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Part A Waterside

A. Background

This section of the DCP applies to Waterside, which includes both the employment and residential components as identified in Figure E3.1.

Waterside is a 54 hectare residential and employment precinct located approximately 2km north of Penrith City Centre and adjacent to the Penrith Lakes Scheme.

The locality is characterised by a mix of residential, industrial and recreational uses. Large industrial activities are located to the south on the opposite side of Andrews Road. Grey Gums Reserve is located immediately to the east of the site with the residential suburb of Cranebrook located further to the east. The Penrith Lakes Scheme, including the Sydney International Regatta Centre and the White Water Stadium, are located to the west on the opposite side of Castlereagh Road.

3.1 Waterside Corporate

3.1.1 Preliminary

3.1.1.1 Purpose of this Section

The purpose of this Section is to guide development of the Waterside Corporate Precinct.

3.1.1.2 Land to which this Section Applies

This section applies to the land shown on Figure E3.1 below.

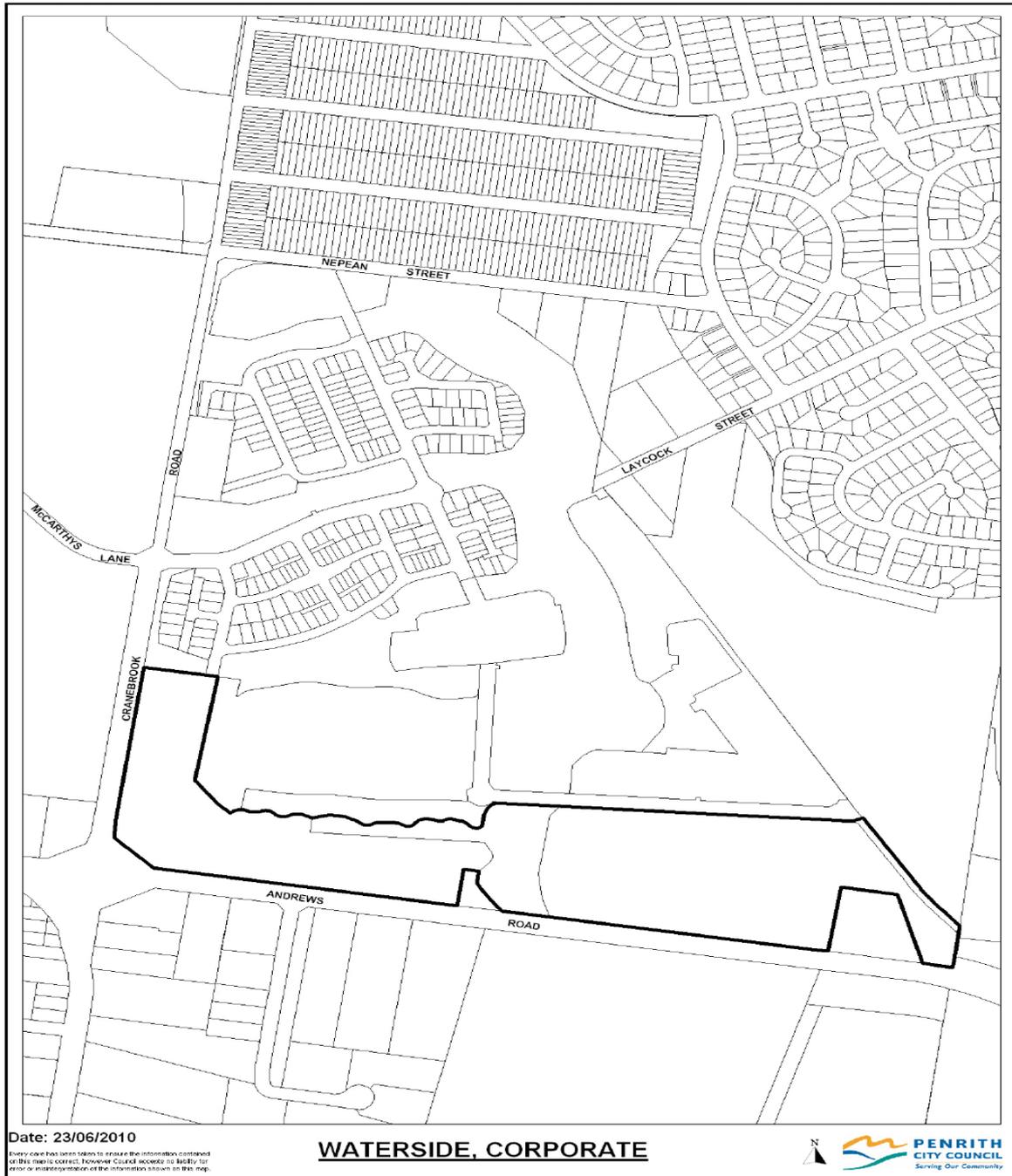
3.1.1.3 General Objectives

A. General Objectives

- a) To provide a clear planning framework for development of the site;
- b) To maintain and enhance the views through and across the subject land to the Penrith Lakes, the Nepean River and the Mountains;
- c) To encourage development that enhances the area's gateway location to Penrith and Penrith Lakes;
- d) To minimise any adverse impact to residential development from noise as a result of industrial development;
- e) To manage stormwater runoff, water quality and flooding in a safe, effective and environmentally responsible manner;
- f) To provide opportunities for employment, visitor accommodation, child care facilities, neighbourhood shops and community facilities; and

- g) To ensure the visual quality and the operating function of Waterside Corporate and the lakes system complement future development in the adjoining residential zone and achieve an appropriate and suitable interface between the two zones.

Figure E3.1: Land to which the ‘Waterside Corporate’ Part applies.

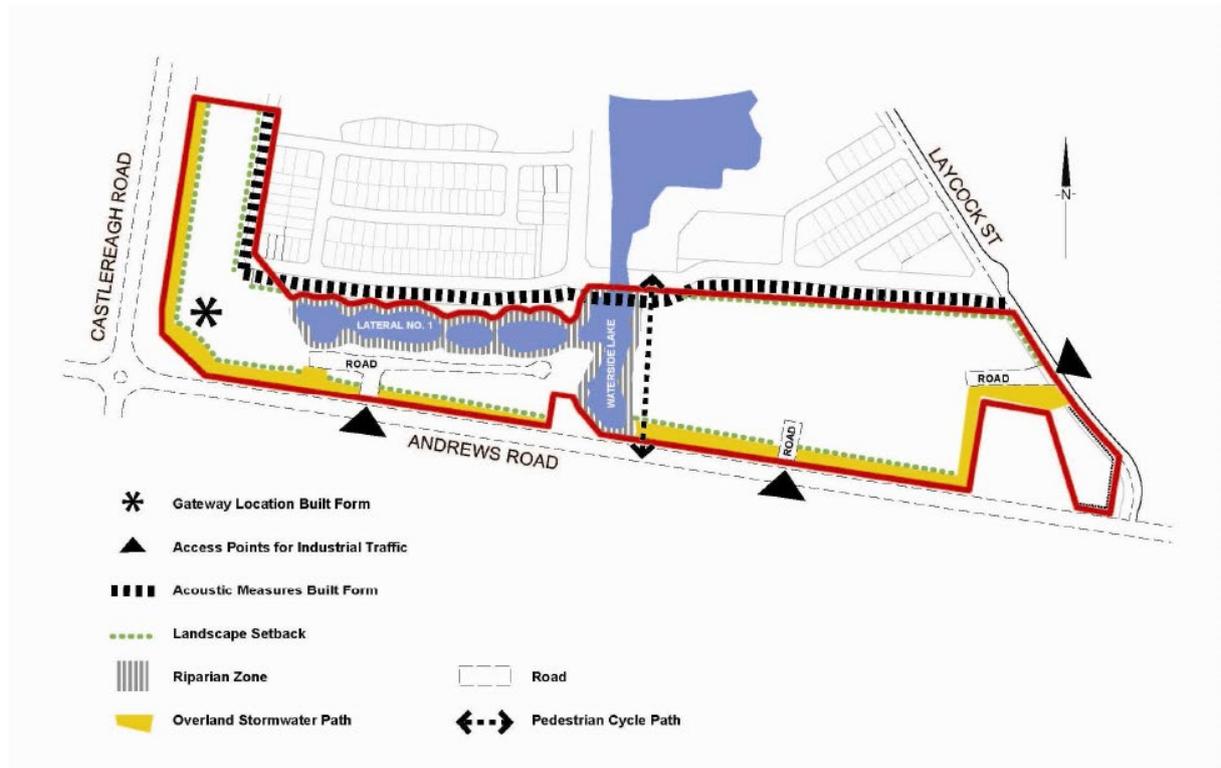


3.1.2 Site layout

The site is to be developed generally in accordance with the Key Design Elements shown in Figure E3.2: Key design Elements (Waterside Corporate). Council will consider variations to

this layout where it can be demonstrated that the objectives of this section of the DCP can be met.

Figure E3.2: Key Design Elements (Waterside Corporate)



3.1.3 Site development controls

3.1.3.1 Floodway and lake system

A. Objectives

- To ensure development of the site is compatible with the flooding characteristics of the locality;
- To ensure no adverse impact from flooding is experienced upstream and downstream as a result of development of this land; and
- To ensure that development is appropriately protected from flood inundation.

B. Controls

- The floodway and lake system shall be located generally in accordance with Figure E3.2: Key Design Elements (Waterside Corporate).

- 2) The floodway/main lake system shall have a width no less than that determined by Council having considered both flood conveyance requirements and modelled pre/post development flood impacts/variances for the 1% AEP (Annual Exceedance Probability), 0.5% AEP and 0.2% AEP local catchment and Nepean River flood events.
- 3) The lakes and lake foreshores (particularly the depth and grading) shall be designed to maximise safety.
- 4) Habitats, including islands, shall be constructed in each of the major lakes generally as indicated in Figure E3.2: Key Design Elements (Waterside Corporate) to provide habitat for local flora and fauna.
- 5) The floodway and lake system and their habitats are to be constructed and operated so as not to be conducive to mosquito breeding.
- 6) A recirculation system for the lakes shall be provided. The system must comprise components which will:
 - a) Minimise the likelihood of stratification of lakes, if this is necessary due to lake depth; and
 - b) Allow for full or partial draining of the lakes for maintenance purposes.

3.1.3.2 Catchment water quality

A. Objectives

- a) To ensure that an adequate and environmentally sustainable method of controlling surface water and storm water is implemented;
- b) To ensure appropriate water quality standards are maintained throughout the system and that post development water quality is an improvement on pre development water quality;
- c) To maintain adequate water quality levels throughout the lakes system at all times; and
- d) To ensure that water quality standards are not compromised for the lakes system.

B. Controls

- 1) Water quality is to be improved and maintained by every proposed development.
- 2) Adequate velocity and the controlled flow of water through the system shall be maintained at all times, to ensure the quality of the water and to reduce mosquito populations.
- 3) Water quality shall be enhanced by trapping and removing all debris. Gross pollutant traps are to be provided where the floodway enters the property at the Andrews Road boundary and where drainage from the south western corner of the public reserve enters the property at its eastern boundary.
- 4) Macrophyte planting is to be provided around the perimeter of the lakes to assist in the filtering of nutrients.

- 5) The use of fertilisers and other sources of nutrients may adversely impact on water quality and shall be minimised.
- 6) A process for monitoring the quality of discharges from this land is required to ensure system performance is maintained. This process, and agreed outcomes, shall be established through negotiation with the Penrith Lakes Development Corporation, Council, Department of Environment, Climate Change and Water. The monitoring process shall include maintenance of nutrient levels, and shall be undertaken on a regular basis. Details of the program shall be submitted with the development application/s for the construction of the lakes system.

3.1.3.3 Water quantity

A. Objectives

- a) To ensure adequate circulation and stable water levels through the lake system and branch waterways.

B. Controls

- 1) A permanent water level shall be maintained within the lakes and lateral waterways.
- 2) An internal pumping system must be installed to enable the pumping of water between lakes, and the maintenance of water quality.
- 3) The pump system shall be enclosed, or provided with acoustic treatment or barriers, to ensure residents are not affected by the noise generated by its operation.
- 4) Water levels in the lakes and all laterals shall comply with the approved Water Management Plan (see 3.1.3.4 control (3)(c)).

3.1.3.4 Management of the lakes system

A. Objectives

- a) To ensure the maintenance of the water management system (floodway, lakes, lateral waterways and stormwater drainage) to appropriate design and environmental standards; and
- b) To encourage innovative design solutions to complement the management of water within the catchment.

B. Controls

- 1) A management plan for the regular maintenance of the lakes system shall be established and enforced. This shall include regular mowing and maintenance of the verges, pruning, structural and operational maintenance of the system, dewatering and desilting the lakes and ponds, and removal and replanting of the macrophytes as required.

- 2) Council shall not issue development consent for a proposal to subdivide or develop the site unless satisfactory arrangements have been made with Council for the ongoing maintenance and management of the lakes system.
- 3) As part of a development application submitted for construction of the lakes system, the following issues must be addressed:
 - a) A proposal, which outlines the agreed responsibilities of all relevant parties, for the ownership and management of the lakes system. Satisfactory arrangements regarding this matter must be achieved prior to granting development consent for construction of the lakes system or subdivision of land;
 - b) Means of improving water quality compared with existing water quality (at the time of submission), and the proposed water quality monitoring regime; and
 - c) A Water Management Plan for the maintenance of the lakes system, including a schedule of proposed maintenance activities, annualized operational costs, and capital replacement costs. The Water Management Plan should also address:
 - i) The water quality and quantity discharge details, including expected changes in water quality and quantity to the existing system due to development (low flows, high flows, total over average rainfall year);
 - ii) A plan for monitoring the quality of water discharge from the site;
 - iii) The management of pollutants, such as oils, grass clippings, etc;
 - iv) The control of exotic flora and fauna;
 - v) Stormwater controls;
 - vi) Groundwater effects (including any plans to draw from the groundwater for supply);
 - vii) Sewer requirements (impact on existing sewer system and lake system);
 - viii) Emergency controls;
 - ix) The handling of water during the various stages of construction, as well as the final system (including site water management plan and sediment and erosion control measures);
 - x) The incorporation of water management facilities;
 - xi) The process of handling contaminated fill, if required;
 - xii) Wastewater reuse and its impact on outflow (quality and quantity);
 - xiii) Internal pumping and the impact on outflow;
 - xiv) A Construction Management Plan in relation to leaching or deposition of materials into the lakes system and control of runoff;
 - xv) A program for mosquito control; and

xvi) Any other relevant matter identified in this section.

3.1.4 Built form controls

3.1.4.1 Site and building works

A. Objectives

- a) To ensure that development meets sound environmental and flood planning practices and standards;
- b) To make adequate provision for stormwater runoff in and through Waterside; and
- c) To ensure that any contaminated land found on the site is properly managed and remediated to a level appropriate for the subject development.

B. Controls

- 1) All buildings on the site shall be designed and built such that their structural integrity can withstand flood flows generated by a flood equivalent to the Nepean River 'Flood of Record'- equating to the 0.5% AEP Flood Event. Damage potential is to be determined considering flood duration, flood depth and flow velocity such that buildings do not sustain structural damage or loss of load bearing capacity following immersion. Council will be guided by reference to available documentation provided in the 'Nepean Floodplain Management Strategy' in its determination as to whether flood compatible building design and material selection have been adequately considered. Appropriate modelling and mapping is to be undertaken to determine those areas of the site, which when fully developed, would present landform/development characteristics where special flood compatible building design is required.
- 2) All lots should have their finished surface at least 0.5m above the 1% AEP flood level generated by local catchment or Nepean River flood flows, whichever generates the higher flood levels.
- 3) Where finished ground levels are not 0.5m above the 1% AEP flood event level, all floor levels shall be constructed a minimum of 0.5m above the flood level.
- 4) Finished surface and ground levels shall fall to property boundaries and along roads to achieve adequate drainage.
- 5) Stormwater from individual lots shall be captured and stored, where feasible, for future use in landscape maintenance. Dispersed points of discharge to the waterway system (using roads, paths or open spaces) shall be provided. This may include a piped drainage system and grassed swales through open space areas.
- 6) Roof and surface water not reused on each lot is to be discharged into the lake system in a controlled manner.
- 7) All stormwater being discharged into the lake system is to be free of harmful pollutants, contaminants, grass litter and biodegradable matter.

- 8) The stormwater system shall be designed and constructed in accordance with Council's engineering standards.
- 9) A Stage 2 Environmental Site Assessment must be submitted to Council as part of any development application for bulk earthworks.
- 10) Any contaminated land must be remediated in accordance with the land management requirements of this DCP.

3.1.4.2 Access and parking

A. Objectives

- a) To ensure safe and functional vehicle access and parking arrangements;
- b) To prevent direct vehicular access to or from any development and Castlereagh Road and/or Andrews Road;
- c) To provide a functional link between Waterside Residential and Waterside Corporate but to discourage unnecessary commercial traffic movements through the residential zone; and
- d) To ensure safe, accessible and functional pedestrian and bicycle movement.

B. Controls

- 1) The significant entries to Waterside Corporate shall be located generally in accordance with Figure E3.2: Key Design Elements (Waterside Corporate). The type, size and specific location of the entry must be supported by a detailed traffic analysis prepared by an appropriately qualified professional.
- 2) Roads within Waterside Corporate shall be constructed above the 1% AEP flood level.
- 3) Access to or from Andrews and Castlereagh Roads shall only be permitted via an approved road. Individual driveways for site-specific developments will not be permitted.
- 4) Access to or from the neighbourhood facilities will be via Road 3 as shown in Figure E3.2: Key Design Elements.
- 5) Bus bays/shelters are to be provided to specifications and at locations to be determined by Council.
- 6) An evacuation plan for Waterside Corporate shall be developed in conjunction with the State Emergency Service. Details of this plan shall be submitted to Council prior to occupation of any building.
- 7) Below ground parking is not permitted.
- 8) Parking within the front building setback may be considered where it can be shown that the objectives of Section 3.1.4.9 Landscaping and Open Space will be achieved.
- 9) Publicly accessible bicycle/pedestrian paths are to be provided as indicated in Figure E3.2: Key Design Elements (Waterside Corporate).

- 10) Pedestrian pathways and cycleways shall be linked to provide a safe, integrated and continuous pedestrian/cycle network around the lake system and within the site.

3.1.4.3 Acoustic requirements

A. Objectives

- a) To minimise any adverse impact to residential development of noise from nearby industrial development; and
- b) To ensure that the design of any acoustic measures contribute to the visual amenity of Waterside and are suitably integrated with the built form and landscaping of the site.

B. Controls

- 1) All development applications are to be accompanied by an acoustic report or noise impact statement prepared by a qualified acoustic consultant as follows:
 - a) Where development is to provide the principal acoustic buffer between residential and industrial development, an acoustic report is required to demonstrate the development will satisfy the noise criteria of Waterside Clause of Penrith LEP 2010; and
 - b) All other development proposals are to be accompanied by a noise impact statement prepared in accordance with and demonstrating compliance with the noise and vibration requirements of this DCP.
- 2) All acoustic measures must be designed to:
 - a) be compatible with the flood characteristics of the estate;
 - b) integrate with adjoining buildings;
 - c) be aesthetically and visually pleasing;
 - d) be compatible with the locality when viewed from both the residential and industrial areas of the estate;
 - e) be constructed of robust and readily maintained materials that also minimise opportunities for vandalism;
 - f) integrate with and accommodate the pedestrian/cycle network, riparian areas and landscaping within the estate; and
 - g) creatively respond to site characteristics and constructed with visually permeable elements where they cross water bodies.

3.1.4.4 Streetscape

A. Objectives

- a) To enable flexibility in building height and design to provide variety in facades and external appearance;

- b) To ensure that development creates a varied streetscape consistent with the envisaged built form scale in the locality;
- c) To ensure the design and appearance of buildings and/or development, particularly when viewed from the waterways, other public places and Cranebrook is of a high standard; and
- d) To coordinate lighting design and solutions across Waterside Corporate.

B. Controls

- 1) Buildings adjacent to the residential zone are to be of a scale and design sympathetic to nearby residential dwellings.
- 2) Development adjacent to residential houses should reflect the change in both detailing and massing and should not overlook private open spaces.
- 3) Architectural design along Andrews Road should be of a high standard, utilising quality materials and finishes.
- 4) Development is to provide a general image of buildings within a green setting, through the combination of appropriate setbacks and landscaping.
- 5) The aesthetic appeal of the street is to be maintained while providing a primary service role for vehicular and pedestrian access.
- 6) Roof plant must be effectively screened from view.
- 7) To soften the effect of development, landscaping must be of an appropriate scale and size consistent with the bulk and scale of buildings.
- 8) Service areas are to be placed to the rear or side of buildings, unless it can be established that they will not impact adversely on visual amenity or the acoustic requirements of this Section.
- 9) An integrated design for lighting is to be implemented throughout the site that is also complementary to the Waterside Residential lands.

3.1.4.5 Building envelopes

A. Objectives

- a) To provide a visual and supplementary acoustic barrier between residential and industrial development;
- b) To enhance the views through and across the subject land to Penrith Lakes, the Nepean River and the Blue Mountains;
- c) To provide quality urban design at an appropriate scale;
- d) To provide appropriately landscaped setbacks to roads and along boundaries adjoining residential and riparian areas; and

- e) To provide building envelopes consistent with the scale of adjoining development, the desired streetscape and future amenity of the locality.

B. Controls

- 1) The setbacks of buildings from the boundary are to be in accordance with Table E3.1: Building Setbacks below.
- 2) Minor variations in setbacks will be considered where they will contribute to a varied and attractive streetscape and do not compromise relevant objectives.

Table E3.1: Building setbacks

Location	Minimum setback
Andrews Road	10m
Castlereagh Road	10m
Laycock Street	9m
Buildings fronting secondary and internal roads	5m
Buildings on lots adjoining residential land and riparian corridors	5m

3.1.4.6 Built form – corner of Andrews and Castlereagh Roads

A. Objectives

- a) To enhance the gateway location at the intersection of Andrews Road and Castlereagh Road through strong built forms;
- b) To reflect the gateway location with well-designed buildings incorporating a strong corner element;
- c) To provide built form with additional architectural emphasis, such as varied building height, distinctive roof forms, articulated wall elements and bold use of materials;
- d) To provide a suitable acoustic barrier to residential development to the north; and
- e) To ensure that car parking is not visually intrusive.

B. Controls

- 1) Buildings are to address Andrews and Castlereagh Roads.
- 2) Front facades are to provide visual interest through articulation and the use of architectural treatments such as projections, indentations and roof elements.

- 3) Elevations are to display a variety of different materials and textures but endeavour to have a cohesive outcome.
- 4) Parking is to be visually unobtrusive and blend in and respect the overall character of the built form.
- 5) Any multi-storey car parking is to be integrated into the built form and screened from public view by appropriate landscaping and creative use of materials, e.g. perforated screens.

3.1.4.7 Built form – Lateral 1

A. Objectives

- a) To provide access arrangements, building orientation and building design that address the riparian corridor.

B. Controls

- 1) Buildings are to front Lateral 1.
- 2) The front and rear elevations of buildings are to provide visual interest through articulation and architectural treatments, such as projections, indentations and roof elements.
- 3) The Andrews Road frontage of this section of the site is to be densely planted to enhance the presentation of development.

3.1.4.8 Built form - neighbourhood facilities

A. Objectives

- a) To provide a neighbourhood shop, cafes, restaurants and related facilities and services for the local residential community and workers in the locality;
- b) To provide a destination and gathering point for the residential and worker community;
- c) To provide a high level of connectivity for pedestrians and cyclists between the facilities and residential development and employment lands;
- d) To provide active street frontages and consolidate activity around a central area; and
- e) To ensure that parking is unobtrusive and suitably landscaped.

B. Controls

- 1) Any views to the lakes and riparian areas are to be maximised.
- 2) The neighbourhood facilities are to be linked into the broader cycle/pedestrian network.
- 3) Parking areas are to be interspersed with areas of landscaping to soften the visual expanse of hard paving.

3.1.4.9 Landscaping and open space

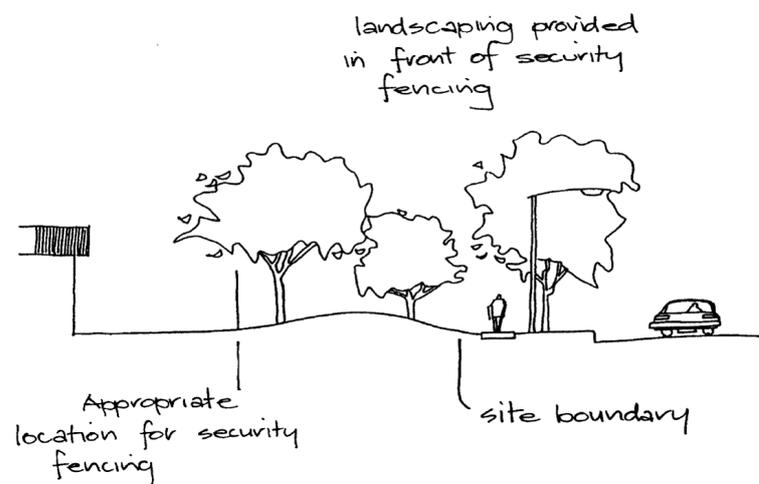
A. Objectives

- a) To provide landscaping which screens and softens building mass and roof form, particularly when viewed from adjoining roads and surrounding areas;
- b) To provide open spaces which are safe and inviting to use;
- c) To ensure the grouping of landscaped areas between adjoining developments, consolidate open space areas and allow a greater density of tree planting; and
- d) To provide high quality and consistent themed landscaping to Castlereagh Road and Andrews Road frontages of the site.

B. Controls

- 1) The design of open space areas and buildings shall enhance existing views and create opportunities for additional views within and through the site.
- 2) The front building setback and setbacks to all public areas must be landscaped to soften building mass and roof forms.
- 3) The building setback adjoining residential development must be landscaped and used for that purpose only.
- 4) Landscaping must comprise canopy trees under planted with suitable shrubs and/or groundcover.
- 5) Landscaping along the Castlereagh Road and Andrews Road frontages of the site is to be of a consistent theme, comprised predominantly of native species.

Figure E3.3: Example of preferred landscaping design



3.1.5 Ownership and management

Waterside Corporate will be subdivided under the community scheme legislation. This will enable the creation of individual lots under Torrens Title, Strata Schemes and Community Property for the shared rights and responsibilities of the Community Association, and the dedication of land to Council. It also ensures that the lakes system can be properly managed without unreasonable demands on Council resources. Under the proposed system, the Community Association will be able to maintain and embellish publicly accessible land to a higher standard than is readily achievable with Council resources.

3.1.5.1 Management principles

- 1) The lake system within Waterside is owned and managed by the Community Association. The lake system consists of:
 - a) The 5 main lakes, the lateral lakes, and the water contained within the lakes;
 - b) The open space surrounding the lakes and below the 1% AEP;
 - c) The culverts and weirs that are not within the road reserves;
 - d) The pump system to maintain water levels and water quality; and
 - e) The water quality devices, such as gross pollutant traps, macrophyte planting and grass swales.
- 2) Arrangements for the maintenance of areas within the development, including the lake system, the internal road system and any other publicly accessible areas shall be made prior to the granting of development consent for construction of the lakes system or subdivision of land and are indicated in Table E3.2: Management Designation below.
- 3) The road system for the development, except the private accessways, shall be dedicated to Council.
- 4) Public access shall be provided and maintained at all times to the parks and bicycle/pedestrian pathways identified in Figure E3.2: Key Design Elements (Waterside Corporate).
- 5) The Community Association shall maintain the lake system, open space areas around the lakes and all bicycle/pedestrian pathways. The Community Association must remove litter that may collect among the macrophyte planting.
- 6) The Community Association shall maintain landscaped areas within the median strips, roundabouts and footpaths.
- 7) The access ways are to be created as restricted neighbourhood property to ensure that the restricted neighbourhood property users will pay for the maintenance and upkeep of those areas.

Table E3.2: Management Designation

Element	Owned By	Maintained By	Cleaned By
Road System	Penrith City Council	Penrith City Council	Community Association
Utility Services	Service Provider	Service Provider	Service Provider
Garbage Services	Penrith City Council	Penrith City Council	Penrith City Council
Acoustic Barrier	Community Association	Community Association	Community Association
Community Facilities ¹	Community Association	Community Association	Community Association
Community Property ²	Community Association	Community Association	Community Association
Landscaping ³	Penrith City Council, Community Association and Neighbourhood Association	Community Association	Community Association
Road Bridges	Penrith City Council	Penrith City Council	Community Association
Road Retaining Wall	Penrith City Council	Penrith City Council	Community Association
Pedestrian Bridges	Community Association	Community Association	Community Association
Main Weirs	Community Association	Community Association	Community Association
Road Culverts	Penrith City Council	Penrith City Council	Penrith City Council
Low Flow Weirs	Community Association	Community Association	Community Association
Road Stormwater Pipelines and Pits	Penrith City Council	Penrith City Council	Community Association
Road Pit Socks	Penrith City Council	Penrith City Council	Community Association
Gross Pollutant Traps	Penrith City Council	Penrith City Council	Penrith City Council
Recirculation	Community Association	Community	Community

Element	Owned By	Maintained By	Cleaned By
System		Association	Association
Macrophyte Planting	Community Association	Community Association	Community Association
Grass Swales	Penrith City Council	Penrith City Council	Community Association
Lake Warning Signs and Fences	Community Association	Community Association	Community Association

Table Notes:

1. *The Community facilities are defined as facilities for the use of proprietors and occupiers of the community scheme.*
2. *The Community property is defined as property owned and maintained by the Community Association.*
3. *The Landscaping on the site is owned by different parties, yet all of it is maintained by the Community Association. Penrith City Council owns the public roads, medians, footpaths in public roads, roundabouts and woodland reserve. The Community Association owns all open space areas associated with the lakes and community property. The Neighbourhood Association owns all neighbourhood property.*

3.2 Waterside Residential

3.2.1 Preliminary

3.2.1.1 Purpose of the Section

The purpose of this Section is to guide residential development of the Waterside area.

3.2.1.2 Land to which the Section applies

This section applies to the land shown on Figure E3.4 below.

Figure E3.4: Land to which the 'Waterside Residential' Part applies.



3.2.1.3 Vision for Waterside

The development at Waterside has evolved in response to on-site and surrounding physical characteristics. The majority of residential traffic will access the site via Castlereagh Road and Laycock Street.

The development is to deliver a broad range of dwelling types that have high levels of amenity and good access to on-site open space areas and facilities.

Landscaping will separate the buildings in the Corporate and Residential zones. The proposed residential development will be separated from the light industrial buildings by dense landscaping to be contained in building setbacks, roadway verges and median strips. This landscaping will provide a transition between the different land uses and building types.

Development of Waterside is to:

- 1) utilise and enhance the natural characteristics of the land to create a unique community identity and special residential environment.
- 2) meet sound environmental planning practices and standards and satisfy ecologically sustainable design principles.
- 3) maintain and enhance the views through and across the subject land to the Penrith Lakes, the Nepean River and the Mountains.
- 4) minimise any adverse impact on residential development from noise on adjacent roads and nearby industrial development.
- 5) manage the collection, storage, disposal and impacts of stormwater in an environmentally sustainable and responsible manner.
- 6) Retain and enhance the existing wetlands adjacent to Nepean Street.
- 7) Enable a diverse range of housing forms and densities to meet the needs of different age groups and family compositions.
- 8) Demonstrate a high standard of residential amenity and urban and architectural design quality.

3.2.1.4 Aims and Principles of this Section

A. Aims of this Section

- a) To provide a clear planning framework for development in the area;
- b) To ensure that development meets sound environmental planning practices and standards and encourage development which satisfies ecologically sustainable design principles;
- c) To protect the environmental heritage of the area, whether it is of historic, aesthetic, architectural, archaeological, natural, cultural, Aboriginal or other significance;
- d) To utilise and enhance the natural characteristics of the land to provide opportunities for a unique community identity and special residential environment;

- e) To supplement and enhance the landscape character of the area;
- f) To maintain and enhance the views through and across the subject land to the Penrith Lakes, the Nepean River and the Mountains;
- g) To encourage development which enhances the area's gateway location to Penrith and Penrith Lakes;
- h) To minimise any adverse impact, to residential development, of noise from traffic on adjacent roads and nearby industrial development;
- i) To responsibly manage drainage, water management and flooding;
- j) To retain and enhance the existing wetlands adjacent to Nepean Street;
- k) To provide opportunities for visitor accommodation;
- l) To ensure that development occurs in an orderly and economic way; and

B. Development Principles

- 1) The management of the lake system will be determined by agreement between all major parties, and will be kept within the ownership of the Community Association. The lake system consists of:
 - a) The 5 main lakes, the lateral lakes, and the water contained within the lakes;
 - b) The open space surrounding the lakes and below the 1% AEP;
 - c) The culverts and weirs that are not within the road reserves;
 - d) The pump system to maintain water levels and water quality; and
 - e) The water quality devices, such as gross pollutant traps, macrophyte planting, and grass swales.
- 2) Arrangements for the maintenance of areas within the development, including the lake system, the internal road system and any other publicly accessible areas shall be made prior to the granting of development consent for construction of the lakes system or subdivision of land and are indicated in Table E3.3: Management Designation under Community Management Statement.
- 3) The road system for the development, except the private accessways, shall be dedicated to Council.
- 4) Public access shall be provided and maintained at all times to the parks and bicycle/ pedestrian pathways identified in Figure E3.11 – Land Accessible to the Public.
- 5) The Community Association shall own and manage all open space with the exception of the Woodland Reserve, which is to be rehabilitated and dedicated as public reserve.
- 6) The Community Association shall maintain the lake system, open space areas around the lakes and all bicycle/pedestrian pathways. The Community Association must remove litter that may collect among the macrophyte planting.

- 7) The Community Association shall maintain landscaped areas within the median strips, roundabouts and footpaths.
- 8) The access ways are to be created as restricted neighbourhood property, to ensure that the restricted neighbourhood property users will pay for the maintenance and upkeep of those areas.
- 9) Dwellings are to be designed to accommodate home-based telecommunications facilities, with shared antenna/television aerials (if necessary) for dwellings on each residential 'island'.

Table E3.3 - Management Designation under Community Management Statement

Element	Owned By	Maintained By	Cleaned By
Road System	Penrith City Council	Penrith City Council	Community Association.
Utility Services	Service Provider	Service Provider	Service Provider
Garbage Services	Penrith City Council	Penrith City Council	Penrith City Council
Acoustic Barrier	Community Association	Community Association	Community Association
Community Facilities ¹	Community Association	Community Association	Community Association
Community Property ²	Community Association	Community Association	Community Association
Landscaping ³	Penrith City Council, Community Association & Neighbourhood Association	Community Association	Community Association
Road Bridges	Penrith City Council	Penrith City Council	Community Association
Road Retaining Wall	Penrith City Council	Penrith City Council	Community Association
Pedestrian Bridges	Community Association	Community Association	Community Association
Main Weirs	Community Association	Community Association	Community Association
Road Culverts	Penrith City Council	Penrith City Council	Penrith City Council

Element	Owned By	Maintained By	Cleaned By
Low Flow Weirs	Community Association	Community Association	Community Association
Road Stormwater Pipelines and pits	Penrith City Council	Penrith City Council	Community Association
Road Pit Socks	Penrith City Council.	Penrith City Council.	Community Association
Gross Pollutant Traps	Penrith City Council	Penrith City Council	Penrith City Council
Recirculation System	Community Association	Community Association	Community Association
Macrophyte Planting	Community Association	Community Association	Community Association
Grass Swales	Penrith City Council.	Penrith City Council.	Community Association
Lake Warning Signs and fences	Community Association	Community Association	Community Association

- (1) *The community facilities are defined as facilities for the use of proprietors and occupiers of the community scheme.*
- (2) *The Community property is defined as property owned and maintained by the community Association.*
- (3) *The Landscaping on the site is owned by different parties, yet all of it is maintained by the Community Association. The PCC owns the public roads medians, footpaths in public roads, roundabouts and woodland reserve. The Community Association owns all open space areas associated with the lakes and community property. While the Neighbourhood Association owns all neighbourhood property.*

3.2.1.5 Urban Structure and Staging

The Waterside Residential Master Plan establishes the urban structure for the planning and development of the subject land. The Plan is illustrated at Figure E3.5: Waterside Residential Masterplan.

Figure E3.5: Waterside Residential Master Plan



The following design principles underpinning the Master Plan must be addressed at subdivision stage:

- 1) Development will be located around the lakes system, community centre and open space areas which will provide focal points for the new community.
- 2) Housing type and density will be provided and located as indicated in Figure E3.8: Residential Densities.
- 3) The development is to deliver a broad range of dwelling types that have high levels of amenity and good access to on-site open space areas and facilities.

- 4) The area will be legible and accessible to the general public. It will incorporate a bus route, cycle routes and walking tracks as indicated in Figure E3.11 – Land Accessible to the Public.
- 5) Dense landscaping contained in setbacks and road reserves will separate the buildings in the Corporate and Residential zones.
- 6) The road layout will accord with Figure E3.10 – Road Hierarchy to minimise traffic movements, with the majority of residential traffic to access the site via Castlereagh Road.
- 7) The staging of the development within the R1 General Residential zone is proposed to generally progress southward and eastward towards the Laycock Street extension. This progressive delivery of the residential development is to accord with the recommendations of the approved Acoustic Strategy as adopted in Council's Meeting dated 8 March 2010.

3.2.1.6 Approval Process

- 1) A Concept Plan shall be submitted for Council's consideration prior to submission of specific applications for development. Separate Concept Plans for each zone may be submitted if, in the opinion of the Council, an appropriate and suitable interface between the zones is demonstrated.
- 2) Each Concept Plan will be reported to Council and, if adopted, will establish in more detail the character, density and built form for development in each zone.
- 3) Each Concept Plan shall demonstrate that the development will satisfy the quantitative and qualitative controls of this section, and shall include:
 - a) An indicative site plan for the lakes, floodway, waterways, development and subdivision (including a provisional staging plan), which provides sufficient detail to enable assessment against the provisions of the LEP and this section;
 - b) A plan of existing significant trees (identifying those which will be retained);
 - c) A plan for the management and maintenance of the water system, including any relevant documentary evidence of agreement/s with relevant authorities/bodies;
 - d) A report assessing the significance of identified Aboriginal sites (including those already known to exist) and a plan detailing the location of any Aboriginal sites;
 - e) A report assessing the significance of existing and potential heritage items, and a statement assessing the impact of the proposed development on those items, and the curtilage and vicinity of those items; and
 - f) An acoustic report in accordance with the provisions of Table E3.5: Acoustic Reports, which:
 - i) Identifies the noise environment of the subject land (including a plan of existing noise contours);
 - ii) Provides an assessment of the impact of external noise sources (in particular, industrial and traffic noise); and

- iii) Proposes acoustic measures to mitigate any noise impacts.
- 4) Any subsequent application for development shall include:
- a) Details of the proposed development;
 - b) Detailed excavation plans for the relevant land, showing the location of all cut and fill works and finished ground levels;
 - c) An acoustic report detailing any necessary site-specific acoustic measures in accordance with the provisions of Table E3.5 – Acoustic Requirements;
 - d) Information which demonstrates the proposal complies with the relevant LEP and the provisions contained in this section (including any approved Concept Plan); and
 - e) A written description (and samples) of external materials and colours for proposed buildings, fencing, pavements, roads, landscape planting, and special treatments or features.

3.2.1.7 Specific information relating to the R1 General Residential and E2 Environmental Conservation zones

- 1) Master Plans have been submitted to Council for the Waterside Precinct for the subject lands. They were placed on public exhibition and adopted by Council as amendments to this Part.
- 2) Specific requirements for these zones are generally listed under separate headings, except where it was more appropriate to fully incorporate the specific requirements without the use of a separate heading.
- 3) Applications for development in the R1 General Residential and the E2 Environmental Conservation zones must generally comply with both the specific requirements listed for that area and the general provisions of this Section, where relevant.

3.2.1.8 Wetlands Protection

The area of the site north of Nepean Street is zoned E2 Environmental Conservation under the provisions of the Penrith LEP 2010. The wetlands area is also identified as 'Mapped Wetland 156' under the provisions of the *Sydney Region Environmental Plan No. 20 - Hawkesbury Nepean River*. Wetland 156 is mapped as a perennial wetland despite areas of the wetland being dry at various times of the year.

The wetlands cover a total area of approximately 8.2ha in three sections, fragmented by Nepean Street and an existing drainage channel. For the purposes of discussion, the three 3 fragmented areas of Wetland 156 are labelled as A, B and C (refer Figures E3.6 and E3.7). Wetland Area A is the largest, comprising approximately 7.5ha, or 91.5% of the overall area. Wetland Area A is located to the north of Nepean Street, and will not be disturbed. Wetland Areas B and C comprise the remaining 0.7ha, or 8.5%. These two areas are located within the proposed residential area and will be disturbed.

It is proposed to enlarge Area A by closing Nepean Street to through traffic; removing the carriageway of the closed section of Nepean Street; and extending Wetland Area A from the north of Nepean Street to the R1 General Residential zone. The rehabilitation will form one

large wetland rather than three fragmented parts (refer to Figure E3.7). The loss of wetland remnant Areas B and C will be compensated by the enlargement of wetland Area A and the construction of the lake system.

The development of the lake system, in conjunction with the rehabilitation of the wetland, will increase the amount of habitat available for native fauna by approximately 222m². The wetland rehabilitation will maintain and or potentially improve ecological biodiversity.

Figure E3.6 - Existing Conditions of Mapped Wetland 156

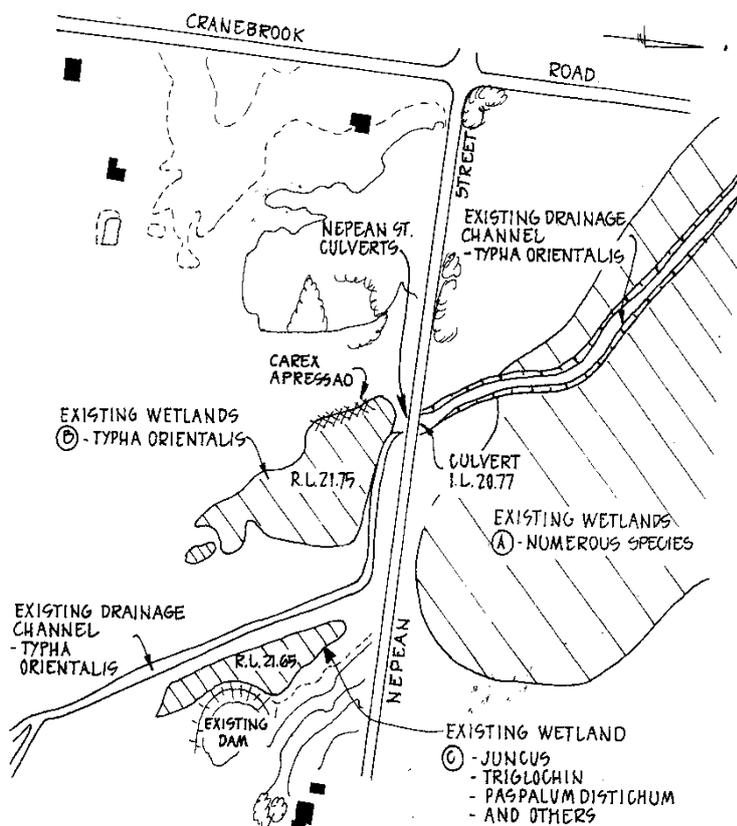
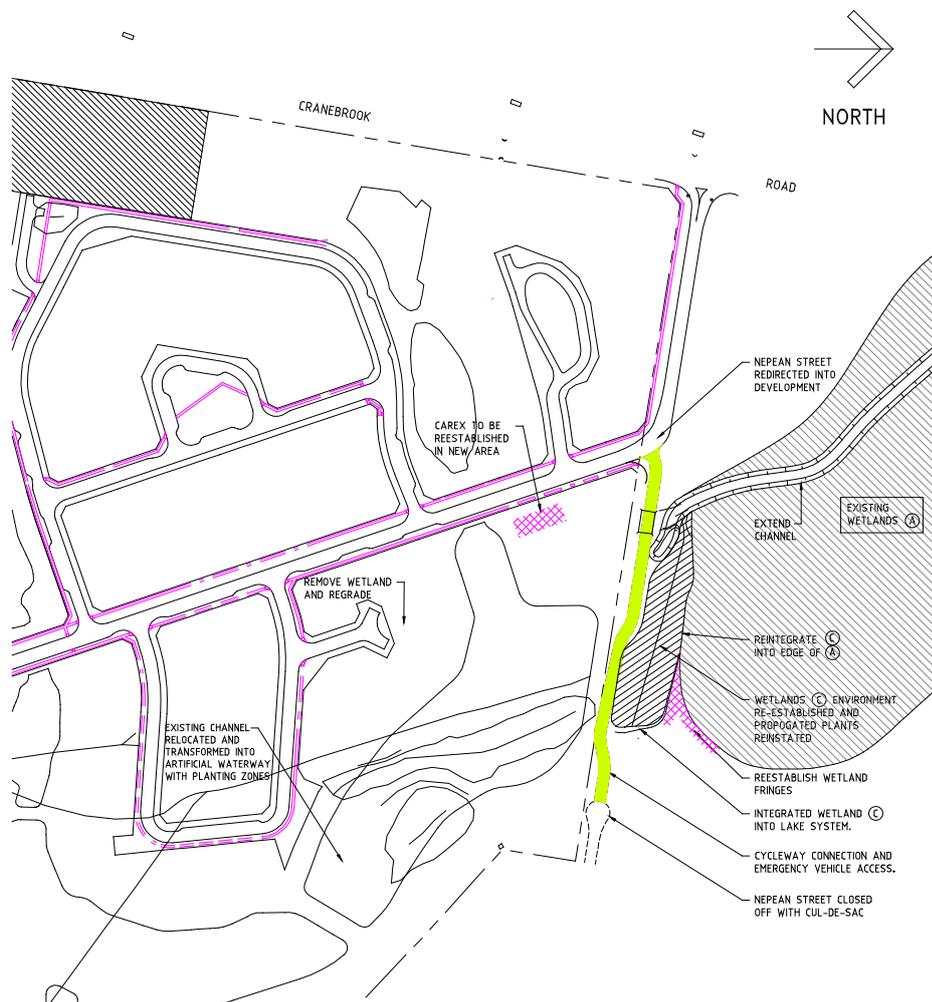


Figure E3.7: Proposed Wetlands Rehabilitation



3.2.1.9 Ownership and Management under the Community Scheme Legislation

The R1 General Residential zone will be subdivided under the community scheme legislation. This will enable the creation of individual lots under Torrens Title, Strata Schemes, and Community Property for the shared rights and responsibilities of the Community Association, and the dedication of land to the Council. It also ensures that the lakes system can be properly managed without unreasonable demands on Council resources.

Under the proposed system, the Community Association will be able to maintain and embellish publicly accessible land to a higher standard than is readily achievable with Council resources. The ongoing management and maintenance of the R1 General Residential zoned land will be the subject of a Community Management Statement. The E2 Environmental Conservation zone will not form part of the Community Scheme. This area will remain under separate title.

3.2.2 Development Requirements

The objectives and specific requirements for elements of any development of the subject land are detailed in the following sections.

3.2.2.1 Floodway, Drainage and Site Works

A. Objectives

General Objectives

- a) To encourage the enhancement of the natural characteristics of the land to provide opportunities for a unique community identity and special residential environment.
- b) To protect the environmental heritage of the area, whether it is of historic, aesthetic, architectural, archaeological, natural, cultural, Aboriginal or other significance.
- c) To maintain biodiversity by providing and increasing habitat for native fauna.

Floodway and Lake System Objectives

- a) To ensure no adverse impact from flooding is experienced upstream and downstream as a result of development of this land by the incorporation of a floodway into the lakes system,
- b) To ensure that development is appropriately protected from flood inundation.

Catchment Water Quality Objectives

- a) To ensure that an adequate and environmentally acceptable method of controlling surface water and storm water is implemented.
- b) To ensure appropriate water quality standards are maintained throughout the system and that post development water quality is an improvement on pre development water quality.
- c) To maintain adequate water quality levels throughout the lakes system at all times.
- d) To ensure that water quality standards are not compromised for the Lakes system.

Water Quantity Objectives

- a) To ensure adequate circulation and stable levels of water through the lake system and branch waterways.

Management of the Lakes System Objectives

- a) To ensure the maintenance of the water management system (floodway, lakes, lateral waterways and stormwater drainage) to appropriate design and environmental standards.
- b) To ensure the maintenance of the water management system to appropriate design and environmental standards.
- c) To encourage innovative design solutions to complement the management of water within the catchment,

Wetland Protection Objectives

- a) To maintain the quantity of water reaching the Nepean Street wetland.
- b) To ensure the retention and enhancement of the existing wetlands adjacent to Nepean Street.

Stormwater Drainage Objectives

- a) To make adequate provision for stormwater runoff in and through the estate.
- b) To ensure the drainage system adequately protects road pavements.
- c) To encourage use of water-permeable paving such as hollow blocks with gravel centres.

Earthworks Objectives

- a) To ensure appropriate erosion and sedimentation control of bulk earthworks construction.

Contaminated Land Objectives

- a) To ensure that any contaminated land found on the site is properly managed and remediated to a level appropriate for the subject development.

Aboriginal Cultural Heritage and Non-Aboriginal Heritage Objectives

- a) To appropriately manage the Aboriginal cultural heritage of Waterside.
- b) To protect and preserve items of local heritage significance.
- c) To ensure that identified items of local heritage significance are adequately recorded by archival means as part of this development, if demolition is deemed necessary.

B. Controls

1) Floodway and Lake System

- a) The floodway and lake system shall be located generally in accordance with this sections relevant map/s.
- b) The floodway/main lake system shall have a width no less than that determined by Council having considered both flood conveyance requirements and modelled pre/post development flood impacts/variances for the 1% AEP, 0.5% AEP and 0.2%AEP local catchment and Nepean River flood events.
- c) The lakes and lake foreshores (particularly the depth and grading) shall be designed to maximise safety.
- d) Additional habitats, including islands, shall be constructed in each of the major lakes generally as indicated on the E3.12: Key Design Elements (Waterside Residential) to provide a habitat for local flora and fauna.
- e) A recirculation system for the lakes shall be provided. The system must comprise components which will:

- i) Minimise the likelihood of stratification of lakes, if this is necessary due to lake depth;
- ii) Allow for full or partial draining of the lakes for maintenance purposes; and
- iii) Prevent the formation of habitat conducive to mosquito breeding.

2) Catchment Water Quality

- a) Water quality shall be improved and maintained by each proposed development.
- b) Adequate velocity and the controlled flow of water through the system shall be maintained at all times, to ensure the quality of the water and to reduce mosquito populations.
- c) Water quality shall be enhanced by trapping and removing all debris. Gross pollutant traps are to be provided where the floodway enters the property at the Andrews Rd boundary and where drainage from the south western corner of the public reserve enters the property at its eastern boundary.
- d) Macrophyte planting is to be provided around the perimeter of lakes edges to assist in the filtering of nutrients.
- e) The use of fertilisers and other sources of nutrients may adversely impact on water quality and shall be minimised.
- f) A process for monitoring the quality of discharges from this land is required to ensure system performance is maintained. This process, and agreed outcomes, shall be established through negotiation with the Penrith Lakes Development Corporation, Council and NSW Office of Environment and Heritage. The monitoring process shall include maintenance of nutrient levels, and shall be undertaken on a regular basis. Details of the program shall be submitted with development application/s for the construction of the lakes system.
- g) A management plan for the regular maintenance of the lakes system shall be established and enforced. This shall include regular mowing and maintenance of the verges, pruning, structural and operational maintenance of the system, dewatering and de-silting the lakes and ponds, and removal and replanting of the macrophytes as required.
- h) A draft management plan shall be submitted with development application/s for the construction of the lakes system.

3) Water Quantity

- a) A permanent water level shall be maintained within the lateral waterways.
- b) An internal pumping system must be installed to enable the pumping of water between lakes, and the maintenance of water quality.
- c) The pump system shall be enclosed, or provided with acoustic treatment or barriers, to ensure residents are not affected by the noise generated by its operation.
- d) Water levels in the Lakes and all laterals shall comply with the approved water management plan.

4) Management of the Lakes System

- a) Council shall not issue development consent for a proposal to subdivide or develop the site unless satisfactory arrangements have been made with the Council for the ongoing maintenance and management of the lakes system.
- b) As part of a development application submitted for construction of the lakes system, the following issues must be addressed:
 - i) A proposal which outlines the agreed responsibilities, of all relevant parties, for the ownership and management of the lakes system. Satisfactory arrangements regarding this matter must be achieved prior to granting development consent for construction of the lakes system or subdivision of land;
 - ii) Means of improving water quality compared with existing water quality (at the time of submission), and the proposed water quality monitoring regime;
 - iii) A Water Management Plan for the maintenance of the lakes system, including a schedule of proposed maintenance activities, annualized operational costs, and capital replacement costs. The Water Management Plan should also address:
 - The water quality and quantity discharge details, including expected changes in water quality and quantity to the existing system due to development (low flows, high flows, total over average rainfall year);
 - A plan for monitoring the quality of water discharge from the site;
 - The management of pollutants such as oils, grass clippings etc.;
 - The control of exotic flora and fauna;
 - Stormwater controls;
 - Groundwater effects (including any plans to draw from the groundwater for supply);
 - Sewer requirements (impact on existing sewer system and lake system);
 - Emergency controls;
 - The handling of water during the various stages of construction, as well as the final system (including site water management plan and sediment and erosion control measures);
 - The incorporation of water management facilities;
 - The process of handling contaminated fill, if required;
 - Wastewater re-use and its impact on outflow (quality and quantity); and
 - Internal pumping and the impact on outflow;
 - A Construction Management Plan in relation to leaching or deposition of materials into the lakes system and control of runoff; and

- A program for mosquito control and any other relevant matter identified in this section.

5) Wetland Protection

- An Environmental Impact Statement (EIS), in accordance with the provisions of the *Environmental Planning and Assessment Act 1979*, must be submitted for any works which will impact on Mapped Wetland No.156.
- The rehabilitation of Mapped Wetland No. 156 shall be generally be in accordance with the concept plan shown in Figure E3.7: Proposed Wetlands Rehabilitation, unless this is varied by the EIS process described above.
- Appropriate erosion and sedimentation control measures must be provided for any development in Waterside, to ensure no sediment from that development enters the wetland system.
- Plantings for the rehabilitated wetland area must be consistent with existing natural species to blend both natural and made elements.

6) Stormwater Drainage

- All components of the drainage system shall be designed to convey the 1% AEP flow. Pipe networks within roads shall convey the 20% AEP with the road carriageway containing additional flows up to the 1% AEP. Requirements set out in the subdivision section of this DCP must be complied with.
- Dispersed points of discharge to the waterway system (using roads, paths or open spaces) shall be provided. This may include a piped drainage system and grassed swales through open space areas.
- Ground waters shall be protected from the impacts of any surface waters.
- Innovative design solutions for stormwater management are encouraged. On-site stormwater detention, dual water supply and / or reuse shall be considered, and details provided for Council's consideration.
- Any proposed drainage system shall be designed to protect road pavements.
- The stormwater drainage system shall be designed to facilitate maintenance of footpath and road reserve areas.
- Roof and surface water not reused on each lot is to be discharged into the lake system in a controlled manner.
- All stormwater being discharged into the lake system is to be free of harmful pollutants, contaminants, grass litter and biodegradable matter.
- The stormwater system shall be designed and constructed in accordance with the requirements of the Engineering Works requirements in Appendix F3 – Submission Requirements of this DCP and the accompanying guidelines.

7) Earthworks

- a) All earthworks shall be undertaken in accordance with the NSW Government's "*Managing Urban Stormwater: Soils and Construction Manual*" (Volume 2A, January 2008) and shall minimise the potential for soil loss and pollution.
- b) Full details of soil erosion and sediment control measures shall be submitted with all subdivision or development applications which will involve soil disturbance.

8) Contaminated Land

- a) Geotechnique Pty Ltd. undertook a Preliminary Environmental Site Assessment in February 1999. The assessment involved:
 - i) A desktop study of all available information from the NSW Environmental Protection Authority, Lands Title Office and Land Information Centre;
 - ii) Review of soils and geological maps; and
 - iii) Site reconnaissance to identify the presence of potential contaminants.

The report concluded that the site should be suitable for the proposed development, subject to further contamination investigation and subsequent remediation, if required.

- b) A Stage 2 Environmental Site Assessment must be submitted to Council as part of any development application for bulk earthworks;
- c) Contaminated land must be remediated to an acceptable level prior to commencement of any earthworks in the affected area; and
- d) Remediation shall involve the treating and / or mitigating of the contaminants to the satisfaction of an EPA qualified auditor, and in accordance with Land Management section of this Plan).

9) Aboriginal Cultural Heritage

- a) A fully comprehensive archaeological survey of the subject land is to be undertaken to identify surface remains and areas of potential artefact bearing deposit.
- b) Archaeological and cultural sensitivity maps are to be prepared.
- c) A program of subsurface testing is to be undertaken in the areas of archaeological or cultural sensitivity or subsurface potential to determine the presence or absence of sites and their archaeological or cultural significance.
- d) If any sites are found, an Aboriginal Cultural Heritage Management Plan may be required.
- e) If an Aboriginal Cultural Heritage Management Plan is required, that plan must be submitted prior to commencement of construction of the lake system. Should it be deemed that any aspect of that construction will compromise any aboriginal cultural material, prior consultation with the National Parks and Wildlife Service and the Deerubbin Local Aboriginal Land Council (DLALC) is required.

- f) Proposed earthworks shall be assessed by members of the DLALC. Onsite monitoring by the DLALC during excavation in the vicinity of identified or potentially significant sites may be required.
- g) All Aboriginal cultural heritage assessment and archaeological investigation should be conducted in consultation with the DLALC.

3.2.2.2 Urban Design

A. Objectives

General Objectives

- a) To recognise the unique setting of the site, and to express Penrith's role as a regional city, in the development of essential design elements for buildings within the estate.
- b) To protect the environmental heritage of the area, whether it is of historic, aesthetic, architectural, archaeological, natural, cultural, Aboriginal or other significance.

Design Elements Objectives

- a) To encourage development which satisfies principles of Environmentally Sustainable Development.
- b) To enhance views through and across the subject land to Penrith Lakes, the Nepean River and the Blue Mountains.
- c) To achieve a range of housing forms and densities.
- d) To provide opportunities for visitor accommodation,
- e) To provide a level of development that complements and enhances the waterways system.
- f) To maintain adequate building envelopes to achieve appropriate levels of scale consistent with landscaping, the desired streetscape, and the desired future amenity.

External Materials and Finishes Objectives

- a) To ensure that external materials and finishes complement the landscaping and urban design of the development.
- b) To enhance the streetscape and roofscape through the use of a diverse range of materials and finishes.
- c) To encourage the use of high quality external materials and finishes.

Energy Efficiency Objective

- a) To promote energy efficient development and minimise the need for artificial lighting, heating or cooling.

Site and Building Works Objectives

- a) To ensure that development meets sound environmental planning practices and standards.
- b) To provide a satisfactory and appropriate level of landscaping.
- c) To ensure that the design and establishment of development, community facilities, open space and waterways is undertaken in an integrated fashion.
- d) To encourage the most effective, orderly and economic provision of service infrastructure for the area.
- e) To ensure that site facilities are effectively integrated into the development, and that they are contemporary, practical, attractive and easily maintained.

Advertising Objectives

- a) To prevent the proliferation of advertising signs.
- b) To allow signage and advertising which is complementary to the R1 General Residential built form, and does not detract from a high quality urban environment.

B. Specific Objectives for the R1 General Residential zone

- a) To provide a suitable interface between R1 General Residential and the E2 Environmental Conservation zones.
- b) To encourage the use of the open space areas by providing an interconnected pathway system through the entire estate.

Residential Diversity

- a) To deliver a broad range of dwelling types that have high levels of amenity and good access to on-site open space areas and facilities.

Building Envelopes

- a) To maintain views of Penrith Lakes, the Nepean River and the Blue Mountains for the residents of Cranebrook.
- b) To provide a variety of facades and external appearances, to create a distinctive image for the estate.

External Materials and Finishes Objectives

- a) To maximise the use of recycled materials, or components in which recycled materials have been used.

Privacy

- a) To ensure visual privacy between dwellings.
- b) To avoid overlooking of living spaces in buildings and private open spaces.

Energy Efficiency

- a) To minimise the need for artificial lighting, heating or cooling.
- b) To ensure reasonable access to sunlight for living spaces within buildings and open spaces around buildings.
- c) To encourage the siting, design and construction of dwellings that will receive the maximum benefit from solar energy and provide for energy conservation measures.
- d) To allow for active solar energy devices such as domestic water heaters and / or use of solar energy for all household power requirements,

Fencing

- a) To ensure fencing complements development style.
- b) To ensure fencing does not contribute to problems relating to safety and overlooking.

B. Controls

1) Design Elements

- a) The design and appearance of each building and/or development, particularly when viewed from the waterways, other public places and Cranebrook must be of a high standard which meets the design requirements of the section.
- b) The design of each building and/or development must satisfy ecologically sustainable design principles.
- c) An integrated design for lighting and signage is to be implemented throughout the estate.
- d) The wetlands at the northern end of the estate shall not be adversely affected by any development.

2) External Materials and Finishes

- a) The external finishes of all development are to be:
 - i) Durable, high quality, low maintenance materials.
 - ii) Compatible with the overall design and form of the estate.
 - iii) Considered in association with proposed planting and landscape treatment; and
 - iv) Considered in the context of their ability to mitigate acoustic impact.
- b) Roof materials shall not be highly glazed or reflective.
- c) Large areas of reflective materials will not be accepted.
- d) Fencing must integrate with the built form and landscape character, with a continuity and consistency to its design (form, material and colour).

3) Energy Efficiency

- a) Winter solar penetration should be maximised and summer solar penetration minimised.
- b) Natural ventilation opportunities should be maximised.

4) Site and Building Works

- a) All buildings on the site shall be designed and built such that their structural integrity can withstand flood flows generated by a flood equivalent to the Nepean River 'Flood of Record'- equating to the 0.5% AEP Flood Event. Damage potential is to be determined considering flood duration, flood depth and flow velocity such that buildings do not sustain structural damage or loss of load bearing capacity following immersion. Council will be guided by reference to available documentation provided in the 'Nepean Floodplain Management Strategy' in its determination as to whether flood compatible building design and material selection have been adequately considered. Appropriate modelling and mapping is to be undertaken to determine those areas of the site which when fully developed would present development characteristics where special flood compatible building design is required.
- b) All lots should have their finished surface at least 500mm above the 1% AEP flood level generated by local catchment or Nepean River flood flows, which ever generates the higher flood levels.
- c) Where finished ground levels are not 0.5m above the 1% AEP flood event level, dwellings shall be constructed with habitable floor levels a minimum of 0.5m above the flood level.
- d) Water quality, downstream of any proposed development, shall be improved and maintained throughout any construction and/or development works.
- e) Stormwater on each lot shall be captured and stored, where feasible, for future use in landscape maintenance.
- f) Recycling of stormwater for garden irrigation shall be implemented by the provision of on-site stormwater detention to standards specified by Council.
- g) Finished surface and ground levels shall fall to property boundaries and along roads to achieve adequate drainage.
- h) Soil erosion and sediment control measures shall be in accordance with the NSW Governments' *"Managing Urban Stormwater: Soils and Construction Manual 2004"* (Landcom, 2004). Details shall be submitted to Council with each development application.

5) Site Facilities

- a) Waste and recycling facilities are to be provided in accordance with the Waste Management Section of this Plan.
- b) A Waste Management Plan is required to be submitted with any development application for demolition, construction and or use of residential, commercial and industrial development.

6) Advertising

- a) All advertising is to comply with the advertising and signage requirements of this plan and be:
 - i) Constructed of high quality durable materials;
 - ii) Considered in conjunction with the design and construction of buildings; and
 - iii) Contained wholly within the site.
- b) Hoardings may be displayed during construction, subject to Council's approval, and must be removed upon completion of the relevant building/s.
- c) Real Estate signs may be displayed during periods of sale, providing the signs are located within the relevant property boundaries, and not located on footpaths and other pedestrian areas.
- d) The Community Association shall be responsible for the cleaning of any graffiti that occurs within the estate.

7) Residential Densities

- a) Development shall establish a range of housing densities and forms across the estate:
- b) Subdivision may be in the form of 'A' type lots, 'B' type lots, 'C' type lots, 'D' type lots and 'E' type lots (Refer to the Residential Development part of this Section).
- c) A mix of housing lots and types shall be generally consistent with the residential densities and lot layout shown in Figure E3.8: Residential Densities; and
 - i) The notional yield for each of the 'dwelling types' are outlined in Table E3.4 General Residential Design Elements.
- d) The location of the 'dwelling types' shall comply with the requirements of the section except where it can be demonstrated that:
 - i) the overall density of the proposed development parcel will still be achieved, and
 - ii) the proposed densities, range of lot sizes, and built form/designs still achieve the aims, objectives and requirements of the section.

8) Streetscape and Amenity

- a) A mixture of housing designs shall be provided, to create attractive and varied streetscapes.
- b) Dwellings adjoining pathways and access ways should be designed, through placement of living spaces and windows, in such a way that the public areas can be observed from the dwellings. This is to increase security and to encourage a sense of ownership by the occupants.
- c) Buildings, materials and fencing should be articulated and designed to integrate pathways and access ways. This is intended to increase security and create a sense of ownership.

- d) Dwellings adjoining public open spaces, pathways and waterways shall be provided with outdoor spaces in which privacy can be ensured without obstructing the important public views.
- e) The streetscape, dwelling designs and site layouts should generally reflect the indicative concept site plans in Section 3.2.2.6.1 Dwelling Types.

Table E3.4: R1 General Residential Design Elements

Design Elements	'A' Type Dwellings	'B' Type Dwellings	'C' Type Dwellings	'D' Type Dwellings	'E' Type Dwellings
% of notional yield	34%	38%	7%	5%	16%

Note: Percentages based on yield, not developable area.

Figure E3.8: Residential Densities



9) Building Envelopes

- a) Variations in setbacks and building heights may be considered where they will not compromise the objectives of this section, and will contribute to a varied and attractive streetscape.
- b) Any changes in scale of 'D' type dwellings, adjacent to lower density residential housing, should reflect the change in both detailing and mass.

- c) Design and built form of 'D' Type dwellings are to be considered in accordance with relevant principles of *State Environmental Planning Policy 65 – Design Quality of Residential Flat Development*.
- d) 'E' type dwellings are to be designed to be groups of interconnecting dwellings made up of approximately 7 to 11 dwellings.
- e) Each group of 'E' type dwellings are collectively not to have site coverage of more than 60% of the total site area.
- f) Parking under buildings shall be considered to be a storey if it is more than 1.5m above finished ground level.
- g) Projections permitted into the setback areas include eaves, sun hoods, gutters, down pipes, flues, light fittings, electricity or gas meters. Any of these elements may project a maximum of 1.0m.

10) External Materials and Finishes

- a) Material selection must take into account the life cycle effect of their manufacture, use and disposal to minimise the effect on the environment. The following environmental factors shall be considered in such analysis:
 - i) environmental impact throughout their life cycle;
 - ii) energy use throughout their life cycle;
 - iii) carbon dioxide emission during manufacture, use and disposal;
 - iv) toxicity content and toxin production during manufacture, use and disposal;
 - v) reactive organic compound content;
 - vi) rare and non-renewable material content;
 - vii) potential for re-use or recycling;
 - viii) re-use or recycled material content;
 - ix) transport and distribution requirements;
 - x) thermal comfort;
 - xi) maintenance;
 - xii) durability; and
 - xiii) cost.
- b) No materials or construction techniques are to be used which may in some way leach or deposit pollutants into the ecological system of the lakes. A Construction Management Plan must be submitted to Council for approval prior to commencement of construction. The Construction Management Plan must address:
 - i) the type of the staging and timing of construction;

- ii) building materials used;
- iii) the measures to prevent any leaching or deposition of materials into the lake system;
- iv) the method of sorting waste for recycling, e.g. separation of metal, concrete and timber in individual containers prior to transportation from the site, and (v) control of stormwater runoff; and placement and storage of building related elements.

11) Privacy

- a) Visual privacy shall be achieved by:
 - i) using windows that are narrow, translucent or have distorted glass,
 - ii) ensuring windows do not face directly onto the windows, balconies or courtyards of adjoining dwellings, and
 - iii) screening opposing windows, balconies and courtyards.
- b) Windows, doors and balconies, particularly those above ground level, shall be designed or placed to minimize overlooking of neighbouring outdoor open spaces.

12) Energy Efficiency

- a) Any development or buildings for residential purposes shall:
 - i) Be designed to ensure that the northern facade of new dwellings, and 50% of their private and / or landscaped open space (including the main area), receive a minimum of 3 hours direct sunlight between the hours of 9am and 3pm on 21 June each year;
 - ii) Be designed and located to ensure that adjoining residential buildings and 50% of their private and / or landscaped open space (including the main area), receive a minimum of 3 hours direct sunlight between the hours of 9am and 3pm on 21 June each year;
 - iii) Include ceiling insulation to an equivalent thermal rating of at least R2.0 and wall insulation to an equivalent thermal rating of at least R1.5; and
 - iv) Include protection from the entry of summer sunlight by shading devices on external openings to habitable rooms.
- b) All dwellings shall be designed to achieve relevant BASIX requirements.

13) Site Facilities

- a) Outdoor clothes-drying areas for multiunit housing (other than for 'D' type dwellings) shall be provided in separate enclosures, to maximise security. These drying areas should be screened from the public view.
- b) A central reception aerial / master antenna shall be provided for any proposed development of more than two dwellings. Satellite dishes shall be screened from any public place. Details of any proposed aerial, antenna or dish shall be submitted with the development application.

- c) Dwellings are to be designed to accommodate home-based telecommunications facilities and information technologies, by allowing for:
 - i) Additional telephone lines and outlets;
 - ii) Additional electrical outlets; and
 - iii) Satellite or cable-based reception.

14) Fencing

- a) The type, style and design of the fencing must complement surrounding buildings and the landscape design.
- b) The following types of fencing are prohibited:
 - i) Colorbond; and
 - ii) Mesh wire fencing; and
 - iii) Chain link fencing.
- c) Fences bounding the edge of the lake system shall have a maximum height of 1.5m.
- d) Fences bounding pathways and access ways shall be no higher than 1.8m.
- e) Fencing and courtyard walls forward of the building line shall be a maximum of 1.2m, with exception of 'E' type dwellings.
- f) Side fences (to the rear of the building line) and rear fences shall not exceed 1.8m.

3.2.2.3 Acoustic Requirements

A. Objectives

General Objectives

- a) To ensure that development meets sound environmental planning practices and standards.
- b) To minimise any adverse impact, to residential development, of noise from traffic on adjacent roads and nearby industrial development.
- c) To ensure that the residential uses of this site do not restrict, by way of additional noise controls or requirements, future development or expansion of adjacent industrial activities.
- d) To ensure that the design of any acoustic measures contribute to the visual amenity of Waterside and are suitably integrated with the built form and landscaping of the site.

B. Specific Objectives for the R1 General Residential zone

- a) To facilitate residential development by requiring acoustic barriers along Castlereagh Road.
- b) To facilitate residential development by ensuring appropriate acoustic measures along Andrews Road.
- c) To require acoustic barriers that are aesthetically appealing.

Table E3.5: Acoustic Reports

Submission	Details
Acoustic Report with each Concept Plan	Proposed acoustic measures for the estate
Acoustic Report with each Development Application	Site-specific acoustic measures for each proposed development.
Certificate Of Compliance when the lake system and waterways have been completed.	Compliance required with outdoor noise criteria in residential areas.
Certificate Of Compliance when any relevant acoustic barrier/s or buildings have been completed.	Compliance required with outdoor noise criteria in affected areas prior to proceeding with residential development.
Certificate of Compliance prior to occupancy of each residential building.	Compliance required with internal noise criteria in affected areas.

B. Controls

1) Acoustic Requirements

- a) An acoustic report, prepared by an accredited acoustic consultant approved by Council, shall be submitted at each relevant stage of development, as specified in Table E3.5: Acoustic Requirements.
- b) A certificate of compliance, prepared by an accredited acoustic consultant approved by Council, shall be submitted at each relevant stage of development, as specified in Table E3.5: Acoustic Requirements.
- c) If Council considers that an acoustic report or certificate of compliance does not adequately address all relevant issues, or provide all relevant information, Council may require additional acoustic surveys to be undertaken or the submission of additional information.
- d) Noise attenuation measures along Andrews Road and Castlereagh Road shall be designed to be consistent with the landscape setting of the estate.
- e) Noise attenuation measures shall consist of a range of treatments such as (but not limited to) landscaped mounds, varied setbacks, appropriate building designs, acoustic treatments (such as double glazing) and acoustic barriers.

- f) Noise attenuation measures shall integrate with and complement the design and siting of the proposed residential development.
- g) Landscape planting in any acoustic measures shall comply with the Landscape Design section of this Plan.

2) Noise Measurement Criteria

- a) A minimum of 2 weeks' measurement of ambient noise levels, which provides a minimum of 150 valid data samples.
- b) A minimum of 1 week's measurement of traffic noise.
- c) A minimum of 2 weeks measurement of industrial noise, which provides a minimum of 150 valid data samples, for each of the specified time periods, being:
 - i) noon to 4.00pm (day time)
 - ii) midnight to 4.00am (night time).
- d) A minimum of 4 logger points, at the worst affected locations as specified by Council, within the Waterside site.
- e) A minimum of 2 logger points for control monitoring, at relevant locations specified by Council, outside the Waterside site (e.g. Graham Close and Echo Place).

3) Noise Prediction Criteria

- a) The acoustic report is to include, where relevant, predictions using a recognized calculation procedure, such as the Calculation of Road Traffic Noise (CORTN) or the FHWA method and the latest available annual average daily traffic volume figures supplied by the Roads and Maritime Services (RMS) or Council.
- b) The acoustic report is to recognise, where relevant, future traffic noise levels, given anticipated changes in usage.

4) Report & Certificate Information

- a) The following information, where relevant, shall be provided with each acoustic report or certificate:
 - i) Details of local topography, existing and proposed buildings, and exposed or shielded situations which may affect the results (*and any relevant allowances made*);
 - ii) Details of meteorological conditions during the periods of acoustic measurement;
 - iii) The measured noise levels for all noise sources in (2)(b), 2(c) and 2(d) above;
 - iv) The predicted traffic noise levels at specified locations, being the midpoint of each site boundary and, where relevant, 1m from the external facade walls of each floor of any building;
 - v) Details of outdoor noise levels relevant to the calculated interior noise levels for each building;

- vi) The sound insulation performance ratings of external facade walls in terms of individual components and composite construction (*test result data may be required*);
- vii) Plans and sections of the site detailing buildings, logger locations and other relevant details; and
- viii) A statement of opinion confirming compliance with the relevant acoustic criteria.

5) Acoustic Requirements – R1 General Residential zone

- a) Dwellings in the R1 General Residential zone shall not be occupied unless the indoor and outdoor noise levels comply with the provisions of the Waterside Clause in Penrith LEP 2010.
- b) Acoustic barriers shall be provided along the site's Castlereagh Road frontage. The acoustic barriers must be designed to achieve compliance with the provisions of the Waterside Clause in Penrith LEP 2010.
- c) The acoustic barriers may comprise a combination of earth mounding, timber, steel, bricks, concrete and transparent acrylic and may be integrated with residential development such as in the case of 'E' type dwellings.
- d) Dense landscaping shall be provided between the acoustic barriers and Castlereagh Road to maintain aesthetic appeal.
- e) Where the 'Building Interior Noise Criteria' outlined in the LEP are exceeded, after construction of the acoustic barrier along Castlereagh Road, additional sound-rated glazing for affected rooms may be required.
- f) An acoustic report, prepared by an accredited acoustic consultant approved by Council, shall be submitted with any development application for a dwelling, which verifies compliance with the relevant provisions of the Waterside Clause in Penrith LEP 2010.

3.2.2.4 Landscape Planting and Open Space

A. General Objectives

- a) To ensure that development meets sound environmental planning practices and standards.
- b) To enhance the landscape character of the area.
- c) To enhance the views through and across the subject land to Penrith Lakes, the Nepean River and the Blue Mountains.
- d) To ensure that the design and establishment of development, community facilities, open space and waterways is undertaken in an integrated fashion.
- e) To provide open spaces which are safe and inviting to use.
- f) To encourage the most effective, orderly and economic provision of service infrastructure for the area.

- g) To preserve the natural landscape where feasible and provide habitat for native fauna.
- h) To encourage planting of species appropriate to both the development and the locality.
- i) To retain significant trees wherever possible.
- j) To provide landscaping which screens and softens building mass and roof form, particularly when viewed from surrounding areas.
- k) To encourage the grouping of landscaped areas between adjoining development to consolidate open space areas and allow a greater density of tree planting.
- l) To encourage landscaping that is suitably integrated with acoustic treatment, particularly along the boundaries of the site.

B. Specific Objectives for the R1 General Industrial zone

Tree Preservation

- a) To preserve the natural landscape where feasible, and provide habitat for native fauna.

Landscaping

- a) To embellish the site through quality landscaping.
- b) To encourage the planting of species consistent with the overall estate development and surrounding locality.

Planting

- a) To encourage the planting of species consistent with the overall estate development and surrounding locality.
- b) To encourage the planting of trees that when mature are similar in scale to the specific developments.
- c) To provide screening where required and to 'soften' building masses through appropriate tree planting layout and species selection.
- d) To encourage the grouping of landscaped areas between adjoining developments to consolidate open space areas that allow a greater density of tree planting.

Landscaped Open Space

- a) To ensure that adequate landscaped open space is provided for residential development, and

Private Open Space

- a) To ensure that adequate private open space is provided for residential development.

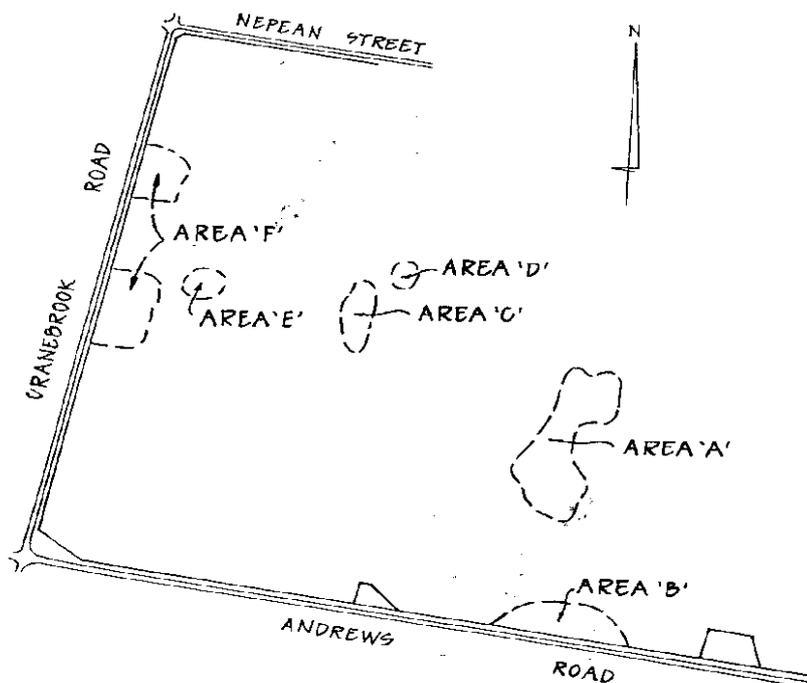
B. Controls

1) Design Elements

- a) Design of open space areas and buildings shall enhance existing views and create opportunities for additional views within and through Waterside.
- b) Dwellings shall face towards streets, open spaces, footpaths and cycleways to provide for visual surveillance of public spaces.
- c) A minimum 40m separation shall be provided between dwellings and/or other buildings on opposite edges of a lake or lateral waterway.
- d) Existing trees are to be preserved when possible, and supplemented by additional landscape planting.
- e) Pedestrian pathways and cycleways shall be linked to provide a safe, integrated and continuous pedestrian/cycle network around the lake system and within the development.
- f) Pathways must not be fenced from view, except where they are short straight paths between properties, with both ends visually open.
- g) Evergreen and flowering hedges are encouraged as a strong visual component of all streetscapes.
- h) Super-advanced tree planting shall be planted along all roadways, and fast-growing species are encouraged.
- i) Large canopy native trees which are common to this region, including those species currently present, shall be planted along the major roads and throughout the open space areas and shall consist of species such as:
 - i) *Casuarina cunninghamiana*
 - ii) *Casuarina glauca*
 - iii) *Eucalyptus amplifolia*
 - iv) *Eucalyptus moluccana*
 - v) *Eucalyptus tereticornis*
 - vi) *Melaleuca linariifolia*
 - vii) *Schinus areira*
- j) Planting along avenues, and feature planting in the open space areas shall consist of species such as:
 - i) *Acer negundo*
 - ii) *Celtis australi*
 - iii) *Gleditsia 'sunburst'*

- iv) Lagerstroemia indica
 - v) Populus deltoids
 - vi) Populus yunnanensis
- k) Landscape planting in shareways and access ways shall consist of small scale plantings such as:
- i) Callistemon citrinus
 - ii) Callistemon viminalis
 - iii) Camellia sasanqua
 - iv) Lagerstroemia indica
 - v) Magnolia grandiflora
 - vi) Melaleuca linarifolia
 - vii) Melaleuca styphelioides
 - viii) Robinia psuedoacacia "Frisia"
- l) Water edge treatment is subject to Council being satisfied that public safety and maintenance have been adequately addressed.

Figure E3.9 - Existing vegetation on site (Plan courtesy of Bowdens Group)



2) Tree Preservation

- a) The 7 factors in Section 5A of the *Environmental Planning and Assessment Act 1979* must be taken in account and be addressed in any development application that may impact on vegetation within mapped 'Area A' in Figure E3.9 Existing vegetation on site.
- b) A rehabilitation and management plan shall be prepared for the stand of trees mapped as Area A, which includes a requirement for the removal of the weeds that currently exist on the site, and to ensure its future use as a public reserve. A planting regime will be required in conjunction with a management regime to suppress further weed growth.
- c) Care should be taken to ensure that the Grey Box E. *Moluccana* is not affected or impacted upon by altering the existing hydrological processes in the course of earthworks or any other works.

3) Landscaping

- a) Plant species shall generally be chosen from the suggested species list provided in Table E3.6: Suggested Species List.
- b) The Castlereagh Road, Nepean Street and Laycock Street frontages are to be densely planted between the boundary alignment and the carriageway.
- c) Sydney Water and Integral Energy are to be consulted with regard to the location of landscape planting along Castlereagh Road, to prevent any conflict with service provision.
- d) No imported topsoil is to be used. All existing topsoil must be stockpiled and rehabilitated on the site.

4) Planting

- a) Landscape planting and built elements shall be used to provide internal privacy without obstructing views from dwellings.
- b) Property owners are encouraged to plant species from the suggested species list provided in Table E3.6: Suggested Species List in this Section.
- c) The planting of *Typha orientalis - Cumbungi* is prohibited due to the adverse impact that species has on waterway systems.
- d) 2m wide landscaped areas are to be provided between car parking aisles.
- e) In car parking areas, trees should be planted every 10 spaces in defined planting nibs a minimum of 2m wide.

5) Landscaped Open Space

- a) The following minimum landscaped open space requirements apply for each dwelling type:
 - i) A' type dwellings 50% of site area

- ii) B' type dwellings 40% of site area
 - iii) C' type dwellings 35% of site area
 - iv) D' type dwellings 35% of site area
 - v) E' type dwellings 20% of site area
- b) Any landscaped area having a dimension less than 2.0m shall not be included in the calculation of landscaped open space for A, B and C Type dwellings only.
 - c) Private open space is included in the calculation of landscaped open space.
 - d) Notwithstanding Control 5(a), where single story dwellings are proposed, the minimum landscaped open space requirements are as follows for A and B Type dwellings:
 - i) A' type dwellings 50% of site area (where allotments are >550m²)
 - ii) A' type dwellings 40% of site area (where allotments are 450-550m²)
 - iii) B' type dwellings 30% of site area

6) Private Open Space

- a) An area of usable private open space, at ground level as a garden or courtyard, or as a balcony, shall be provided for each dwelling
- b) 'A' 'B' 'C' and 'E' type dwellings are to have a minimum of 20% of the lot area allocated as private open space which is to include:
 - i) A principal area of 24m² with a minimum dimension of 4m, directly accessible from a major living area of the dwelling; and
 - ii) At least 65% of the private open space is to be unroofed soft landscaping excluding swimming pools and outdoor rooms.
- c) Upper storey 'E' type dwellings are to have a minimum of 20% of the lot area allocated as private open space which is to include a principal area of 24m² with a minimum dimension of 4m, directly accessible from a major living area of the dwelling.
- d) Private Open space for 'D' type dwellings is to be determined by design.
- e) The principal area of private open space shall be located to:
 - i) have direct access from the living room(s),
 - ii) to receive at least 3 hours of sunlight between 9am – 3pm on June 21 each year,
 - iii) maximise privacy for the residents and neighbours, and
 - iv) minimise overshadowing from adjoining properties.
- f) Private open space can be made up of more than 1 courtyard provided that 1 area has a minimum area of 24m² and a minimum width of 4.0m.

- g) Where the siting and location of 'D' type dwellings prevents adequate solar access to private open space, an alternative building design providing private open space in the form of roof terraces, may be considered.

Table E3.6 - Suggested Species List

Native Trees	
Angophora floribunda	Rough-barked Apple
Casuarina cunninghamiana	River Oak
Casuarina glauca	Swamp Oak
Eucalyptus amplifolia	Cabbage Gum
Eucalyptus crebra	Narrow-leaved Ironbark
Eucalyptus elata	Peppermint
Eucalyptus globoidea	White Stringybark
Eucalyptus maculata	Spotted Gum
Eucalyptus moluccana	Grey Box
Eucalyptus sideroxylon	Pink Flowered Iron Bark
Eucalyptus tereticornus	Forest Red Gum
Ficus hillii	Hills Weeping Fig
Lophostemon confertus	Brush Box
Melaleuca decora	Paperbark
Melaleuca linariifolia	Snow in Summer
Melaleuca quinquenervia	Broad-leaved Paperbark
Melaleuca styphelioides	Prickly-leaved Paperbark
Tristaniopsis laurina	Water Gum
Native Shrubs	
Acacia implexa	Hickory
Acacia decurrens	Sydney Green Wattle
Acacia parramattensis	Parramatta Green Wattle
Callistemon sp.	Bottle Brush
Daviesia ulicifolia	Gorse Bitter-pea

Dillwynia juniperina	Prickly Parrot-pea
Dodonaea viscosa purpurea	Hop Bush
Grevillea 'Honey Gem'	Grevillea
Indigofera australis	Native Indigo
Native Aquatic Plants	
Carex appressa	Tall Sedge
Cyperus gunnii	Spike
Elaeocharis acuta	Rush
Elaeocharis sphacelata	Common Rush
Juncus usitatus	Tassel Cord-rush
Resteo tetraphyllus	
Scirpus validus	
Exotic Street Trees	
Fraxinus oxycarpa	Claret Ash
Gleditsia "Sunburst"	Honey Locust
Lagerstroemia indica	Crepe Myrtle
Pistacia chinensis	Chinese Pistacia
Prunus sp	Cherry
Sapium sebiferum	Chinese Tallowood
Ulmus parvifolia	Chinese Elm
Zelkova serrata	Japanese Elm
Grasses and Accents	
Agrostis avenacea	Blown Grass
Cymbopogan refractus	Barbed Wire Grass
Carex appressa	Tussock Sedge
Cyperus exaltatus	Tall Flat-sedge
Cyperus polystachyos	

Dianella revoluta	Spreading Flax Lily
Danthonia sp	Wallaby Grass
Dichelachne micrantha	Short-hair Plume Grass
Echinopogon caespitosus	Tufted Hedgehog Grass
Eragrostis elongata	Lavender Grass
Gahnia sieberiana	Red-fruited Saw-sedge
Hermarthriz uncinata	Matgrass
Lomandra longifolia	Spiny-headed Mat-rush
Microlaena stipoides var stipoides	Weeping meadow Grass
Phragmites australis	Common Reed
Poa labillardieri Eskdale	Tussock Grass
Themeda australis	Kangaroo Grass

3.2.2.5 Roads and Car parking

A. Objectives

General Objectives

- a) To ensure the road network is designed and constructed to provide long term performance with minimal maintenance.
- b) To ensure that development meets sound environmental planning practices and standards.
- c) To ensure a safe and efficient internal road system, and a safe and secure environment for pedestrians and cyclists.
- d) To prevent direct vehicular access to or from any development from designated roads (Castlereagh Road).
- e) To ensure the provision of safe, convenient and attractive car parking areas throughout the estate for the use of residents and visitors.
- f) To encourage the most effective, orderly and economic provision of service infrastructure for the area.
- g) To provide distinct, functional and attractive entrances to the development.
- h) To avoid disruptions to through traffic travelling along Castlereagh and Andrews Roads.
- i) To clearly define road hierarchies through effective planting.

- j) To provide convenient and functional public transport routes.
- k) To ensure that adequate on-site parking is provided to meet the needs of each development.
- l) To ensure parking area layout enhances the function and appearance of the development.
- m) To screen parking areas from public view.
- n) To ensure that underground parking entrances and loading docks do not dominate building facades and do not detract from the streetscape.

Road Network Objectives

- a) To provide distinct, functional and attractive entrances to the site.
- b) To avoid disruptions to through traffic travelling on the main thoroughfares of Castlereagh Road and Andrews Road.
- c) To delineate road hierarchies through effective road planting.
- d) To provide convenient, safe and publicly accessible bicycle/pedestrian paths.
- e) To provide convenient and functional public transport routes.

On-Site Parking and Pedestrian Access Objectives

- a) To ensure each development provides adequate parking on site to accommodate all parking demands generated by the development.
- b) To encourage the development of a parking layout which enhances the function and appearance of the development.
- c) To ensure that garage doors and entrances to underground car parking areas do not dominate building facades and do not detract from the desired streetscape.
- d) To ensure safe and functional pedestrian movement.

B. Controls

1) Road Network and Design

- a) All roads shall be generally designed and constructed in accordance with the road widths outlined in the Transport, Access and Parking Section of this Plan and the Road Hierarchy shown at Figure E3.10 – Road Hierarchy.
- b) The significant entries to the estate shall be located generally in accordance with Figure E3.12: Key Design Elements (Waterside Residential).
- c) All roads into and within the estate shall be landscaped with super-advanced trees and plants.
- d) Roads within the estate shall be constructed above the 1% AEP flood level.

- e) Direct vehicular access from any designated road shall not be permitted, other than access for existing dwellings, or access via the defined entries to the estate.
- f) Access for developments, from Castlereagh Road or the 'Entry Avenue' off Laycock Street, shall only be permitted via an approved road. Individual driveways for site-specific developments will not be permitted.
- g) Roads within the estate shall be designed to minimise traffic speeds, maximise traffic and pedestrian safety and provide visual reinforcement for different functions by the use of a variety of surface materials and colours.
- h) Roundabouts shall be constructed to specifications, and at locations, to be determined by Council. Specifically roundabouts or similar control mechanisms will be required at the intersections of:
 - i) McCarthy's Lane and Castlereagh Road.
 - ii) Andrews Road and Laycock Street.
- i) All roads are to be sign posted at their design speed.
- j) On completion of the Laycock Street extension, Nepean Street shall be closed and rehabilitated.
- k) Bus bays/shelters are to be provided to specifications, and at locations, to be determined by Council.
- l) The bus shelters must be constructed from high quality materials and designed to complement the surrounding streetscape.
- m) Traffic calming devices shall be provided to specifications, and at locations, to be determined by Council.
- n) An evacuation plan for the residents and visitors of the estate shall be developed in conjunction with the State Emergency Service. Details of this plan shall be submitted to Council prior to occupation of any residential development.

2) Pedestrian / Cycleway Network

- a) Publicly accessible bicycle / pedestrian paths are to be provided in the locations shown on the map at Figure E3.11: Land Accessible to the Public.
- b) A physical barrier and median strip refuge must be provided where the bicycle / pedestrian paths intersect with a roadway.
- c) Parking areas are to be designed to minimise vehicular / pedestrian conflict. A pedestrian pathway connection between the car parking areas and the building access points shall be provided.

Figure E3.10 – Road Hierarchy

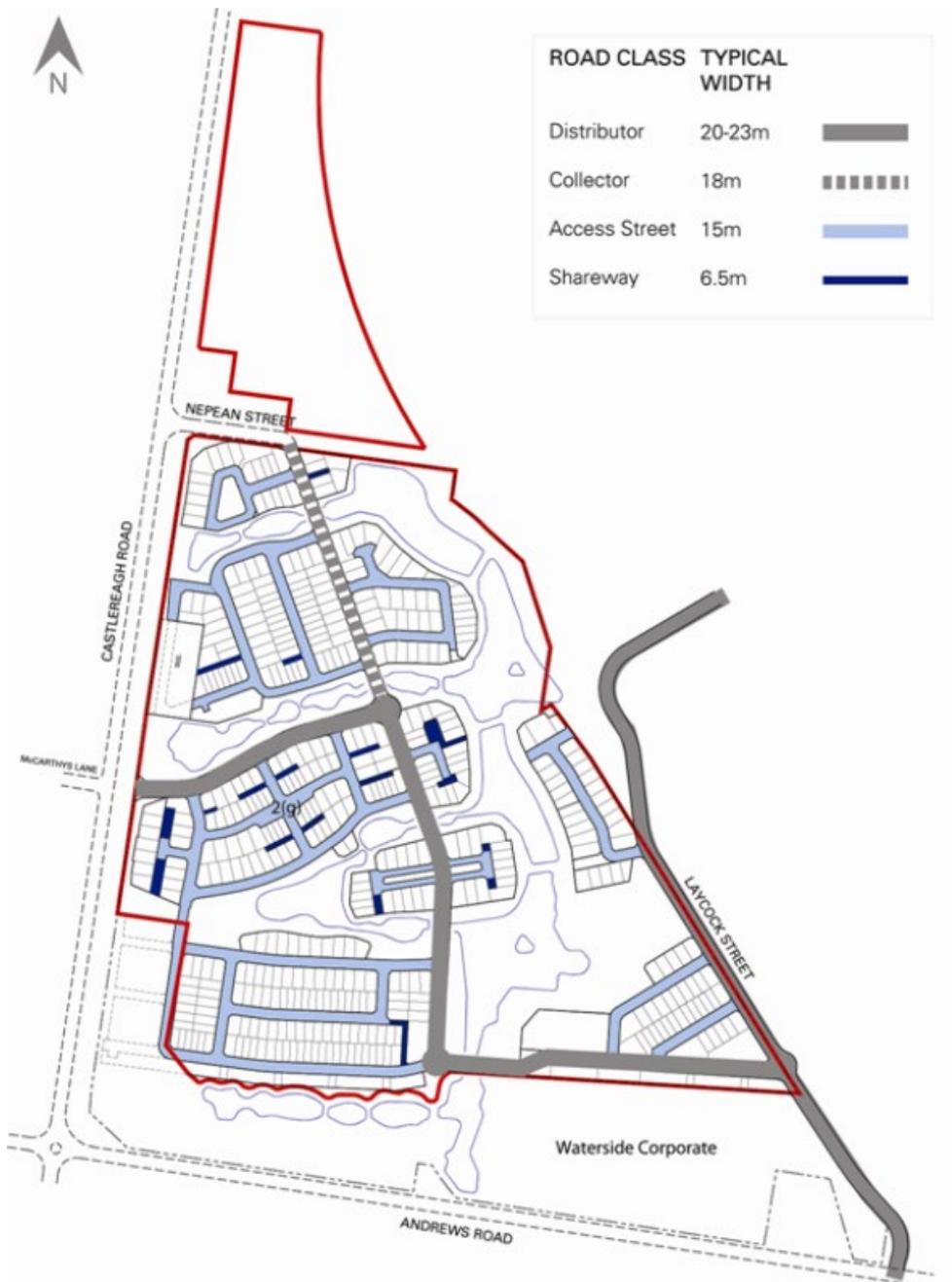


Figure E3.11 – Land Accessible to the Public



3) Garage Requirements

- a) Garages must not dominate the streetscape.
- b) Where an access way is provided to a lot, garages are to be at the rear of the site.
- c) Where there are no access ways, garages should be carefully integrated with the built form of the dwelling.
- d) Garages facing rear access ways should be positioned to create a private open space for the dwelling while allowing for views from the dwelling to the access way.
- e) To maintain access way security, habitable rooms over garages are encouraged.

Figure E3.12: Key Design Elements (Waterside Residential)



3.2.2.6 Residential Development

This Part provides more detail objectives and performance criteria for a variety of typical development forms.

A. Objectives

Residential development in Waterside shall be designed to:

- a) Provide specific controls for residential development in Waterside.
- b) Be compatible in scale with the mass and character of adjacent building types.
- c) To ensure development is appropriately scaled to suit the dwelling's local context.

3.2.2.6.1 Dwelling Types

The dwelling types which reflect the controls in the next section are described as follows:

'A' type Dwelling – Custom House Lots

Lots 450m² or greater, sold as land upon which housing, constructed by any builder, may be constructed provided the design complies with this section and any adopted Design Guidelines. The house will generally be detached, in single or two storey form. Lot modules are *generally* a 15m or greater frontage and a 30m or greater depth.

Figure E3.13: Type 'A' Dwelling example

TYPE A DWELLING



'B' type Dwelling – Designer Lots

Lots 300m² or greater, but less than 450m², sold as land to the public, upon which, housing, constructed by one of only three pre-selected builders, using pre-approved designs (complying with this section and any adopted Design Guidelines) may only be constructed. The house may be either attached or detached, single, part single and part two storey (to avoid overshadowing of solar courts) or two storeys. Lot modules are *generally* 10m x 30m (with zero lot line) or 12.5m x 30m. Garages may be on the lot boundary.

Figure E4.14: Type 'B' dwelling example (1)

TYPE B DWELLING

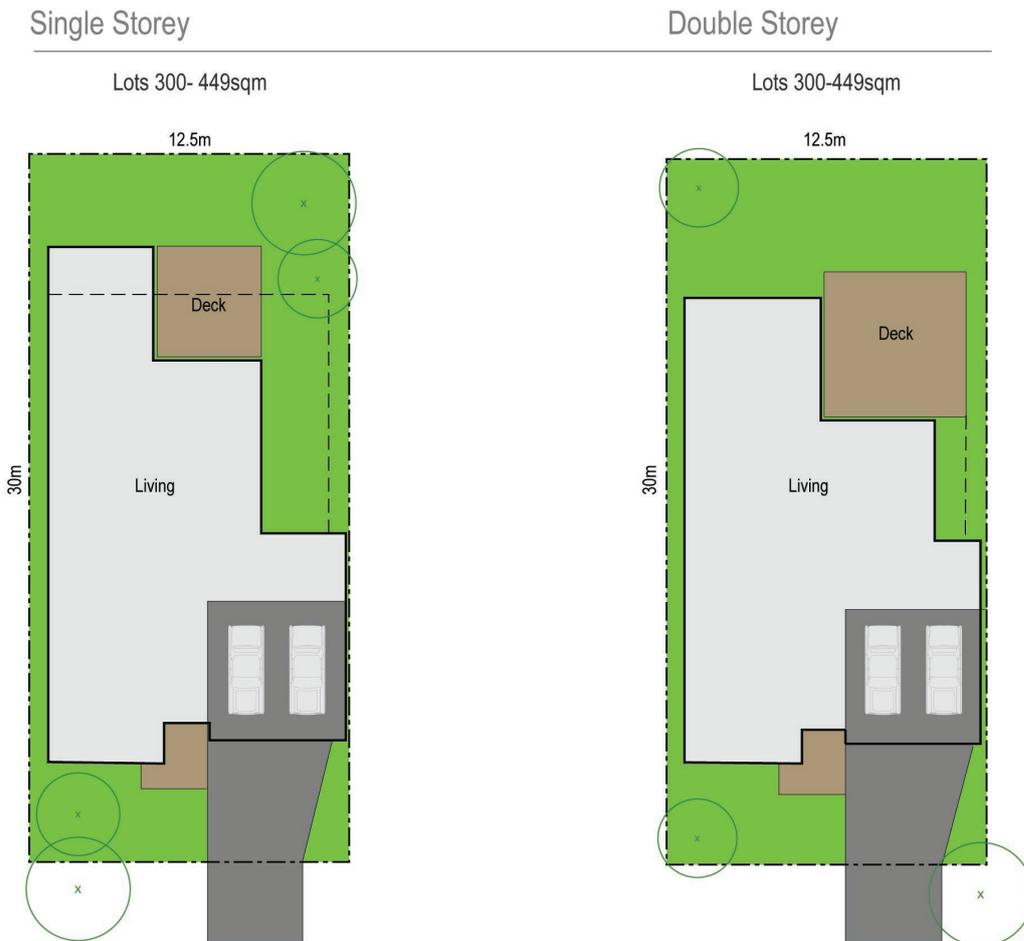
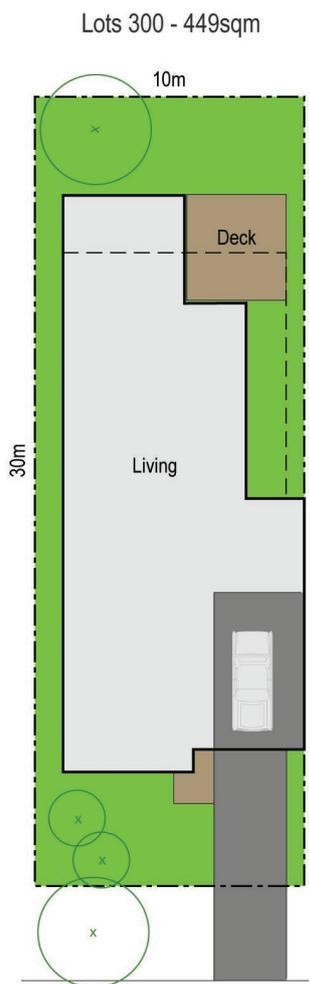


Figure E3.15: Type 'B' dwelling example (2)

TYPE B DWELLING

Single Storey



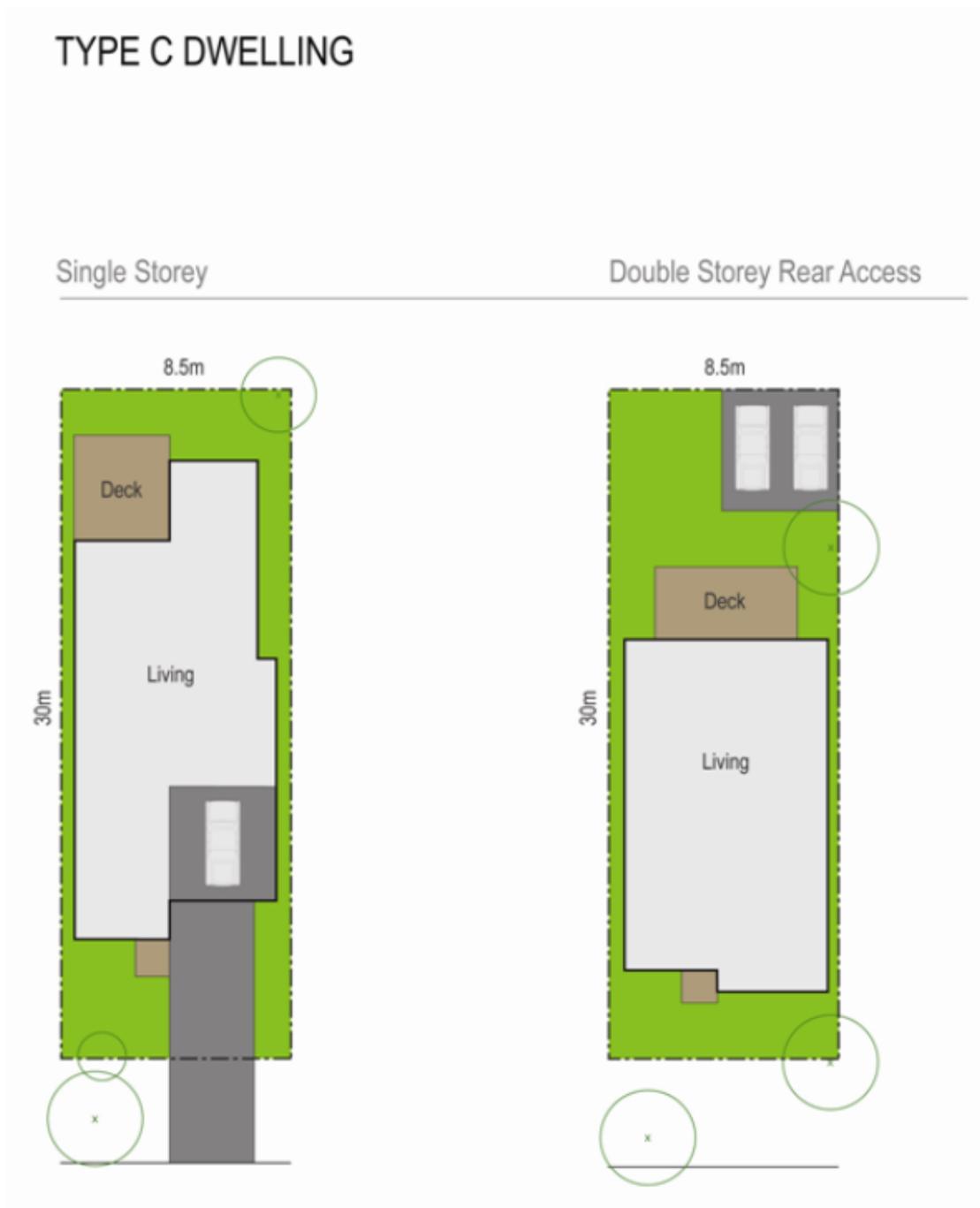
Double Storey



'C' type Dwelling – Terrace & Courtyard Lots

Lots 200m² or greater, but less than 300m², which have had the final house design submitted and approved at the subdivision stage. The house will be either attached (i.e. one of two terraces) or detached on a zero lot line with a courtyard.

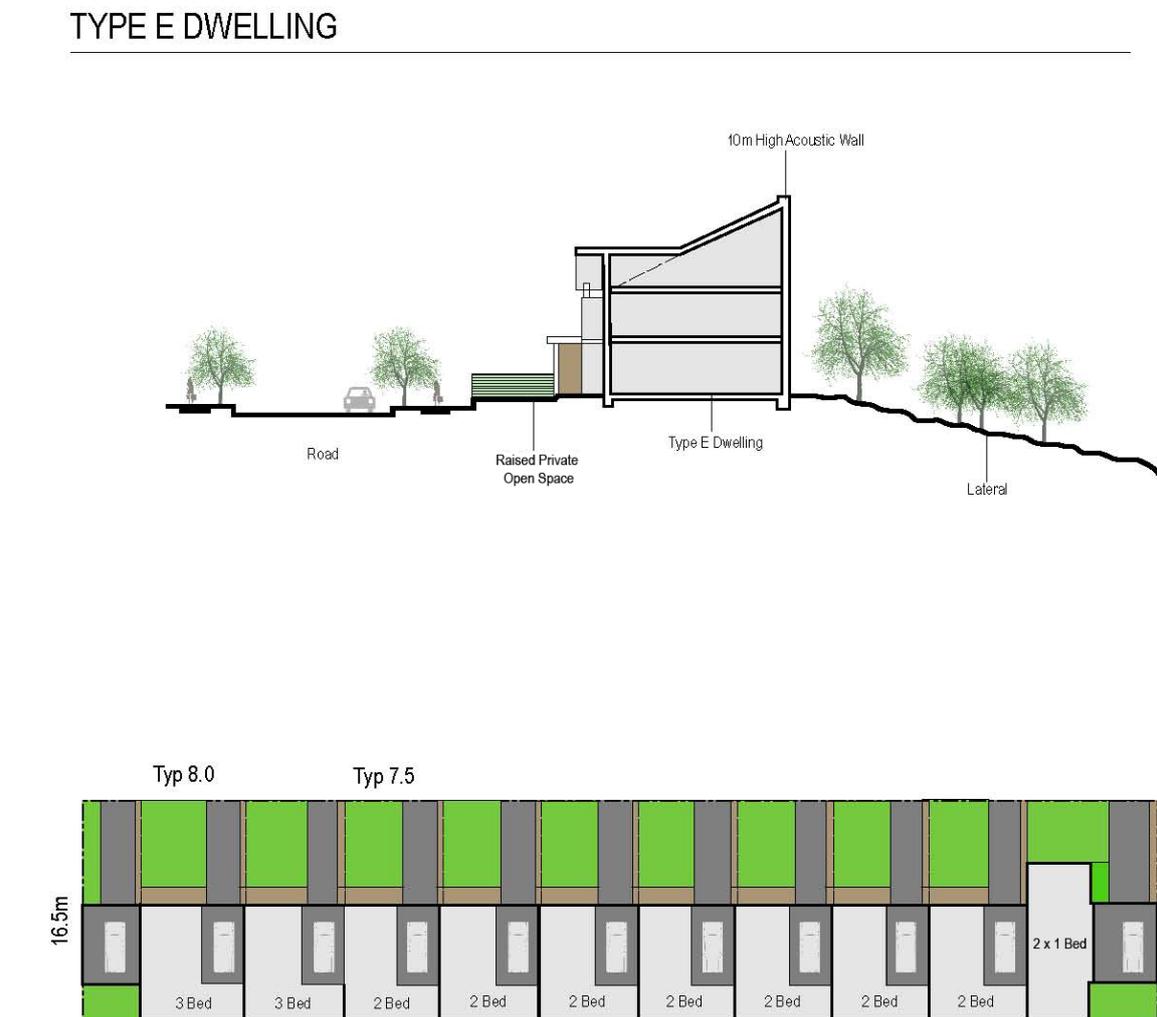
Figure E3.16: Type 'C' dwelling example



‘D’ type Dwelling means three (3) storey multi-unit housing.

‘E’ type Dwelling - these dwellings are designed to provide acoustic attenuation for parts of the R1 General Residential zoned land to ensure compliance with the Waterside Clause of Penrith LEP 2010. They are to be constructed as interconnected terraces comprising of two to three storeys with single garages. Each dwelling is to be integrated into the design of an acoustic wall, which will form the rear wall of the dwellings and will not have any openings. A principle private open space area for each dwelling is to be located to the front of the dwelling, which is to be sufficiently separated from the adjacent street and ensures adequate privacy for occupants. These dwellings may be Torrens or Strata titled.

Figure E3.17: Type ‘E’ dwelling example



3.2.2.6.2 Residential Development Controls

Design Element	'A' Type Dwellings	'B' Type Dwellings	'C' Type Dwellings	'D' Type Dwellings	'E' Type Dwellings
Height (max)	2 storeys	2 Storeys	2 Storeys	3 Storeys	3 Storeys
Front Setback (min)	4.5m	4.5m	3.5m	4.5m setback or see State Government's "Residential Flat Design Code" for guidance	4.5m
Front setback – Porches and verandahs (min)	3m	3m	2.5m		2.5m
Side Setbacks (min)	0.9m	0m on one side, single storey only	0m on one side, single storey only	Refer to State Government's "Residential Flat Design Code" for guidance	0m on both sides
	2.5m to secondary street for corner lots	0.9m alternate side and for upper floor	0.9m alternate side and for upper floor		2.5m to secondary street for corner lots
		2.5m to secondary street for corner lots	2.5m to secondary street for corner lots		
Rear Setbacks (min)	4m for single storey	4m for single storey	4m for single storey	Refer to State Government's "Residential Flat Design Code" for guidance	0m
	6m for upper floor	6m for upper floors (2m incursion for 20%)	6m for upper floors (2m incursion for 20%)		
		0m for rear garage	0m for rear garage		
Landscaped Open Space Area (min)	50% of site area	40% of site area	30% of site area	35% of site area	20% of site area
Landscaped Open Space – Single Storey Dwellings (min)	40% of site area where lot is < 550m ²	30% of site area	30% of site area	N/A	N/A

Design Element	'A' Type Dwellings	'B' Type Dwellings	'C' Type Dwellings	'D' Type Dwellings	'E' Type Dwellings
Private Open Space Area (min)	20% of lot area	20% of lot area	20% of lot area	Refer to State Government's <i>"Residential Flat Design Code"</i> for guidance	20% of lot area, or an area of 24m ² for upper floor dwellings