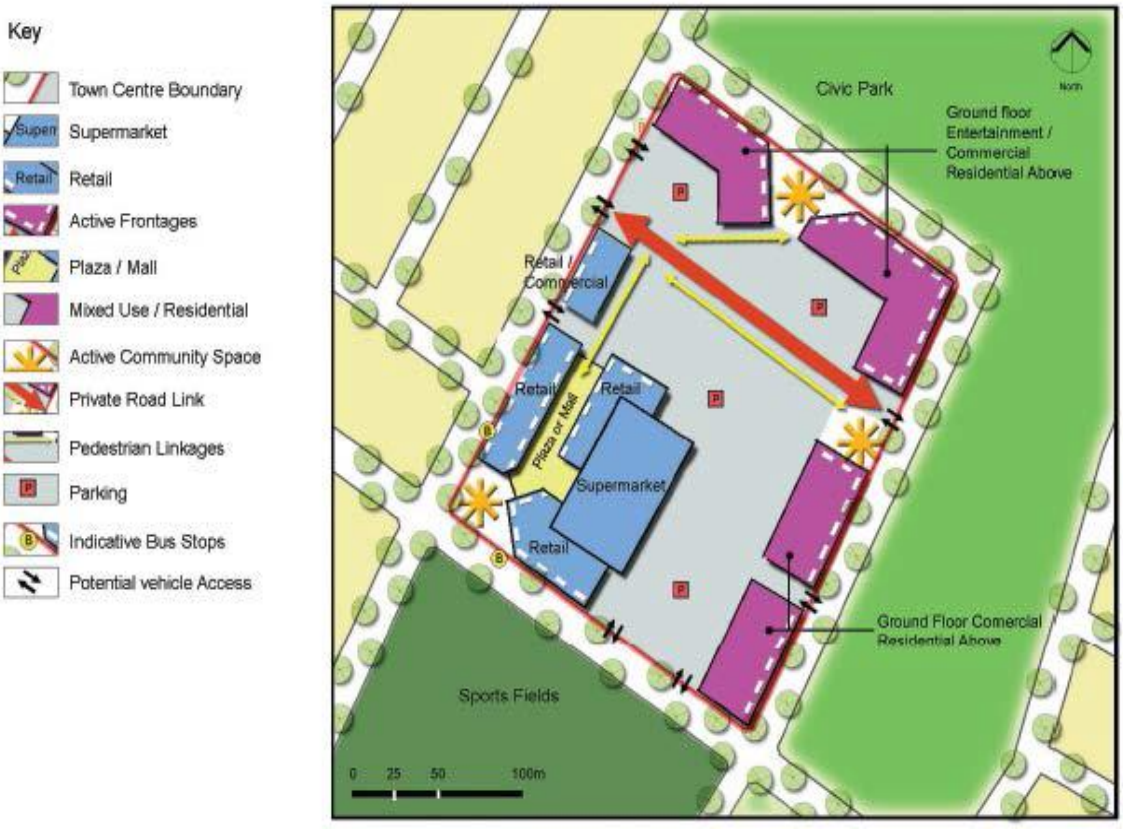


Figure 4 – Town Centre

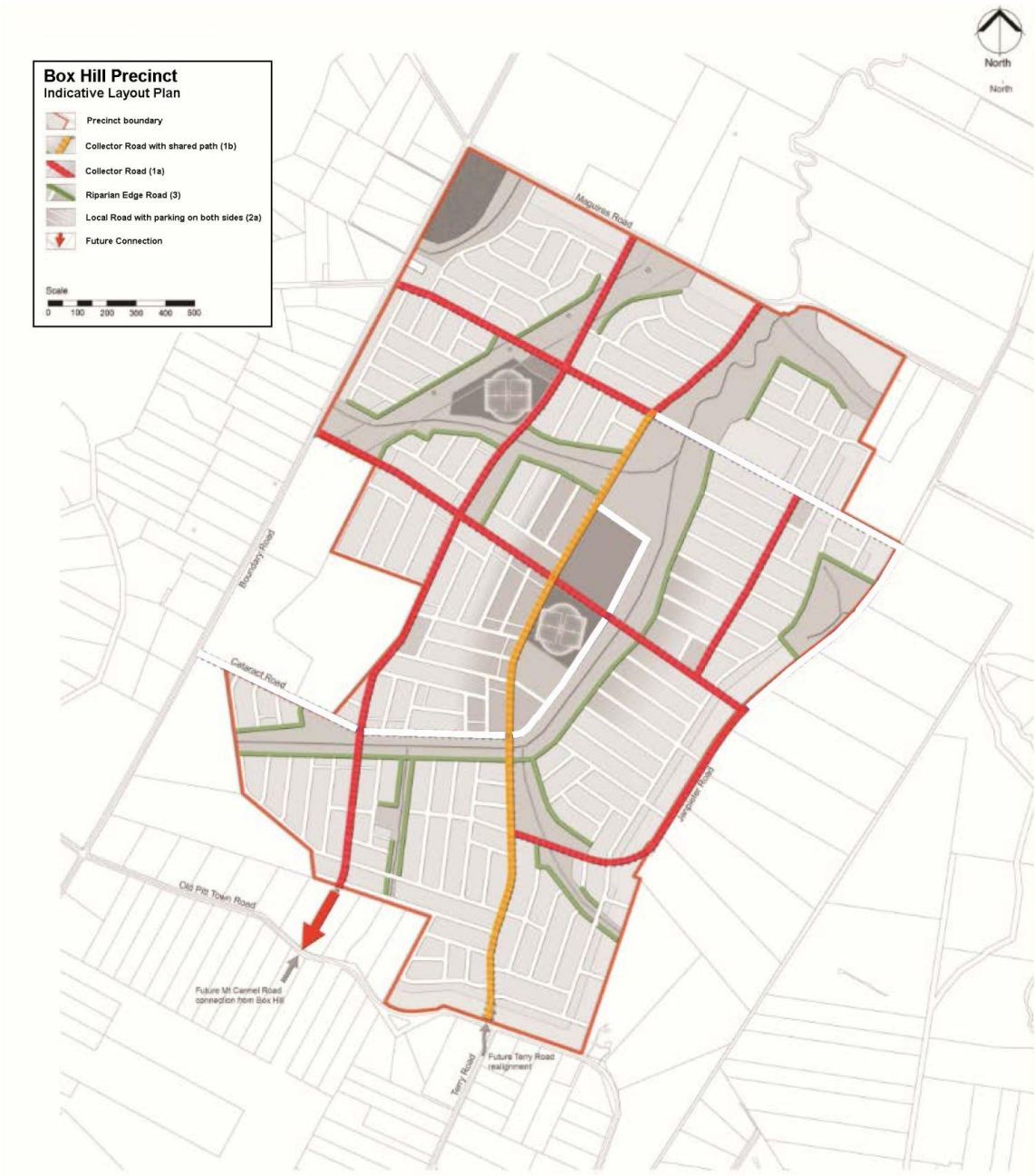
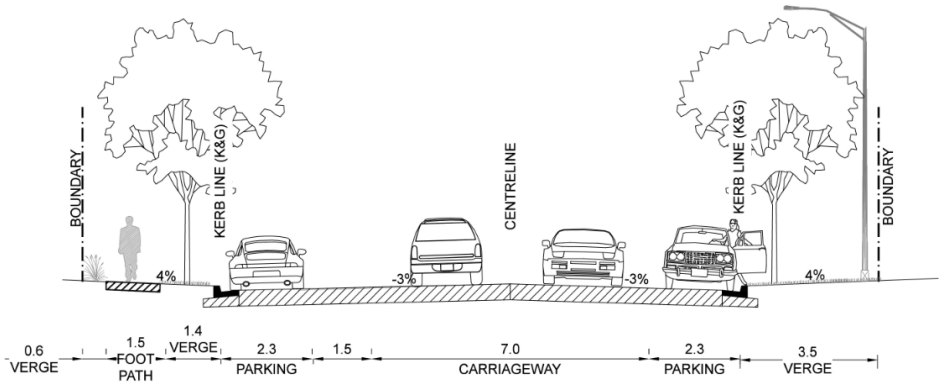
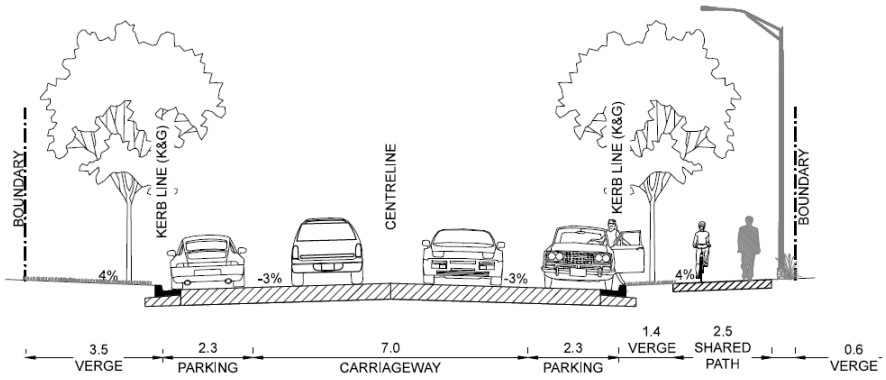


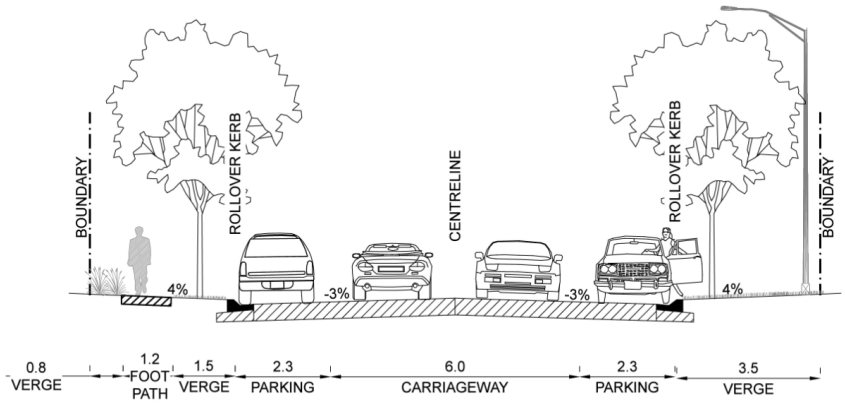
Figure 5 – Indicative Street Layout



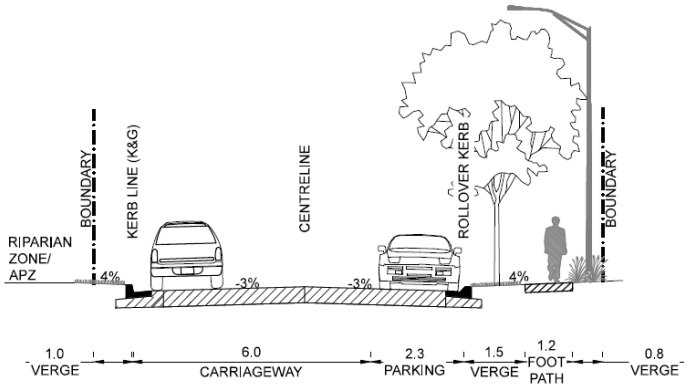
Typical Collector Road



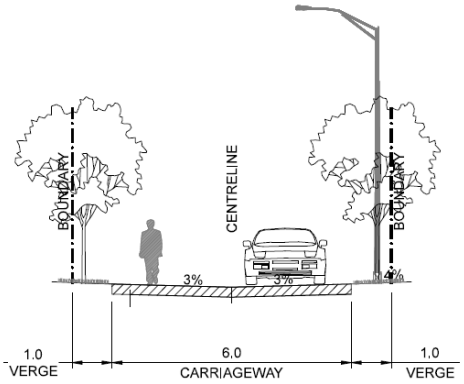
Typical Collector Road with Shared Path



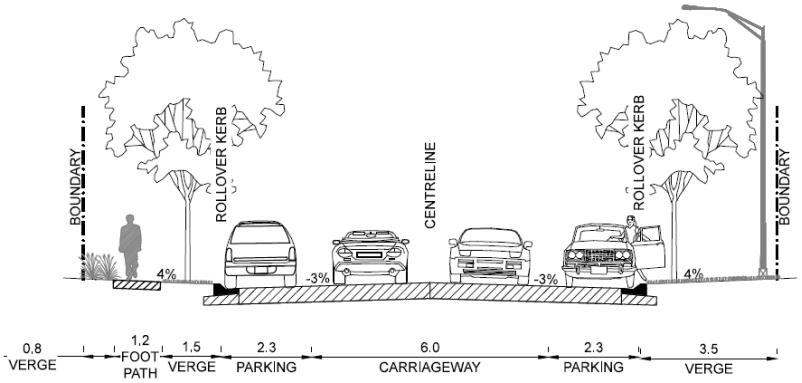
Typical Local Road with Parking on One Side



Typical Riparian Edge Road



Typical Rear Lane



Typical Local Road with Parking Both Sides

Figure 6 – Road hierarchy

Table 1 – Street Types

No	Street Type	Carriageway Width (metres)	Footpath Reservation Widths	Road Reserve	Concrete Footpath/Cycleway Required
1a	Collector Road	13.1 metres	3.5 metres	20.1 metres	1.5 metres one side
1b	Collector Road with Shared Path	11.6 metres	5.0 metres	20.1 metres	2.5 metres
2a	Local Road with Parking on Both Sides	10.6 metres	3.5 metres	17.6 metres	1.2 metres
2b	Local Road with Parking on One Side	8.3 metres	3.5 metres	15.3 metres	1.2 metres
3	Riparian Edge Road	8.3 metres	1 metre & 3.5 metres	12.8 metres	1.2 metres

2.5 LOCAL ROAD HIERARCHY

OBJECTIVES

(i) The road network is to be based on a hierarchy of three local road/street types, as shown in Figure 5, and includes:

- *Collector Road: is a road that collects traffic from access streets and carries higher volumes of traffic. A reasonable level of amenity and safety is to be maintained by restricting vehicle speeds through traffic-calming devices and intersection design;*
- *Local Road:* provide local residential access with shared traffic and pedestrian use*; and*
- *Riparian Edge Road:* adjoins a riparian corridor on one side with property access and footpath on opposite side only.

(ii) The specific objectives of locating roads adjacent to open space, riparian corridors and other public areas are:

- *To facilitate the orientation of lots and dwellings to front the open space and drainage areas.*
- *To enhance the outlook, setting and amenity of subdivisions adjoining open space, drainage areas and other public areas.*
- *To increase pedestrian accessibility to those public areas.*
- *To provide an acceptable level of access, safety and convenience for all street and road users within the release area, while ensuring acceptable levels of amenity, and minimising the negative impact of traffic.*
- *To provide a legible and permeable movement network for pedestrians and cyclists along streets and paths to points of attraction within and adjoining any development.*
- *To provide a suitable interface between the riparian corridors and urban development to minimise edge effects.*
- *To provide a bushfire asset protection zone between urban development and the riparian corridors.*

DEVELOPMENT CONTROLS

a) Internal intersections are to be T-junctions, roundabouts or controlled by other appropriate traffic management treatments to slow and control traffic.

b) For roads that cross natural drainage lines, the construction of bridges with raised approaches is preferred to culverts in order to maintain stream corridor function. Any works in or within 40 metres of a watercourse, or alterations to, natural drainage systems will require the necessary approvals of the Office of Water as well as consideration of the Fisheries Management Act 1944 for dredging or reclamation works.

c) Roads constructed across waterways are to be designed and constructed with reference to the Department of Primary Industries preferred waterway crossing design documented in "Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossing" (NSW Fisheries 2003) and the NSW Office of Water (2012) controlled activities guidelines for watercourse crossing on waterfront land.

d) Where culverts are required to be constructed across natural drainage lines:

- Light wells are to be provided in the centre of the road~~.~~;
- Natural bases and a combination of elevated dry cells and recessed wet cells are to be incorporated into the design to facilitate the movement of aquatic, riparian and terrestrial fauna.

e) Wherever shown on the Indicative Layout Plan and wherever else possible, roads are to be located along and adjacent to public open space, or other public lands. Where roads front open space, or riparian corridor land, the costs associated with their construction is the responsibility of the developer.

f) Driveway access is be avoided within 30 metres of signalised intersections.

g) Street networks are to conform to the requirements set out in Table 1: Street Types.

2.6 ROAD DESIGN AND CONSTRUCTION

OBJECTIVES

(i) To ensure sufficient carriageway and verge widths are provided to allow streets to perform their designated functions within the street

network and to accommodate public utilities and drainage systems.

(ii) To encourage the use of street by pedestrians and cyclists, and to allow cars, buses and other users to proceed safely without unacceptable inconvenience or delay.

(iii) To provide street geometry that is consistent with the needs of the street function, physical land characteristics and safety.

(iv) To encourage efficient and orderly development by providing for partial and temporary road construction.

DEVELOPMENT CONTROLS

(a) No retaining walls are to be constructed along the edge of roads fronting future or existing public open space, drainage areas or riparian corridor land.

(b) On access streets there will be only light traffic and the travelled way should allow for unobstructed movement in one lane as well as passing opportunities.

(c) The design of the carriageway is to discourage motorists from travelling above the intended speed by reflecting the functions of the street in the network. In particular the width and horizontal and vertical alignment is not to be conducive to excessive speeds.

(d) Roundabouts, street cross falls, longitudinal gradient, vehicle-turning movements and sight distances are to comply with Council's Design Guidelines Subdivisions/Developments (June 1997).

(e) Construction of roads and footpath/cycle paths fronting Open Space or Trunk Drainage are at the developer's expense.

(f) Street trees are to be provided in all subdivisions and will be required to be planted at the time of subdivision construction. Street trees will be protected with tree guards and a 12 month bond will be imposed for each tree.

(g) All collector roads are to be planted with a consistent species of tree in order to provide a boulevard treatment of the streetscape.

(h) All plans documenting proposed street tree planting must indicate the location of Sydney Water sewer and water pipes including where they enter a public road reservation. No planting of street trees is permitted within 1.5 metres of a Sydney Water pipe.

(i) Landscape works in roundabout islands may include low-maintenance groundcover planting and native grasses with a mature height of up 0.5 metres as well as clear-stemmed tree planting to maximise sited distances. A metered water supply point and subsurface drainage is required in all small island planter beds.

(j) Road verges provide opportunities for unifying the appearance and landscape character of the area and should be provided as a continuous design feature along the length of the arterial road.

2.7 PUBLIC TRANSPORT

OBJECTIVES

(i) To encourage public transport use through the provision of integrated bus, pedestrian and cycle routes.

(ii) To stage bus services in line with the development.

(iii) To locate public transport stops close to key nodes, community facilities, schools and medium density residential development.

(iv) To ensure clear, safe pedestrian and bicycle links to all public transport stops.

(v) Provide dedicated cycle routes and facilities, and a highly permeable and safe pedestrian network.

DEVELOPMENT CONTROLS

(a) Provide local bus routes (short, medium and long term) determined by Transport for NSW and Council.

(b) Provide aquequate provision for bus turning at intersections of Boundary Road with Red Gables Road and Cataract Road.

(c) Bus stops are to be:

- easily accessible and located close to major trip attractors;
- provided on-street and not within indented bays;
- generally at separation distances of around 400m;
- well connected with cycling and walking paths and crossing points of major roads, and positioned to ensure a high level of personal safety and security.

(d) Bus shelters are to be provided at key and installed at the subdivision construction stage by the developer to the satisfaction of Council.

(e) All roads that are accommodating buses are required to have the following:

- Corresponding bus stops (bus stops on both sides of the street);
- A 3 metre wide kerbside parking lane in each direction to allow for buses to serve bus stops without implementing movements of other vehicle/buses in a travel lane;
- Travel lanes on these roads should be 3.5 metres wide to adequately and safely accommodate buses.

2.8 PEDESTRIAN AND CYCLE NETWORK

OBJECTIVES

(i) To provide a clear pedestrian and cycle network that provides links between all key activities, community facilities, open space areas and the Town Centre.

(ii) To create an interconnected pedestrian and cycle network comprising streets and paths that are safe, legible, and comfortable.

(iii) To ensure a high level of pedestrian and cycle accessibility which is well lit, safe and clearly defined within the Town Centre.

(iv) To provide an efficient and safe network of pedestrian and cycleway paths for the use of the community, within and beyond the site.

DEVELOPMENT CONTROLS

(f) Pedestrian and cycle routes are to be provided in accordance with Figure 7. Alternate configurations can be provided subject to consistency with the objectives.

(g) A shared cycle / pedestrian path is to be a minimum width of 2.5m.

(h) Pedestrian and cycle paths are to be provided as part of the open space and recreation areas.

(i) Pedestrian and cycle ways, as well as pedestrian refuge islands should be designed 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).

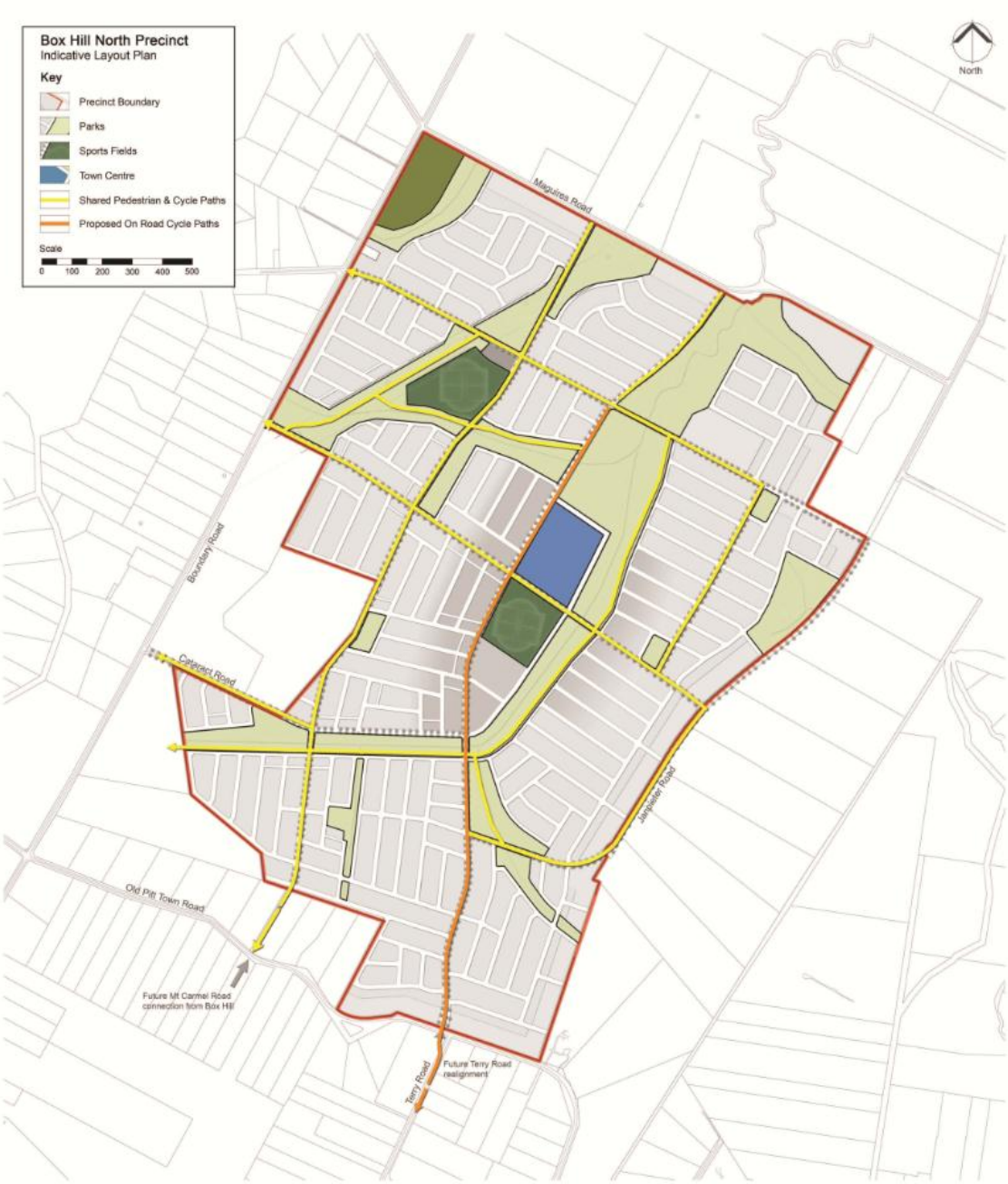


Figure 7 – Indicative Pedestrian and Cycle Network

2.9 PUBLIC DOMAIN

OBJECTIVES

(i) To provide places and spaces that are acceptable to all, accommodate a range of activities for residents and visitors and are capable of responding to changes in demand and future needs.

(ii) 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.

(iii) To establish open spaces that promote local character and identity as an interconnected network of open space comprising parks, squares and streets.

(iv) To ensure that public domain elements such as street trees, paving, street furniture, lighting and signage contribute to a consistent street character.

DEVELOPMENT CONTROLS

(a) Link the open spaces using streets, riparian corridors, pedestrian paths and cycle ways.

(b) Orient development surrounding open space towards the public domain to maximise opportunities for casual surveillance

(c) Provide perimeter streets to all parks on at least three sides. Where a street frontage is not provided the development must front the park to provide casual surveillance.

(d) Public domain elements such as street trees, paving, street furniture, lighting and signage are to be consistent and create local character.

(e) Incorporate public art in open space areas. Where appropriate artwork should serve a dual role (e.g. as play equipment for children, informal seating or a marker for a meeting place).

2.10 SPECIAL CONTROLS

Riparian Corridors

- Riparian corridors and conservation areas are to provide opportunities for pedestrian and cycle ways, fitness trails and additional open space in a manner that maintains the environmental significance of these areas and is consistent with the Office of Water Controlled Activity Guidelines (2012). A range of themed elements such as boardwalks, eco-pathways, and educational tracks should be utilised in appropriate locations (i.e. within the outer 50 percent of the Vegetated Riparian Zone at locations which cause minimal harm).
- Riparian corridors are to be protected for environmental conversation purposes and enhanced with species from the local native vegetation community.

Vegetated Management Plan - (VMP)

Any subdivision within land identified as Riparian Corridor Protection Area (Figure 8), or residential subdivision on land adjacent to such an area will be required to be accompanied by a Vegetation Management Plan and integrated with the required Landscape Plan, Bushfire Assessment, and Sedimentation & Erosion Control Plan.

The recommendations of the Vegetation Management Plan will be imposed as conditions of any consent that may be issued.

Watercourses

- The watercourses on the site are to be rehabilitated to mimic natural systems from the local area.
- Any new road crossings or the upgrade of existing road crossings are consistent with the Office of Water's Controlled activities guidelines for watercourse crossings on waterfront land and NSW DPI policy and guidelines for fish friendly waterway crossings for Class 1 and 2 waterways.

Detention Basins

- Office of Water requirements for detention basins as outlined in the 2012 Controlled Activity guidelines are to be incorporated into any proposals.
- Any proposed online basins need to be dry and vegetated.

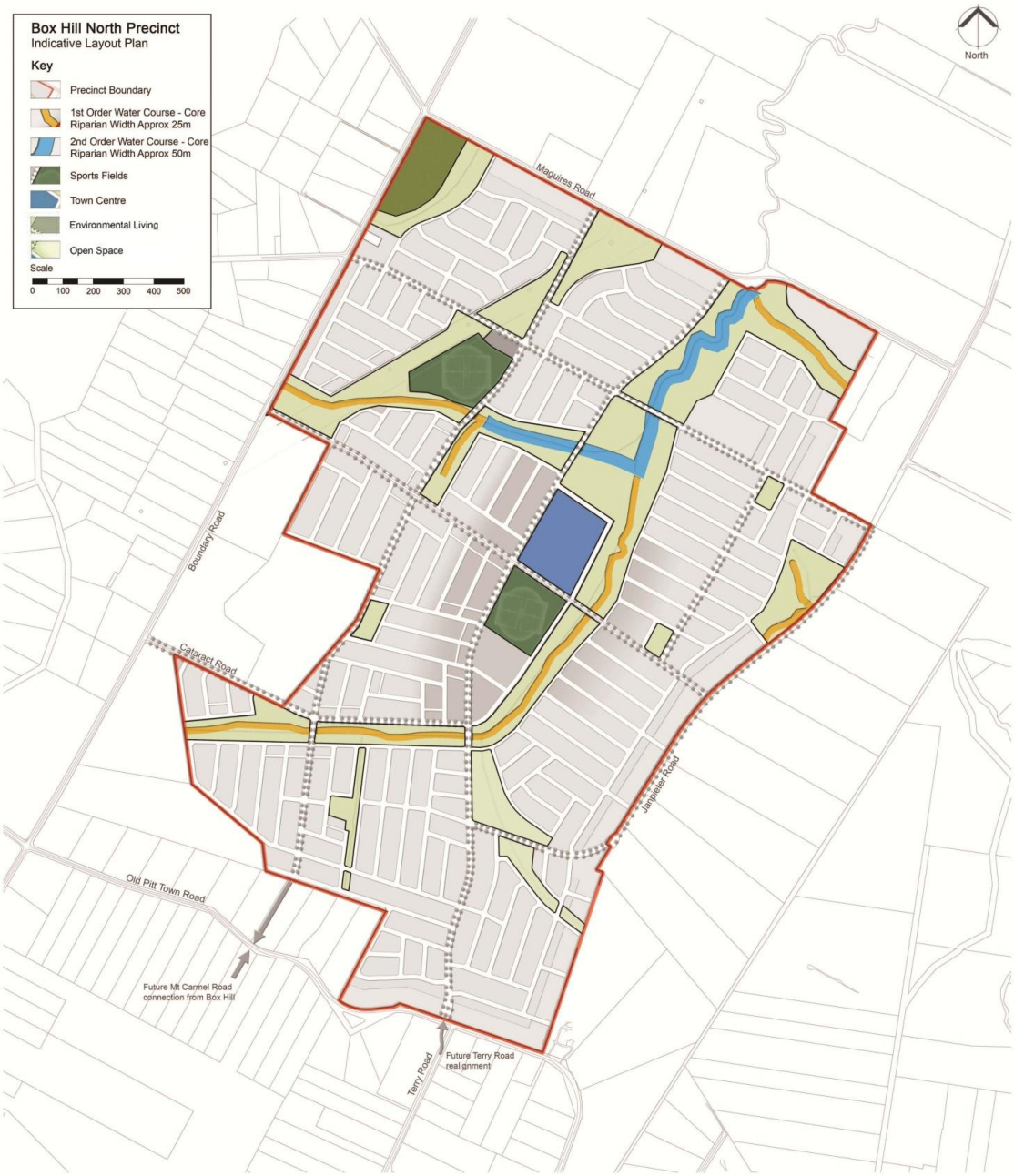


Figure 8 – Riparian Corridor Protection Areas

Signage, Street Furniture, Lighting and Public Art

- Signage, street furniture and lighting is to be consistent with DCP 2012 Part C Sections 2 and 3 Signage and Landscaping.

Utilities

- Gas and water services may be located in a shared trench on one side of the street and electricity, power and telephone located in a shared trench on the other side of the street.
- All development shall incorporate underground electricity reticulation and telecommunications.
- Any existing aboveground electricity reticulation services shall be relocated underground with the exception of main transmission lines.
- Utilities and services are to be supplied and constructed in accordance with the requirements of the relevant authority.
- Development is to have a water supply for fire fighting purposes in accordance with the NSW Rural Fire Service's Planning for Bushfire Protection 2006(as amended).

Transmission Easement

- Adequate space is to be provided around each transmission tower to ensure there is a safe working platform to facilitate the use of cranes and elevated work platforms for conducting repairs and maintenance.
- Continuity of vehicular access along the easement must be preserved without hindrance from changes to ground levels or the construction of culverts.
- Written consent shall be obtained from Transgrid for any proposed development within the easement.
- Vegetation within the easement must not be capable of growing beyond a height of 4 metres at full maturity.

2.11 STORMWATER MANAGEMENT

OBJECTIVES

(i) To control stormwater runoff and discharge impacts on adjoining properties and into natural drainage systems before, during and after construction.

(ii) To prevent flood damage to the built and natural environment, inundation of dwellings and stormwater damage to properties.

(iii) To ensure that proposed development does not adversely affect the operational capacity of the downstream stormwater system.

(iv) To encourage reuse, recycling and harvesting of stormwater to reduce demand on potable water supply.

(v) To encourage and create an urban form where risks to life and property, as a result of either minor or major flooding, are minimised.

(vi) To maximise opportunities for a best practice Water Sensitive Urban Design approach at the individual lot, overall development and regional scales.

(vii) To reduce the impacts typically associated with urbanisation on receiving waterways, including a reduction in streamflow erosion potential.

(viii) The WSUD strategy prepared for all development is to take into account water quality and stream erosivity objectives, together with attenuating flow rates and runoff volumes to acceptable levels following urban development.

DEVELOPMENT CONTROLS

(i) Water Sensitive Urban Design (WSUD) elements are to be designed and constructed in accordance with the following publications:
   a. Australian Runoff Quality (Engineers Australia 2005).
   b. Water Sensitive Urban Design Technical Guidelines for Western Sydney (NSW Government Stormwater Trust and UPRCT, May 2004).

(ii) Discharge points are to be controlled and treated to prevent soil erosion, and may require energy dissipating devices on steeper topography, to Council's requirements.

(iii) The minor drainage system minimum design standard is to capture and convey flows produced by a 10-year Average Recurrence Interval (ARI) design storm.

(iv) Drainage reserves or local drainage links are required to discharge gap flows (the difference between the 100 year ARI storm event and half design pipe flow, allowing for blockage) from all ARI runoffs to the generally accepted maximum of the 100-year ARI storm event.

(v) Local drainage links within subdivisions are to be a minimum of 5 metres in width designed in accordance with details available from Council. The developer is required to dedicate to Council at no cost, the land, all associated drainage works, erosion control planting, pathways and tree planting. Details are to be submitted with the engineering designs.

(vi) Drainage facilities are to be of a standard acceptable to Council.

(vii) All drainage pits shall have access from the ground surface. Buried junction pits shall not be permitted.

(viii) All pipes to be dedicated to Council are to be located within public land.

(ix) All residential, employment and commercial developments will be required to provide rainwater tanks in accordance with the requirements of the publication "Box Hill North Precinct Water Cycle & Flood Management Strategy Report", J Wyndham Prince, July 2013.

(x) The natural form, characteristics and function of waterways, including riparian land, are to be retained, restored, protected and enhanced wherever possible.

(xi) Constructed waterways, including riparian land, are to replicate as close as possible the form, characteristics and function of existing waterways at that location.

(xii) Waterway rehabilitation and construction works are to apply 'Best Practice' combination of soft and hard engineering techniques establishing a water sensitive, geomorphically stable, diverse and functional waterway corridor that addresses urban influences and considers the immediate waterway corridor and aquatic systems both upstream and downstream of a subject site.

As a minimum, waterway design and construction ought follow the principles and guidelines in the Constructed Wetlands Manual (Department of Land and Water Conservation, NSW 1998) and A Rehabilitation Manual for Australian Streams (Cooperative Research Centre for Catchment Hydrology, 2000).

(xiii) Soil and Water Management Plans are to be submitted with all residential subdivisions and are to be designed in accordance with The Hills Shire Council's 'Works Specification, Subdivision/Development' and the Department of Housing manual, 'Managing Urban Stormwater: Soils and Construction'.

(xiv) During the construction phase of development, the relevant Stormwater Management Objectives for New Development as set out in the most up to date revision of "Managing Urban Stormwater: Soils and Construction" (NSW Department of Housing) must be complied with.

2.12 BUSHFIRE HAZARD MANAGEMENT

OBJECTIVES

(i) To reduce the risk to life and property in areas of bushfire risk.

(ii) In determining Development Applications, Council will have regard to any likely bushfire hazard.

DEVELOPMENT CONTROLS

(j) Proposed pubic road within the subdivision will need to comply with the access requirements within section 4.1.3 of Planning for Bushfire Protection 2006.

(k) A traffic report should be prepared which addresses the ability for emergency services to access the precinct whilst residents are evacuating the area, taking into account the additional traffic generated by the proposed development.

(l) Development subject to bushfire risk will be required to address the requirements of the NSW Rural Fire Service Guidelines entitled "Planning for Bushfire Protection 2006."

(m) Development applications on bush fire prone land within the precinct shall be supported by a bushfire assessment report which considers the provisions of Planning for Bush Fire Protection 2006.

2.13 CUT AND FILL

OBJECTIVES

(i) To minimise incidence of cut and fill and alterations in natural ground levels.

(ii) To ensure that dwellings are designed with regard to site conditions and minimise the impact on landform.

(iii) To lessen the visual impact of retaining walls on allotment boundaries.

DEVELOPMENT CONTROLS

(n) Cut and fill principles are illustrated in Figure 9.
(o) Cut and fill of land is to be minimised under the following numeric controls:
- maximum depth of any cut in the slope is 1 m, and
- maximum height of any fill of the slope is 1 m.

(p) Side boundary retaining walls for development on cross slopes should retain a cut no higher than 1 metre.
(q) Where the retaining of land is greater than 1 m in height, retaining walls should be tiered with a minimum distance of 600mm between walls and suitably landscaped.
(r) Embankments should have a maximum grade of 1:4 and be suitably landscaped to prevent erosion.

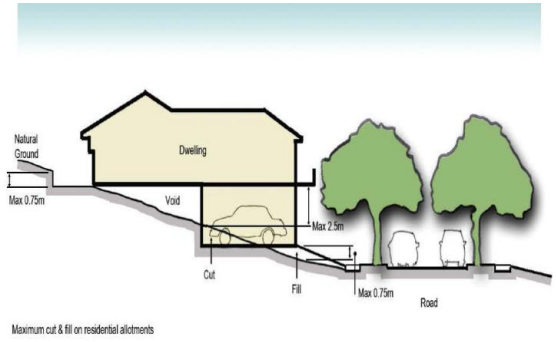


Figure 9 - Cut and fill principles

2.14 ABORIGINAL HERITAGE

Council shall require all subdivision development applications to include an Aboriginal Cultural/Archaeological Assessment including consultation and mitigation to comply with relevant legislation and associated requirements. The heritage assessment shall be prepared by a suitably qualified person.

Where the Aboriginal Assessment identifies a site as significant, submission of a letter from the relevant Aboriginal Lands Council is required expressing support or recommendations for the subdivision proposal.

3. RESIDENTIAL DEVELOPMENT

3.1 HOUSING TYPES AND DESIGN PRINCIPLES

A mix of housing types that range from residential flat buildings to large lot residential dwellings are to be provided within Box Hill North to facilitate housing diversity and choice and to meet the requirements of people with different housing needs. Generally, higher residential densities are to be located in the vicinity of the Town Centre and in areas with high visual or landscape amenity and proximity to facilities. Low density residential development is to be located along ridges and steeper slopes.

3.2 MINIMUM SUBDIVISION SIZE FOR R2 LOW DENSITY RESIDENTIAL - LARGE LOTS

OBJECTIVES

(i) To provide lots of a size conducive to residential living, having regard to any development constraints or environmental qualities of that land.
(ii) To ensure lots have sufficient area to provide adequate access, open space, a sufficient building platform and attractive presentation to the street.

DEVELOPMENT CONTROLS

(a) Minimum lot size: 2000 m²
(b) Minimum depth: 60 metres
(c) Minimum frontage: 30 metres
(d) Minimum front setback: 10 metres
(e) Minimum side setback: 5 metres

3.2.1 BUILDING PLATFORM

OBJECTIVE

(i) To ensure lots have a suitable area for the erection of a dwelling and associated structures, free of constraints or restrictions.

DEVELOPMENT CONTROLS

(s) The lot must be capable of providing a building platform of at least 20 metres by 15 metres clear of any restrictions or building line setbacks. The building platform shall be sited in an accessible and practical location suitable for residential building construction.

(t) Suitable graded vehicle access shall be provided from a public road to the identified building platform in accordance with Councils minimum driveway requirements.

3.3 ENVIRONMENTAL LIVING

OBJECTIVE

(i) To ensure that future development is designed and managed in a manner which respects the natural attributes of the environmental living zoned land area in Box Hill North.

DEVELOPMENT CONTROLS

Integrated Development Application

- A single integrated Development Application for the whole of the environmental living zone land area is to be submitted to Council. The development is to be accompanied by a detailed site analysis plan. Environmental living design principles are illustrated in Figure 10.

Development Envelopes

- A Development Envelope Plan is to be prepared for each individual lot within the environmental living zone land area. The plan is to set out the broad parameters such as the building envelope, maximum building height and any individual characteristics of individual lots.
- The footprint of any building and related structures (including out buildings, storage sheds and courtyards) must be sited wholly within the Development Envelope Plan for individual lots.

Services

- Building services (including drainage and utilities) are to be underground. Trenching is not permitted within the drip line of existing trees to minimize impact. Site plans are to show service trench location in relation to existing trees.

Tree Retention and Removal

- In the area of individual lots outside the Development Envelope, no native trees or native understorey vegetation is to be removed or lopped unless:
  - Removal of native trees or native understorey vegetation is to be undertaken as part of an ongoing program of vegetation/ fuel management (if required); or
  - Individual native trees can be demonstrated to be a clear risk to personnel safety and or property, or
  - Removal of native trees and understorey is essential to the provision of access to a lot.
  - Prior to any such removal of native trees you must obtain approval of Council in accordance with their Tree Preservation Policy.

Clothes Drying

- Outdoor clothes drying areas are to be located within the Development Envelope for an individual lot and located to the side or rear of the dwelling and adequately screened.
- There will be no clothes drying on balconies of units within residential flat buildings.

Waste Minimisation and Recycling

- Garbage storage and recycling facilities are to be provided within the Development Envelope for an individual lot. The area is to be adequately screened.

Rainwater Tanks

- Rainwater tanks are to be located within the Development Envelope for each lot and located adjacent to the dwelling or integrated into the design of the dwelling where possible.

Outbuildings

- Any additional storage or work spaces are to be located within your development envelope and generally to the rear of a dwelling

Swimming pools and tennis courts

- If a swimming pool or tennis court is proposed it must be located within the Development Envelope for an individual lot and to the rear or side of the dwelling only.

Existing Vegetation and Natural Ground Conditions

- If the siting of a dwelling requires the removal of trees, similar species are required to be planted elsewhere within the lot.
- Landscaping is to incorporate native grasses, understorey and ground cover vegetation and consistent with any bushfire fuel management requirements.
- Suitable Plant Species Endemic or suitable native plant species selected from the approved plant species list are to be used for revegetation of disturbed areas both outside of and within individual Development Envelopes.
- Non-invasive exotic species are only permitted within Development Envelopes and must be contained within defined edges (e.g. timber, steel or masonry edging).

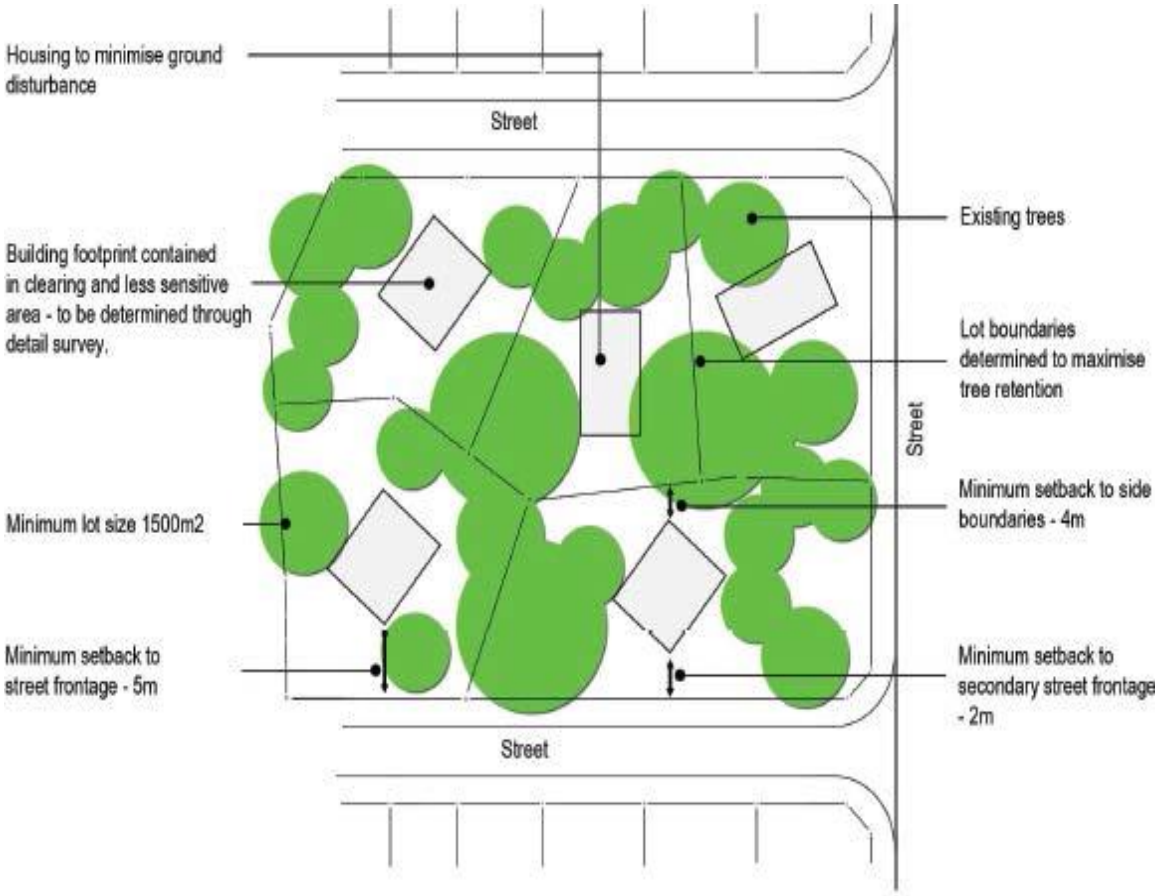


Figure 10 – Environmental Living Design Principles

3.3.1 CORNER LOTS

OBJECTIVES

(i) To ensure that dwellings sited on corner lots take advantage of their visually prominent location whereby the design addresses both street frontages.

(ii) To ensure that the dwelling façade along the secondary street frontage provides architectural relief to the streetscape.

DEVELOPMENT CONTROLS

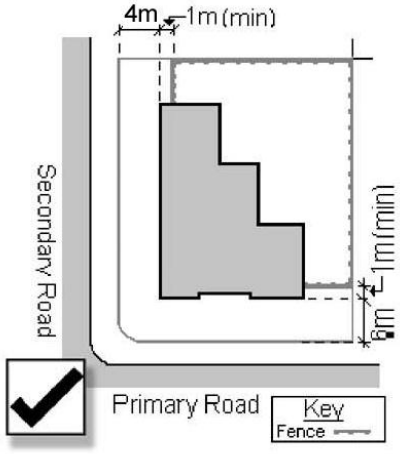
(i) On corner lots a minimum of three of the following design elements are to be included along the secondary frontage:

- Verandahs;
- Gables;
- Vertical elements to reduce the horizontal emphasis of the façade;
- Entry feature or portico;
- Balcony/window boxes or similar elements;
- Landscaping/fencing compatible with the frontage status of the elevation; and
- Windows.

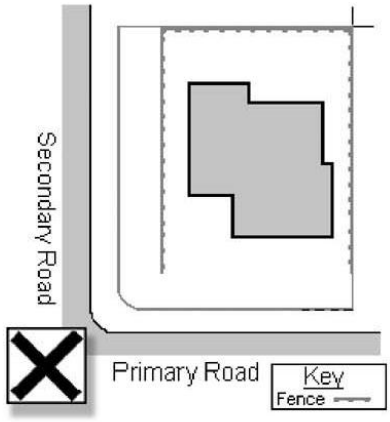
(ii) The following features are not to occur along either façade:

- Blank walls without relief;
- Windows or doors of utility rooms exposed to view; and
- Hot water services, air conditioning machinery or similar utility installations.

(iii) Fencing on each road frontage boundary will be limited to a maximum of 25% of the length of that boundary. Any such fencing will be located a minimum of 1 metre behind the closest wall of the building to that boundary (See Figure 11).



SET BACKS FOR CONER SITES AND STREET FRONTAGE TREATMENT



DESIGN ADDRESSES ONLY ONE FRONTAGE WITH SURROUNDING HIGH FENCES

VERTICAL ELEMENT THAT HELPS TO DEFINE THE CORNER

DESIGN SUCCESSFULLY ADDRESSES BOTH STREET FRONTAGES

DESIGN SUCCESSFULLY ADDRESSES BOTH STREET FRONTAGES

FAILS TO ADDRESS THE SECONDARY STREET FRONTAGE WITH BLANK WALL AND HOT WATER SERVICE LOCATED ALONG THE SECONDARY STREET FACADE

Figure 11 – Corner lots

3.4 RESIDENTIAL AMENITY, SOLAR ACCESS AND PRIVACY

OBJECTIVES

(i) To provide a high level of residential amenity with opportunities for outdoor recreation and relaxation within the property.

(ii) To enhance the spatial quality, outlook, and usability of private open space, including outdoor clothes drying.

(iii) To facilitate solar access to the living areas and private open spaces.

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

(v) To minimise the direct overlooking of internal and external living areas through site layout and building layout, location of windows and balconies, design of windows and use of screening devices.

(vi) To ensure that buildings are sited and designed so as to provide for solar access and both visual and acoustic privacy.

DEVELOPMENT CONTROLS

Solar Access and Cooling

- Dwelling design should:
  - include a living room or the like with a northern aspect,
  - ensure daylight access to habitable rooms and private open space, particularly in winter – use skylights, clerestory windows and fanlights to supplement daylight access,
  - incorporate cross ventilation,
  - incorporate shading and glare control, particularly in summer i.e. - using shading devices, such as eaves, awnings, colonnades, balconies, pergolas, external louvers and planting,
  - provide external horizontal shading to north-facing windows,
  - provide vertical shading to east or west windows.
  - provide an area with good solar access for outdoor clothes drying.

Privacy

- The siting of windows of habitable rooms on the first floor shall minimise overlooking to the private open space of neighbouring properties.
- Direct overlooking of main habitable areas and private open spaces of adjacent dwellings is to be minimised through building layout, window and balcony location and design, and the use of screening devices, including landscape treatments.
- Habitable room windows with a direct sightline to the habitable room windows in an adjacent dwelling within 3m of the property boundary are to:
  - be obscured by fencing, screens or appropriate landscaping,
  - be offset from the edge of one window to the edge of the other by a distance sufficient to limit views into the adjacent window; or
  - have fixed obscure glazing in any part of the window below 1.5m above floor level.
- A new balcony, deck, patio, pergola, terrace or verandah and any alterations to an existing balcony, deck, patio, pergola, terrace or verandah must have a privacy screen if it:
  - has a setback of less than 3m from a side or rear boundary,
  - has a floor area more than 3m², and
  - has a floor level more than 1m above ground existing ground level.
- A detached deck, patio, pergola, terrace or additions or alterations to an existing deck, patio, pergola, or terrace must not have a floor level that is more than 600mm above existing ground level.

3.5 FORMS, ROOFS AND FEATURE ELEMENTS

OBJECTIVES

(i) To create an attractive and cohesive streetscape (refer to Figure 12).

(ii) To ensure that buildings are designed to enhance the desired future built form character of the neighbourhood.

DEVELOPMENT CONTROLS

Porches and entries

- Should form an integral part of the dwelling, create a clear and visible entry area and where possible provide shelter for people entering the house.
- On corner lots, the main entry should ideally be on the long side of the lot to avoid a blank face to that street.

Verandahs and pergolas

- Be provided to all elevations that are exposed to western and northern sun.
- Appear as an extension of the house.
- Be made of durable materials such as timber or metal.

Balconies and terraces

- Should provide usable external living areas for upper levels of the home.
- Provide additional opportunities for outlook to the street and garden, improving safety by encouraging passive surveillance.

Roof eaves and sun shading

- Sunscreens and awnings, particularly on the northern and western elevations are encouraged.
- Eaves of at least 450mm (to the fascia) are required on all pitched roofs except where roof portion is zero lotted. However, where practical, 600mm eaves should be considered to achieve an increased degree of shading to windows and for enhanced aesthetic appeal.
- Where flat roofs are proposed, alternative shading devices are required.
- Eaves are not mandatory on garages where they are located on the southern side of the main house.

Materials and proportions

- Durability, detailing, appearance and diversity should be considered when selecting materials to ensure a high quality appearance over time.
- Variety and individuality are important, and considered materials selection creates a harmonious balance on the facades of the house.
- Well-balanced proportions are also important for improving the appearance of the dwelling, helping to relate various elements such as doors, windows and entries.

Aerials and other clutter

- Where possible, aerials, satellite dishes, water tanks, air conditioning units and solar hot water units should not generally be visible from the street or other public spaces.
- Careful attention is required to ensure optimum orientation for solar collectors, while avoiding the potential of such items being viewed as roof clutter.

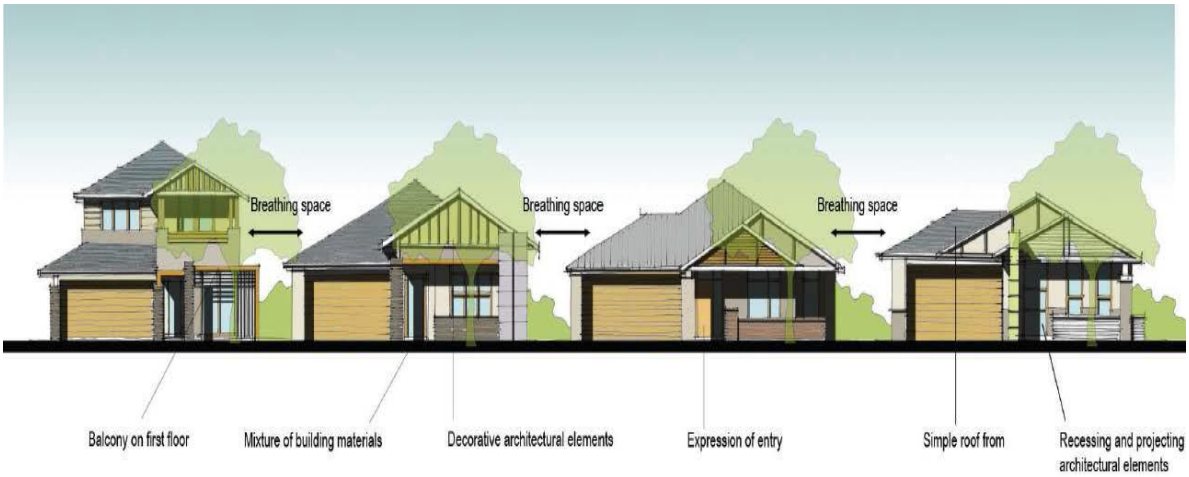


Figure 12 - Streetscape Elevation

3.6 FENCING

OBJECTIVES

(i) To enhance the quality of the streetscape through consistent and co-ordinated front fencing.

(ii) To define the public and private domain and provide a sense of enclosure to the front yard.

(iii) To ensure boundary fencing is of a high quality and compliments the streetscape.

DEVELOPMENT CONTROLS

(u) Side and rear fencing are to be a maximum of 1.8 m high and located not forward of the front building line.

(v) On corner lots the preferred outcome is for the dwelling to front both street frontages providing a better overall streetscape presentation. Where fencing to the secondary street frontage is proposed, it is not to exceed 1.8 m high for more than one third of the length of the secondary road frontage, if relevant.

(w) On corner lots the front fencing style is to be continued along the secondary street frontage to at least 1 m behind the building line of the dwelling.

(x) Where a dwelling is located adjacent to open space, the design of the fencing is to permit casual surveillance of the open space and provide the dwelling with outlook towards the open space. Fencing that adjoins open space is to permit casual surveillance. Colorbond or timber paling or lapped/capped fencing can only be used internally between dwelling lots.

(y) Where cut is proposed on the boundary of a lot, retaining walls are to be constructed with side fence posts integrated with its construction (relevant construction details are required with retaining wall approval). Otherwise retaining walls must be located a minimum of 450mm from the side or rear boundary of the lot containing the cut.

3.7 GARAGES AND CAR PORTS

OBJECTIVES

(i) To provide safe and secure parking for residents and visitors.

(ii) To reduce the visual impact of garages, carports, and parking areas on the streetscape and improve dwelling presentation.

(iii) To ensure the design of garages do not dominate the frontage of the house.

(iv) To encourage the use of studios over garages to provide surveillance, work from home or residential accommodation opportunities.

DEVELOPMENT CONTROLS

(z) Garage doors are to be set back a minimum of
- 1m from the front facade of the home
- 5.5m from the front boundary.

(aa) Garage doors are to be:

- less than 50% of the width of the house
- no wider than 6m
- a maximum height of 2.4m.

(bb) Double garages are only permitted on lots that are 12m wide or greater.

(cc) Single fronted tandem garages with one space behind the other are permitted.

(dd) Triple garages are only permitted on large residential lots with a minimum lot size of 2000m^2.

(ee) Garages located on corner lots should be accessed from the secondary street (unless solar orientation would be compromised).

(ff) Driveways should be a minimum of 1.5m from street trees.

(gg) Landscaping is to be provided between the driveway and side fences.

3.8 RESIDENTIAL DEVELOPMENT ADJOINING WATER RECYCLING FACILITIES

OBJECTIVES

(i) To ensure that the amenity of residents, adjoining water recycling facilities, is appropriately maintained.

CONTROLS

(a) Residential lots shall be at least 15 metres from the boundary of any sewage treatment facility or water recycling facility.

3.9 STREET TREES

OBJECTIVES

(i) Be consistently used to distinguish between public and private spaces and between different classes of street within the street hierarchy;

(ii) Minimise risk to utilities and services;

(iii) Be durable and suited to the street environment and, wherever appropriate, include endemic species;

(iv) Maintain adequate lines of sight for vehicles and pedestrians, especially around driveways and street corners;

(v) Provide appropriate shade; and

(vi) Provide an attractive and interesting landscape character without blocking the potential for street surveillance.

CONTROLS

(b) Trees should include endemic species; however suitability to the surrounding infrastructure should be paramount.

(c) All trees shall be sourced from a " NATSPEC " accredited nursery".

(d) Trees species should be selected that will not cause future damage to Council and private infrastructure eg: drainage culverts and private driveways.

(e) Street trees must be in accordance with Councils preferred planting list.

(f) Where nature strips have a footpath street trees should be planted in the centre, between the rear of kerb and the edge of footpath.

(g) Street trees are not to be planted within 9m from road corner or with in 3m of a driveway. (Refer figure 13 below).

(h) Street trees are to be planted away from street lighting and utilities such as storm water outlets and drainage culverts. (Refer figure 13 below).

(i) Street trees should be spaced approximately every 6 metres.

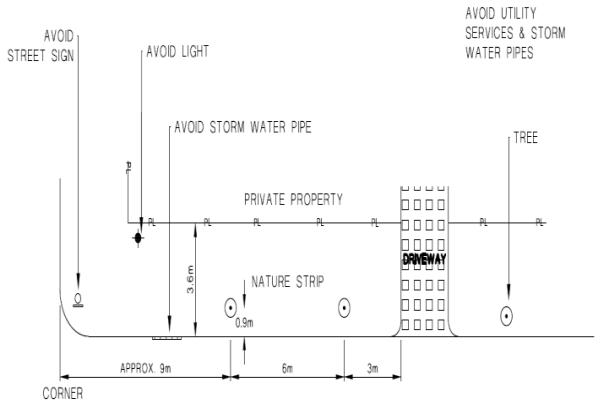


Figure 13 – Location of street trees

Footpaths

Local Roads

- Footpaths are required to be constructed on one side of the street only. On the side of the street where footpaths are constructed one tree per lot

is to be planted in the centre of the lot frontage. Where there are no footpaths in the street two trees per lot spaced at 6 metre intervals are required.

- Footpaths to be 1.2m in width.

Collector/Sub-Arterial Roads

- Footpaths are required to be provided on both sides of the street.
- Footpaths are to be 1.5m in width.

SPECIES LIST FOR STREET TREES BOX HILL NORTH

Cumberland Plain Woodland – Larger mature size

Tree Species	Common Name	No Footpath	Footpaths	Cycleway
Eucalyptus crebra	Narrow-Leaved Ironbark	x		
Eucalyptus eugenioides	Thin-Leaved Stringybark	x		
Eucalyptus fibrosa	Broad-Leaved Stringybark	x		
Eucalyptus moluccana	Grey Box	x		
Eucalyptus tereticornis	Forest Red Gum	x		

Cumberland Plain Woodland – Small mature size

Tree Species	Common Name	No Footpath	Footpaths	Cycleway
Melaleuca decora	Feather Honey Myrtle		x	x

Eucalypt River Flat Forest – Larger mature size

Tree Species	Common Name	No Footpath	Footpaths	Cycleway
Angophora subvelutina	Narrow-Leaved Ironbark	x		
Angophora floribunda	Thin-Leaved Stringybark	x		
Eucalyptus elata	River Peppermint	x		
Eucalyptus moluccana	Grey Box	x		
Eucalyptus tereticornis	Forest Red Gum	x		
Eucalyptus ovata	Swamp Gum	x		
Eucalyptus longifolia	Woollybutt	x		
Eucalyptus amplifolia	Cabbage Gum	x		
Eucalyptus botryoides	Bangalay	x		
Casuarina cunnninghamiana	River She Oak	x		
Casuarina glauca	Swamp Oak	x		

Eucalypt River Flat Forest – Medium mature size

Tree Species	Common Name	No Footpath	Footpaths	Cycleway
Melia azedarach	White Cedar (Deciduous)		x	x
Melaleuca styphelioides	Prickly Paperbark		x	x
Melaleuca decora	Feather Honey Myrtle		x	x
Acmena smithii	Lilly Pilly (not CVs)		x	x

Eucalypt River Flat Forest – Small mature size

Tree Species	Common Name	No Footpath	Footpaths	Cycleway
Tristaniopsis laurina	Water Gum	x		
Callistemon salignus	White Bottlebrush	x		
Livistona australis	Cabbage Tree Palm	x		
Melaleuca lineariifolia	Snow in Summer	x		
Leptospermum polygalifolia	Tantoon	x		
Backhousia myrtifolia	Grey Myrtle	x		

Non –locally indigenous native trees

Tree Species	Common Name	No Footpath	Footpaths	Cycleway

Medium Size				
Callitris collumnaris	White Cypress Pine		x	x
Callitris rhomboidea	Port Jackson Pine		x	x
Brachychiton populneum	Kurrajong		x	x
Glochidion ferdinandii	Cheese Tree		x	x
Lophostemon confertus	Queensland brushbox		x	x
Backhousia myrtifolia		x		
Cupaniopsis anacardiodes		x		
Elaeocarpus eumundii		x		
Elaeocarpus reticulatus		x		
Melaleuca Revolution Series		x		
Small Size				
Syzygium luehmannii	Riberry		x	x
Backhousia citriodora	Lemon Myrtle		x	x
Waterhousia floribunda	Watergum		x	x
Tristaniopsis laurina 'Luscious'			x	x
Callistemon 'Kings Park Special'		x		
Callistemon viminalis		x		
Ceratopetalum gummiferum			x	x

Non Native Trees

Tree Species	**Common Name**	**No Footpath**	**Footpaths**	**Cycleway**
Medium Size				
Pyrus calleryana 'Capital'	Fastigate Ornamental Pear	x		
Quercus palustris 'Pringreen' Green Pillar®	Fastigate Pin Oak	x		
Ulmus parvifolia 'Todd'	Chinese Weeping elm	x		
Fraxinus pennsylvanica 'Urbdell'- Urbanite™	Ash		x	x
Calodendrum capense	Cape Chestnut		x	x
Fraxinus Raywood	Claret Ash	x		
Fraxinus angustifolia 'Raywood'	Claret Ash	x		
Acer platanoides 'Crimson Sentry'		x		
Acer x freemanii 'Jeffersred'		x		
Agonis flexuosa 'Burgundy'	Willow Myrtle	x		
Backhousia citriodora		x		
Brachychiton populneus		x		
Fraxinus pennsylvanica 'Lednaw' - Aerial™		x		
Glochidion ferdinandi		x		
Jacaranda mimosifolia			x	x
Lophostemon confertus		x		
Nyssa sylvatica		x		
Pistacia chinensis		x		
Prunus cerasifera 'Nigra'			x	x
Prunus cerasifera 'Oakville Crimson Spire'			x	x
Pyrus calleryana			x	x
Pyrus salicifolia			x	x
Quercus rubra			x	x

Syncarpia glomulifera			x	x
Syzygium luehmannii			x	x
Ulmus parvifolia 'Todd'		x		
Waterhousea floribunda			x	x
Zelkova serrata				
Acer rubrum 'October Glory'				
Magnolia × soulangeana		x		
Magnolia grandiflora			x	x
Small Size				
Acer campestre 'Elsrijk'	Field maple		x	x
Fraxinus griffithi	Ash		x	x
Acer platanoides 'Globosum'			x	x
Acer rubrum	October Glory		x	x
Lagerstroemia	Crepe Myrtle		x	x
Prunus x blireana	Flowering plum		x	x
Prunus x blireana			x	x
Fraxinus griffithii		x		
Lagerstroemia indica x L. fauriei		x		
Michelia doltsopa		x		