DCP No.

Quality Housing Development Control Plan

Date of commencement:



DCP No. **100**

Quality Housing Development Control Plan

OBJECTIVES

- To identify Council's requirements for design and construction of dwelling houses and ancillary development;
- To establish the quality elements for dwelling houses and ancillary development in Wyong Shire; and
- To facilitate the development of energy and water efficient sustainable housing.

This Development Control Plan (DCP) may be amended from time to time by Council. Proposed amendments are required to be advertised and exhibited in draft form and any submissions received must be considered by Council before the amended plan is adopted. People using this DCP should ensure that they have the current copy of the plan, including any amendments. If in doubt, please check with Council's Customer Service Centre.

Adopted as per council resolution Dated:	
Effective:	
Certified in accordance with the	General
Environmental Planning and Assessment	Manager:
Act 1979 and Regulations	
	Dated:

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1.0 ADVISORY INFORMATION

1.1 What is this Development Control Plan called?

This Development Control Plan is called "Development Control Plan No. 100 - Quality Housing" and may be abbreviated to "DCP 100"

1.2 Where does this DCP apply?

This Development Control Plan applies to the whole of Wyong Shire.

1.3 What is the purpose of this DCP?

The purpose of this Development Control Plan is to provide Council's requirements for the development of:

- dwelling houses;
- additions to dwelling houses; and
- outbuildings.

It provides requirements that apply to development approved through both the Development Application and Complying Development Application processes unless the DCP specifies that a control relates to only one of these two processes.

1.4 What are the aims of this DCP?

The aims of this Development Control Plan are:

- to identify Council's requirements for design and construction of dwelling houses and ancillary development;
- to establish the quality elements for dwelling houses and ancillary development in Wyong Shire; and
- to facilitate the development of energy and water efficient sustainable housing.

For the purposes of this DCP "quality" is the distinguishing feature(s) or characteristic(s) of housing that can be attributed to acceptable quality given the:

- o social
- o environmental and
- o market/economic

setting of Wyong Shire. In this regard, quality is focusing on the need to be more sustainable.

Sustainability requires us to better understand the systems that support what we do – and to recognise that our day-to-day activities can simultaneously affect our society, economy and environment. There is not a finite point at which sustainability can be achieved; rather it is a journey along a path towards a better future for us all.

As such it is expected that these features of "quality" can and will change over time as social settings change, environmental constraints become better known and in response to a changing market and economic factors.

1.5 What type of development does this DCP cover?

The Development Control Plan applies to any development for the purposes of a dwelling house, addition to a dwelling house or outbuildings.

5

1.6 How does this DCP relate to other DCPs?

This Development Control Plan has been prepared in accordance with Section 74C of the Environmental Planning and Assessment Act, 1979 (hereafter referred to as the Act) and relevant clauses of the Environmental Planning and Assessment Regulation 2000.

The Development Control Plan is generally consistent with the provisions of Wyong Local Environmental Plan 1991 as amended.

In circumstances where there may be any inconsistency between the requirements contained in this DCP and any other Council DCP, the provisions of this DCP shall apply.

1.7 What does this DCP contain?

This Development Control Plan contains five (5) sections being:

Section 1 - The ADVISORY Section provides information on preparation of this DCP.

Section 2 - The APPLICATIONS Section identifies the requirements for making an application to Council to erect a dwelling house, carry out additions to an existing dwelling house or erect outbuildings.

Section 3 - The CONTROLS and GUIDELINES Section identifies the "outcomes" that Council is seeking for development regarding specific topics. It then lists Council "requirements" which must be met for quality housing before providing additional "guidelines" which Council recommends for quality housing development.

Section 4 - The REFERENCES include other sources of information that may be useful in achieving quality development.

Section 5 - The ATTACHMENTS include copies of relevant guidelines and Council policy.

1.8 How do I use this DCP?

Section 1- ADVISORY

Use this section to identify when and how this DCP applies. Remember that Council staff are always willing to help with information and advice.

Section 2 - APPLICATIONS

Use this section to identify Council's requirements for a Development Application or a Complying Development Certificate Application for a dwelling house, addition or outbuilding. This section should also be used to check an application before lodgement to ensure that all relevant information is compiled.

Section 3 - CONTROLS and GUIDELINES

Use this section to identify what Outcomes Council seeks to achieve for specific issues relating to dwelling house development (e.g. building materials, streetscape and energy efficiency).

- i. This section then identifies Council's specific Requirements that **must** be met in order to ensure that issue is addressed by quality development.
- ii. Finally, this section can be used to investigate Guidelines that **should** be met wherever possible for a quality dwelling house, addition or outbuilding.

Section 4 - REFERENCES

Use this section to obtain additional information and guidelines as to quality house designs.

6

Section 5 - ATTACHMENTS

Use this section to obtain detailed information on sustainability guidelines and Council's adopted building line setback policy.

1.9 Definitions used in this DCP

This Development Control Plan is structured to provide the majority of terms explained within the adjacent relevant text. However, some terms warrant a formal definition and are detailed hereunder.

Definitions used in and referred to in this Development Control Plan include:

"Accredited Assessor" means assessors who have been accredited by the Association of Building Sustainability Assessors (ABSA) to use energy rating tools, such as BASIX, NatHERS or AccuRate, to provide accurate and informed house energy ratings from design plans and specifications. Assessors operate under a Code of Practice, and are regulated by ABSA to help ensure the quality of their professional conduct.

Note: a list of Accredited Assessors can be obtained from ABSA.

"Accredited Certifier" means a person who is accredited by the Building Professionals Board (BPB) under section 109T of the Environmental Planning and Assessment Act 1979 (the Act) to issue construction, occupation, subdivision, strata, compliance and complying development certificates under the Environmental Planning and Assessment Act 1979, the Strata Schemes (Freehold Development) Act 1973 and the Strata Schemes (Leasehold Development) Act 1986. Accredited Certifiers also certify plans and inspect construction work in relation to the completion of those matters.

"BASIX affected building" means any building that contains one or more dwellings, but does not include a hotel or motel.

"BASIX affected development" means any of the following development that is not BASIX excluded development:

- development that involves the erection (but not the relocation) of a BASIX affected building,
- *ii* development that involves a change of building use by which a building becomes a BASIX affected building,
- *iii* development that involves the alteration, enlargement or extension of a BASIX affected building, where the estimated construction cost of the development is:
 - \$100,000 or more—in the case of development for which a development application or an application for a complying development certificate is made on or after 1 October 2006 and before 1 July 2007, or
 - \$50,000 or more—in the case of development for which a development application or an application for a complying development certificate is made on or after 1 July 2007,
- *iv* development for the purpose of a swimming pool or spa, or combination of swimming pools and spas, that services or service only one dwelling and that has a capacity, or combined capacity, of 40,000 litres or more.

"BASIX certificate" means a certificate issued by the Director-General under clause 164A.

"BASIX excluded development" means any of the following development:

- *i* development for the purpose of a garage, storeroom, car port, gazebo, verandah or awning,
- ii alterations, enlargements or extensions to a building listed on the State Heritage Register under the Heritage Act 1977,
- iii alterations, enlargements or extensions that result in a space that cannot be fully enclosed (for example, a verandah that is open or enclosed by screens, mesh or other materials that permit the free and uncontrolled flow of air), other than a space can be fully enclosed but for a vent needed for the safe operation of a gas appliance,

iv alterations, enlargements or extensions that the Director-General has declared, by order published in the Gazette, to be BASIX excluded development.

"BASIX optional development" means any of the following development that is not BASIX excluded development:

- *i* development that involves the alteration, enlargement or extension of a BASIX affected building, where the estimate of the construction cost of the development is:
 - less than \$100,000—in the case of development for which a development application or an application for a complying development certificate is made on or after 1 October 2006 and before 1 July 2007, or
 - less than \$50,000—in the case of development for which a development application or an application for a complying development certificate is made on or after 1 July 2007,
- *ii* development for the purpose of a swimming pool or spa, or combination of swimming pools and spas, that services or service only one dwelling and that has a volume, or combined volume, of less than 40,000 litres.

"Certifying Authority" means a person who:

- is authorised by or under section 85A of the Act to issue complying development certificates, or
- is authorised by or under section 109D of the Act to issue Part 4A certificates.

"Gross Floor Area" means the sum of the areas of each floor of a building where the area of each floor is taken to be the area within the outer face of the external enclosing walls as measured at a height of 1,400 millimetres above each floor level, excluding -

- columns, fin walls, sun control devices and any elements, projections or works outside the general lines of the outer face of the external wall;
- lift towers, cooling towers, machinery and plant rooms and ancillary storage space and vertical air-conditioning ducts;
- carparking needed to meet any requirements of the Council and any internal designated vehicular or pedestrian access to the carparking; and
- space for the loading and unloading of goods.

"Nathers or equivalent" means the Nationwide House Energy Rating Software, developed by the CSIRO to encourage improved design that will reduce energy consumption and improve thermal comfort in houses. It is a computer program which provides a quick, comprehensive and accurate assessment of a house design – generating a star rating of 0 to 5 (least to most efficient).

"R-value" means the numerical value given to insulation. The higher the R-value the more insulating the product.

"Site coverage" means the percentage of site area covered by the footprint of buildings and structures to be erected on the land.

"Solar Access" means the measure of how much sunshine is available to assist with the heating of a dwelling. It also defines the extent of sunshine available to rooms and external areas (e.g., a courtyard).

"Sustainability" means managing our development by doing more with less, making sure we don't exhaust our resources or degrade the environment; and being proud of what we leave behind (for future generations).

"WELS" means the Water Efficiency and Labelling Standards (WELS) Scheme. The Water Efficiency Labelling and Standards Act, 2005, provides the legal framework for the WELS Scheme, which replaced the Alpha (e.g., "AAA") Ratings Scheme on 1 July 2006. Further detail is provided in other legal instruments, with the Australian Standard *Water efficient products-Rating and labelling (AS/NZS 6400:2005)* containing most of the Scheme's details.

2.0 APPLICATIONS

2.1 Preamble

It is essential that plans submitted with a Development Application or a Complying Development Certificate Application are properly drawn and contain all the information for Council or an Accredited Certifier to make a full assessment of a proposal.

Inadequate plans inhibit Council's ability to assess proposals and to decide whether they should proceed. In short, they create delay that can be costly to both Council and the applicant. This section identifies the type and quality of information required with any application.

2.2 Outcomes Sought

Council seeks the submission of complete and well-drawn plans that enhance Council's assessment and decision making processes and facilitate prompt determination of Development or Complying Development applications.

Inadequate plans inhibit Council's ability to assess proposals and to decide whether they should proceed. In short, they create delay that can be costly to both Council and the applicant.

2.3 Council Requirements

b application

A Development Application or Complying Development Certificate Application is submitted for all proposed dwelling houses, alterations and / or additions and outbuildings, except those that satisfy the requirements of Council's DCP No 85 - Exempt Development.

c correct and completed form

Select and complete the Development Application or Complying Development Certificate Application form as appropriate.

d owner's consent

All owners of the land are required to sign the application form or provide a letter of authority for the application to be lodged. The Company Seal and signature of Directors is usually required where the land is owned by a company.

e statement of environmental effects

Include four (4) copies of a written Statement of Environmental Effects demonstrating how the proposal addresses relevant Requirements and Guidelines contained in this Development Control Plan, the likely environmental effects of the proposal and measures proposed to minimise those impacts.

f site analysis

Submit four (4) copies of the Site Analysis plan (see Section 3.2 for details).

g BASIX certificate

The application is to be accompanied by a complying BASIX Certificate for the project if it comprises "BASIX affected development".

h development plans

Attach four (4) copies of accurate plans of the proposed development drawn to scale. The preferred scale is 1:100 for floor plans and 1:200 for elevations and site plans. They must be in the format specified on the form, to show at least the following information:

- BASIX commitments, as per the relevant attached BASIX Certificate;
- floor plans of proposed buildings showing layout, partitioning, room sizes and intended uses of each part of the building;
- elevations and sections showing proposed external finishes and heights from all relevant sides;
- existing ground level and finished floor level of all buildings and proposed finished levels of the land, particularly courtyard areas, in relation to buildings;
- proposed driveway and parking arrangements (including dimensions), entry and exit point(s) from the site, etc. Where such are adjacent to, or may affect the location of driveways, the plans are to identify the location of kerb and gutter, table drains, utilities, sewer manholes, and drainage pits;
- proposed landscaping of front building setback area. The provision of turf to this area prior to occupation of the dwelling house is a minimum requirement;
- contours of the site at 0.2 metre intervals where cut and fill or benching of the site is proposed and at 1.0 metre intervals where cut and fill or benching of the site is not proposed;
- details of any retaining walls including height, type of construction and proposed materials;
- fencing details (where the proposal exceeds the Exempt Development criteria identified within DCP No. 85) including location, height and materials;
- any proposed additions clearly delineated by hatching on the plans; and
- stormwater and surface water drainage plan.

i erosion control

Details of proposed methods of erosion and sediment control are required.

j on-site effluent disposal

Completed On-Site Sewage Management Facility Application, Site and Soil Assessment and an Application To Operate an On-Site Sewage Management Facility is included (where required).

In non-sewered areas, all on-site effluent disposal systems must be installed and operated in accordance with approvals issued by Council under cl 29 and 43 of the Local Government (General) Regulation, 2005.

k waste management plan

Completed Waste Management Plan (if total project value exceeds \$1 million or has the potential to generate over 20 tonnes of waste and recyclable material through construction and /or demolition work).

demolition of existing structures

Completed application to demolish is included (where required).

m mine subsidence

Any application for development in a mine subsidence area must be approved and stamped by the Mine Subsidence Board prior to lodgement with Council or the Accredited Certifier.

Officers of Council have authority delegated by the Mine Subsidence Board to approve building works such as garages, sheds, carports, additions and alterations to dwellings, timber and metal fencing and other ancillary structures. Council cannot approve any works on behalf of the Mine Subsidence Board for any alteration, addition, outbuilding or other structure constructed of, or clad with, brick, stone, concrete or like material or any outbuilding or structure exceeding two storeys in height.

Enquiries with regard to Council's level of Delegated Authority should be directed to Council's Customer Service Centre.

n notification plans for local development

At least eight (8) copies of all site and elevation plans must be provided on A4 format in order to be used for public notification purposes.

Applications that are deemed not to satisfy the above requirements will be considered to be incomplete and may be returned to the applicant.

2.4 Guidelines

a shadow diagrams

Shadow diagrams showing the impact of the proposed development on the subject land and neighbouring properties may be needed to address proposals for 2 - 3 storey development. Of particular concern is the impact of the proposed development on neighbouring private open space areas, e.g., BBQ areas, pools, etc.

b view corridors

Photomontages showing the potential impact of proposed buildings may be needed to show that the impact of a structure has been minimised on the major view corridors of neighbouring properties. This is particularly relevant for coastal or elevated blocks where existing neighbours' views may be impacted.

SAMPLE PLANS

Sample plans are available from Council to indicate the extent of detail and quality of presentation required for various types of development. The sample plans are intended to be indicative only and are not intended for reproduction.

INFORMATION PACKAGE

An application information package for dwellings and additions is available at Council's Customer Service Centre and on Council's website at www.wyong.nsw.gov.au/development/applicationforms. It contains all necessary application forms and checklists to aid in the lodgement of an application.

3.0 CONTROLS & GUIDELINES

3.1 Site Selection

3.1.1 Preamble

Selection of a site that can accommodate the type of dwelling house proposed is an important first step in achieving quality development. Problems associated with dwelling house approval and construction often arise from a clash between the character of the site and the type of development proposed.

The location and characteristics of the land should be thoroughly considered alongside the size, shape and character of the development proposed. Some very self-evident things can inadvertently be forgotten. For example:

- trees grow up and water flows down
- a view enjoyed now may be reduced later by trees or development on neighbouring properties
- in storms, surface water from adjoining land may cross a site and affect parts of a house built close to the ground

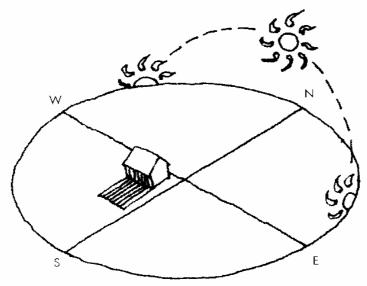
If you want a house with lots of paved areas - recognise where the water comes from and where it goes.

Careful attention must be given to native vegetation on a site.

Existing trees should be designed into the proposed works. For example a building may have to be relocated on the site to retain a tree in the front or rear yard. Driveways should be designed so they do not cover significant root systems.

i. The very first thing you need to ask when selecting a site is: "Where is true north?" The sun rises in the east, travels through the northern sky and sets in the west. This one simple and obvious factor has the greatest impact on the energy efficiency of a dwelling and it's comfort levels and can significantly impact the running costs for a home.

Consider the movement of the sun, particularly at the winter solstice. Avoid sites with poor solar access.



Australia's Guide to Good Residential Design

Figure 1 WINTER

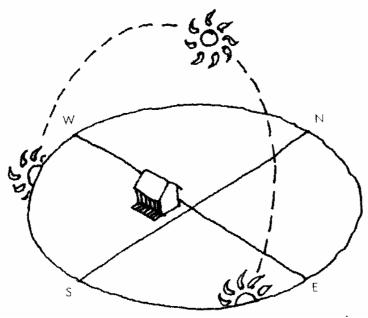


Figure 2 SUMMER

Consider your own expectations. Think about your lifestyle now and into the future. Factor in everything you can think of, such as kids, in-laws, pets, work, hobbies, future home occupations or home business needs, car ownership, how long you might live here and future access needs.

3.1.2 Outcomes Sought

- a The selected site can carry the type of residential development proposed (including ancillary buildings, vehicle access and open space) without creating neighbourhood discomfort due to increasing noise, vehicle movements, loss of privacy or excessive loss of vegetation
- b The development is designed around the north point on the site.
- c Identified vegetation can be retained to provide amenity, habitat, soften and enhance the appearance of the development and protect the site from erosion during construction. A quality development seeks to use rather than remove the natural features of the site.
- d Development on battleaxe lots and sites with narrow corners (including triangular lots) takes account of the reduced capacity that these lots have to accommodate quality development (because some of the land cannot be used to best effect). Good street frontage provides the opportunity for the development to address the street and enhances security.

3.1.3 Council Requirements

a carparking

Ensure that the site can carry development that satisfies the requirements of this DCP as outlined in section 3.8 Site Design.

b Solar orientation

Ensure that the site permits the design of the development with the bulk of its living areas on the northern side as outlined in section 3.9 Sustainability.

Dwellings are required to be designed with the bulk of their internal and external living areas on the northern side, unless there are major site constraints or desirable views that require a different orientation.

c size

Ensure that the proposed dwelling and foreseeable additions can be accommodated on the site with minimal loss of vegetation and minimal disturbance to the natural character of the land.

d **bushfire**

In bushfire prone areas, the development meets the guidelines outlined in "Planning for Bush Fire Protection, 2006" produced by the NSW Rural Fire Service.

e mine subsidence

In mine subsidence areas, the use of certain materials, designs, plumbing connections etc., will be required to meet the requirements of the Mine Subsidence Board.

f geotechnical considerations

Consideration should be given when selecting a site as to whether the site is identified as likely to be subject to slippage, have reactive soils (including acid sulphate soils) or evidence of potential contamination, as these hazards will be required to be ameliorated through conditions of approval. Works will be required to be completed prior to, or during construction.

3.1.4 Guidelines

a **size**

The site should have sufficient area to accommodate permissible development without significant environmental impact and without unreasonably impacting the enjoyment of nearby landowners.

b character of the area

In selecting a site, consideration should be given to the style and context of development on surrounding land. Ensure that the existing local architecture is compatible with that proposed and that the extent of trees and natural features can be maintained with the form and scale of the development proposed.

LOCATION OF BOUNDARIES

A Registered Surveyor can provide a survey of the site boundaries, or a copy of the Deposited Plan, containing the site area, dimensions and relationship to North, can be obtained from Council or the Land and Property Information Office at the NSW Department of Lands.

MINE SUBSIDENCE

Much of the new urban release areas of the Shire are underlain by coal reserves that are being mined or may be mined in the future. Development in designated "Mine Subsidence Areas" requires special consideration of the foundations and construction to minimise the risk of damage arising from possible subsidence.

The Mine Subsidence Board can provide information on building in a mine subsidence area.

COUNCIL INFORMATION

A great deal of information is available through Council for a small fee. This is a good place to start site selection.

Section 149 Certificate

Also known as a Zoning Certificate, this document is required to transfer ownership of any land. In Wyong Shire the s149 Certificate provides information on many useful issues including zoning, whether the land is flood affected, whether the land is in a Mine Subsidence District, whether the land is contaminated or potentially contaminated and whether the land has reactive soils (including Acid Sulphate soils).

Building Certificate

Where there are existing improvements on site, a Building Certificate may be obtained from Council to identify whether or not they have all necessary approvals.

Sewer Diagram

A Sewer Diagram may be obtained from Council and provides details on the location of sewer mains and connecting lines.

On-site Sewage Systems (incl. Septic Tanks)

The owner of an on-site sewage system needs approval to operate that system. Before purchasing an unsewered property, any existing system should be checked by Council or an accredited person to ensure that it is operating satisfactorily.

Outstanding Orders

A certificate under s121ZP of the Environment Planning and Assessment Act is available through Council that will tell you whether there are any outstanding Orders on a particular site.

Deposited Plans

The Deposited Plans show location of boundaries, easements and interallotment drainage that exists at the time the Plan is created.

3.2 Site Analysis

3.2.1 Preamble

A Site Analysis is the simple but essential starting point for any specific dwelling design. It involves identifying the positive and negative characteristics of a site and how these provide opportunities or constraints to quality design.

Every good design starts by considering the character and condition of the land.

The Site Analysis should influence the design of any new dwelling - even a project home on an existing lot. When the house is built there will be little opportunity to undertake cost effective changes to the location or layout of the house to avoid poor drainage, cold musty rooms or other basic design faults.

Use the Site Analysis to think ahead about how the house will fit the land and how your current and future lifestyle will fit the land, the house and the locality.

3.2.2 Outcomes Sought

a A design that results from a **genuine** analysis of the site character and capacity and its suitability for the proposed development.

3.2.3 Council Requirements

a first step

A Site Analysis is carried out as the first step in the design process and the outcomes are reflected in the design of the development.

b use of site analysis

The character of the site determines the design of the development rather than the design of the development dominating the character of the site.

c site analysis requirement

A Site Analysis Plan is submitted with the Development or Complying Development Application for any proposal in excess of 40m^2 in floor area. This is an exercise anyone can complete; it does not need to be to draftsperson standard. It is the thought process, and its implementation, which is important.

d information required

The Site Analysis Plan identifies existing conditions relating to the development site. It needs to address those points that are relevant to the development proposed. The following is an indicative checklist of issues to be addressed by the Site Analysis Plan:

- ORIENTATION North point and aspect. Consider the movement of the sun, particularly at winter solstice;
- TOPOGRAPHY Slope of the land at 0.2m intervals where cut and fill or benching of the site is proposed, otherwise 1.0m intervals), direction of fall and aspect;
- STREETSCAPE Setback patterns and position of existing houses on adjacent lands and shadows from existing development;
- CONTEXT Special consideration for prominent sites (including elevated or rural land), corner sites, heritage and cultural issues, bus stops, nearby schools or shops;
- VEGETATION Existing trees and vegetation on the land, on adjoining land and in the street / locality and their true canopy spread within or onto the site;
- PRIVACY Any windows or private areas of neighbouring houses facing your land;
- NOISE AND LIGHT Location and extent of nearby sources of noise or light impacts (e.g. major roads, intersections, sportsfields or commercial areas);
- VIEWS Consideration of view locations and neighbours' views;
- PREVAILING WINDS These can vary for a particular site, eg., coastal areas.
 Orientation to take advantage of prevailing breezes for natural ventilation can add greatly to comfort levels within the dwelling;

 DRAINAGE - Location of existing watercourses, drainage and sewerage lines, sewage management absorption areas, considering the impact on all adjoining properties and impact on overland flow;

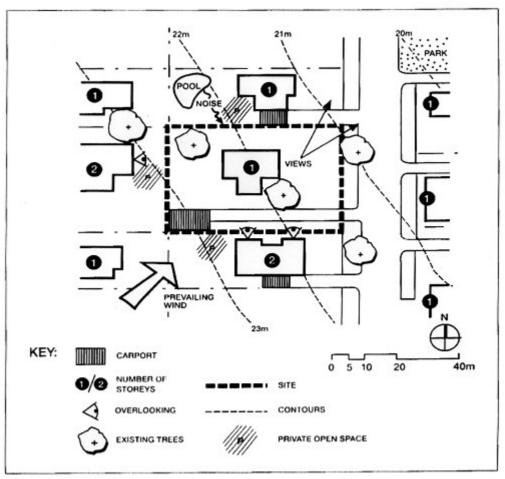
- SERVICES Location and access to services;
- VEHICLE ACCESS Best position for a driveway;
- SURVEY CONSTRAINTS Surveyed location of any easements, rights of way or other relevant restrictions; and
- SECURITY Any natural surveillance opportunities to and from the site.

e presentation requirements

Most information can best be shown on A3 or A4 plans of the site and locality and any additional supporting documentation can be provided in written form. The detail of the plan should be tailored to the size and complexity of the proposed development.

The Site Analysis Plan (see over for an indicative site analysis plan) identifies existing conditions relating to the development site and existing design constraints on adjoining and adjacent sites, which are likely to influence design choices.

The Site Analysis Plan needs only to address those points that are relevant to the locality and development proposed. However, the submitted design should reflect that these issues have been taken into account.



DUAP NSW Model Code

3.2.4 Guidelines

a neighbours

It is highly desirable that contact with neighbours be established at the site analysis stage. Talk to them about how the proposal will affect them and review the location of outdoor living areas, fencing, pools, living rooms and other specific features that may influence a dwelling design.

b **information**

In addition to required information that must be shown on the Site Analysis Plan, the following may be useful in designing and developing a quality house.

 MICROCLIMATE – How it has considered prevailing winds, impact of location and vegetation on temperature.

3.3 Site Preparation and Management

3.3.1 Preamble

Prior to commencing construction, preparation of the site is essential. Care in preparing a site will ensure that construction can then proceed safely and efficiently and that impacts of development on the environment are minimised.

3.3.2 Outcomes Sought

- a Trees and other vegetation on the development site are protected throughout the construction and establishment phase to maintain the local environment and enhance the appearance of the development.
- b Appropriate erosion and sediment controls are put in place and remain on site throughout the construction and establishment phase.
- The proposed development is accommodated on site without the need for excessive cutting and filling of the site or construction of high retaining walls.
- d The building process is managed to minimise production of construction waste from the development. Any waste created is handled in such a way (including sorting and storage) to maximise reuse and recycling of materials and minimise the need for disposal to landfill.
- e Any measures required to ensure a safe building site are implemented before work commences on site.
- f Surface water and/or stormwater is to be controlled on the subject land with any changes to water flows not impacting adjoining properties.

3.3.3 Council Requirements

a conditions of consent

Read the conditions of consent. These all must be complied with. Council may take legal action over any breach of the conditions of consent.

b control of clearing

The site is <u>not</u> automatically and completely cleared to enable construction. Consideration is given to where vegetation can be retained to reduce the impact of the development.

c protection of trees

All trees to be retained (including street trees) are fully fenced to the edge of their canopy in accordance with DCP 67 Engineering Requirements for Development. All protection measures are installed prior to commencement of any works and maintained for the duration of works. No materials or washings are to be placed in the tree protection area. An example is as follows:

Root Zone Protection Alternatives

Over geotextile fabric, lay either

- F62 steel mesh or
- · Hardwood chip, 100 mm minimum depth or
- Course sandstone rubble, 100 mm minimum depth, or
- Pea gravel, 30-50 mm, 50 mm minimum depth

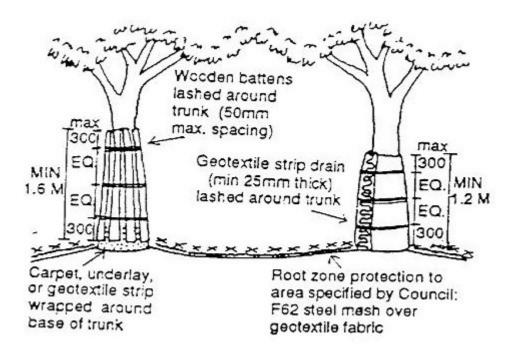


Figure 4 Root Zone Protection Alternatives

erosion and sediment control

- Surface water and/or stormwater is to be controlled on the subject land with any changes to water flows not impacting adjoining properties.
- Erosion and sediment control and access to the site is in accordance with Council Policy E2 - Erosion and Sediment Control from Building Sites. Council may issue Clean Up Notices and / or Penalty Infringement Notices including on-the-spot fines for inadequate or faulty controls.
- A sign supplied by Council to promote the awareness of the importance of the maintenance of sediment control techniques is displayed on the most prominent sediment fence or erosion control device for the duration of the project.

SEDIMENT & EROSION CONTROL MEASURES

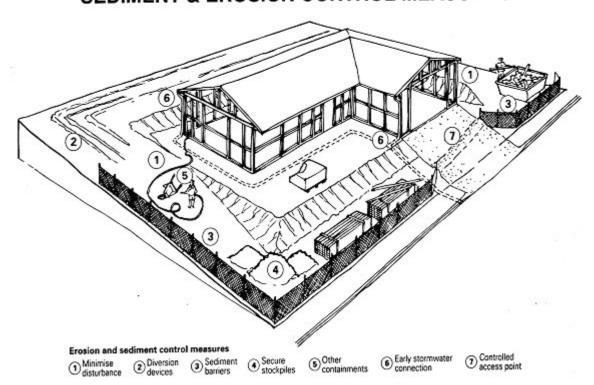


Figure 4 Sediment and Erosion Control Measures

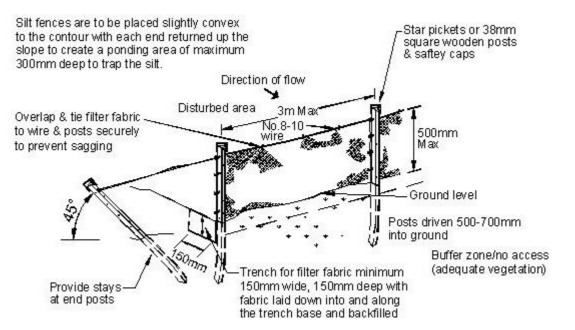


Figure 5 Sediment and Erosion Control Measures

cut and fill

For the purposes of this Development Control Plan:

- "benching" is a construction technique which involves altering the natural slope and drainage of a site through cutting and/or filling and/or retention of the foundation material in order to accommodate construction of concrete slab footings and / or level areas external to a dwelling house, or ancillary structure; and
- the "height" of a retaining wall is the vertical distance between the top of the wall and finished ground level on the lower side;

This includes works for dwelling houses, swimming pools and ancillary domestic buildings such as a separate outbuilding or garage.

specific outcomes sought

- a To accommodate the proposed development on site, without the need for excessive cutting & filling of the site or construction of high retaining walls.
- b To control surface water and / or stormwater on the subject land with any changes to water flows, as a result of the cut or fill, not impacting upon adjoining properties.
- To ensure that the building design is appropriate for site conditions with consideration given to the slope, stability of the land and the privacy / overlooking of adjoining properties.
- d To ensure all boundary fencing is erected at natural ground level, permitting light and ventilation to ensure reasonable amenity to the adjacent dwelling.

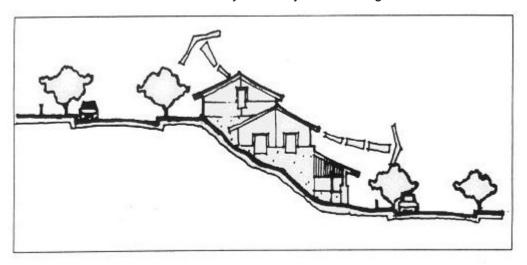


Figure 6 Dwelling houses stepping down steep sites

Deemed to Satisfy Requirements

Any proposal to provide cut and fill or retaining walls exceeding the following requirements would be subject to a merit consideration of a Development Application, supported by appropriate details which may include certification by a structural engineer (Refer to the *Performance Standards* section below).

Notes:

- the height of cut referred to is measured at the cut itself and not at the external face of the wall of the dwelling; and
- consideration should be given in the selection of an appropriate dwelling design to the
 proposed finished levels of court and yard areas, as cost savings may be made utilising
 a drop edged beam in the dwelling design, rather than future external retaining walls
 and drainage works.

Restrictions on Cut:

- No boundary retaining wall for cut is permitted to exceed 900mm in height. The relevant controls are:
- Where any adjacent wall of the dwelling is setback less than 1300mm from the side boundary, the height of cut at that boundary is restricted to a maximum of 600 mm and the area between the wall of the building and the boundary retaining wall is to be provided as a level surface; and
- Where any adjacent wall of the dwelling is setback 1300mm or greater from the side boundary, the height of cut at the boundary is restricted to a maximum of 900 mm and the area between the wall of the building and the boundary retaining wall is to be provided as a level surface.

Restrictions on Fill:

All fill for the slab(s) is to be contained within the footprint of the building by the
use of drop edge beams to natural ground level, such that a generally level area is
created in the 900mm between the wall of the building and the boundary;

- No battered fill or retaining walls within areas such as front or rear yards and courtyard areas external to the dwelling footprint are to exceed 600mm in height;
- All exposed fill, e.g., for courtyard areas, is to be graded at a batter not exceeding 1:4, or retained to a maximum height of 600mm, such that natural ground level is achieved at a distance of 900mm from the side boundary; and
- The grading of fill, at a batter not exceeding 1:4, within the rear yard or front setback area to existing ground level at these boundaries is acceptable.

General Restrictions:

- No cut, fill or retaining works shall be permitted within the sewer, drainage or interallotment easements of the property;
- The placement of any fill on the land in excess of 100mm (topdressing) requires development consent. Separate consent is not required to backfill a retaining wall where appropriate details have been considered and approved as part of a development consent for the dwelling or retaining wall;
- Where deemed necessary to control potential soil erosion or to protect adjoining lands, the construction of any approved retaining wall is to be completed prior to the erection of the dwelling's framework. Note: A decision as to whether the early construction of a retaining wall is necessary will be made at a joint site inspection with the Principal Certifying Authority and the building site manager prior to the pouring of the slab. Alternatively, all approved retaining walls are to be completed within 8 weeks of building occupation.
- Retaining walls where viewed from the street or a public place are to be of a masonry product;
- If treated pine is to be used for retaining walls not visible from the street or a public place, it shall be of minimum H4 standard;
- Retaining walls are to be constructed in accordance with the manufacturer's specifications, or in accordance with an approved engineering design, and are to be:
 - o lined with sediment cloth, geotextile fabric or similar;
 - suitably back-filled with aggregate;
 - provided with a sub-surface drainage system, connected to an approved disposal point; and
 - each of the above elements are to be wholly contained within the subject allotment:
- The construction of any retaining wall or associated drainage work adjacent to a common boundary shall not impede the structural integrity of any existing retaining walls; and
- All dividing fencing is to be erected on natural ground level.

The following figures outline dwelling designs that comply with Deemed to Satisfy Requirements

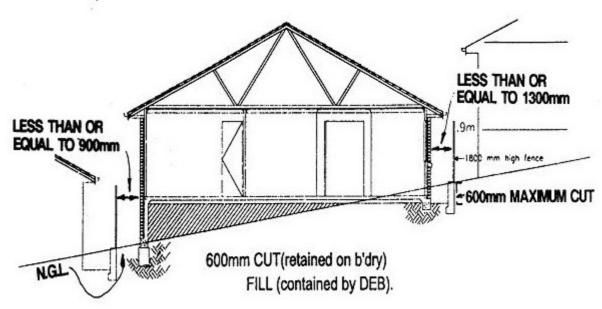


Figure 7 Dwellings setback less than 1300mm

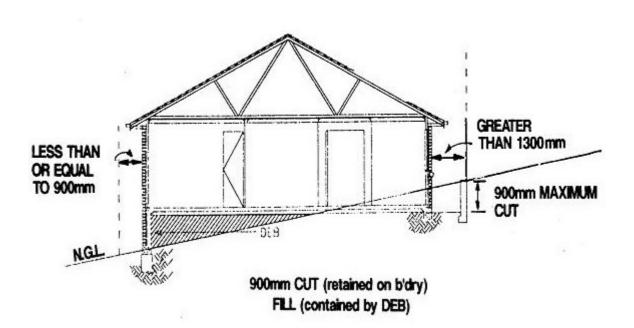


Figure 8 Dwellings setback greater than 1300mm

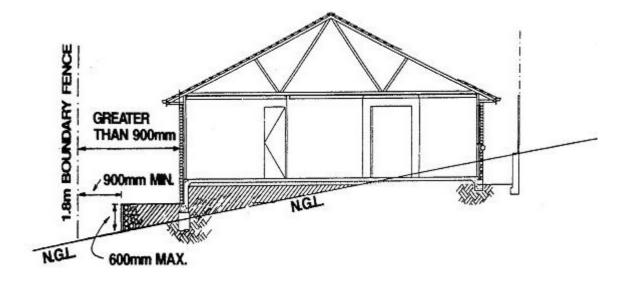


Figure 9 Treatment of Rear Yard/Courtyard

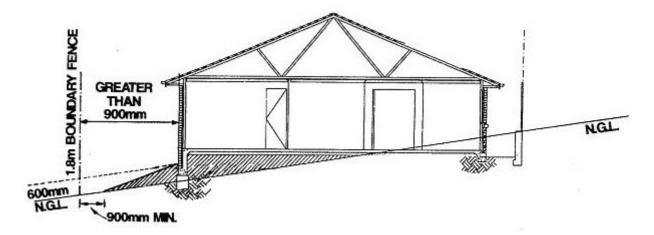


Figure 10 Treatment of Rear Yard/Courtyard Battered

Performance Standards (for Cut and Fill):

The use of this section is only permitted after the applicant has explored the use of dropped edge beams, alternative designs including split levelling of residences, lowering of the garage floor, etc., and has determined that these alternatives are impractical.

After exploring the above, Council recognises that as a result of existing development or site constraints, there will be certain sites that will not be able to achieve the prescriptive requirements. Council's first consideration will be for a dwelling design that suits the site, but where this is not considered possible the site will be subject to a *merits based* assessment, where the applicant will be required to provide appropriate details to justify the design proposed. Such details would include, but not be limited to, the following considerations:

- Solar access, including impact upon light and ventilation;
- Privacy/overlooking;
- Structural integrity/Engineers details;
- The timing of construction of retaining walls;
- Fencing details, including total height;
- The use of terracing;
- The impact upon adjoining allotments; and
- The location and finished heights of sewer manholes or drainage pits.

signboard

An up to date signboard of minimum area 600 x 450 mm (provided by Council) is erected in a conspicuous position at the front of the allotment (but not fixed to a tree) prohibiting unauthorised access to the site and indicating the following details:

- the site address:
- the name and emergency contact details for the Principal Contractor;
- the Principal Certifying Authority; and
- the approval under which the work is carried out;

sanitary service

A temporary sanitary service is provided before building operations are commenced to ensure that adequate sanitary provisions are provided. This service is maintained on the building site for the duration of construction.

The temporary closet is to be a water closet connected to the sewerage system. A temporary connection may be made to Wyong Council's sewer main subject to Council's approval and payment of appropriate fees and charges.

Alternatively, the developer must provide a septic tank or a chemical closet supplied by a licensed contractor approved by Council.

site storage

Council footpaths, reserves and the road are not to be used for storage purposes. All materials, sanitary services, waste bins etc. are to be stored on site, excepting where exceptional circumstances have been identified in the development application and the conditions of consent identify otherwise.

construction waste management

The objectives of this control are to:

- maintain orderly and safe working environments;
- prevent wind and water bourne wastes escaping the site;
- enable and encourage waste separation and recycling of building materials; and
- minimise the volume of wastes disposed to landfill.

Council requires the provision of either:

- An approved metal waste skip with self closing lid or secure covering, or
- At least one (1) steel mesh waste cage,

used to contain all waste materials generated for the duration of the construction, to ensure that all wastes are contained on the site.

A steel mesh cage referred to above may comprise:

- a, e.g., 100mm x 100mm steel mesh cube;
- maximum size of 1.5m x1.5m x 1.5m;
- securely staked to the ground;
- provided with securable lid, secured nightly;
- lined with shadecloth or similar material to all sides, top and bottom;
- located wholly within the site;
- located so as not to impact sediment control fencing or tree protection measures;
- serviced at appropriate intervals to dispose of the accumulated waste.

Builders are encouraged to provide several cages on site to enable and encourage the separation and recycling of construction wastes. Locations and firms accepting recyclable materials are listed in the "Recycling Guide" published by Resource NSW.

• Clean fill is required to be separate from other waste.

Site supervisors are reminded that Council may issue on the spot fines for littering and Penalty Notices for storage of material on public roads (footpaths).

 If the development (including demolition) generates 20 tonnes of waste or if the development is worth more than \$1 million, then a Waste Management Plan must be submitted with the development application in accordance with DCP No 69 – Waste Management.

3.3.5 Guidelines

a retaining walls

Council's DCP No. 85 – Exempt Development, provides that retaining walls less than 600mm in height are exempt from the need for development consent where:

- they are contained wholly within the site;
- they comply with relevant Australian Standards for masonry or timber construction:
- they are constructed so that they do not prevent the natural flow of stormwater run
 off; and
- sediment control techniques remain in place until the works are completed.

This exemption does not include retaining walls of any height required to permit the construction of a dwelling, fencing, or ancillary structure. Further, it does not provide approval for fill exceeding a depth of 100mm ('topdressing'). Fill exceeding 100mm requires development consent.

b resource management

Planning and management practices for construction of the development controls the use of energy and water resources to reduce waste and associated costs.

- Any building demolition work is carried out in accordance with the requirements of AS 2601-1991 - The Demolition of Structures.
- All existing services are disconnected, sealed and made safe prior to the demolition and/or removal of existing structures on site. The sewer service shall be disconnected only by a licensed plumber and drainer. Wyong Council's plumbing and drainage inspector certifies the works.

c waste management

Recyclable and reusable construction waste such as bricks, glass, timber and tiles should be separated so that they are readily recoverable.

Reference should be made to the "Recycling Guide" published by Resource NSW for locations and firms capable of accepting recyclable materials.

Applicants are advised that Wyong Council's tipping fee for construction waste that has been separated to exclude recyclable and reusable materials is approximately 25% of the tipping fee for mixed construction waste.

Clean fill is to be kept separate from other waste.

d **safety**

Safety is addressed initially at site preparation stage including; but not limited to:

- The wrapping of all above ground electrical cables too prevent damage and contact;
- The clear labelling of underground power and services; and
- Ensuring that all staff and contractors have appropriate work site safety training and wear appropriate protective clothing at all times on the site and are informed by the developer of on-site safety issues and procedures.

Approvals relating to water and sewerage

Prior to the commencement of work, the owner of the premises:

 applies to Wyong Council for an approval to carry out any proposed water supply work, sewer work, stormwater work and connection to Council's services; and

 confirms the location and depth of the sewer main and connection point in relation to the floor level to ensure that appropriate connection to the sewer can be achieved.

3.4 Streetscape

3.4.1 Preamble

The overall quality and amenity of a dwelling house is affected by its location. Real Estate agents will often identify "location, location, location" as the three most important criteria for choosing a house.

A quality house not only maximises the benefits of the individual site but also draws benefit from the positive attributes of its locality. Many different elements mix to form a "streetscape", some of which the individual landowner has little control over and others that come from choices made and decisions taken when building or extending a house. However, the design of each house can contribute to or detract from the character and amenity of an area.

The approach taken to designing with streetscape will differ between established areas and 'greenfield' or urban release areas.

3.4.2 Outcomes Sought

- a In established areas, houses are designed and placed to complement or improve the existing neighbourhood character.
- b In urban release areas, houses are designed and placed to create an attractive streetscape.
- The house design includes setbacks from property boundaries and between buildings to provide for adequate ventilation, light, privacy, noise attenuation, building maintenance and fire safety for all dwellings and enables the provision of off-street carparking and landscaping.
- d The front of the house faces the street and is designed to provide for natural surveillance of the neighbourhood
- e On corner lots, houses are designed to take advantage of the dual street frontage and to enhance the streetscape of both streets.

3.4.3 Council Requirements

a neighbourhood character

established areas

The design and location of the proposed dwelling shall have regard to the character of existing development - including materials, setbacks, height and style.

Where the character of the area is undergoing change, a quality development will seek to reinforce and progress the positive elements of the locality.

urban release areas

The design and location of the proposed dwelling has regard to subdivision design and associated works so that the potential to provide an attractive streetscape is built into the development.

b setbacks and building separation

- Dwelling houses shall provide an attractive, landscaped face to the street and/or adjoining reserve or open space.
- Setbacks for the dwelling and other structures are in accordance with Council's DCP No. 99 - Building Lines. (Refer to s.5.0: Attachments).

c carports

Carports shall be:

- located behind the front building setback;
- constructed in accordance with the requirements of the Building Code of Australia;
 and
- constructed of a design, materials and colours selected to complement those of the dwelling;

Carports located within the front building setback are generally prohibited. In exceptional circumstances a carport may be considered for approval within the front setback where:

- there is no potential to access the rear yard through the garage or through modifications to the garage to permit access to the rear yard;
- the design, materials and colours selected complement those of the dwelling; and
- the carport is bordered by screen planting to soften its impact on the streetscape.

d streetscape trees

Landscaping visible from the street shall:

 primarily comprise native tree and shrub species, particularly those identified in Council's DCP No.14 - Tree Management as keystone species or species of local cultural significance.

e landscape treatment of corner sites

Landscaping within front setbacks of corner sites should not restrict safe sight distances for drivers approaching the intersection:

- planting within a triangle defined by drawing a line through points on the property boundary 12 metres on the main street frontage, and 6 metres on the secondary street frontage, shall be limited to sparsely spread advanced trees with clear trunks and no foliage until 2-3 metres above ground or alternatively groundcover foliage or shrubs with a maximum height of 1.2 metres, in order to maintain the available sight distance for drivers at the intersection.
- Special requirements apply to fencing and plantings in relation to sites adjacent to roundabouts. Required sight lines are determined relating to the roundabout geometry and the design speeds of the adjacent roads. Enquiries should be made with Council's Customer Service Centre in relation to these sites prior to the selection of fencing height, materials and plant species.

f dwelling design on corner sites

Dwellings on corner sites shall be designed:

 to provide a "face" to both streets wherever possible. This includes the use of design features along the side of dwellings on corner lots such as dormer and bay windows, protrusions and indents on building facades and garages, window placement, etc.

- to preserve sight lines in accordance with Council's DCP No. 99 Building Lines (detailed as above for landscape treatment).
- with any fences on the primary street frontage having a maximum height of 1.2metres
- with any fences on the secondary frontage having a maximum height of 1.2metres to a point adjacent to the rear of the dwelling house and a maximum height of 1.8 metres over the remaining length of the boundary.
- with a landscape plan that reinforces the dual road frontage and addresses both streets rather than just the "main" road.
- Special setback and access location requirements may apply in relation to sites adjacent to roundabouts, relating to the roundabout geometry and the design speeds of the adjacent roads. Enquiries should be made with Council's Customer Service Centre.

3.4.4 Guidelines

a design features

The dwelling includes design placement and features that provide separation between the dwelling and neighbouring buildings to provide:

- an aesthetic and interesting streetscape;
- quality landscape works and planting within the front setback;
- the use of passive solar design principles;
- energy efficient ventilation;
- · access to natural light;
- appropriate levels of privacy;
- noise attenuation;
- future building maintenance;
- fire safety; and
- the provision of off-street carparking.

COVENANTS

Council and developers frequently place restrictions on the use of land under s88B of the Conveyancing Act 1919. These can be very specific such as identification of a Right of Way for access or services or for the maintenance of overhanging eaves. If required by Council, a covenant must be complied with in any house design and location.

Covenants can also seek to generally restrict types of development such as brick covenants, minimum dwelling size etc in an attempt to improve streetscape or neighbourhood amenity.

While covenants should be considered in any dwelling design, they can at times produce bland streetscapes and undesirable uniformity of development. Council's Local Environmental Plan (cl 51) specifically allows Council to not apply a covenant in assessing an application to the extent necessary to allow quality development to occur, in keeping with the Plan.

3.5 Building Materials

3.5.1 Preamble

The selection and use of materials has an impact on both the quality and cost of a house. This includes the initial costs of construction and fitout as well as operating and maintenance costs. Poor initial choice of materials may affect how often repairs and/or replacement of all or parts of the dwelling need to be carried out. It may also affect the level of energy efficiency of the dwelling, the health and enjoyment of residents and ultimately have an impact on its resale value.

Council encourages, at every opportunity, the selection of products that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This is referred to as sustainable purchasing.

Products with lower environmental impact can readily be substituted where the overall effect on business is cost neutral or favourable. In some instances, the sustainable product is more expensive to purchase, but generates saving throughout its life by reducing energy costs, less requirements for maintenance/repair, improved waste disposal value or reduced social costs such as less pollution or less waste to landfill.

In addition, reflecting overseas practice, some materials and equipment suppliers, energy authorities and financial institutions in Australia are offering pricing and mortgage packages, which include rebates where certain materials or models are used (such as insulation and solar hot water). The rebate offsets the higher initial costs borne by the homeowner who selects these items and is recovered in the increased resale value of a "quality" house.

Council recognises that there are many different alternatives for material use. Many of these would be valid for a given situation. Most of the suggestions made by this DCP are therefore in the form of "Guidelines" to be considered for dwellings or additions.

3.5.2 Outcomes Sought

A design which:

- a uses materials that lead to a finish compatible with those in the neighbourhood.
- b takes into account the long term impact of the production and use of materials used in construction of the dwelling (eg sustainable purchasing).
- c encourages use of renewable, energy efficient materials and appliances that are durable and cost effective.
- d reduces waste generation and wastage of resources.

3.5.3 Council Requirements

a additions

- materials used for additions shall integrate and complement those in the base structure; and
- the design and construction of the roof for the additions shall incorporate a form and materials which complements the existing roof structure.

This may require upgrading of the materials of the original structure in order to enable quality additions.

3.5.4 Guidelines

a material selection

For a quality dwelling, factors considered alongside the cost of materials include:

- suitability for the purpose
- durability
- long term appearance
- local environmental impacts
- broader and longer term environmental impacts
- the quantity of material required

b waste minimisation

Waste is minimised by careful assessment of quantities required and by avoiding oversupply of materials for a proposed development.

Waste to landfill is minimised.

c internal air quality

Selection of furnishings and materials should avoid those likely to contribute to poor internal air quality such as those generating formaldehyde (new carpets) or those that may create a breathing hazard in the case of fire (e.g. polyurethane).

d Australian made

Where of a comparable quality, preference should be given to Australian made products.

e sustainability

The design of a dwelling and choice of materials are based on minimising the long-term environmental impact over the whole life of the development. (Lifecycle Assessment).

Sustainable products are those that:

- · contain recycled content
- are reused or recycled at end of life
- · reduce greenhouse gas emissions
- · save water and/or energy
- · are non-toxic
- · help protect biodiversity and habitat
- are made or recycled locally
- · minimise unnecessary purchasing
- provide long term value for money.

f selection

Preference should be given to materials derived from renewable sources or those that are sustainable and generate a lower environmental cost. In some cases these materials may be more expensive to obtain than materials derived from conventional or established sources. Choice of materials should be based on consideration of both their environmental and economic costs.

The mix of materials used should favour recycled material or materials with low embodied energy, better lifecycle costs and durability. Careful design of costly elements with higher embodied energy such as copper piping and glass can produce savings.

Insulation in walls and ceilings and, on flat or gently sloping sites, concrete slab floor construction is encouraged.

When considering materials selection, reference should also be made to Section 3.9: Sustainability.

3.6 Building Design

3.6.1 Preamble

For many people, the most enjoyable part of building a new house is designing or choosing the house itself. The building design covers a wide range of items including the size, location and number of rooms, features such as windows, doors and other fixtures, and the overall appearance and operation of the dwelling.

Quality design can be achieved both with individually designed houses and with project homes, although the latter may require adjustment to match the "pre-packaged" dwelling to the character of a particular site.

Building design should be used to capture the benefits of good solar access, good ventilation and views and to avoid problems arising from noise, overlooking and overshadowing.

3.6.2 Outcomes Sought

A dwelling house which:

- a fits the needs of the occupants and does not excessively compromise the privacy, views and solar access of neighbours.
- b is sympathetic to the slope of the site and minimises cut, fill, retaining walls and associated drainage works.
- c incorporates architectural relief and modulation of facades.
- d provides a safe internal and external environment for occupants in all age and mobility groups.
- e is designed and insulated to reduce the need for supplemental heating and cooling.
- f is fitted with warning devices and is designed to enable safe egress of occupants in an emergency.
- g is designed to reduce the risk of damage due to bushfire in bushfire hazard areas.
- h has eaves, awnings, or other devices of sufficient width to provide sun control and improve energy efficiency.
- i makes use of design features such as covered verandas to enhance energy efficiency.
- j uses design features to minimise disturbance from significant noise sources.
- k is adaptable for disabled access and life changes and can be visited by people with disabilities.

3.6.3 Council Requirements

a national building standards

All building work must be carried out in accordance with the provisions of the **Building Code** of **Australia** and standards identified therein.

b setbacks

Setbacks for the dwelling and other structures are in accordance with Council's DCP No. 99 - Building Lines (Refer to s.5.0: Attachments).

a density

A maximum site coverage of 60% applies to the footprint of all new dwellings, or to the footprint of the dwelling plus the proposed additions.

c height

- For up to two storey dwellings:
- a maximum height of 7 metres from natural ground level applies to the ceiling of the uppermost storey; and
- a maximum height of 11 metres from natural ground level applies to the peak of the roof or wall abutting the roof (raked or cathedral ceilings).
- Three storey houses will generally only be considered on steeply sloping sites where the three-storey component extends only a small part of the house.

d bulk and scale

- The building design uses architectural treatment including articulation of facades and horizontal elements to reduce the appearance of bulk, particularly for 2 storey dwellings; and
- Monotonous and unbroken lengths of walls facing the street and other boundaries are to be avoided. As a general rule, an unbroken length of wall exceeding 10m will not be permitted.
- Where the dwelling is proposed on a corner allotment, the building facade facing each street shall address each of the streets by providing physical breaks in walls and design elements to articulate the frontage.

Notes:

- For the side and rear facades of single storey dwellings that do not front another street or laneway, the placement of windows and doors to break up the 10m run of wall will be considered to provide the required articulation.
- As the first point of the Requirement emphasises, the principle is especially relevant for dwellings of a two storey (or greater) design, as the dwelling has a higher level of visibility from the street and neighbouring allotments. Council will require the use of physical design elements in two storey (or greater) designs, to provide visual interest to the building. These elements may include the positioning of rooms to provide roof and wall projections and indentations (min. 0.45m x 1.5m run), roofed decks, pergolas, awnings, and other permanent shading structures, etc., to prevent bland expanses of wall or brickwork.

e privacy and overshadowing

The dwelling design shall take account of the following factors:

- the height and placement of the dwelling shall have regard for the maintenance of solar access to the external active living areas on the subject land and neighbouring sites; and
- the placement of windows, decks and external recreation space including pools
 has regard to the visual and aural privacy needs of the occupants and of
 neighbours.

Note: In this DCP "external active living area" (See diagram over) means the private open space and external living areas within the allotment, such as patios, BBQ/entertaining areas, pool areas, etc. The area assessed shall not exceed 100m².

• a minimum of 75% of this area of the subject allotment's, and of this area of the neighbours' allotment(s) is to receive at least 3 hours unobstructed sunlight between the hours of 9 am and 3 pm on June 21 (at the winter solstice).

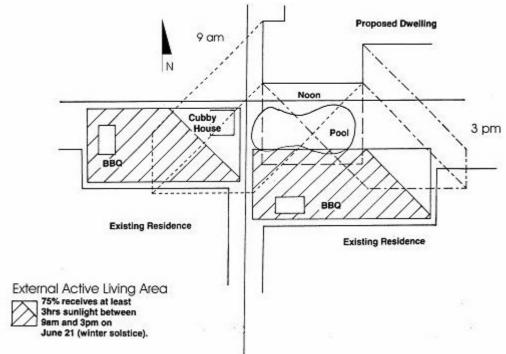


Figure 11 Privacy and Overshadowing

f safety and security

Smoke alarms installed wired to mains power in accordance with AS 3786.

Electrical cut-off switch installed.

g eaves, awnings and verandas

 Use of structural rather than mechanical means to control solar access, temperature and ventilation and to provide weather protection to openings are required. Roofed verandas, decks, awnings, pergolas and similar control devices should be used and be integrated into the design of the dwelling.

Where such devices are not integrated into the building design, eaves with a minimum width of 450mm shall be provided on all facades.

Note: This requirement does not apply to gables over garages or prevent the incorporation of "under eave" articulation of the building façade.

Any design which proposes to depart from these standards, i.e., eaveless designs, will be required to provide justification as to how the objectives and requirements of this DCP are otherwise achieved, to enable a merits based assessment of the proposal.

h bushfire protection in hazard areas

The dwelling and associated development shall be constructed to comply with the best practice requirements as outlined in "Planning for Bush Fire Protection, 2006", published by the NSW Rural Fire Service.

i acoustic design

The design of the dwelling shall:

- include a room layout that separates noise sensitive areas from noise generating areas; and
- include a room layout and general orientation that takes account of local external noise sources.

Where the site is land identified (e.g. on a s.88B Instrument applying to the land) as subject to noise exposure from the following sources, the applicant shall provide an Acoustic Report prepared by an appropriately qualified person identifying measures required and included in the design to mitigate that noise exposure:

- arterial roads as defined in the Environmental Protection Authority publication Environmental Criteria for Road Traffic Noise (Sparks Road, Wallarah / Main Road, The Entrance Road, Wyong Road and the Pacific Highway). These may be provided as part of the original subdivision;
- Warnervale Airport, exceeding ANEF20; or
- the F3 Freeway, or the Great Northern Railway Line, exceeding Leg 55dbA (24hours).

The report must identify relevant noise impacts and the means by which they will be mitigated, if necessary, to provide a maximum noise level as follows:

AREA	DAYTIME 7AM-10PM	NIGHT 10PM–7AM
Sleeping areas (bedrooms)	40 dB(A)	35 dB(A)
Other habitable	45 dB(A)	40 dB(A)
rooms		

Table 1 Maximum Noise Levels

3.6.4 Guidelines

a room layout

In determining the layout of rooms consideration should be given to matters such as:

- internal circulation patterns
- · access to outside areas
- the need for solar access
- the need for ventilation
- sources of noise
- lifestyle choices and changing circumstances
- storage needs

If the building is energy efficient, there is reduced need for heaters and other devices to moderate temperature (See s.3.9).

The layout of the dwelling should provide occupants with the means of escape from an internal fire.

b privacy and overshadowing

A dwelling should be designed to minimise overlooking and overshadowing of neighbours' internal and external living areas, in particular, living rooms, lounge and kitchen.

c roof design

Roof design should consider the option of a north facing solar hot water system.

d safety and security

The safety and security needs of occupants should be considered in the design of the dwelling. The need for add-on security devices such as grilles, bars and screens or the retrofitting of internal fixtures (such as banisters non-slip surfaces) is therefore reduced or avoided.

These considerations should include:

- public over viewing of front doorways and drives;
- landscaping that makes places attractive, but does not provide offenders with a place to hide or entrap victims;
- (where a house abuts public space) defining the boundary by fencing or landscaping.

e acoustic design

Consideration should be given to thicker glazing, wall and ceiling insulation, noise mounds and solid fencing where a dwelling may be affected by proximity to noise generating uses such as busy roads, commercial precincts, community halls and club premises. Consideration should also be given to locating noise sensitive rooms (bedrooms, studies, living areas) further from the noise source and using utility rooms (laundries, kitchens) to shield them.

f disabled access and use

The dwelling house and/or additions should be designed to minimise barriers to the disabled and be adjustable as residents lifestyles change. This will provide for residents to remain longer within their chosen locality and dwelling as age or other factors reduce their mobility over time.

Council strongly recommends that all dwelling houses be designed and built to an "adaptable house class C" standard in accordance with AS 4299 - Adaptable Housing. This includes:

1 ENTRY

- a level access wherever possible
- b main entry door 850mm min. width
- c low level threshold
- d landing large enough to enable a wheelchair to manoeuvre

2 INTERIOR

- a internal ground level doors 820 mm minimum width
- b Internal corridor width on ground floor 1,000mm
- c door hardware operable with one hand and located 900-1,100 mm

3 KITCHEN

- a Minimum 1,550 mm clearance between benches
- b Slip resistant floor surface

4 BATHROOM/TOILET

- a Slip resistant floor
- b Provision for grab rails (wall reinforcing)
- c Can be designed to comply with Australian Standard 1428.1.

3.7 Trees

3.7.1 Preamble

Trees are a very important part of every step of house development, from site selection through design and construction to long-term maintenance. Council encourages the retention of native vegetation when building and may refuse or require redesign of an application, which involves the removal of trees if they provide habitat or contribute to the character of an area.

3.7.2 Outcomes Sought

- a The retention of healthy trees that can reasonably be accommodated on the dwelling site through careful design and construction.
- b The protection of trees to be retained through the development process so they do not suffer long term loss or decline due to physical damage or altered environmental factors.
- c The incorporation of significant overstorey trees in landscaping of houses that will ultimately contribute to neighbourhood amenity, maintenance of habitat and environmental values and provide improved lifestyle for residents.

3.7.3 Council Requirements

a threatened, endangered or keystone species

Threatened, endangered or keystone species identified in DCP 14 (Tree Management) should be retained wherever possible.

b services and ancillary development

Services, driveways, pools, walkways and other ancillary development should be designed and located so as to minimise their impact on trees. In some cases this can be addressed through "root barriers", "underboring" or other engineering solutions.

In most cases; however, it is best to avoid development under tree canopies or use treatments that allow for tree health and growth such as gravel walkways.

c tree removal

Trees proposed to be removed to accommodate the dwelling and or additions are to be nominated on the application plans, as the assessment of the DA or CDC will involve the assessment of existing trees and vegetation on site and the consent conditions will detail trees to be removed and those to be retained.

Applicants should also refer to DCP 14 – Tree Management to be aware of the criteria for permissible tree removal around existing buildings, so that where appropriate trees are removed via the most economical and safe means.

d tree waste

Tree waste is to be disposed of by milling for timber and other uses, recycling, wood chipping for mulch or tub grinding only.

e construction protection

All existing trees on site require appropriate protection during construction as explained in Section 3.3 "Site Preparation and Management". Any tree damaged during works on the property or street frontage shall be repaired or replaced at no cost to Council with a tree approved by Council. Fines may apply for unapproved tree removal.

3.7.4 Guidelines

a landscaping

The selection of trees in landscaping should be carefully done so as to avoid long term conflicts with development, solar appliances or neighbours. Particular attention should be given to appropriate species selection for site conditions and soils. Long-term canopy spread, root mass and in limited cases, human health considerations arising from pollen production should be assessed in selecting appropriate trees.

The use of native plant species and grasses is encouraged as natives generally require less watering and attract native bird species into the garden. Species selection should be based on plants indigenous to the locality of the dwelling. This will minimise requirements for water, energy, fertilizers and herbicides.

The landscaping should seek to capture runoff through the use of depressions, swales, rock channels, ridges, reed beds or similar. Where practical, low-lying areas suitable for treatment ponds or wetlands can be used as a focal point in the site design.

Local nurseries, landscape architects or Council can provide professional advice, brochures and useful pamphlets on such matters. Avoid buying cheap, or readily available stock until you know what it is likely to grow into.

b tree waste

If chipped or ground, tree waste should be stored on site for use as mulch in final landscape works or for soil stabilisation to reduce impacts on landfill sites and to recycle resources. Material that cannot reasonably be recycled may be disposed of to a Council approved site.

3.8 Site Design

3.8.1 Preamble

The design of a dwelling house cannot be done in isolation from design of its proposed site. This includes initial consideration in placing the dwelling on the site so that it relates to elements identified in the site analysis. It then extends to retention of trees, location and finish of driveways, paths, landscaping, retaining walls and fencing.

Site design should be done as carefully as that for the building. This will ensure essential and costly elements such as fencing, carparking, retaining walls and landscaping complement the dwelling and do not dominate or clash with natural vegetation and features.

Finally, good site design saves money by considering and ensuring solar access, water efficiency and avoiding costly changes in the future.

3.8.2 Outcomes Sought

- a A site design that integrates the building design with the natural features and constraints of the site.
- b A site design that ensures that built elements do not dominate or conflict with natural vegetation and site features.
- c Landscaping is carried out that compliments the natural vegetation and uses local native species.

3.8.3 Council Requirements

a private open space

Has private open space (external active living area) that is oriented towards the sun, accessible to the dwelling, sufficiently large to meet the needs of the occupants for recreation and other outside activities including clothes drying and takes advantage of any views.

Areas nominated as private open space should receive a minimum of 3 hours of sunlight to at least 75% of the area, between 9 am and 3pm in midwinter. Reference should be made to the standards identified for Privacy and Overshadowing within s.3.6: Building Design.

d flood affected land

Requirements are to be applied in accordance with Council's Floodprone Lands Development Policy. This includes ensuring that habitable floor areas are at least 0.3 metres above the 1% flood level, except for the Warnervale/Wadalba Release area where 0.6 metres minimum clearance is required.

A minimum floor height of 2.7 metres Australian Height Datum (AHD) is required.

In addition specific design elements are required by the Policy including:

- orientation of the building to provide least possible resistance to flood flows;
- all electrical installations that are not flood compatible must be at least 0.5 metres above the 1% flood level;
- controls on storage of dangerous substances;
- certification by a structural engineer of adequacy may be required where there are significant forces on the building due to flooding;
- flood compatible materials are required for those sections of the building that may be immersed in floodwaters.

h landscaping

- Retain local native vegetation species and consider the design and budget for landscaping as part of the overall design;
- Provide turf as a minimum to the front setback area prior to occupation of the dwelling;
- Avoid placement of trees and species that may damage the dwelling or pool, or which would pose a risk to the integrity of local bushland.
- Avoid placement of water seeking trees in the vicinity of pools, drainage pipes, sewer mains and foundations;
- Include landscaping of the front setback area with plants that reflect the natural streetscape, soften the hard surfaces and corners of built structures and enhance the appearance of the locality; and
- Avoid the planting of tall growing evergreen species adjacent to southern boundaries, as this may restrict solar access on the adjacent land, particularly where solar collectors / appliances may be affected.

d bush fire protection

Provide adequate separation between the dwelling and adjoining bushland for fire protection. Buildings must be setback distances in keeping with guidelines outlined in "Planning for Bushfire Protection, 2006", produced by the NSW Rural Fire Service.

In high fire danger areas a report may be required to document the fire risk and provide fire safety measures for any proposed development.

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e fencing

Include consideration of fencing as part of the site design and provide it in accordance with Council's Development Control Plan 85 – Exempt Development.

Fencing should integrate with the colour scheme and design of the dwelling and where possible with the colours and materials of fencing on adjoining lands.

Variations to Council's Exempt Development Requirements require a development application and will generally be considered only to overcome specific site constraints such as significant slope, overlooking, lighting issues or traffic.

In special circumstances fences above 1.2 metres in height above ground level may be approved on the street alignment. These fences are to be of brick, masonry or other approved material with a maximum height of 1.8 metres above ground level. In these cases, the fence is to be erected no closer than 1.5 metres from the front boundary alignment and shall be properly landscaped between the fence and the alignment. Details of the proposed landscaping is to be submitted with the development application.

A proposal to erect a fence closer than 1.5 metres from the front boundary may be permitted if due consideration has been given to the design and appearance of the fence, landscaping and driver vision for vehicular access to and from the site.

Dividing fences are generally to be erected on natural ground level. Where it may be necessary for consideration to be given to the erection of a fence on a supporting retaining wall, the overall height of that wall and fence shall not exceed 2.7 metres from ground level on the lower side.

f carparking

Provide carparking for residents as follows:

• a minimum of two (2) carparking spaces shall be provided on site per dwelling.

Where the design permits, at least one (1) space shall be provided as a drive-through garage carpark, of minimum internal dimensions 3m by 5.4m (excluding support columns located away from car door access points). A minimum opening of 2.4 m is to be provided to the front and rear walls of the garage in these cases.

- parking within the front setback on the driveway may be used to constitute one of the required spaces, however a carport over this space(s) will not be approved within the front setback area.
- carparking must be designed so that vehicles can access the space in one movement.
- the area of parking hardstand is to be minimised within the front setback area to permit rainwater infiltration into turfed and landscaped areas. Note that a larger area can be obtained through the use of porous concrete or plastic modular pavers.

Garage doors must not constitute more than 50% of the lineal frontage of the building fronting the street:

Carports shall be:

- located behind the front building line; and
- of a design, roof alignment, materials and colour(s) compatible with and complementary to the dwelling.

Carports will generally not be approved within the front setback area. In exceptional circumstances only, Council may consider such proposals on individual merit. An exceptional circumstance may include where it can be demonstrated that no physical opportunity exists for the provision of other accessible vehicular protection on a site. The applicant would be required to demonstrate that the design, materials and colour(s) proposed in such a case

would be complementary to the dwelling and that adequate vegetative screening can be provided and maintained adjacent to either side of the structure.

Driveways are to be designed as follows:

- a minimum pavement width of 2.5 metres is required; and
- the parking surface is to be treated with decorative finish.

The two required carparking spaces are not to:

- be located where slopes exceed 20% (1:5);
- extend over footpaths; or
- be used for the regular storage of trailers, boats, caravans or non-operational motor vehicles.

g swimming pools

Ensure that any swimming pool:

- is not proposed within the front setback, except where the fence is set back a
 minimum of 1.5 metres with screen landscaping and a fence that blends with the
 streetscape. If the existing streetscape is not characterised by 1.8 metre high
 fencing, a pool will not be approved within the front setback area;
- is setback a minimum of 1.0 metre from the side and rear boundary to the water's edge;
- has backwash connected to sewer. In unsewered areas, backwash may require
 the use of a cartridge filter or alternative on-site disposal (eg. rubble pit well away
 from dwelling on-site waste disposal area and distant from native vegetation);
- perimeter drainage directs all splash or spill away from adjoining properties;
- overhead wires are relocated so as not to traverse the area occupied by the swimming pool and its surrounds;
- safety fencing and signage is provided in accordance with the Swimming Pool Act and Regulations;
- which is an unheated swimming pool of less than 40,000 litres capacity ("BASIX Optional Development") is supplemented by a backup rainwater tank water supply of 2,500 litres minimum capacity, to address water loss due to swimming, splashing, and evaporation. This supply is additional to any supply required under previous approvals. The capacity may be reduced to a minimum of 1,500 litres where the application includes commitment to the provision and use of a pool blanket (can prevent up to 97% of evaporation); and
- filter pump and associated pump for the rainwater tank is to will not create a noise problem. The Any pump must not be audible at the nearest residential property boundary between the hours of 8.00 pm and 7.00 am Monday to Saturday and 8.00 pm to 8.00 am on Sundays. This can be achieved by the use of timing devices and/or the pump may be enclosed in a noise attenuating enclosure.

h Spa pools

Any spa pool which comprises "BASIX Optional Development" is required to provide a minimum 2,500 litre rainwater tank together with a lockable spa cover, due to the frequent filling and emptying which occurs in their usage. Consideration should be given to disinfecting and draining the spa pool back into the rainwater tank when available storage volume allows, rather than draining to the stormwater disposal system. Any associated pump is subject to the requirements outlined for swimming pools above.

i roof water

Roof water shall be connected to the rainwater tank (Refer s.3.9 – Sustainability), prior to disposal to:

- an on-site transpiration rubble pit or evapo-transpiration area;
- an inter-allotment drainage system;
- · a drainage easement;
- the street table drain; or
- an appropriate combination of the above.

Where adverse fall exists and an easement is not present, it is recommended that discussions be held with property owners at the rear of the subject land with a view to negotiating a private easement to dispose of the water onto the lower street water table. Should these negotiations be unsuccessful, Council will consider the disposal of the water on site by means of absorption trenches (transpiration rubble pit or evapo-transpiration area) as the preferable outcome. Details will be required to be submitted with the application and be approved by Council or the Certifier.

j surface water disposal from paved areas

All paved areas external to the dwelling shall be graded and drained via a drainage system that is disposed of to an approved disposal point. Paved areas should not be designed to fall towards adjoining properties without adequate provision for stormwater collection and disposal.

3.8.4 Guidelines

a landscaping

Only use exotic species in a strategic way to add colour or serve a specific purpose.

Primary plants used in landscaping should wherever possible be native trees and shrubs, particularly those identified in DCP 14 – Vegetation Management as "Species of Local Significance" or "Keystone Species".

b **safety**

Site design enables local surveillance of public areas and access point to the dwelling.

The placement of doors, windows, gates, screens, lighting and other features takes account of the security needs of the occupants and avoids creation of dark, concealed or obscure entryways or points around the dwelling.

Slippery surfaces on walks and paths are avoided.

Adequate lighting is provided to all paths and access points.

c driveways

Where a driveway exceeds 30 metres in length, it should not be constructed as a continuous straight line and should be offset by landscaped sections.

d water treatment

On-site water quality controls can assist in removing nutrients, which impact our waterways. These may include:

- water filter strips (reed plantings, grass areas, planting beds, etc.);
- porous pavements, which allow infiltration and filtering through the soil structure;
 and
- grassed swales along drainage lines and street gutters.

CARPARKING AND GARAGES

Garages and carports are generally not considered to be a thing of beauty. For larger garages, side presentation to the street, coupled with appropriate treatments (e.g., building elements, windows, etc.) and landscaping may provide the parking requirements while maintaining street amenity.

The carparking needs of the occupants should be met but in such a way that does not detract from the function and appearance of the dwelling and the locality.

3.9 Sustainability

3.9.1 Preamble

Our lives are inseparably linked and dependent upon resources provided by our environment - from what we eat and drink, to where and how we live.

Sustainability requires us to better understand the systems that support what we do, and to recognise that our day-to-day activities can simultaneously affect our society, economy and environment. There is not a finite point at which sustainability can be achieved; rather it is a journey along a path towards a better future for us all.

Sustainability is integral to the design process for quality housing. Aspects include demolition of existing structures, recycling of materials, selection and purchasing of appropriate and sustainable materials, adaptability and reuse of buildings, layouts and built form, passive solar design principles, efficient appliances and mechanical services, soil zones for vegetation and management and reuse of stormwater.

3.9.2 Outcomes Sought

- a To ensure good design makes efficient use of natural resources, energy and water throughout its full life cycle, including construction.
- b To encourage energy and water efficiency in dwelling houses.
- c To have sustainable design features incorporated in the design of dwelling houses

3.9.3 NSW Government Requirements – the BASIX Program

a energy and water efficient dwelling houses

- From July 1, 2005, the NSW Government requires the submission of a BASIX Certificate with any application for a new dwelling. Dwellings are defined as a BASIX affected building by State Environmental Planning Policy [Building Sustainability Index] 2004.
- The certificate must be current, must relate to the land and the dwelling design proposed, and must attain the required energy efficiency, water efficiency and sustainability targets.

b energy and water efficient additions

From July 1, 2007, dwelling additions are defined as a BASIX affected building if:

your renovation work is valued at \$50,000 or more, or

• you are installing a swimming pool (or pool and spa) with a capacity greater than 40,000 litres.

Should the additions proposed be within the above criteria, you must lodge a BASIX Certificate with the application. The certificate must be current, must relate to the land and the dwelling additions proposed, and must attain the required energy efficiency, water efficiency and sustainability targets.

Note: Sustainability guidelines which may assist in achieving the BASIX targets are provided within Section 5. 1 – Sustainability Guidelines. Further information regarding BASIX may be obtained from the following website: www.basix.nsw.gov.au or by contacting the NSW Department of Planning.

3.9.4 Council Requirements - Energy and Water efficient additions ("BASIX Optional Development")

Additions, alterations, swimming pools and spa pools which do not fall within the above BASIX criteria are defined by the BASIX SEPP as "BASIX Optional Development" and will be required to meet the following Energy and Water efficiency requirements of Council:

Energy efficiency:

Insulate your house to keep it naturally cooler in summer and warmer in winter and save on heating and cooling costs. Minimum requirements are:

- Double-sided reflective foil under tile roof or foil laminated bulk insulation blanket under metal roof; and
- Bulk insulation rated at R2.5 or greater in the entire ceiling adjacent to roof space;
 and
- Double-sided reflective foil or bulk insulation R1.5 or greater in the external walls.

Solar orientation:

- Dwelling additions should be designed to maximise passive solar design opportunities, and consequent savings in dwelling running costs, by locating the bulk of internal and external living areas on the northern side.
- Roof design should consider the option of a north facing element to maximise the efficiency of panels for any solar hot water system.

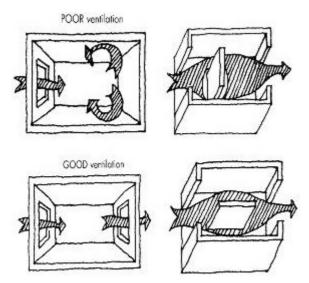
Eaves, awnings and verandas

- The use of structural rather than mechanical means to control solar access, temperature and ventilation and to provide weather protection to openings is required. Roofed verandas, decks, awnings, pergolas and similar control devices should be used and be integrated into the design of dwelling additions;
- Where such devices are not integrated into the building design, eaves with a minimum width of 450mm shall be provided on all facades.

Note: This requirement does not apply to gables over garages or prevent the incorporation of "under eave" articulation of the building façade. Any design which proposes to depart from these standards, i.e., eaveless designs, will be required to provide justification as to how these objectives and requirements are otherwise achieved, to enable a merits based assessment of the proposal.

Ventilation

 The alterations/additions shall be designed to improve ventilation through the dwelling. Windows should be placed to take advantage of prevailing breezes in summer with clear paths through the dwelling. Prevailing breeze direction in Wyong Shire during the hot summer months varies depending on distance from the coast and lakes. Louvers placed in internal walls can greatly assist ventilation.



Source: Australia's Guide to Good Residential Design

Figure 12 Examples of good and poor room ventilation:

Lighting

- Achieve significant energy and cost savings by:
 - maximising the use of natural lighting in the design of the dwelling;
 - the incorporation of energy efficient lamps, fittings and switches (e.g., compact fluorescent lighting); and
 - the incorporation of dimmers, motion detectors, and automatic turnoff switches where appropriate.

Appliances

- Achieve energy efficiency through the selection of appliances. A minimum energy rating of 3.5 stars will generate significant savings in operating costs over the life of an appliance.
- Gas or solar appliances are preferable wherever possible.
- Energy ratings are displayed on all appliances and detailed information is available on the National Appliance Energy Rating web site at www.energyrating.gov.au.
- Air-conditioners should have a score of 3.5 Stars or greater and be located so as to not be adjacent to bedrooms of neighbours' dwellings or cause a noise nuisance.
- Consider the installation of ceiling fans to minimise the use of air conditioning units.
- In addition to the Greenhouse Score of an air conditioner, consider an inverter system.
- Achieve water efficiency through the selection of appliances with a 2 star (WELS) rating or better. WELS ratings are displayed on all water using appliances and detailed information is available on the web site at www.waterrating.gov.au.

Fixtures

- Water fixtures fitted to all additions shall include at a minimum:
 - o "3 Star WELS" (dual flush) rated toilet cisterns;
 - "3 Star WELS" rated taps and aerators on laundry and kitchen hand basins;
 - o "6 Star WELS" rated taps and aerators for other basins (e.g., bathrooms); and
 - "3 Star WELS" rated showerheads, which have a maximum flow rating of 9 litres per minute.

Note: 6 star rated tapware may not be compatible with some instantaneous hot water systems. Check with the manufacturer if in doubt.

Rainwater tanks

- All proposals for additions which are categorised as "BASIX Optional Development" are to include sufficient independent water supply (a minimum 2,500 litre rainwater tank) to cater for the additional water demand generated by the new work. Dependant upon the size of the additions and existing water storages on-site (if any), applicants should consider including new plumbing to internal connections, such as the toilets and washing machine, as well as using the rainwater tank for external watering.
- Any proposal which is an unheated swimming pool of less than 40,000 litres capacity ("BASIX Optional Development") is to be supplemented by a backup rainwater tank of 2,500 litres minimum capacity, to address water loss due to swimming, splashing, and evaporation. This supply is additional to any supply required under previous approvals and to those required with any concurrent dwelling additions. The capacity may be reduced to 1,500 litres where the application includes commitment to the provision and use of a pool blanket (can prevent up to 97% of evaporation).
- Any spa pool which comprises "BASIX Optional Development" is required to provide a 2,500 litre rainwater tank together with a lockable spa cover, due to the frequent filling and emptying which occurs in their usage.

landscaping

- Council encourages locally sourced native plants. These are better adjusted to our local climate and soil conditions.
- Use permeable materials (such as porous paving) as an alternative to large expanses of impermeable concrete.
- Locate or take advantage of existing trees to provide shade in summer and therefore minimise the need for air conditioning.

On-site effluent disposal

In non-sewered areas, all on-site effluent disposal systems must be installed and
operated in accordance with approvals issued by Council under cl 29 and 43 of
the Local Government (General) Regulation, 2005. Modifications to the system,
or a new system, may be required to accommodate the additions and appropriate
application forms should be included with the application for the additions to the
dwelling house.

Food waste disposal units

 Council, in its role as a Water Supply Authority, does not permit the installation and use of in-sink food waste disposal units, in accordance with its powers under

the NSW Code of Practice - Plumbing and Drainage in residential dwellings or other premises.

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Instead consider compost bins or worm farms as an alternative to in-sink food
waste disposal units. Not only does this reduce the amount of garbage in your
rubbish bin, it can also provide an excellent mulch and fertiliser for your garden.

4.0 REFERENCES

4.1 Council Controls

Council has a number of Development Control Plans that establish their specific policies for the construction of dwelling houses and additions. In particular, there are a number of site-specific DCPs, which must be considered in any development proposal in the identified areas. In addition, the following provide general guidelines for residential housing development.

Policy E2 – Erosion and Sediment Control From Building Sites

- provides specific guidelines on formulating an erosion control programme for any development consent site as part of the development process
- gives standards for the erection and maintenance of sediment control facilities

Policy F4 - Flood Prone Land Development

- limits buildings and development that may reduce the ability of the floodplain to carry water and so increase the flood hazard
- ensures buildings and developments are designed to withstand the stresses of floods

DCP 14 - Vegetation Management

• outlines controls covering the removal of vegetation (including underscrubbing) and lists preferred trees for planting in Wyong Shire

DCP 61 - Carparking

provides standards for carparking for dwelling houses

DCP 62 - Home and Centre Based Childcare

identifies standards for carrying out childcare in dwelling houses

DCP 63 - Home Based Employment

 identifies standards for carrying out home occupations and home businesses in dwelling houses

DCP 67 - Engineering Requirements for Development

 a detailed set of specifications concerning all aspects of engineering works and development guidelines for building sites

DCP 69 - Waste Management

- outlines Council's policies for minimising waste generation and reducing waste disposal costs
- it requires Waste Management Plans for all development worth more than \$1 million or creating more than 20 tonnes of waste

DCP 76 - Conservation of the Built Environment

• identifies buildings and sites that are protected under the heritage provisions of Wyong Local Environmental Plan 1991and the special requirements that apply to development of and in the vicinity of these buildings and sites.

 Dwelling houses that are "in the vicinity of" an identified heritage item need to have regard to the provisions of this DCP

DCP 77 - Coastal Hazards

• Identifies land that may be subject to coastal erosion. Dwelling houses in the streets specified in this Development Control Plan are affected by its provisions

DCP 85 - Exempt Development

- lists all forms of development (including minor verandahs, pergolas etc) that do not require an application to Council for construction
- all such developments must meet the requirements in the DCP

DCP 99 - Building Lines

 provides specific setbacks for dwelling houses and ancillary buildings not impacted by controls in site specific Development Control Plans

DCP 101 - Building Over and Adjacent to Sewer Mains

provides specifications for building over and adjacent to sewer mains

Vehicle Access Crossing Specification

provides specifications for vehicle access crossings(VACs) for residential sites

4.2 Publications

Australia's Guide to Good Residential Design. The National Office of Local Government. Canberra 1999.

Australian Rainfall and Runoff, Institution of Engineers Australia, 1987.

Managing Urban Stormwater: Soil and Construction (Department of Housing and Department of Land and Water Conservation (1998). Department of Housing and Department of Land and Water Conservation, Sydney.

NSW Model Code (A Mode for Performance Based Multi-Unit Housing Codes). Department of Urban Affairs and Planning 1997.

Planning for Bushfire Protection 2001 – NSW Rural Fire Service.

Road Traffic Noise Policy (2001). Environmental Protection Authority of NSW, Sydney.

Water Sensitive Urban Development – Model Planning Provisions – Lake Macquarie City Council (1999)

Your Home Technical Manual (NSW Edition). Australian Greenhouse Office and Department of Urban Affairs and Planning 2001.

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5.0 ATTACHMENTS

5.1 Sustainability Guidelines

The following are design guidelines for the achievement of sustainable residential development and compliance with BASIX targets. They are not specific requirements under the provisions of this DCP, yet are strongly advocated in achieving environmentally comfortable and sustainable developments.

5.1.1 Energy Efficiency

Energy efficient dwellings are homes that, through their design, construction and choice of materials and appliances, maximise use of renewable energy sources (such as sunshine) and use less energy more efficiently. They are 'smart' because they simultaneously help enhance scarce resources, reduce the level of greenhouse gas emissions and provide significant savings to the occupants.

Solar Orientation

- a Each dwelling should be designed with the bulk of its internal and external living areas on the northern side, unless there are major site constraints or desirable views that require a different orientation, in order to maximise passive solar design opportunities and consequent savings in dwelling running costs.
- b Solar access for private open space and courtyards within the front building setback area is optimised in those lots between 30 degrees clockwise and 20 degrees counter clockwise of North, East and West facing street frontages.

Shading (Eaves, Awnings and Verandas)

- a Use structural rather than mechanical means to control solar access, temperature and ventilation and to provide weather protection to openings. Roofed verandas, decks, awnings, pergolas and similar control devices should be used and integrated into the design of each dwelling within the development;
- b For single and 2 storey developments eaves should be minimum 450mm width on all sides of the building(s).

Note: This does not apply to gables over garages or prevent the incorporation of "under eave" articulation of the building façade.

Clothes Drying

a An external clothes drying area of at least 3m² should be provided for each dwelling. This area is to be located at ground level on the northern side of the development, receive adequate solar access and not be directly visible from the street.

Hot Water System

- a Each dwelling should have a complying hot water system, which achieves a minimum Greenhouse Score of 3.5 Stars.
- b Roof design should consider the option of a north facing solar hot water system.

Note: Complying Hot Water Systems include gas, solar and heat pump systems. As conventional electric hot water systems account for approx. 40% of the electricity use of an average home, the greenhouse and operational cost savings to be gained from installing complying systems is significant. Further,

significant purchase discounts are available to consumers installing complying systems, e.g., the Commonwealth Government Renewable Energy Certificates (RECS) are available for the replacement of existing electric hot water systems with complying hot water systems.

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Also, the Department of Energy, Utilities and Sustainability (DEUS) offers discounts, additional to the value of the RECS, for the installation of electric boosted solar, heat pump systems and for gas boosted solar.

Typical Greenhouse Scores for Water Heaters:

Water Heater	Туре	DEUS Greenhouse Score
Solar-Gas Boost*	Storage	5
Solar-Electric Boost*	Continuous	4
Solar-Electric	OP2	4
Boost*		
Electric-Storage	Heat Pump	4
Gas	Instantaneous	4
Gas-Storage	Storage	4
Electric	Instantaneous	2
Electric	Continuous	1
Electric-Storage	Storage (OP1, OP2)	1

^{*} greater than 50% solar contribution

Table 2 Typical Greenhouse Scores for Water Heaters

Eliminate draughts

- a Eliminate heat loss and entry of cold air through gaps and cracks by installing:
 - · weather strips;
 - · door gap jambs;
 - · exhaust fans which close when not in use; and
 - vented skylights only in non-habitable rooms.

It is also advisable to insulate pipework for greater energy efficiency and to ensure construction gaps are filled.

Windows

- a Curtains can reduce heat loss through glass by 25 to 50 percent.
- b The other way of reducing heat loss is to use double or thicker glazing. This can reduce heat loss by 50 to 60 percent.
- c Pelmets on curtains increase their efficiency for relatively little cost.
- d Use of covers, screens, louvers, etc, to the outside of windows to stop heat coming in.

Ventilation

- a Windows should be placed to take advantage of prevailing breezes in summer with clear paths through the dwelling. Prevailing breeze direction in Wyong Shire during the hot summer months varies depending on distance from the coast and lakes.
- b Louvers placed in internal walls can greatly assist ventilation.

Thermal Heat Banks

Applicants should consider the many advantages of thermal heat banks. If properly designed, the dwelling can allow the sun to enter at the low winter sun angle to heat a dark surfaced heavy weight material like a concrete floor slab or internal masonry wall. (This may also include an in-situ water tank, formed as part of the floor slab or wall.) Heat is later released from the slab or wall throughout the colder evening, saving on heating costs.

During the summer it can work in reverse using solar shading devices and shady trees to keep the sun off the thermal mass so it remains cooler.

Lighting

- a Significant energy and cost savings can be achieved by:
 - maximising the use of natural lighting in the design of each dwelling;
 - the incorporation of energy efficient lamps, fittings and switches (e.g., compact fluorescent lighting); and
 - the incorporation of dimmers, motion detectors, and automatic turnoff switches where appropriate.

APPLIANCES

Applicants are encouraged to consider energy efficiency in the purchase of appliances. A minimum energy rating of 3.5 stars is highly desirable and will generate significant savings in operating costs over the life of an appliance.

Gas or solar appliances are preferable wherever possible.

Energy ratings are displayed on all appliances and detailed information is available on the National Appliance Energy Rating web site at www.energyrating.gov.au.

Air-conditioners should have a Greenhouse Score of 3.5 or greater and be located so as to not be adjacent to bedrooms of neighbours' dwellings or cause a noise nuisance.

5.1.2 Water Sensitive Design

Water efficiency involves reducing the use of potable water as well as controlling and using rainwater and waste water from the site.

There is a great deal that proposals can do to reduce water usage and minimise impacts of the dwellings on storm water runoff. These measures basically involve:

- Minimising water use in the dwelling and garden/landscape areas.
- <u>Retaining</u> rainwater to utilise within the dwelling, and storm water to improve groundwater infiltration, slow runoff and allow for natural treatment.
- Reusing water wherever possible.

Fixtures and Appliances

Appliances

a Achieve water efficiency through the selection of appliances with a 2 star (WELS) rating or better. WELS ratings are displayed on all water using appliances and detailed information is available on the web site at www.waterrating.gov.au.

Fixtures

- a Water fixtures fitted to all additions should include at a minimum:
 - "3 Star WELS" (dual flush) rated toilet cisterns;
 - o "3 Star WELS" rated taps and aerators on laundry and kitchen hand basins;
 - "6 Star WELS" rated taps and aerators for other basins (e.g., bathrooms);
 and
 - "3 Star WELS" rated showerheads, which have a maximum flow rating of 9 litres per minute.

Note: 6 star rated tapware may not be compatible with some instantaneous hot water systems. Check with the manufacturer if in doubt.

- b The shower is the major user of hot water in the home. The use of "AAA" fittings can halve the water used. This provides not only a saving in water but also results in significant energy, cost and greenhouse gas reductions.
- c Washing machines that are front loading use an average one-quarter of the water of a comparable top loading machine and are therefore recommended. There are limited ranges of "sudsaver" washing machines available that save water and reduce the loading of detergent in the effluent disposal system. These require a minimum 130 litre tub in the laundry, but are recommended for the long term benefit provided.
- d A pool blanket or cover can significantly reduce water loss from swimming pools through evaporation (by up to 97%). Rainwater tanks can also be used to supplement or replace town water supply for "topping up" during dry periods and to store supply when pools overfill during heavy rainfall events.

Landscaping

- a The selection of trees in landscaping should be carefully done so as to avoid long term conflicts with development, solar appliances or neighbours. Particular attention should be given to appropriate species selection for site conditions and soils. Long-term canopy spread, root mass and in limited cases, human health considerations arising from pollen production should be assessed in selecting appropriate trees.
- b The use of native plant species and grasses is encouraged as natives generally require less watering and attract native bird species into the garden. Species selection should be based on plants indigenous to the locality of the dwelling. This will minimise requirements for water, energy, fertilizers and herbicides.
- The landscaping should seek to capture runoff through the use of depressions, swales, rock channels, ridges, reed beds or similar. Where practical, low-lying areas suitable for treatment ponds or wetlands can be used as a focal point in the site design.
- d Local nurseries, landscape architects or Council can provide professional advice, brochures and useful pamphlets on such matters. Avoid buying cheap, or readily available stock until you know what it is likely to grow into.

Tree waste

a If chipped or ground, tree waste should be stored on site for use as mulch in final landscape works, as mulch retains moisture and retards weed growth. Mulch is also useful for soil stabilisation and the prevention of erosion and downstream sedimentation. It's use on site reduces impacts on landfill sites and is an efficient way to recycle resources.

Hardstand Areas

- a Hardstand areas should be minimised.
- b "Hardstand areas" on development sites, include the area of:
 - the dwelling(s) footprint; plus
 - garages, water tanks and outbuildings; and
 - non porous driveways, paths and courtyards.
- c Hardstand areas increase the volume and intensity of storm water runoff and prevent groundwater infiltration. It is therefore necessary to minimise paved areas so that infiltration into landscaped areas can occur, thus providing for the natural treatment of nutrients and pollutants carried by storm water prior to its discharge to the street drainage system, which ultimately discharges to our creek, river and Lakes system, thence into the Pacific Ocean.
- d Hardstand areas within the front setback should not exceed 45% of the setback area.
- e Porous concrete or plastic modular pavers placed on a sand base can be used to supplement non-porous areas and are recommended for car parks, car wash area, driveways, paths and courtyards. Such materials are not included in the above calculation of hardstand area for the lot.

Diversion/Retention systems

- a Developments should incorporate a system of rainwater capture / on site retention including re-use for:
 - External fixtures and landscaping in the case of captured surface water runoff; and
 - toilet flushing, washing machine use, landscaping and external washing of cars, etc. in the case of captured roof water.
- b Applicants should consider the use of diversion and re-use systems on site, which can be designed to capture:
 - surface runoff particularly from driveways and other hardstand areas; and
 - grey water from showers, laundry and some sinks.

Such systems can provide water suitable for irrigation and toilets provided they are designed and maintained to meet relevant quality guidelines established by NSW Health and the performance standards of the Local Government (General) Regulation 2005. They also need to be designed and installed by appropriately qualified plumbers to ensure they do not create a safety or health hazard.

On-site infiltration systems

- a Infiltration systems, involving trenches or "leaky wells" are recommended where their installation is not constrained by:
 - heavy clays;
 - shallow hard rock (<2 metre);
 - steep terrain (>10%);
 - high water table (<1 metre);
 - large trees;
 - proximity to structures;
 - · proximity to services.

These should generally be devised in keeping with current industry best practice guidelines. Where infiltration systems are proposed a geotechnical report will be required to determine the appropriateness of underlying soils.

b Retention basins should be considered on larger sites and in rural areas. These should generally be constructed in keeping with "Australian Rainfall and Runoff" (Institution of Engineers Australia, 2001).

Rainwater Tanks

- a Where rainwater tanks are proposed as part of the stormwater system for the dwelling or development, they should comply with Council's *Guidelines for the Installation of Rainwater Tanks on Residential Properties* as well as the AS/NZS 3500 and Council's Eco Info Sheet No. 50 *Rainwater Tank Systems*.
- b Rainwater tanks should be located and designed not to adversely impact upon the architectural merit of the building.
- The tank(s) must be fitted with a "first flush" diversion unit and / or a "filter bag" to remove surface contamination, and a facility for periodic de-sludging.
- d The tank(s) should have sufficient capacity and be connected so as to supplement water for the following services on the site, in order of priority:
 - toilet flushing;
 - laundry;
 - garden irrigation; and
 - external washing (cars etc.).

The tank(s) should be lined with food grade polyethylene and be installed in accordance with the National Plumbing and Drainage Code, AS/NZS3500.

Tanks should be connected to mains water to top them up during times of low rainfall, or alternatively, a Council approved rainwater cross-connection device including adequate mains water protection valves can be installed. For "top-up" systems, supplemental inflow from the mains supply should not take place until the tank is below 10% capacity. This permits the tank to buffer storm water flows to local drainage and provides rainwater storage capacity for the remaining 90% of tank volume.

Pumps should deliver a minimum pressure of 300 Kpa (at the pump) and be provided with a warning lamp to alert residents to pump failure. Submersible pumps are recommended as the water within the tank(s) provides insulation to mask pump noise. Any pump external to the tank should be enclosed in a noise attenuating enclosure and not create a noise problem. The pump should not be audible at the nearest residential property boundary between the hours of 8.00 pm and 7.00 am Monday to Saturday and 8.00 pm to 8.00 am on Sundays.

Further advice on the installation and maintenance of rainwater tanks is available by contacting Council's Customer Service Centre on telephone (02) 4350 5555.

5.2 **Building Lines**

The following tables are extracted from DCP No.99 – Building Lines. Reference should be made to DCP 99 for further explanatory information:

5.2.1 Residential

RESIDENTIAL	– Front Boundary	
Category	Front Building Line	Special Conditions
Single Detached Dwelling Garages and carports (whether attached or	Building Façade: "Category A" roads: 7.5m	The Building Line applies to the front wall, including patio, steps and balconies.
detached) • Ancillary buildings and structures (eg: garden sheds, water tanks, pergolas etc.) • Dual Occupancy • Villas • Townhouses and Residential Flat Buildings,	"Category B" roads: 6.0m "Category C" roads: 4.5m N.B: For "Category C" roads, a 6.0m setback applies where: the road reserve<12m; and development is proposed on both sides of the road.	Any building line less than that identified shall be justified in terms of: (i) matching or being sympathetic to the desirable character and placement of adjoining development;
up to 2 storeys (For development exceeding 2 storeys refer to DCP No.64 – Guidelines to Medium and High Density Residential Development)	Garage or Carport, whether attached or detached: • 6.0m minimum from the street accessed, excepting "Category A" roads, where 7.5m applies.	 (ii) enhancing the local streetscape; (iii) retaining reasonable privacy for existing and future residents; (iv) enabling special design features of the proposed development such as better energy efficiency, enhanced solar access, reduced cut and fill and / or retention of significant existing vegetation.
Single Detached Dwelling, Dual Occupancy, Villas, Townhouses and Residential Flat Buildings of up to 2 storeys, on a corner allotment:	As above, <u>plus</u> comply with: " <u>Preservation of Sight Lines</u> ": No building to be erected within the triangle from the intersection of the two street boundary lines formed by a sight line 12m along the road frontage and 6m along the terminating road frontage.	For single detached dwellings refer also to requirements specified within DCP 100 – Quality Housing
Swimming Pools	As above for Single Detached Dwelling, etc. Note requirements in relation to preservation of sight lines on corner allotments.	Council may consider an application for a swimming pool within the front setback where site constraints prevent another location, solar access is at a premium and the enclosing fence is set back a minimum of 1.5 metres with screen landscaping and a fence design that blends with the streetscape.

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RESIDENTIAL - Side and Rear Boundaries		
Category	Side and Rear Building Line	Special Conditions
Single Detached Dwelling:	Side and Rear Building Line Single or two storeys: Walls: 900mm Eaves: 675mm More than two storeys: Walls: 1500mm Eaves: 1125mm In addition to the above, a minimum setback of 2.4 metres shall be provided to one side of the dwelling to allow vehicular access to the rear of the lot, except where the following can be satisfied: • A garage or carport, is erected as part of the proposed dwelling, thereby providing 2 off - street parking spaces; or • The proposed dwelling is set back a sufficient distance to allow a future carport / garage to be erected on or behind the relevant building line; or • Vehicular access to the rear of the lot can be provided from an adjoining street.	The Building Line applies to the wall, including patio, steps and balconies. A cornice or eave may return along a wall for a maximum distance of 1800mm if the cornice or eave at any part is not less than 450mm from the boundary line. Any building line less than that specified shall be justified in terms of: (i) matching or being sympathetic to the desirable character and placement of adjoining development; (ii) enhancing the local streetscape; (iii) retaining reasonable privacy for existing and future residents; (iv) enabling special design features of the proposed development such as better energy efficiency, enhanced solar access, reduced cut and fill and / or retention of vegetation;
	, ,	(v) addressing one or more of the circumstances identified in clause 1.9 of this DCP; and
		(vi) adequate off street and on street parking being available for the dwelling.

RESIDENTIAL - Side (continued)	e and Rear Boundaries	
Category	Side and Rear Building Line	Special Conditions
Single Detached Dwelling: (Cont'd)	Any landing and/or steps adjacent to a side boundary of a single storey dwelling will be permitted at a lesser distance than the 900 mm minimum wall clearance and may extend to the boundary provided the height does not exceed 1 metre and there is no interference with the amenity of the adjoining property. Open tread stairs serving the first floor of a 2 storey dwelling must have a minimum clearance of 675 mm to the side boundary.	The Building Line applies to the wall, including patio, steps and balconies.
Single Detached Dwelling: (Corner Allotment)	Side Streets: 2.0m, where a drive-through garage or carport is provided with the dwelling and the intersection sight lines are preserved and the driveway location requirements specified under s.2.6 are adhered to. NB: Where a garage or carport is proposed to be accessed from the side street, a 6.0m setback applies to that structure, or component of the dwelling, from the boundary with the street accessed, excepting "Category A" roads, where 7.5m applies.	See "Sight Lines" above. In the absence of a double garage, or a drive-through garage or carport, a 2.4m side setback for access to the rear yard applies (see above).
Existing Dwelling house and ancillary buildings - Veneering or refacing	If an existing external wall of a Class 1 building is veneered or refaced, guttering, eaves hoods and similar structures or attachments erected between the external plane of the face of the external wall and any boundary line must not be less than 500mm from that boundary line.	

RESIDENTIAL - Sid (continued)	e and Rear Boundaries	
Category	Side and Rear Building Line	Special Conditions
Garages (timber clad)	500mm	Detached from dwelling by 900mm; & No encroachment on adjoining site.
Garages (masonry)	Nil	Detached from dwelling by 900mm; No windows in wall; and No encroachment on adjoining site.
Carports	500mm	Nil to existing approved masonry wall on the boundary An open carport, open porch, awning, pergola or similar structure may extend to the boundary line of the allotment if the structure complies with the BCA and Council is satisfied that it will not materially affect the amenity of the adjoining site.
Ancillary buildings and structures, water tanks, etc.	900mm except where otherwise identified in DCP No. 85 - Exempt Development.	Check DCP No. 85 - Exempt Development for relevant uses. Water tanks may be located closer to the boundary where comprising non-combustible materials. A minimum passing area of 675mm is desirable.
Swimming Pools	1.0 metre to edge of water	

5.2.2 Rural

RURAL & RURAL Rural dwellings / I	RESIDENTIAL - Front, side and rear]
Category	Building Line	Special Conditions
Rural Dwelling	As per DCP 100:	Refer to DCP No. 100 – Quality Housing.
	Front: 20 metres	And building line less they that
	Side / Rear: 10 metres	Any building line less than that specified shall be justified in term of:
	<u>Creeklines:</u> 40 metres from top of bank.	(i) matching or being sympathetic
	top of bank.	to the desirable character and
	Ridgelines: 50 metres from crest or highest point.	placement of adjoining development;
		(ii) protecting the physical characteristics of the land including, slope soil, watercourses, trees and other natural features;
		(iii) enhancing the visual amenity of the locality and in keeping with the rural character of the area an with the objectives of the zone;
		(iv) protection from bushfire;
		(v) enabling better access;
		(vi) enabling special design features of the proposed development such as better energy efficiency, enhanced sola access, reduced cut and fill and or retention of vegetation; or
		(vii) retaining reasonable privacy for existing and future residents.

RURAL & RURAL R Other buildings / Fr		
Category	Building Line	Special Conditions
Farm buildings, Ancillary Buildings, Machinery Sheds, Water Tanks etc.	Front: 20 metres and generally not in front of the dwelling house.	Check DCP 85 - Exempt Development for setback requirements for certain rural landuses. Location of a building or structure behind the building line but in front of the dwelling house shall be justified in terms of:
	Side / Rear: 10 metres Creeklines: 40 metres from top of bank.	(i) matching or being sympathetic to the desirable character and placement of adjoining development;
	Ridgelines: 50 metres from crest or highest point.	(ii) protecting the physical characteristics of the land including, slope soil, watercourses, trees and other natural features;
		(iii) enhancing the visual amenity of the locality and in keeping with the rural character of the area and with the objectives of the zone;
		(iv) protection from bushfire;
		(v) enabling better access;
		(vi) enabling special design features of the proposed development such as better energy efficiency, enhanced solar access, reduced cut and fill and / or retention of vegetation; or
		(vii) retaining reasonable privacy for existing and future residents.
Silos	Front: 20 metres. Side / Rear: Distance equivalent to the height of the silo plus 1 metre.	Note: For Silos as Exempt Development under DCP 85, the front setback is 20 metres and not in front of the dwelling house.
Tennis Courts	Front: 20 metres. Side / Rear: 10 metres minimum and 30 metres from any dwelling on adjoining land.	Lighting requires Council approval. The potential impact on neighbours may determine that ar additional setback or specific directional lighting controls may be required.
Swimming Pools	Front: 20 metres.	
	Side / Rear: 10 metres.	