

PART D

SPECIFIC DEVELOPMENT

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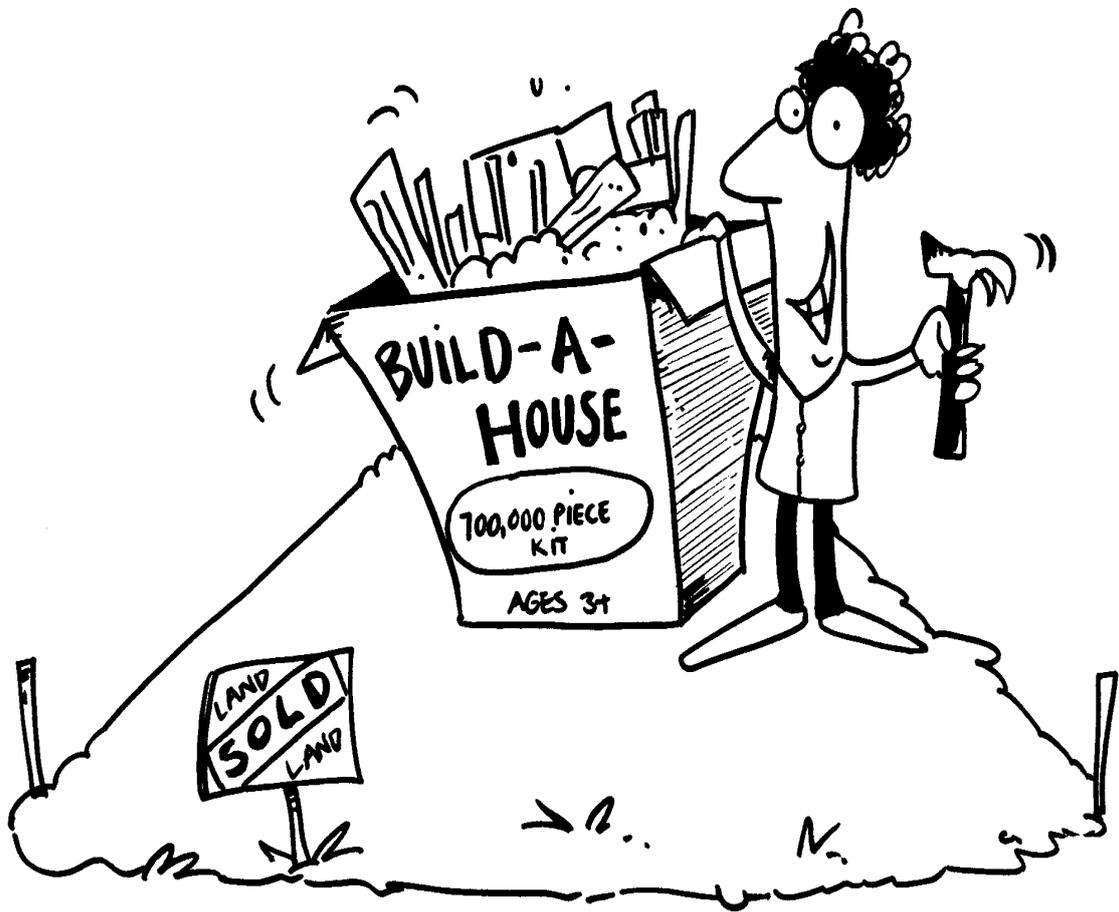
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RESIDENTIAL DEVELOPMENT



1.1 INTRODUCTION

This chapter of the DCP relates to single dwellings and multi unit housing. Other sections that are relevant to residential development include car parking and access, energy efficiency, subdivision and landscaping.

1.2 AIMS

The general aims for residential development in the Hawkesbury are to:

- provide clear guidelines for residential development in the City;
- ensure that all forms of residential development is designed to be compatible with the built environment in which they are located in terms of height size, bulk scale setbacks, materials and open space;
- ensure that the building form, including alterations and additions, is sympathetic with the existing surrounding neighbourhood;
- ensure that all types of housing meet community expectations about health, safety and amenity;
- ensure that proposed development does not detract from the amenity of adjacent residents or the quality of the environment;
- encourage innovative housing which is pleasant to live in and is responsive to the site; and
- ensure that proposed development is sympathetic to items of environmental heritage.

1.3 HEIGHT

Aims

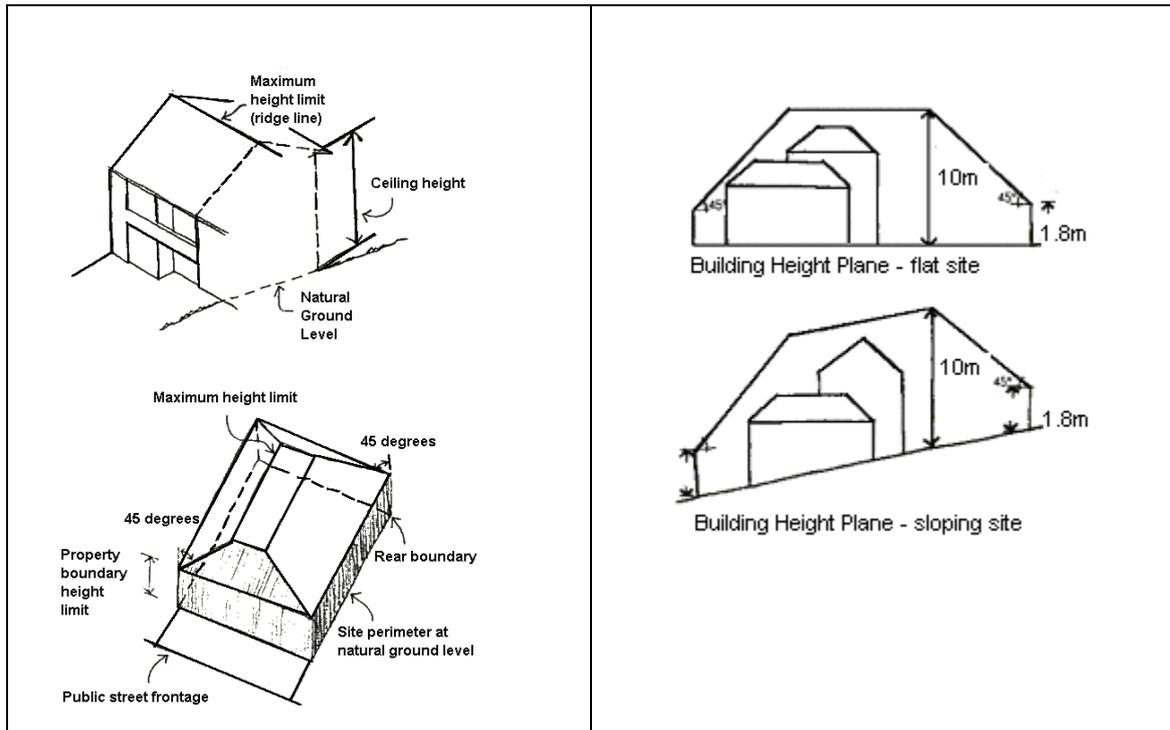
- (a) To protect the privacy, use of private open space and solar access within the development and on adjoining land.
- (b) To ensure that the bulk of the new development is not excessive and relates well to the local context.
- (c) To allow adequate natural light and ventilation between dwellings with sufficient separation for acoustic and visual privacy.



Objectives

- All parts of the building are to be within the Building Height Plane.
- Walls not built on the boundary are to be built to allow access to comply with the Building Code of Australia.

Figure D1.1 Building Height Plane



Rules

- (d) New buildings are to be constructed within the Building Height Plane for the relevant residential use. (Refer to Table 1). The Building Height Plane is to be adjusted for sloping sites to follow the natural ground level as shown in *Table 1*.

Table 1:

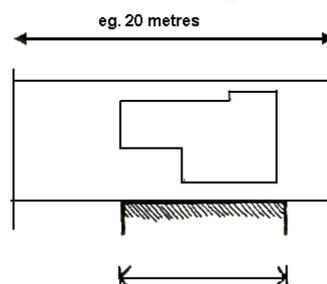
Maximum heights above natural ground level for each type of dwelling (in metres).

Residential Use	At property boundary	At ceiling height	Maximum height at ridgeline
<i>Single dwelling</i>	<i>1.8m</i>	<i>7m</i>	<i>10m</i>
<i>Multi-unit housing</i>	<i>1.8m</i>	<i>7m</i>	<i>10m</i>
<i>Walk-up flats</i>	<i>3.5m</i>	<i>8m</i>	<i>12m</i>

- (e) Building to the side & back boundary within the Building Height Plane is permitted where:
- it can be shown that building to the boundary does not reduce the privacy of neighbouring dwellings and their private open space and does not reduce their existing solar access; and
 - the continuous length of the boundary walls is not more than 10m or is a maximum of 50% of the boundary length; whichever is the shorter. Refer to Figure D1.2.
- (f) Exemptions to the Building Height Plane may be granted in the following circumstances:
- single dwellings proposed on flood prone land;
 - single dwellings proposed on lots with a frontage of less than 14m at the building line; and
 - chimneys, satellite dishes and aerals.

Applicants seeking an exemption to the Building Height Plane must demonstrate clearly why the compliance is unreasonable.

Figure D1.2 Length of building on the boundary



1.4 SETBACKS

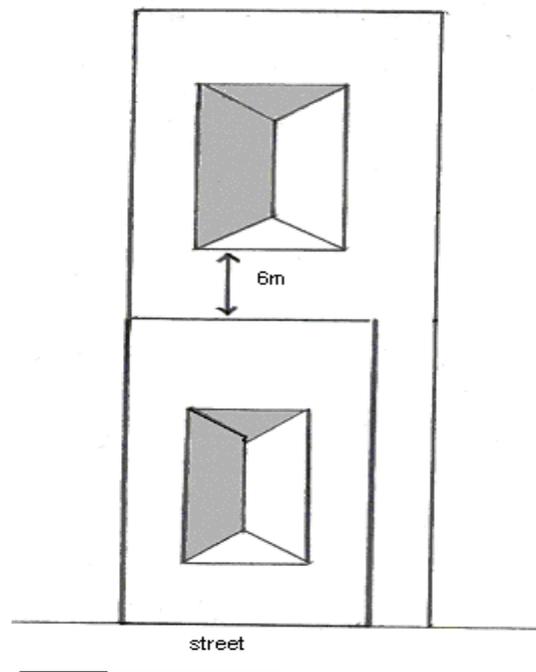
Aims

- (g) To establish, maintain or enhance attractive streetscapes.
- (h) To maintain roadways that are safe for all users - pedestrians, cyclists and motor vehicles - by ensuring adequate sightlines.
- (i) To allow some flexibility for residences to achieve better orientation for sun, shade, wind and neighbouring development, and better use of allotments to create private open space and courtyards.

Objectives

- If it can be proven that site constraints require the dwelling to be set closer to the street. This may be, for example, to overcome problems associated with slope, with overshadowing, or sites with significant flora and fauna or heritage items.

Figure D1.3 Setbacks for internal lots



Rules

- For sites fronting Main, Arterial or Collector roads, buildings are to be set 10 metres back from the front boundary unless there are exceptional physical circumstances. The 10m setback commences after any road widening which may affect the subject land.
- For sites fronting a local road buildings are to be set 7.5m back from the front boundary. In areas where there is prior development the established pattern is to be regarded as the standard setback.
- For internal lots the general setback from the rear boundary of the property in front is to be 6 metres.
- For the minor frontage on corner blocks, the minimum building setback is to be 2 metres.

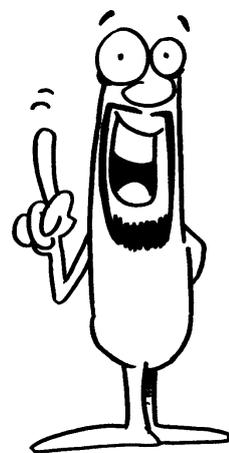
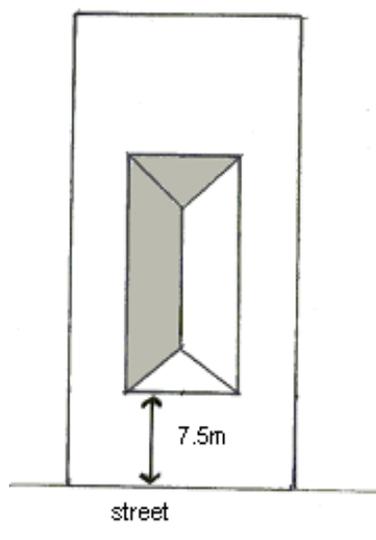


Figure D1.4 Setback



1.5 DEVELOPMENT FRONTING REAR LANES

Aims

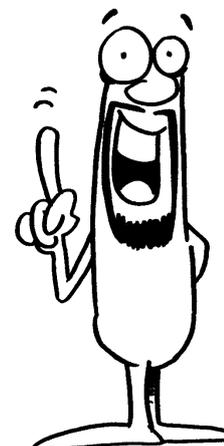
- (e) To utilise the existing rear lanes within Windsor and Richmond for the provision of housing choice.
- (f) To provide good visual amenity for residents front rear lanes.
- (g) To allow for well designed residential development fronting rear lanes.
- (h) To ensure that properties adjoining rear lanes utilise and front the rear lane.

Objectives

- To ensure that the front of dwellings face the rear lane. Parking spaces are to be provided for visitors to the site.
- Legal access is to be provided to the front street to allow for pedestrian and service access.

Rules

- (a) The front of the dwellings are to face the rear lane.
- (b) The laneway is to be constructed to a width of 4.5m wide sealed pavement from a sealed road to and over the frontage of the site. Kerb and guttering is also to be provided along one side of the rear lane.



- (c) Buildings are to front the rear lane and setback a minimum of 5.5m from the boundary to the rear lane.
- (d) Access to the site is to be widened to allow for satisfactory manoeuvring for vehicles entering or leaving the site.
- (e) Front fences are to be a maximum height of 1.2m to maximise site distances for vehicles leaving the site.
- (f) Visitor parking shall be provided at a rate of one per single dwellings and two per each fire units or part thereof. Parking spaces shall be located clear of the access to the garage/carports.
- (g) A 1.2m wide legal pedestrian and service access is to be provided to the front street.

1.6 LANDSCAPED AREAS

Aims

- (h) To create a pleasant and safe living environment by enhancing the setting of buildings and the environmental quality of the neighbourhood.
- (i) To ensure that planting and building structures are compatible in protecting existing landscape features.
- (j) To provide for privacy and shade and to assist in microclimate management.
- (k) To maximise absorptive landscaped areas for on-site infiltration of stormwater by limiting the area of hard surfaces at ground level.

Objectives

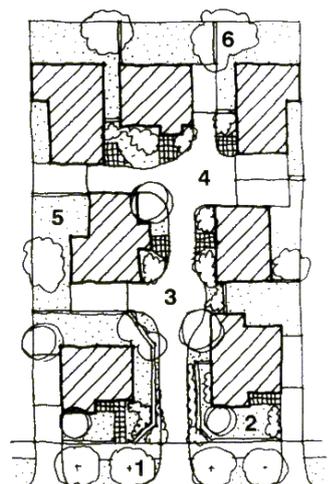
- The preparation of a site landscaping plan prepared by a suitably qualified person, such as shown in Figure D1.5 and Part C Chapter 1 Landscaping, that fulfils the objectives of this Development Control Plan must be included in the design and assessment process.
- Existing trees and other landscape features, such as rock outcrops and water elements should be retained to become an integral part of the overall landscape design.
- Provide landscaping which is in scale with the proposal and the street giving consideration to the future growth of the proposed planting in relation to buildings, structures and services.
- Select and site trees to:
 - aid climate control by providing shade in summer and sunlight in winter;
 - enhance the privacy of outdoor living spaces; and
 - be consistent with the prevailing landscape character, whether that is a native or exotic theme.

Rules

- (a) All forms of residential development are to contain pervious soft landscaped areas to a total of 30% of the total site area. This may be calculated by adding together soft landscaped areas of private and common open space. Development proposals, where required, are to indicate the proportion of the total site area that is:
- total "soft" landscaped area;
 - total ground level private open space; and
 - total common open space.



Figure D1.5 Site landscaping



- 1 Advanced tree species appropriate to the street provided or reinstated
- 2 Front gardens landscaped to a standard and a character compatible with those in the rest of the street
- 3 Driveways and communal spaces landscaped with low maintenance in mind
- 4 Paving for driveways chosen to complement the development and constructed to maximise on-site infiltration
- 5 Landscape treatment of private open space leaving scope for residents to develop
- 6 Existing mature trees retained where practicable, especially when along property boundaries

1.7 PRIVATE OPEN SPACE

Aims

- (b) To provide dwellings with an open space area that is private, accessible and provides for outdoor recreational activities and landscaping.
- (c) To provide for some utility functions.
- (d) To allow for a minimum level of provision whilst leaving opportunities for flexibility in use.
- (e) To locate private open space by taking into account factors such as solar access, outlook, streetscape, privacy and the location of adjoining dwellings.



Objectives

- Each private open space area must be on the same level and directly accessible from the dwelling's main living area, such as that shown in Figure D1.5.
- Private open space areas must be located to receive good solar access to provide for maximum year round use.
- Adequate screening of the private open space must be provided to protect the privacy of the occupants and their neighbours.

Figure D1.6 Private open space fulfils a number of functions

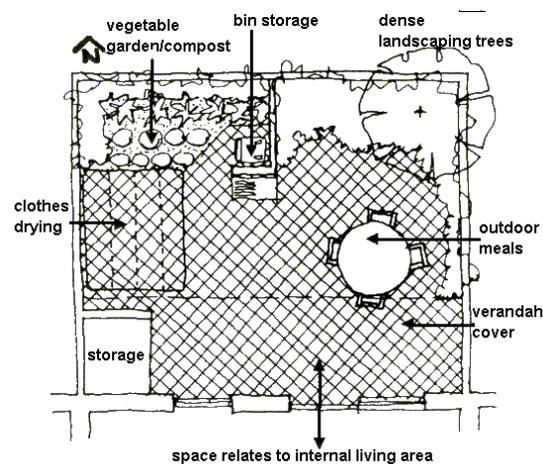
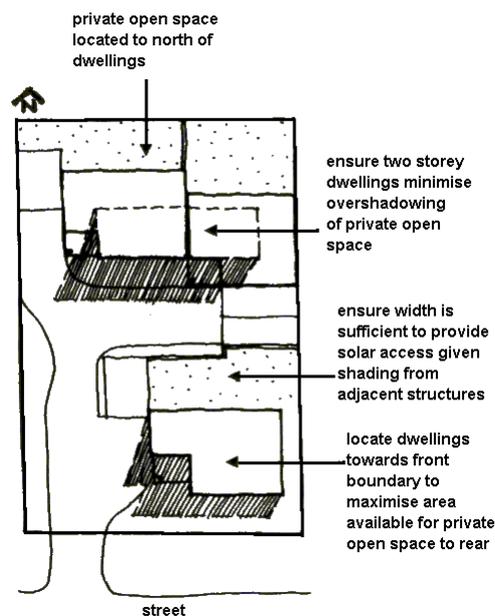


Figure D1.7 Shape and aspect of private open space in a multi-unit housing development



Rules

- (a) Single dwelling houses and multi unit housing are to provide at least one area of private open space for each dwelling.
- (b) The total of private open space at ground level must be a minimum of 20% of the site area, regardless of permeability of the surface. This space must:
- be capable of containing a rectangle 5 metres x 6 metres per dwelling that has a slope less than 1:10;
 - not be comprised of any area with a dimension less than 4 metres; and
 - be exclusive of clothes drying areas, driveways, car parking and other utility areas.

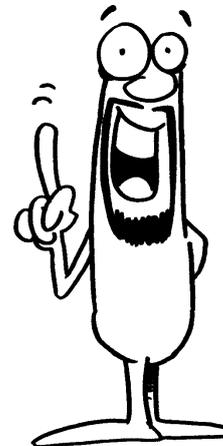
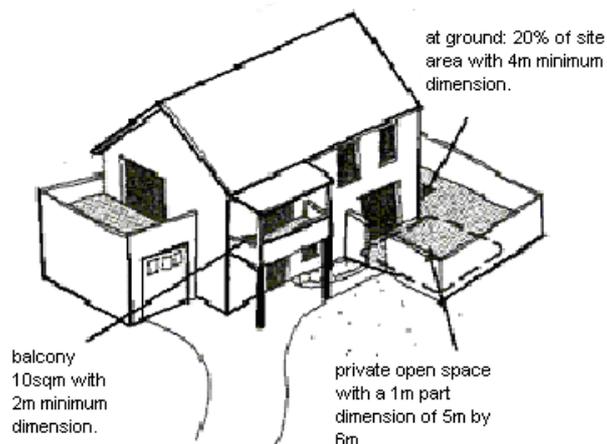


Figure D1.8 Minimum dimensions of private open space



- (c) Private open space shall not be located in the front boundary setback.
- (d) Any above ground level balcony or rooftop area designed for private open space must have a minimum area of 10 square metres with a minimum dimension of 2 metres, as shown in Figure D1.8. This area is not included in the calculation for the provision of total private open space.

1.8 COMMON USE OPEN SPACE

Aims

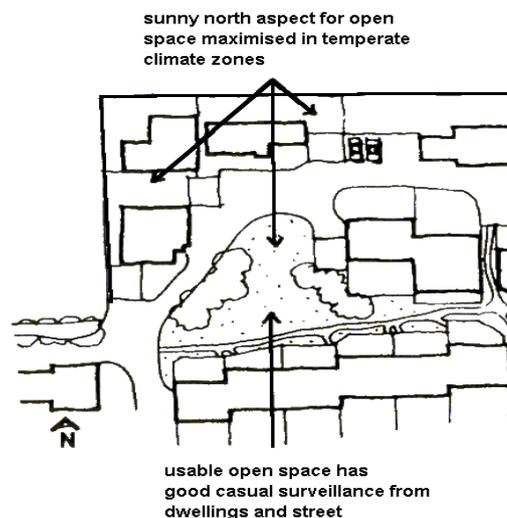
- (e) To provide occupants in multi-unit dwellings with designated communal areas for relaxation and recreation.

- (f) To provide facilities that are relevant to the projected needs of the occupants of the development.
- (g) To include retained and/or significant vegetation and other landscape features in areas which can be maintained for the benefit of all occupants.

Objectives

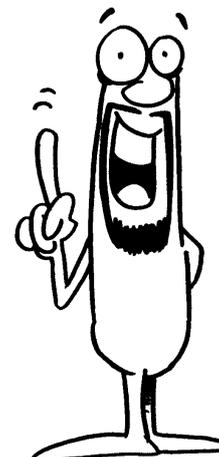
- All forms of residential development, containing five or more dwellings, other than single dwelling houses and multi unit housing, must provide landscaped open space areas for common use of the occupants.
- Common open space should be well designed and landscaped and include equipment such as seating, shade structures, barbecue and child play equipment which meets the needs of the development's occupants.
- The type of activity, hours of use, noise generation and on-going maintenance and safety of any proposed recreational facility is to be considered in the design stage.

Figure D1.9 Orientation of common open space



Rules

- (a) For development proposals than contain five or more dwellings common use open space is required. Concession may be given where it is demonstrated that sufficient useable private open space for each dwelling has been provided.
- (b) The common open space should generally have access only from within the site.



- (c) Common open space for multi-unit housing developments should be accessible from all dwellings within the development. Surveillance of this space should be possible from at least two dwellings, as shown in Figure 9.
- (d) Any proposed communal recreational facilities must be designed and located to avoid nuisance or danger to neighbours, residents and visitors.

1.9 VEHICLE ACCESS AND CAR PARKING



Aims

- (e) To integrate car parking and access as unobtrusively as possible into the streetscape and landscape.
- (f) To ensure safe access, egress and passage through a site for vehicles and pedestrians.
- (g) To provide adequate off street parking for the normal needs of occupants and visitors.
- (h) To maintain the amenity of adjoining properties.

Objectives

- Driveway access to the street should generally be confined to a single point, in order to maintain street parking and landscaping opportunities
- Vehicles are to be able to leave and enter the site in a forward direction.

Rules

- (a) Driveways next to any side or rear boundary must have a landscape strip of at least 1 metre to separate them. See Figure D1.10.
- (b) Shared driveways, access lanes and car parks must be setback a minimum of 1.5 metres from windows to main habitable rooms of dwellings. This standard does not apply if the floor level of the dwelling is at least 1 metre above the driveway.
- (c) All driveways must have a minimum width of 3 metres and must be sealed to prevent surface erosion.
- (d) For development that contains more than 2 units driveways are to have a minimum driveway width of 6m from the layback/kerb line to 6m inside the property.

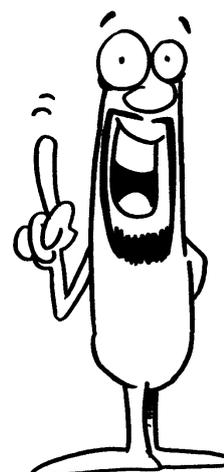
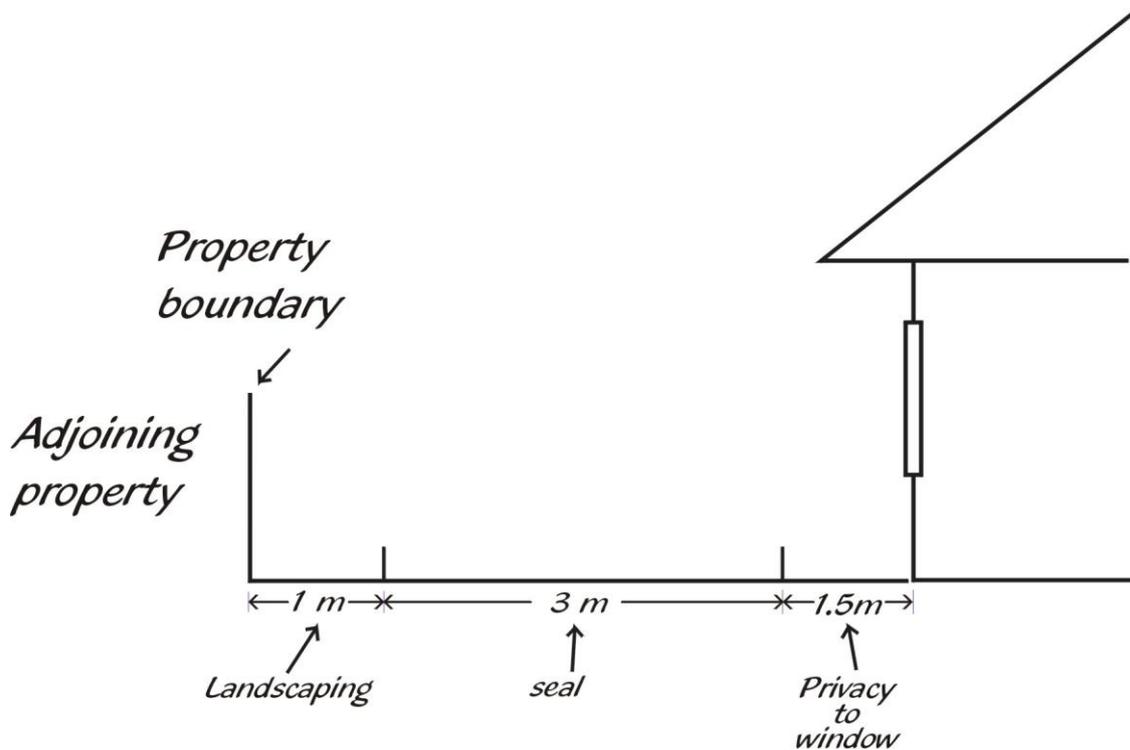


Figure D1.10 Vehicle Access



- (e) Garages and carports must not visually dominate the street facade, should occupy less than 50% of the building facade and must be compatible with the building design.
- (f) Uncovered car parking spaces and turning areas can be located within the front setback to the required building line provided that this area is dominated by landscaping and/or addresses established streetscape patterns.
- (g) Where parking spaces are located as 90° to the driveway alignment the minimum driveway width adjacent to the space is to be 6.7m, increased as necessary to allow adequate manoeuvring on site.
- (h) On site manoeuvring areas shall be provided to allow entry and exit to the site in a forward direction (except for a single dwelling).
- (i) On site manoeuvring areas shall be provided to allow entry and exit to and from all car spaces including garage, carports, uncovered spaces and visitor spaces by a single turning movement (except for a single dwelling).
- (j) Attached dual occupancies will be assessed on merits in relation to onsite manoeuvring.
- (k) Where more than 3 units are served by an access or the access is greater than 30m long, a turning area shall be provided at or near the end of the access.

- (l) On site manoeuvring shall be based on the Ausroads Standard 5.0m design vehicle. Templates for this standard are provided in the appendices. When using the templates a minimum of 150mm shall be provided between any fixed object and the extremities of the swept paths.
- (m) All on site car spaces shall comply with the minimum dimensions set out in Part C Chapter 2 (Car Parking and Access). Where a space adjoins a wall, fence or other fixed structures, the width shall be increased as follows to allow adequate door opening:
 - On one side only to 3.2m
 - On both sides to 3.8m.
- (n) Refer to the following chapters for additional requirements:
 - Part C Chapter 2 - Carparking and Access
 - Part C Chapter 6 - Energy Efficiency
 - Part D Chapter 3 - Subdivision.

1.10 BASEMENT PARKING

Objectives

- Where basement parking is proposed an assessment of the potential of the site to contain archaeological significance shall be carried out by a suitably qualified consultant.
- Basement parking should be drained by gravity.

Rules

- (a) Only the basement's parking entry should be seen as a separate level in a building. Large exposed foundations, voids and walls are not to be used. Refer to Figure D1.11
- (b) No part of a basement should extend more than 1 metre above natural ground level so the height of the building is not excessive.
- (c) Consideration may be given to a sump and pump where storm water volumes are low based on merits of the site

Note: For additional requirements for the number of car parking spaces required and their design and construction refer to the Part C Chapter 2 Car Parking and Access.

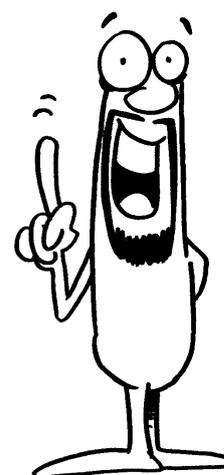
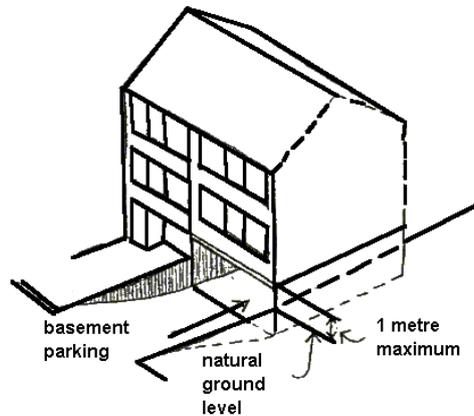


Figure D1.11 Basement parking

1.11 VISUAL PRIVACY

Aims

- (d) To consider visual and acoustic privacy of residents and neighbours.
- (e) To avoid the overlooking of adjacent dwellings and private open space.
- (f) To contain noise within dwellings or communal areas.

Objectives

- The layout of buildings should avoid first floor or elevated windows facing directly onto the windows, balconies, or overlooking the yards of adjoining dwellings unless effective screening is provided.

Rules

- (a) Where there is potential for loss of privacy the proposal should incorporate some of the techniques illustrated in Figure D1.13, Figure D1.15, Figure D1.16, Figure D1.17, Figure D1.18 or similar.
- (b) Where there is no alternative to a window, it should be screened as shown in the hatched area in Figure D1.16.

Figure D1.12 Locating windows to limit overlooking

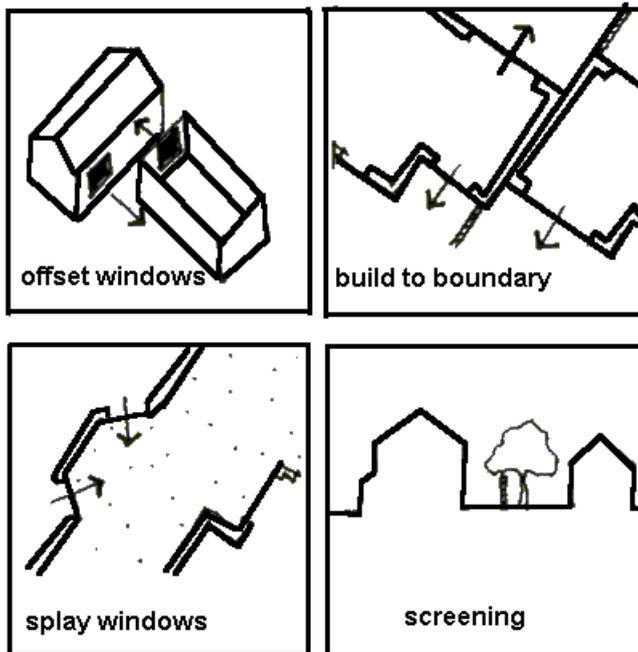


Figure D1.13 Screening can reduce the need for separation and improve the level of privacy

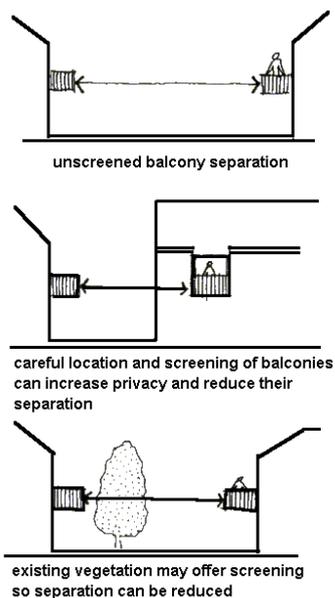


Figure D1.14 Privacy is a key consideration at the site planning and layout stage

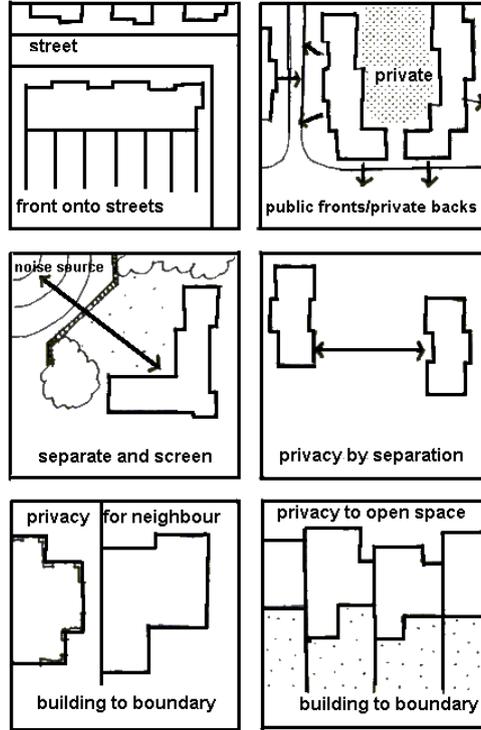


Figure D1.15 Techniques for providing privacy to a lower dwelling's private open space

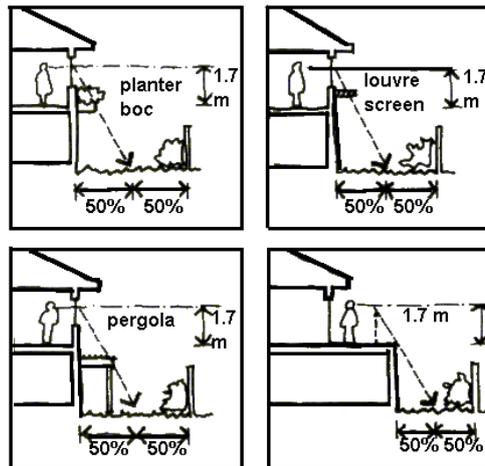
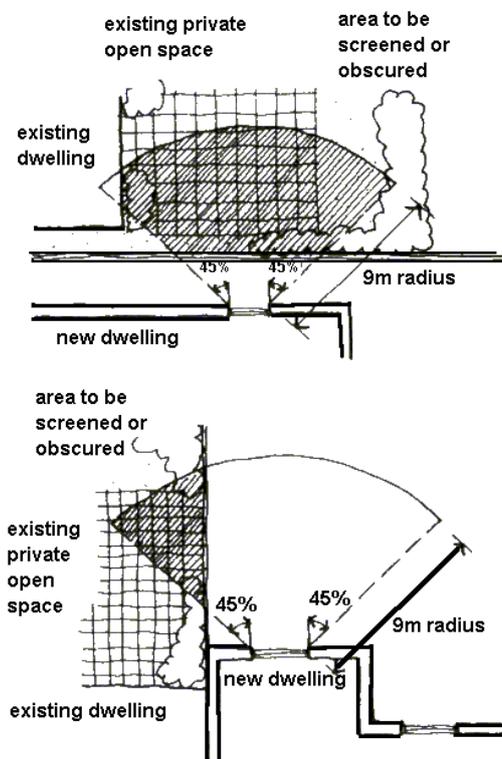


Figure D1.16 Screening views to adjacent private open space



1.12 ACOUSTIC PRIVACY

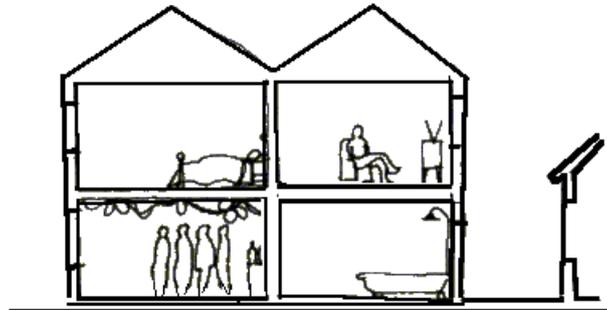
Aim

- (c) To achieve levels of acoustic privacy that are reasonable for a residential neighbourhood.

Objectives

- Shared walls and floors between dwellings are to be constructed to limit noise transmission. Specifications for window, floor, ceiling and wall construction of proposals must comply with the provisions of the Building Code of Australia and Australian Standards.
- Site layout should separate active recreational areas, parking areas, vehicle accessways, and service equipment areas from bedroom areas of dwellings.

Figure D1.17 Acoustic privacy by design

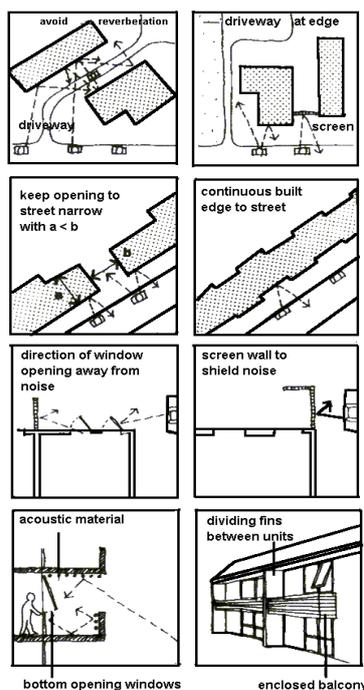


Acoustic privacy begins with site and dwelling layout and is reinforced in building design

Rules

- (a) Acoustic privacy is to be considered at the design stage and techniques such as those shown in Figure D1.17 or similar are to be used.
- (b) Site layouts should ensure parking areas, streets and shared driveways have a line of sight separation of at least 3 metres from bedroom windows as indicated in Figure D1.18.
- (c) A distance of at least 3 metres should separate openings of adjacent dwellings.

Figure D1.18 Some ideas for reducing noise transmission



1.13 EXTERNAL NOISE AND VIBRATION

Aims

- (d) To ensure an acceptable level of amenity for all residents.
- (e) To incorporate building construction and landscape techniques to act as a barrier or buffer to reduce noise and vibration levels.
- (f) To ensure that attenuation methods are consistent with existing town character attributes and themes.
- (g) To ensure that the attenuation measures of aircraft noise are not an unreasonable interference to the activities of the household.

Objectives

- Noise and vibration mitigation measures must be considered at the design stage for site layout, orientation of buildings, location of sleeping, recreation, utility and work areas, as shown in, and in the use of suitable construction techniques and materials.
- Noise amelioration measures should not cause a greater nuisance from reflected sound for existing development. Figure D1.20 shows examples of reflection and attenuation as part of overall site design.

Rules

- (a) A noise and vibration assessment must be undertaken by a suitably qualified noise consultant for any proposed residential development other than a single dwelling house located within 100 metres of the railway line or within Australian Noise Exposure Forecast (ANEF) 25 or greater.
- (b) Proposals must comply with the current Environment Protection Authority criteria and the current relevant Australian Standards for noise and vibration and quality assurance and incorporate appropriate mitigation measures.

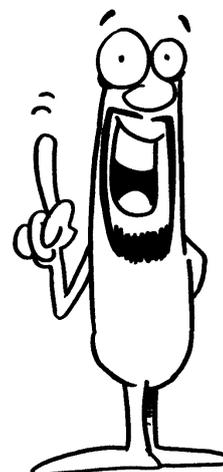


Figure D1.19 Service rooms located closer to the noise source can protect other more-often used and noise-sensitive rooms

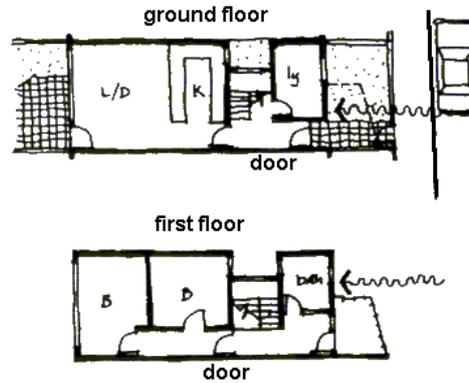
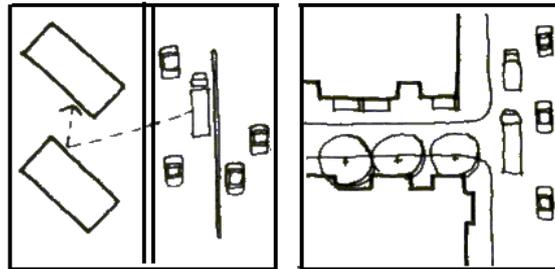


Figure D1.20 Avoid angled buildings that can reflect noise on to other buildings. Balconies, offsets and trees can reduce inter-reflection between parallel buildings



1.14 SAFETY AND SECURITY

Aims

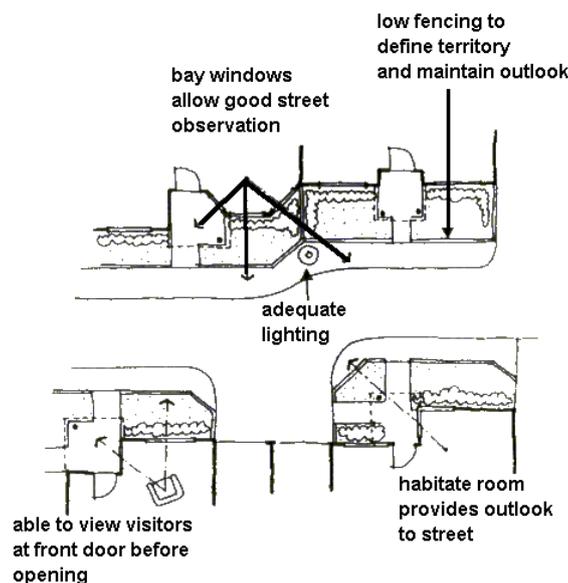
- (c) To create an environment which is safe and secure from theft, personal threat and accidents.

Objectives

- All areas in a development should be clearly recognisable as private, common or public space. Responsibility for supervision and maintenance of these areas should be understood at the design stage and explained in the application.



Figure D1.21 Security by design - casual surveillance of the street



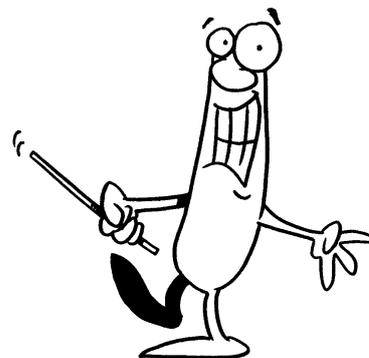
Rules

- (a) Each dwelling is to be provided with direct and convenient pedestrian access to a private or public road.
- (b) Barriers to prevent movement between internal roof spaces of adjoining dwellings are required.
- (c) Elements to be incorporated in site and building design, such as those shown in Figure D1.21 include:
 - doorway/entry safety and surveillance to and from the footpath;
 - illumination of public spaces including all pedestrian paths, shared areas, parking areas and building entries to the relevant Australian Standard;
 - visibility to the street from the front of the development;
 - restricted access to the rear of the site.

1.15 UTILITY AND SITE SERVICES

Aims

- (d) To ensure site services and facilities are designed:
 - to enable easy access;
 - in an aesthetically sensitive way;
 - to blend in with adjoining development and street character; and
 - to require minimal maintenance.



- (e) To ensure that there is no increase in the quantity of stormwater discharged from any site and that its quality is improved.
- (f) To ensure adequate supplies of water, sewer and electricity are available.

Rules

- (a) Where reticulated water is not available, a minimum storage of 100000 litres must be provided. A minimum of 10,000 litres must be available at all times for fire fighting.

1.16 CABLES

Objectives

- Electricity, telephone, television and other cables must be underground. Where there is an existing connection of these cables directly from the service pole to the fascia of the front dwelling, these lines only, may remain above ground.

Rules

- (a) The design, location and construction of utility services must satisfactorily meet the requirements of both the relevant servicing authority and Council.

1.17 RECYCLING, GARBAGE AND MAIL COLLECTION AREAS

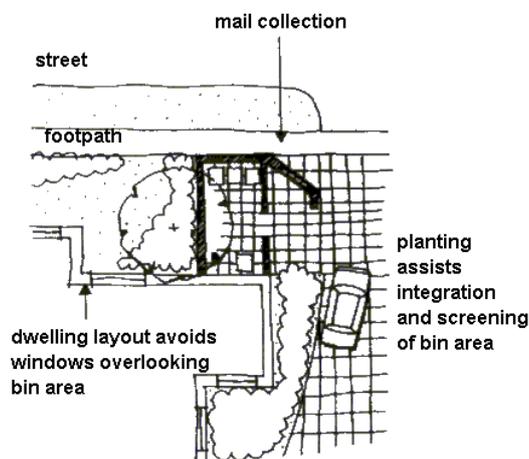
Objectives

- To ensure that each dwelling has arrangements for recycling, garbage and mail collection.

Rules

- (a) Collection areas must be integrated into the overall site and building design, such as the example shown in Figure D1.22.

Figure D1.22 Mail and garbage collection areas, where provided, should be integrated with building and landscaped areas



1.18 EFFLUENT DISPOSAL

Aim

- (b) To ensure that there is adequate land for onsite effluent where land is not serviced by reticulated sewer.

Objectives

- Connection to reticulated sewerage is required for all forms of residential development, apart from single dwellings and rural dual occupancies.

Where reticulated sewerage is not available, single lots created on or before 10 August 1999 may be connected to pumpout. For all other development a minimum area of 4,000sqm is required and it is demonstrated that there is adequate area for onsite effluent disposal.

1.19 FENCING AND RETAINING WALLS

Aims

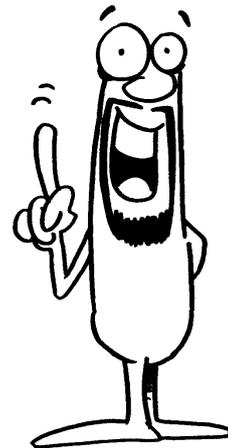
- (c) To ensure that fences and boundary retaining walls should be compatible with the character of the location and integrated with the design of buildings.

Objectives

- Materials and colour that is compatible with the streetscape are to be used.
- Common bricks or concrete blocks are to be painted, rendered or similarly treated.
- Fences should be designed to cope with the nature, volume frequency of traffic noise and pedestrian safety.

Rules

- (a) Front fences where not screening private open space walls are to be a maximum height of 1.2m if solid.
- (b) Solid front fences may be 1.8m high and articulated if:
 - the site is located on a main or arterial road;
 - the site is not located within an established heritage character;
 - the length is limited to 75% of the frontage where private open space fronts the street and some surveillance is maintained from the front dwelling; and
 - fences do not exceed 10m in length without some articulation or detailing to provide visual interest.
- (c) The integration of trees and natural ground vegetation with the fence line is desirable.
- (d) The setback of the fence will be used for landscaping.
- (e) Solid fences are to be 1 metre from the front boundary where not part of private open space.
- (f) Retaining walls shall:
 - not be taller than 500mm;
 - not cut through roots of any tree to be retained.



1.20 RURAL DUAL OCCUPANCIES

Aims

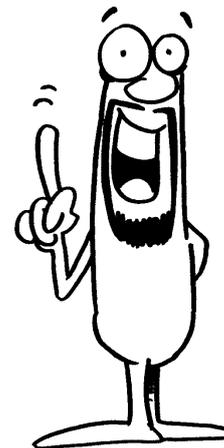
- (g) To allow opportunities for an attached rural dual occupancy on rural land for residential purposes.
- (h) To ensure that rural dual occupancies are compatible in design with existing dwellings.

Objectives

- The attached rural dual occupancy is to be designed to appear as one dwelling through the use of architectural features, compatible building materials and colour schemes.
- To ensure that there is adequate area for the onsite disposal of effluent for the dual occupancy.

Rules

- (a) Attached dual occupancies shall be a single building containing two dwellings and either share a common wall or the main roof. Where the roof is shared, the closest walls of the dwelling shall not be more than 6m apart.
- (b) Provision of a single driveway to service the dual occupancy.

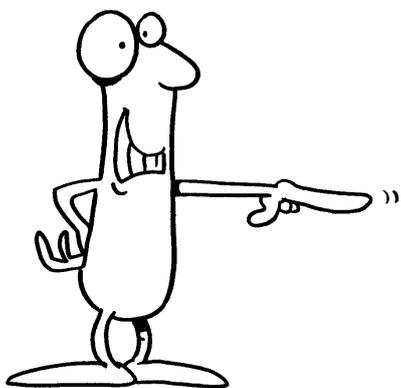


Chapter 2

INDUSTRIAL DEVELOPMENT



2.1 GENERAL PRINCIPLES



This part of the DCP applies to all land zoned for industrial purposes.

The general principles for industrial development in Hawkesbury are to:

- encourage economic development and the creation of employment opportunities to reduce the need for residents to commute unreasonable distances to obtain employment;
- encourage good design and appearance of industrial development for the benefit of both developers and the public; and
- balance these sometimes conflicting objectives in favour of sound industrial and economic development.

2.2 BUILDING SETBACKS

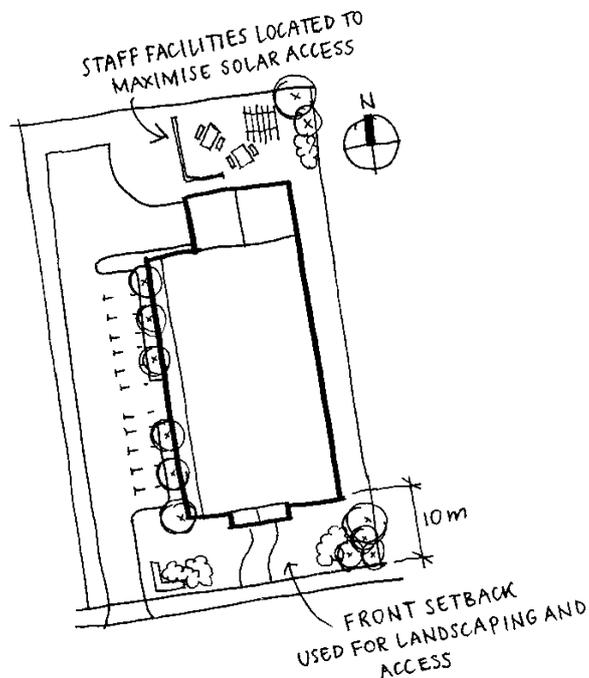
Aims

- (c) To ensure an attractive and maintained streetscape.
- (d) To ensure that there is adequate vehicular sight distance at intersections.
- (e) To minimise the cost of future widening to main or arterial roads.
- (f) To provide adequate solar access to staff recreation areas.

Objectives

- Buildings are sited so as to:
 - make adequate provision for landscaping; and
 - allow for adequate lines of sight for pedestrians, cyclists and motorists.

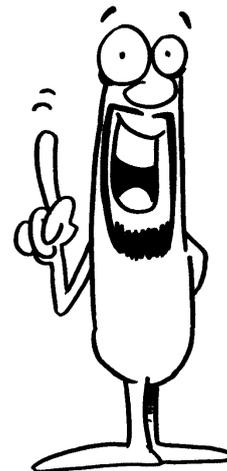
Figure D2.1



- Buildings are sited so that solar access to staff recreation areas and landscaping of adjoining developments is not compromised.
- Buildings and landscaping are to be sited to provide visual amenity for employees.

Rules

- (a) On arterial or sub arterial roads all buildings are to be setback 15 metres from the front property boundary.
- (b) On all other streets, buildings are to be setback 10 metres from the front property boundary. Consideration will be given to reducing the setback to 4 metres where the proposal demonstrates a high level of design and architectural treatment plus suitable landscaping. This setback can also apply to buildings that are projected at first floor level over car parking areas.
- (c) Where land has two road frontages (not being collector, regional sub-arterial and state arterial road) the building setback to the shorter frontage will be considered on its merits, dependent upon the development proposed and its location.



- (d) The area between the street frontage and the minimum required building setback is to be reserved for landscaping and access. The provision of car parking spaces within this setback area will be considered provided the car spaces are not within 5m of the front boundary and are suitably screened by landscaping.
- (e) Landscaping is required in the front setback. A landscape concept plan is required in accordance with Part C Chapter 1 Landscaping.

2.3 RELATIONSHIP TO ADJACENT DEVELOPMENT

Aims

- (f) To protect the amenity of the adjacent land users where necessary from the effects of industrial development.



Objectives

- Industrial land uses should be compatible with adjacent commercial, residential and/or rural areas.

Rules

- (a) The applicant may be required to indicate how the industrial land could be developed and also show the location of landscaping, building and other site planning techniques with the aim of minimising impact on adjoining commercial, residential and/or rural uses.

2.4 BUILDING DESIGN AND CONSTRUCTION

Aims

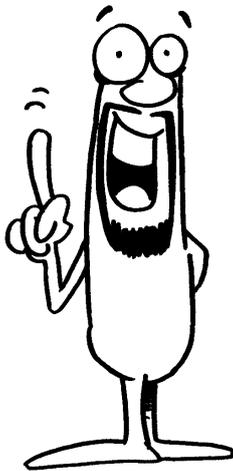
- (b) To ensure development is designed so it makes a positive contribution to the streetscape.
- (c) To provide attractive industrial building design through use of variation in facia treatment, roof lines and selection of building materials.
- (d) To ensure that service facilities are incorporated into the design of the development.

Objectives

- The application is to demonstrate that the above aims are met.
- Waste storage shall be in a location convenient to users and collection services.
- Low maintenance materials should be used. Where possible materials should incorporate the following:
 - use renewable resources;
 - be energy efficient;
 - be recycled or recyclable;
 - be non polluting; and
- Non reflective materials should be used.

Rules

- (a) Building facades to street frontages are to be constructed predominantly of face brick, concrete panels or pre-coloured masonry blocks (not standard concrete blocks) or glazing. Partial use of pre-coloured metallic sheeting for the street façade will be considered where it enhances the architectural merit of the building.



- (b) Front elevations provided with visual relief by varying the façade alignment, incorporating an entrance treatment, and/or orientating office facilities along the front façade. Roller shutters and loading docks should generally not be located on the principle street frontage.
- (c) Walls separating factory units constructed in masonry where required by the Building Code of Australia, carried to the underside of the roof and sealed to Council's satisfaction. Sections of units may be partitioned with suitable materials.
- (d) Where a lot contains a number of buildings, a colour scheme or design feature should be used to unify all buildings on the lot.
- (e) The maximum reflectivity index permissible for any external glazing is 20%.

2.5 FENCING

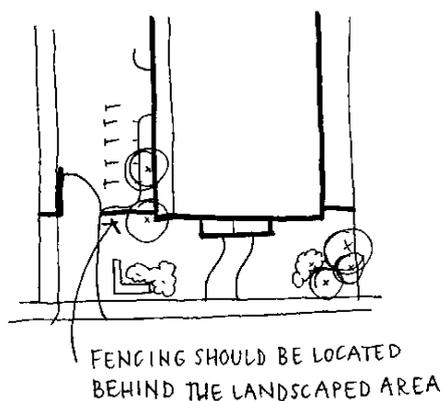
Aims

- (f) To allow for security and ensure that fencing contributes to the streetscape and amenity of the industrial areas.

Objectives

- Fencing between the building and street frontage is not encouraged. Where it is required for safety or security reasons, it should be of a standard or style that does not detract from the landscaping or building facades.

Figure D2.2



Rules

- (a) Fencing located behind the landscaped area only. Decorative open style fencing will be considered forward of the building line.
- (b) Prepainted solid metal fencing is not acceptable.

2.6 OPEN STORAGE AREAS

Aims

- (c) To provide adequate areas for storage.
- (d) To ensure outdoor storage areas do not detract from the appearance of the area.

Objectives

- The application demonstrates that the above aims are met.

Rules

- (a) Open storage areas are to be screened from the road and adjoining land by screen walls or other approved measures.
- (b) Storage areas are to be located behind the building line.

2.7 ENVIRONMENTAL ISSUES

Aims

- (e) To ensure noise levels generated by developments are acceptable at other premises.
- (f) To minimise impacts from chemical spills.
- (g) To ensure air emissions are minimised.



Rules

- (a) An acoustic report prepared by a qualified acoustic consultant submitted prior to the approval of any noise generating development. The report shall include background noise measurements, suitable noise criteria, an assessment of noise and any noise control measures.
- (b) Any machinery or activity considered to create a noise nuisance adequately sound-proofed in accordance with the provisions of the *Protection of the Environment Operations Act 1997* (POE Act).
- (c) All chemical storage areas designed and maintained in accordance with Work Cover Authority guidelines.
- (d) Liquid waste sampling points provided for each industrial development in an easily accessible location above ground.
- (e) All roofing provided with adequate gutter and down pipes connected to the roof water drainage system. Down pipes discharging to an open grated surface inlet pit.
- (f) No industrial pollutants discharged to the stormwater and sewer without entering into a Trade Waste Agreement with either Council or Sydney Water.
- (g) The discharge of any pollutants into water courses as defined under the POE Act, controlled to the satisfaction of Council and EPA at all times.
- (h) Depending on the size, nature of use of the building, particular structures such as bund walls, oil or grit separators, neutralisers, drainage provisions and the like may be required.

Chapter 3

SUBDIVISION



3.1 GENERAL PRINCIPLES

The general principles for applying to subdivision in Hawkesbury are to:

- establish a consistent and coordinated approach to the creation of residential, rural residential and rural lots throughout Hawkesbury;
- ensure that subdivision is undertaken in an environmentally sustainable manner;
- facilitate different subdivision forms which have the effect of minimising environmental degradation;
- address long term planning objectives as contained in Hawkesbury LEP by the creation of lots in locations and of sizes consistent with those objectives;
- ensure constructed vehicular access from gazetted public road system to each new lot;
- ensure all lots created are physically capable of development;
- adopt criteria for rural, rural-residential and residential lots which will ensure each lot is provided with an appropriate level of amenity, services and access;
- facilitate the supply of residential lots of a wide range of sizes and shapes which reflect the statutory visions of Hawkesbury LEP, the availability of reticulated sewage and the need for frontage to public roads; and
- protect key cultural resources (places of environmental heritage value) from land use or management practices which will lead to their degradation or destruction.



3.2 FLORA AND FAUNA PROTECTION

Aims

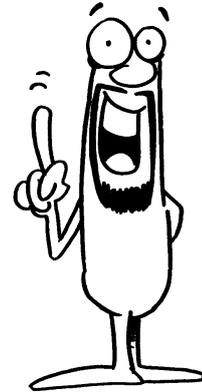
- (i) To protect bushland, significant flora and fauna habitats and wildlife corridors from the impacts of subdivision and subsequent development.

Objectives

- The movement of fauna species on sites should be maximised so as to maintain biological diversity within the subdivision and road network.
- Opportunities for revegetation should be pursued as part of the subdivision process as a trade off for site development and as a means of value adding to the environment through the development process.

Rules

- (a) Any subdivision proposal which is likely to result in any clearing of native vegetation or impact on any environmentally sensitive area is to be accompanied by a flora and fauna assessment report prepared by a suitably qualified person. This report is to primarily address the Eight Part Test pursuant to the Act (Section 5A) and State Environmental Planning Policy 44 - Koala Habitat Protection.
- (b) Vegetation cover should be retained where ever practicable as it acts to stabilise soils, minimise runoff, acts as a pollutant trap along watercourses and is important as a habitat for native fauna.
- (c) Degraded areas are to be rehabilitated as part of the subdivision.
- (d) Vegetation should be retained where it forms a link between other bush land areas.
- (e) Vegetation which is scenically and environmentally significant should be retained.
- (f) Vegetation which adds to the soil stability of the land should be retained.
- (g) All subdivision proposals should be designed so as to minimise fragmentation of bushland.



3.3 VISUAL AMENITY

Aims

- (h) To ensure that subdivision proposals do not facilitate development which would detrimentally impact upon important views and vistas.
- (i) To ensure that subdivision proposals are designed so as to preserve and enhance any visual landscapes.

Objectives

- A subdivision proposal should be:
 - designed to have minimal impact on significant views and vistas; and
 - compatible with the cultural and landscape characteristics of the locality or region.

Rules

- (a) Building envelopes, accessways and roads shall avoid ridge tops and steep slopes.
- (b) Subdivision of escarpments, ridges, and other visually interesting places should:

- be managed in such a way that the visual impact arising from development on newly created allotments is minimal; and
 - retain visually significant vegetation such as that found on ridge tops and other visually prominent locations.
- (c) Development Applications for subdivision shall take into consideration the provisions of SREP20 in relation to scenic quality.

3.4 HERITAGE

Aims

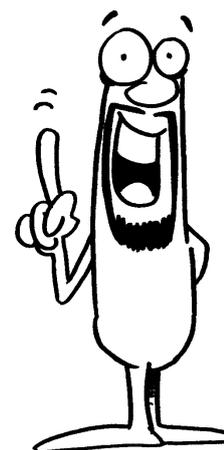
- (d) To protect heritage items, their settings and conservation areas.
- (e) To ensure that the design of new subdivisions take into consideration and respect the heritage significance of heritage items and other places and features of the City's historical character.

Objectives

- Subdivision should be sympathetically designed to minimise the impact on heritage items of the subject land or adjoining lands.
- The subdivision should maintain a reasonable curtilage around heritage items on the subject land or surrounding lands.
- Subdivisions should be sympathetically designed to ensure that the existing heritage value of the streetscape and character of the area is maintained.

Rules

- (a) A subdivision proposal on land which contains or is adjacent to an item of environmental heritage as defined in Schedule 1 of the Hawkesbury LEP should illustrate the means proposed to preserve and protect such items. With such subdivisions a Heritage Impact Statement may be required to determine the heritage curtilage. Council staff and Council's Heritage Advisor should be consulted in this regard.



3.5 UTILITY SERVICES

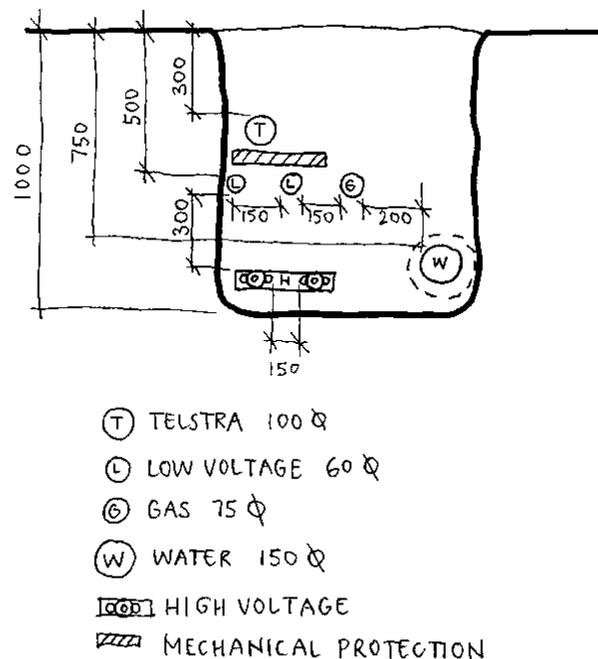
Aims

- (f) To provide public utilities in a safe, efficient and cost effective manner.
- (g) To provide public utilities in such a way as to maximise retention of vegetation.

Objectives

- All lots created for residential purposes should have an adequate provision of utility services and not result in a detrimental impact on the environment.
- The design and provision of public utilities should conform to the cost effective criteria of the relevant servicing authority.
- Compatible public utility services should be located in common trenches so as to minimise the land required, soil erosion and the cost of providing the services.

Figure D3.1 Typical joint trenching layout



- Adequate buffers should be maintained between utilities and houses to protect residential amenity and health.
- The provision of utility services should not detrimentally impact on the landscape character of an area.
- Adequate water supplies for both domestic and fire fighting purposes should be available.

Rules

- (a) Underground power provided to all residential and industrial subdivisions. Where infill subdivision is proposed, the existing system, whether above or underground shall be maintained.

- (b) All lots created are to have the provision of power.
- (c) Where reticulated water is not available, a minimum storage of 100,000 litres must be provided. A minimum of 10,000 litres must be available at all times on Bushfire Prone Land.

3.6 FLOODING, LANDSLIP & CONTAMINATED LAND

Aims

- (d) Subdivision proposals should be designed to minimise the risk to life and/or property from flooding, landslip and contaminated land.

Objectives

- Subdivision of flood prone land should not result in increased risk to life or property both on the subject land and adjoining lands.
- Subdivision of land that has been identified as being prone to landslip should not increase the risk to life or property on the subject land or adjoining lands.

Rules

- (a) Compliance with clause 25 of Hawkesbury Local Environmental Plan 1989.
- (b) Access to the subdivision shall be located above the 1% AEP flood level.
- (c) Where a subdivision proposal is on land identified as being potentially subject to landslip, the applicant shall engage a geotechnical consultant to prepare a report on the viability of subdividing the land and provide recommendations as to the siting and the type of buildings which could be permitted on the subject land.
- (d) In the event that Council deems that there is the potential that land subject to a subdivision application is contaminated then the applicant shall engage a suitably qualified person to undertake a soil and ground water assessment.
- (e) Contaminated Land shall be remediated prior to the issue of the Subdivision Certificate.

3.7 RESIDENTIAL SUBDIVISION

3.7.1 Residential Local Street Design

Aims

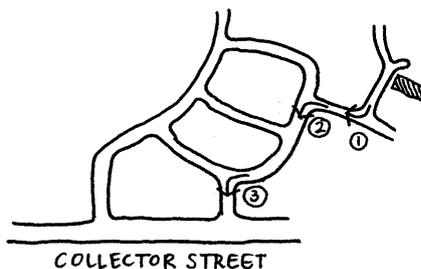
- (f) To create street networks in which the function of each street is clearly defined.
- (g) To ensure that vehicular and pedestrian access is simple, safe and direct.

- (h) To minimise the impact of traffic on the residential amenity of the locality.

Objectives

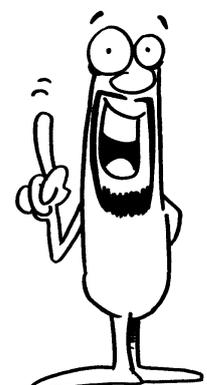
- Street widths should reflect the role and function of the street in the road hierarchy.
- Streets should be designed to allow on street car parking.
- Streets should be designed to cater for service vehicles.
- Streets should be designed to provide interest and variety in the streetscape through kerbs (where appropriate), landscaping and paving treatments. The street design should be compatible with the existing road pattern in the locality.
- Junctions along residential streets should be spaced to create safe and convenient vehicle movements.
- The street network should create a convenient route for residents between their home and higher order roads.
- The street network should facilitate walking and cycling within the neighbourhood and to local activity centres.
- The street network should take into account existing topography and existing open space systems.
- Streets should not operate as through traffic routes for externally generated traffic while at the same time limiting the length of time local drivers need to spend in a low speed environment.
- Streets and lots should be located so that residential dwellings are not subjected to unacceptable traffic noise.

Figure D3.2



Rules

- (a) The design specifications in Figure D3.3 are met.
- (b) A minimum spacing of staggered junctions in a local street network should be 20 metres.
- (c) The street network should be orientated where practical, to promote efficient solar access for dwellings as shown in Part C Chapter 6 Energy Efficiency.



- (d) Cul-de-sacs for residential roads should have minimum seal radii of 8.5 metres and boundary radii of 12.0 metres.
- (e) Cul-de-sacs should not exceed 200 metres in length unless topographic constraints render other options impracticable.
- (f) Off street parking shall be provided in cul-de-sacs at the rate of 1 space per lot.
- (g) Streets should be designed to allow for the provision of suitable and safe conditions for street trees.

Figure D3.3 Design specifications

Road Type	Description	Widths (m)		
		Carriage -way	Footway	Road Reserve
Residential Roads				
▪ Major collector	Major bus routes and interprecinct traffic	13	3.5	20
▪ Medium collector	Through roads serving open space, shops etc possible bus route	11	3.5	18
▪ Local & Minor collector	Through roads, Cul-de-sacs and short through roads	8	3.5	15
▪ Local access roads	Less than 10 properties	6	3.5	13

Figure D3.4 Examples of on-street parking

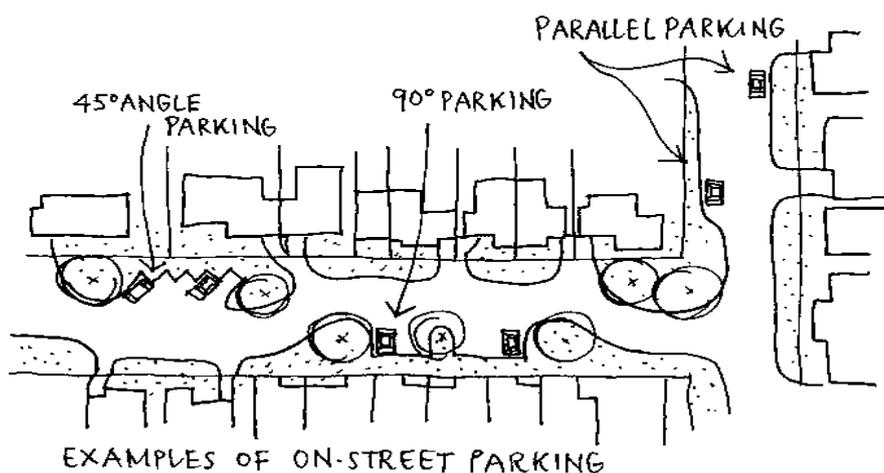
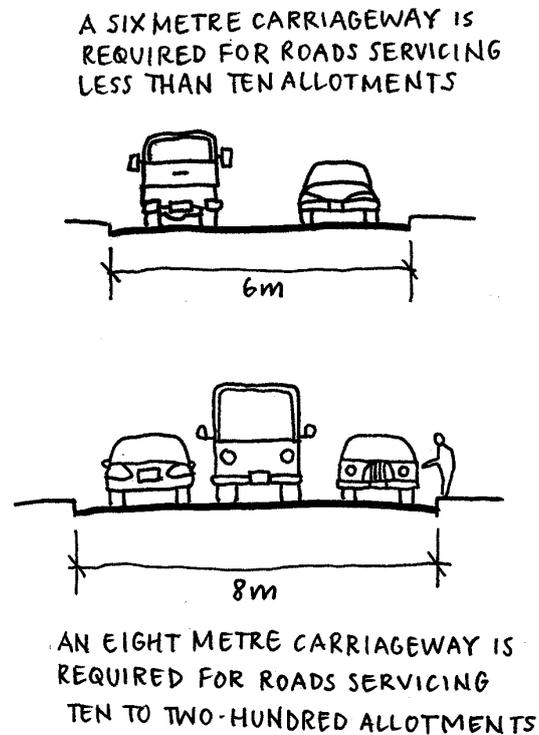


Figure D3.5 Design specifications for local, minor & local access roads



3.7.2 Residential Accessway Design

An accessway is a driveway or private road which services between one and five allotments.

Aims

- (h) To ensure that vehicular access to all lots within the subdivision is simple, safe and direct.
- (i) To ensure that accessways do not detract from the amenity of localities.

Objectives

- Accessways design should provide safe and efficient entrance/exit to individual lots.
- Accessways should be landscaped and treated so as to reduce the visual and environmental impact of hard paved areas.
- Accessway designs should minimise the impact on the amenity of the existing and future dwellings. They should be sited away from noise and visually sensitive components of existing and future dwellings.

- Accessways should provide interest and variety and avoid lengthy straight sections.

Rules

- (a) Accessways should have a minimum width of 4 metres and sealed pavement of 2.5 metres.
- (b) Accessways should not serve more than 5 lots.
- (c) Accessways should have a maximum grade of 25% (1:4) at any point.
- (d) Where the accessways is steep or fronts a local collector or higher order road (greater than 3,000 vehicles per day) or a high pedestrian area, accessways should be designed so that vehicles can be driven both onto and off the property in a forward direction.
- (e) Where vehicles would otherwise have to reverse more than 50 metres, a turning area should be provided to enable the vehicles to enter and leave the site in a forward direction and reduce the need to reverse over long distances.
- (f) Refer to Part D Chapter 1 Residential Development for further requirements regarding accessways should a subdivision be part of a residential development.

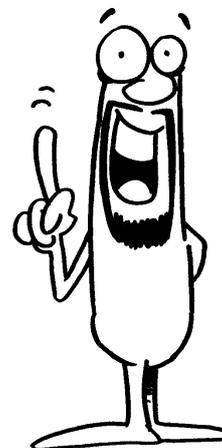
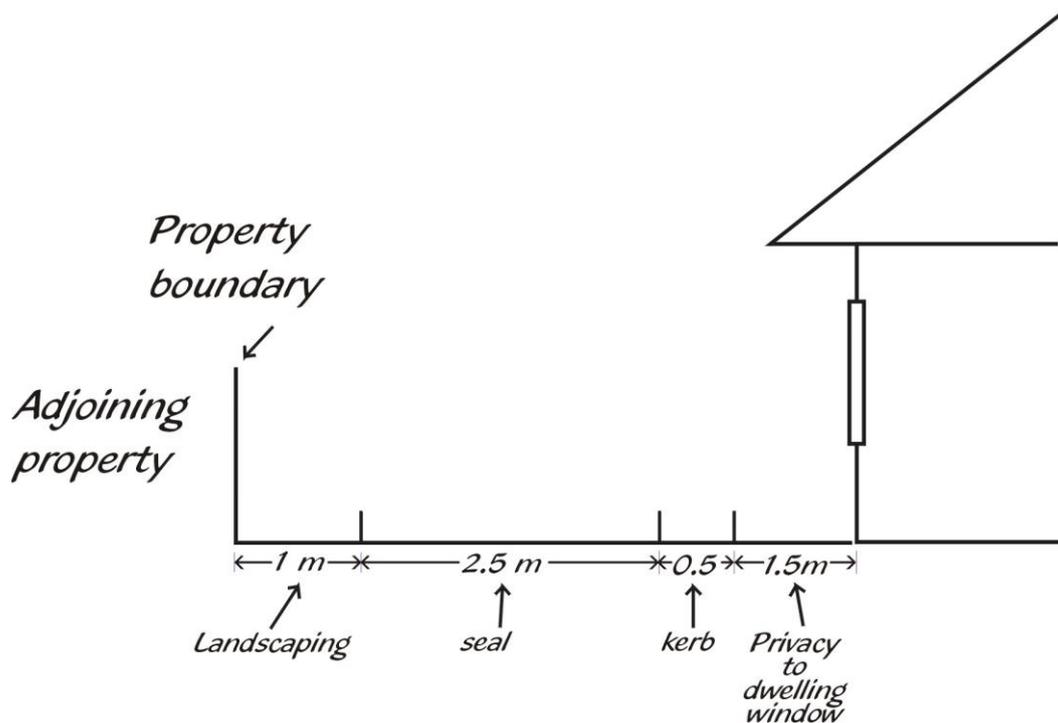


Figure D3.6 Vehicle access



3.7.3 Planning for Pedestrians and Cyclists in Residential Areas

Aims

- (g) To encourage walking and cycling by providing safe and convenient movement networks to points of attraction within and beyond the land being subdivided.
- (h) To ensure that land within the subdivision provides access for all.

Objectives

- The location of footpaths or cycle paths should be defined using the following parameters:
 - demand for footpaths and cycle paths;
 - opportunities to link open space networks and communities including public transport, local activity centres and schools;
 - topography;
 - cyclist and pedestrian safety; and
 - safety for persons with a disability.
- The alignment of footpaths should allow safe and convenient use by pedestrians, cyclists and persons with a disability and should be variable enough to accommodate trees and other significant features.

- Paths should be constructed to provide a stable surface for pedestrians, cyclists and persons with a disability and which is easily maintained.

Rules

- (a) No footpaths are required on streets with traffic volumes less than 300 vehicles per day.
- (b) Footpaths should be provided on one side of streets with traffic volumes between 300 vehicles per day and 2,000 vehicles per day, and on both sides of streets with traffic volumes over 2,000 vehicles per day.
- (c) Footpaths are to be designed in accordance with Australian Standard AS1428.2-1992 Design for Access and Mobility.

3.7.4 Stormwater Management

Aims

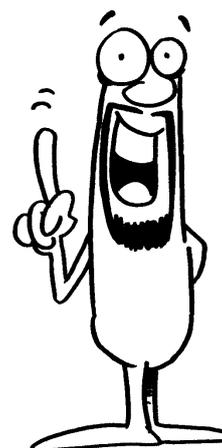
- (d) To control the flow of water into the natural and man made drainage systems in such a way to minimise impacts from storm water runoff.
- (e) To contribute positively to the environmental enhancement of catchment areas.
- (f) To provide water quality management systems which:
 - ensure that disturbance to natural stream systems is minimal; and
 - storm water discharge to surface and underground receiving waters, both during construction and during residential use of the subject land, does not degrade the quality of the water at the receiving end.

Objectives

- Drainage from subdivision sites should be consistent in both water quality and quantity terms with the predevelopment storm water patterns.
- Drainage systems should be designed so as to ensure safety and minimise the likelihood of storm water inundation of existing and future dwellings.
- Adequate provision should be made for measures during construction to ensure that the landform is stabilised and erosion controlled.

Rules

- (a) Where site topography prevents discharge of storm water directly to the street gutter or a Council controlled pipe system, inter allotment drainage provided to accept run off from all existing or future impervious



areas on the subject land. The design and construction of the inter allotment drainage system should be in accordance with the requirements of the Australian Rainfall and Runoff (1987).

- (b) Where proposals require the creation of easements over downstream properties for drainage purposes, a letter of consent from the owner(s) of the downstream properties should be submitted with DAs.
- (c) Stormwater piped in roads and through allotments in all residential subdivisions.
- (d) For subdivision proposals comprising 5 lots or more or where Council deems it necessary, a soil and water management plan should be prepared by a properly qualified practitioner with the aim of minimising erosion and maximising the quality of any water leaving the site.

3.7.5 Lot Size and Shape

Aims

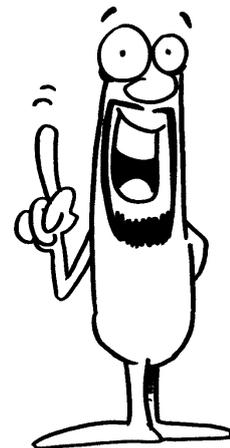
- (e) To ensure that newly created allotments have dimensions which allow flexibility and choice of housing design whilst minimising development costs.
- (f) To promote allotments of varying sizes which provide pleasant streetscapes, satisfy user requirements and minimise environmental impacts.

Objectives

- Lot sizes and dimensions should enable dwellings to be sited to:
 - protect natural and cultural features;
 - acknowledge site constraints including soil erosion and bush fire risk;
 - retain special features such as trees and views;
 - dispose of effluent on site where sewer not available; and
 - Provide for wildlife habitats and the growth of trees.
- Lot sizes and configurations should be varied to provide a mix of allotment types which create pleasant streetscapes and encourage a variety of housing types.

Rules

- (a) In calculating the area of a battle-axe or hatchet shaped allotment the accessway is to be excluded. The area of an allotment effected by a "right of carriage way" or private road should also be excluded.
- (b) Allotments should have a minimum width of 15 metres at the building line. Council may consider a lesser dimension but only as part of an integrated housing development.



- (c) Lots should be able to accommodate a building envelope of 200m² with a minimum dimension of 10 metres.
- (d) An allotment should not be less than 20 metres in depth to ensure there is some flexibility in the choice of housing design and siting as well as the availability of suitable space for other activities normally associated with a dwelling.
- (e) Vegetation which adds significantly to the visual amenity of a locality and/or which is environmentally significant should be conserved in the design of the subdivision proposal.
- (f) Lots should be designed to allow the construction of a dwelling with a maximum cut or fill of 1 metre from the natural ground level.

3.7.6 Solar Access and Lot Orientation

Aims

- (g) To encourage the design of subdivisions which maximise solar access.
- (h) To ensure flexibility in the siting of buildings to take advantage of a northern orientation.
- (i) To maximise the number of allotments which have good solar access and therefore which optimise the design performance of energy smart homes.

Objectives

- Lots should be designed to maximise solar access.
- Lots should be orientated to take advantage of micro climatic benefits and have dimensions to allow adequate on site solar access, taking into account likely future dwelling size and a relationship of each lot to the streets.
- Lots are of a suitable shape to permit the location of a dwelling with suitable solar access and private open space.

Rules

- (a) Lots orientated to provide long access in a northerly direction (plus or minus 20^o).
- (b) Eighty per cent of lots in a new subdivision having 5 star solar access, and the remainder either 4 or 3 star.
- (c) On a street running north-south, lots to be increased in width to enable private open space on the northern side of the building envelope.
- (d) Lots designed so that future buildings will not overshadow neighbouring houses to the south, and have a sufficiently long northern facade to receive winter sun.

- (e) Compliance with Part C Chapter 6 on Energy Efficiency.

Figure D3.7 Lot width varied to improve solar access

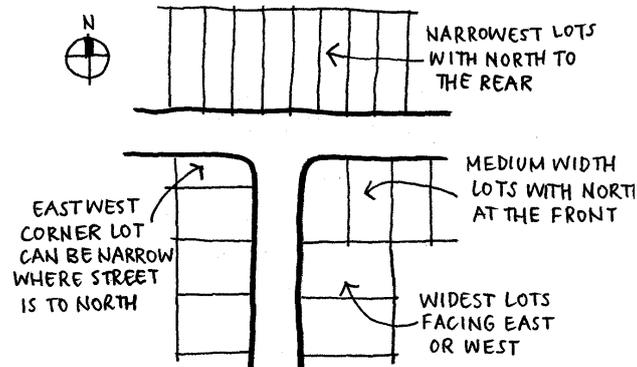
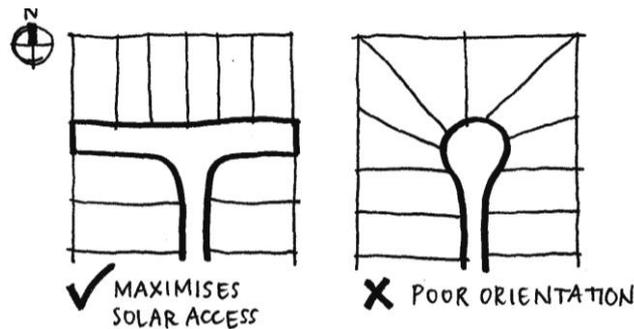


Figure D3.8 Solar orientation at a cul-de-sac



3.7.7 Torrens Title Subdivision of Existing Dwellings

Rules

- (a) All Development Applications for the Torrens Title Subdivision incorporating existing dwellings are to comply with Part C Chapter 2 Car Parking and Access, Part C Chapter 6 Energy Efficiency and Part D Chapter 1 Residential Development.

3.8 RURAL AND RURAL-RESIDENTIAL SUBDIVISION

3.8.1 Rural Lot Size and Shape

Aims

- (b) To ensure that rural subdivision and housing take account of physical constraints such as bush fire, flooding and landslip.

- (c) To ensure the subdivision and boundary adjustments reinforces the rural character of the City.

Objectives

- Lot layouts should take account of the environmental constraints of the area.
- Lot layout should be designed to conserve agriculturally productive land.
- The areas of lots and lot layout should be in accordance with the servicing capacity of the area (water, effluent disposal, traffic).
- The design of the subdivision should take into account any significant natural features on the site and these should be retained, including vegetation along watercourses.
- Vegetation which adds to the visual amenity of the locality and/or which is environmentally significant should be preserved in the design of the subdivision proposal. This includes the retention of vegetation for wildlife corridors and wildlife habitat.

Rules

- (a) The minimum allotment size for land within rural and environmental protection zones are contained within Hawkesbury Local Environmental Plan 1989.
- (b) Lots should be able to accommodate a building envelope of 2000m² with a minimum dimension of 20 metres. Building envelopes should be located a minimum of 30 metres from significant trees and other significant vegetation or landscape features. Building envelopes would contain the dwelling house, rural sheds, landscaping, and on-site effluent treatment and disposal areas, and bushfire mitigation.
- (c) In calculating the area of a battle-axe or hatchet shaped allotment, the area of the battle axe handle should be included.
- (d) The width to depth ratio of allotments should not exceed 1:5.
- (e) Lot layout shall consider the location, the watercourse vegetation and other environmental features.

3.8.2 Boundary Adjustment

Aims

- (f) To ensure that boundary adjustments reinforce the character of the City and historical pattern of subdivision.
- (g) To ensure that the boundary adjustment takes into consideration the need to provide environmentally sound, safe and low cost access for dwelling houses.

- (h) To maintain historically significant views or vistas to or from a heritage item.
- (i) To ensure that the land is capable of effluent disposal.
- (j) To ensure that the environment will be improved as a result of the adjustment.

Objectives

- Lot sizes should be compatible with the character of the surrounding area.
- Lot sizes and lot layouts should take into account the environmental characteristics of the area.

Rules

- (a) Variations of less than 20% from the original lot sizes are considered to be boundary adjustments. Adjustments of more than 20% are to be assessed under clause 11 of Hawkesbury Local Environmental Plan 1989.
- (b) The design of the boundary adjustment should provide environmentally sound, safe and low cost access to dwelling sites.
- (c) The design of the boundary adjustment should take into consideration a historically significant view or vista to or from a heritage item.
- (d) The land should be capable of on-site effluent where no reticulated sewerage system is available.

3.8.3 Rural Road and Accessway Design

Aims

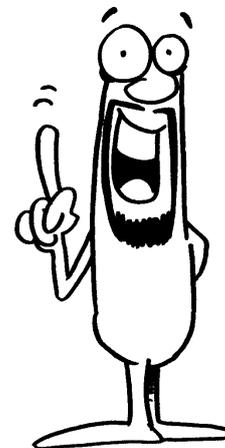
- (e) To prevent the establishment of traffic generating development along main and arterial roads.
- (f) To provide environmentally sound, safe, low cost and convenient access to all rural/rural residential subdivisions.

Objectives

- Existing roads should be upgraded where necessary to accommodate increased traffic arising from new subdivisions.
- The impact of new road or accessway works on adjoining residents should be minimised.
- Road and accessway construction should take account of existing topography and vegetation. Cut and fill should be minimised and vegetation retained where ever practicable. The provision of under road fauna crossings may be required.

Rules

- (a) The design specifications in Figure D3.9 at the end of this clause are to be met.
- (b) Where the road width is insufficient or unsatisfactory, an applicant should dedicate or provide land required for local road widening or new roads at no cost to Council.
- (c) Upgrading of the accessway from the nearest sealed road to the proposed subdivision to an all weather standard suitable for the expected traffic generation arising from the subdivision. This work may require the sealing of the pavement dependent upon traffic generation.
- (d) Where access to the subdivision is via a Crown or Reserve road in addition to the above, the road should be fully constructed to a standard commensurate with roads in the locality and linked to the nearest Council road. Prior to any construction works being undertaken the relevant section of Crown road is to be transferred to Council.
- (e) The road fronting the subdivision shall be sealed into half width (minimum 3.5 metres). An all weather standard of road construction may be acceptable where the expected traffic volume generated by the subdivision proposal is low and no sealed roads in the vicinity.
- (f) Water courses should be piped where they cross roads and the applicant should create drainage easements generally 10 metres long and 4 metres wide over the point of any discharge of any water from any public road onto private property.
- (g) All internal driveways shall be constructed to an all weather standard suitable for the expected traffic generation. An all weather access should also be provided across the footway to any battle-axe lot. Such access should be sealed within the vicinity of existing houses on adjoining lots where dust nuisance may occur and also on steeply sloping land.
- (h) Where 3 or more individual access handles are proposed, common roads are to be provided.
- (i) Battle axe handles shall have a minimum width of 6 metres.
- (j) Accessways should have a maximum grade of 25% (1:4) and be sealed if the grade exceeds 1:6, concrete if exceeds 1 in 5.
- (k) Where an accessway meets a public road there should be a minimum sight distance of 70 metres. This may be increased on roads with a high speed limit.



- (l) Cul-de sacs for rural roads should have minimum seal radii of 12.0 metres and boundary radii of 17.0 metres.

Figure D3.9 Design specifications for rural roads

Type of Road	Road Reserve Width	Seal Width Minimum	Shoulder Width
>1.5 kilometres in length	20 metres	6.1 metres	1.2 metres
<1.5 kilometres in length	20 metres	5.5 metres	1.2 metres
Access Lane	18 metres	4.0 metres	1.2 metres

3.8.4 Effluent Disposal

Aims

- (m) Protect and enhance the quality of the rural environment.
- (n) Provide guidelines on the requirements for effluent disposal in rural and rural-residential subdivisions.

Objectives

- To ensure that the lot is adequate for the disposal of effluent on site without significantly impacting on surrounding properties or downstream water courses and vegetation.

Rules

- (a) An effluent disposal report prepared by a suitably qualified person is required to accompany any development application for rural and rural-residential subdivisions.
- (b) Any system proposed other than a Household Aerated Wastewater Treatment System is required to be installed prior to release of subdivision certificate.

3.9 INDUSTRIAL

3.9.1 Industrial Lot Sizes and Shapes

Aims

- (c) To encourage the development of well designed industrial areas.

Objectives

- Provision should be made for a variety of lot sizes.
- The size of lots should provide sufficient space to accommodate the industrial operations and buildings envisaged, which entails factors such as safe ingress and egress, vehicular movement with the curtilage of the site, parking, deliveries, storage and bin areas, boundary setback requirements and landscaped areas to be considered in subdivision design.
- Lots shall have dimensions which permit the safe manoeuvring of trucks within the lot so that trucks and cars can leave the lot in a forward direction.

Rules

- (a) Minimum width of lots in an industrial zone shall be 30 metres at the building line. Lot widths of less than 30 metres will be considered where lots are part of an integrated industrial development.
- (b) Battle-axe shaped allotments shall comply with the minimum width at the building line stated above. Battle-axe handles shall have a minimum width of 8 metres.

3.9.2 Industrial Access and Road Layout

Aims

- (c) To provide for the safe and efficient movement of traffic to and from each proposed lot within the industrial areas.

Objectives

- Access from individual lots to major roads should be minimised. The use of minor roads for such access is desirable where ever practicable.

Rules

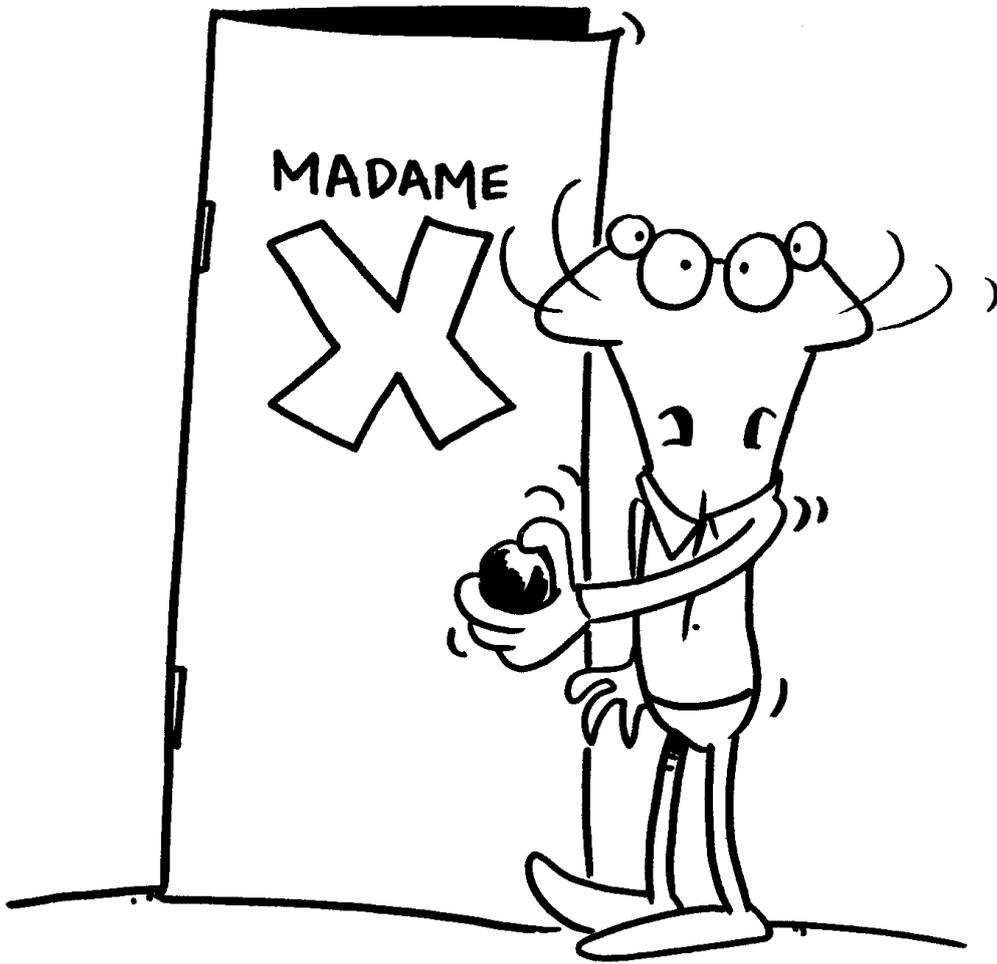
- (a) The design specifications for roads servicing industrial lots contained in Figure D3.10 are met.
- (b) Cul-de sacs for industrial roads should have minimum kerb radii of 13.5 metres and boundary radii of 17.0 metres
- (c) Battle-axe lots may be acceptable for light and service industries which are not serviced by larger vehicles. Details such as the shape of the effective lot area, the need for truncation in the lot and the width of the access handle will be determined on a case by case basis.

Figure D3.10 Design specifications for roads servicing industrial lots

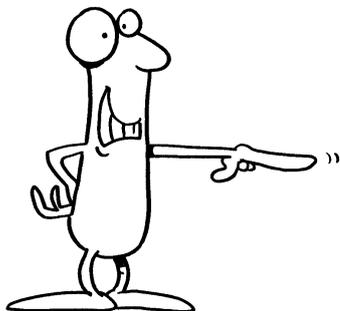
Road Reserve Width	Carriage Way Width Minimum	Footpath
20 metres	13 metres	3.5 metres

Chapter 4

BROTHELS



4.1 INTRODUCTION



The gazettal of the *Disorderly Houses Act 1995*, means that it is no longer illegal to operate a brothel, or for the owner of a brothel to live on the earnings of prostitution.

Brothels do, however, require development consent from Council before they can operate. They must also comply with Council's planning controls. These controls are contained within the Hawkesbury LEP and this chapter of the DCP.

A brothel is permitted only with the consent of Council within the Business General 3(a) zone and Business Special 3(b) zone. Consideration will not be given to Brothels in any other zone.

The planning controls are designed to ensure that brothels operate in appropriate locations so that they minimise the effects on the community and do not result in the loss of any amenity. Council takes the provisions of this DCP into consideration in determining DAs for the operation of brothels.

4.2 OBJECTIVES

The general aims in relation to the development of brothels within the City are to:

- to ensure that brothels are appropriately located so that they minimise offence to the community and any adverse social impacts;
- to ensure that the access to brothels is discreet and safe for patrons and staff;
- to ensure that brothels are designed so as to minimise the impact and presence of the development in the locality;
- to ensure that there is adequate provision for off-street car parking;
- to ensure that the advertising of brothels is discreet and does not cause offence to the general public;
- to promote the safe and healthy operation of brothels;
- to ensure that brothels operate at times where they will have least impact on the community and surrounding neighbourhood; and
- to allow Council to monitor the operation of approved brothels in terms of compliance with conditions of consent and complaints from the general public.



4.3 KEY ASSESSMENT ISSUES

4.3.1 Locational Characteristics

Objectives

- Brothels are to be located so that they minimise offence to the community and do not create adverse social impacts.
- Brothels are to be *only* located within the Business General 3(a) zone and Business Special 3(b) zone.

Rules

- (a) Except for access, brothels must *not* be located at street level.
- (b) Brothels are *not* to be located in such concentration (either alone or in combination with other sex related businesses) as to result in the creation of a "red light" district.
- (c) Brothels must *not* be located within 100 metres of detached dwellings, churches, schools, hospitals and child care centres measured in a straight line from the proposed development.
- (d) Brothels must *not* adjoin a residential flat, an activity operated by a religious institution, restaurant, supermarkets or video or amusement parlours/arcades.

4.3.2 Access

Objectives

- Access to brothels is to be discreet.
- Access to the premises must be discreetly illuminated so that people visiting the brothel do not loiter outside the premises.

Rules

- (a) Access to the brothel (except from an arcade) should not be common to other commercial or residential uses.
- (b) If access is via a side lane or rear entrance, the accessway is to be clearly lit to avoid safety problems for patrons.

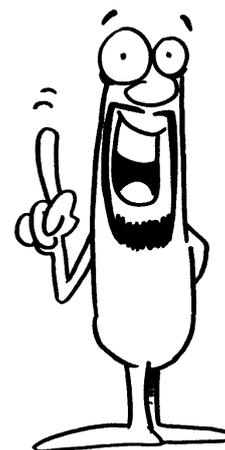
4.3.3 Design and Layout

Objectives

- Brothels must be visually discreet and low key.

Rules

- Brothels must *not* contain more than six separate rooms for the purposes of prostitution.
- Brothels must be provided with a waiting room of at least 20m² in size.
- All brothels must be fitted with the necessary facilities and services for Class 5 buildings (an office building used for professional or commercial premises) under the BCA.
- All windows are to be covered by blinds or curtains at all times with the covering material blending with the external colours of the building.



4.3.4 Parking

Objectives

- Brothels are to provide an adequate number of car parking spaces to meet parking demand.

Rules

- Brothels are to be provided with car parking at the rate of two spaces per room used for prostitution.
- Design and layout of car parking is to be in accordance with the car parking standards as set out in Part C Chapter 2 of this DCP.

4.3.5 Hours of Operation

Objectives

- Hours of operation will be determined at Council's discretion taking into consideration other land uses within the neighbourhood and to avoid times of peak community activity.

4.3.6 Signage

Objectives

- Signage is to be discreet so as not to cause concern to the general public.

Rules

- (a) No chain bulb or flashing sign on the premises is permitted.
- (b) The only signage which is to be permitted is a sign located either on the entrance door or wall adjacent to the entrance to the premises.
- (c) The sign is to have an area not in excess of 0.75 square metres.
- (d) The sign is to detail the name of the premises, street address and telephone number only. No potentially lewd, sexually suggestive or offensive writing or pictures will be permitted.

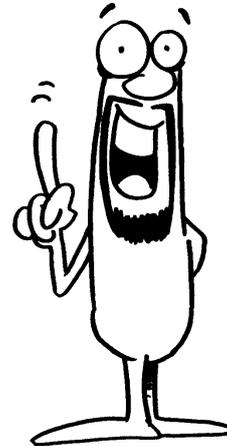
4.3.7 Health and Safety Standards

Objectives

- All brothels must operate within an acceptable level of public health.

Rules

- (a) Brothels should comply with the Health and Safety Guidelines for Brothels in NSW prepared by the NSW Health Department and the WorkCover Authority.
- (b) All bars and food preparation areas must comply with the requirements of the Food Act.
- (c) The premises shall be ventilated in accordance with the Building Code Of Australia.

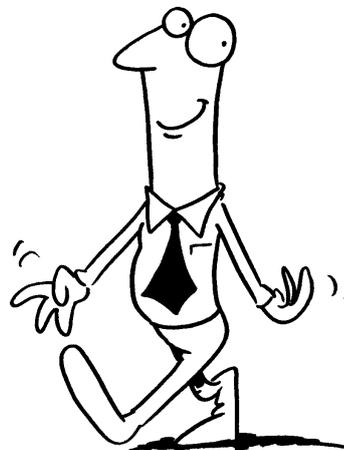


TELECOMMUNICATIONS



5.1 OBJECTIVES FOR TELECOMMUNICATIONS FACILITIES

Since the introduction of the *Telecommunications Act 1997*, Council is able to require development consents for some telecommunication facilities. In these cases, the proponent is to consider this section of the DCP in addition to statutory matters under the *Telecommunications Act 1997* and the *EP&A Act 1979*.



The general objectives for telecommunications facilities development in Hawkesbury are to:

- provide guidelines for assessment of proposals for telecommunication facilities;
- ensure that the location and siting of telecommunication facilities does not adversely affect the environment; and
- require development consent for development of telecommunication facilities other than 'low-impact' facilities or works, in accordance with the *Telecommunications (Low-impact Facilities) Determination 1997*.

Mobile Phone Base Stations shall be located in accordance with the following table:

Zone	Locational Criteria
Any land zoned Rural, Residential, Special Uses, Open Space, Environmental Protection, Nature Reserve, Proposed Road under HLEP 1989 and <u>land</u> immediately adjacent to these zones.	A minimum of 300 metres from any school, childcare centre or hospital.
Any land zoned Rural, Residential, Special Uses, Open Space, Environmental Protection, Nature Reserve, Proposed Road under HLEP 1989 and land immediately adjacent to these zones.	A minimum of 300 metres from any residential <u>dwelling</u> unless annual average exposure at any such premises is less than 0.2 uw/cm^2 .
All zones, including the above.	To minimise visual impact, no tower may be constructed closer than 100 metres or three times the height of the tower, whichever is the greater, to any residential <u>dwelling</u> . This criteria does not apply to residences in business, industrial, nature reserves and special use zones. This condition does not apply in cases of co-location or location on existing built structures.

5.2 KEY ASSESSMENT ISSUES

To maintain the residential, rural and scenic significance of the area, the following criteria need to be considered:

- Proposals for telecommunication facilities should utilise buildings, structures or other non-residential and non-community based features of the built environment for support of towers, antennae and ground based facilities, wherever possible.
- Proposals for towers greater than 5 metres in height are encouraged to locate in commercial/industrial zones, and/or premises used for commercial premises.
- Proposals for towers should provide evidence of investigation into co-locating with other carriers, wherever possible.
- Proposals for towers in rural zones should avoid locations in close proximity from any residences.
- Proposals for towers and/or other telecommunication works should avoid environmentally sensitive lands including wetlands, creeks and protected habitats of endangered flora and fauna.
- Proposals for towers should be located to have minimal visual impact.
- Proposals for aerial cabling will only be considered where there is existing aboveground cables or wires within the same street or locality. Where underground services are provided, every effort should be made to coordinate the provision of underground telecommunication facilities.
- Any proposal for a tower needs to justify the location in terms of “servicing areas”.

5.3 MATTERS FOR CONSIDERATION

In determining a proposal for a telecommunications facility, Council will have specific regard to the following matters, in addition to those set out in Section 79C of the Act:

- the need for the proposal with respect to expansion of the carrier's network and alternatives examined within the proposed area to be covered;
- the proximity of the proposed facility to residential and community facility land uses;
- any guidelines, advice or supporting information submitted by the proponent or other authorities which may be relevant;



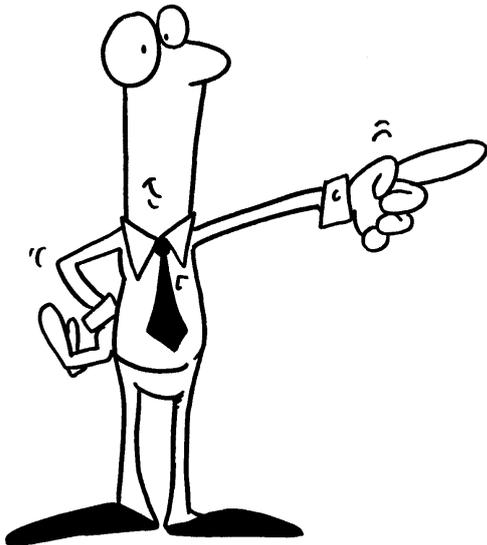
- the visual impact of the proposal and measures to ameliorate this impact;
- site access, security and landscaping proposals;
- the impact of electromagnetic radiation on public health, safety and other electronic communications; and
- any submissions received from the public.

DAM CONSTRUCTION



6.1 OBJECTIVES

The general objectives for dam construction in Hawkesbury are to:

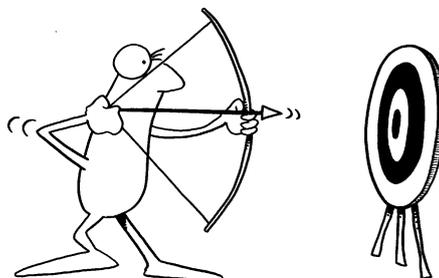


- ensure that any dam proposed is compatible with the existing natural and rural character of the site and the area generally;
 - ensure that no adverse impact results on local drainage or floodway characteristics in a catchment from dam construction;
 - ensure that appropriate environmental measures are applied to dam construction sites in order to conserve the landscape and protect the surrounding environment;
 - establish, maintain and promote appropriate site rehabilitation or revegetation techniques for dam construction;
- maintain and enhance the visual and scenic quality of the locality by controlling form, bulk and scale to complement the environment and have minimum environmental impact;
 - ensure no adverse effects on adjoining properties (drainage, structure, stability, fences);
 - protect, restore and maintain the local non-urban character of areas and ensure viable agricultural land is sustained;
 - protect the health and safety of human residents;
 - maintain water quality within the Hawkesbury Nepean Catchment area; and
 - ensure that degradation of the environment does not occur from acid sulphate soils, sodic soil or saline soils.

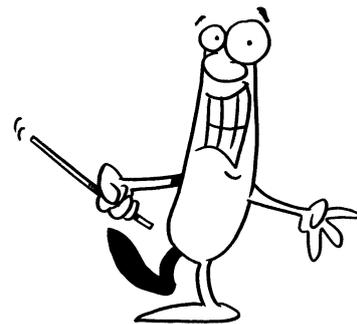
6.2 LOCATIONAL PRINCIPLES

The following principles should be considered when choosing the site of a dam:

- a dam built in a depression is generally the most favoured location due to its excellent storage to excavation ratio;
- steep sites (steeper than 15% slope) shall be avoided;



- ensure there is sufficient suitable soil material for wall construction. Sampling and evaluation of the subsoil is essential to ensure the quality and quantity of soil material. Rock, sand, gravel and soils prone to tunnelling failure are generally unsuitable, unless specialised construction techniques are used;
- the size of the catchment must be considered when planning dam capacity and spillway size;
- dam spillways must be located and designed to handle major storm flows safely;
- when surplus water flows through the dam spillway, ensure there is a suitable place to return it to its normal flow line without causing erosion. If it is near a property boundary, ensure flows leave the property in the same place that they did before the dam was built. Also flow should not be concentrated onto adjoining properties unless it occurred prior to the construction of the dam;
- if constructing a dam larger than 5 mega litres or with a wall height more than 4 metres (measured vertically from the ground below the dam to the top of the wall at its highest point), you should obtain further advice from the Soil Conservation Service, branch of the Department of Land and Water Conservation (DLWC). Also the structural adequacy, spillway capacity and completed work must be certified by a practising Civil Engineer;
- dams on permanent watercourses, such as creeks, are not encouraged and generally are only approved in upper catchments where their impacts are minimal, subject to the protection of riparian rights of down stream property owners;
- dams should not be constructed where they will affect wetlands by direct inundation or through other means (altering surface or groundwater flows crucial to the maintenance of wetlands);
- dams should not be constructed where they will effect or cause the likely inundation of any public road, public way, right of way or accessway as a result of backwater pondage;
- dams for market gardens should be located at the lowest point on the property so that all runoff can be collected, and the dams act as a sediment and nutrient trap prior to the water entering the down stream catchment; and
- dams located in long flat gullies should incorporate a artificial wetland so as to reduce nutrient levels.



A poorly sited or constructed dam can be very expensive to build, of little long-term use, and may cause severe land degradation problems. If you are in doubt, seek further advice from DLWC or Council staff.

6.3 DESIGN AND CONSTRUCTION REQUIREMENTS

The following standards have been largely developed by DLWC and are to be complied with in relation to dam construction.

6.3.1 Crest

Rules

- (a) The width of the dam crest is to be a minimum of 3 metres for a 3 metre high dam wall. The crest should increase in width 0.5 metre for every metre above a 3 metre high dam.

6.3.2 Freeboard

Rules

- (a) A minimum of 1 metre is to be established for freeboard. This should increase by 10% for every metre over a 3 metre high wall.

6.3.3 Embankments

Objectives

- The material used to construct an embankment should be sufficiently impervious to keep seepage low and to be stable.

Rules

- (a) A soil with 25% clay content is ideal to form an impervious barrier.
- (b) The following soil types should not be used for dam construction:
 - sand;
 - gravels;
 - organic soils;
 - peat.
- (c) Topsoil should be stripped and stockpiled from the excavation and wall areas before the dam wall is constructed, with the stockpile located clear of any natural watercourse. There should be no excavation above high water mark.
- (d) The embankment is to be completed with at least 100 millimetres of top soil. It is to be planted with a good holding grass such as couch. Trees or shrubs are not to be planted on the embankment as roots may provide seepage paths for water.

- (e) The slope of the upstream embankment batters should be no steeper than the ratio of 2.5 horizontal to 1.0 vertical, while the downstream batter should be no steeper than 3.0 horizontal to 1.0 vertical.

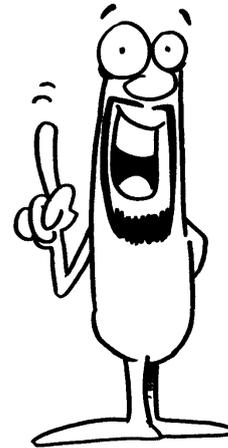
6.3.4 Spillway

Objectives

- An earth spillway is required on all dams in order to pass surplus runoff around the dam which would otherwise pass over the embankment.

Rules

- (a) The spillway should be a minimum of 3 metres in width increasing in size dependent on the size of the dam and catchment. Generally, spillways are to be designed so as not to overflow more than half the depth of the freeboard.
- (b) The width of the outlet is not to be less than the inlet width. The spillway also is not to direct flows onto the downstream toe. The spillway area should be grassed, stable and able to accept runoff flow. In some instances it may be necessary to turf the spillway area. The spillway cut batter should have a maximum steepness of 2.5 horizontal to 1.0 vertical.
- (c) A small diameter (100 millimetre) pipe be required where spring flows or small flows of long duration occur to ensure that the spillway does not erode.
- (d) Where dams are to be constructed in gullies or water courses, a diversion weir is to be constructed up stream of the dam. The weir is to incorporate two pipes 200 millimetres in diameter.



6.3.5 Cut-Off Trench

Objectives

- All dams are required to have a cut-off trench.

Rules

- (a) The cut-off trench is to be constructed along the entire length of the embankment at a minimum width of 2 metres. The trench should be excavated at least 1 metre into impervious soil and backfilled with impervious material.

6.3.6 Vegetation Filters and Tree Planting

Objectives

- Water running into the dam should be passed through a fenced and well-grassed filter zone. The vegetation in this area will filter out much of the unwanted material like silt, fertiliser, manure, dead vegetation and litter and rubbish. Farm dams, where cultivating exists, must include a silt trap.
- Where silting of the dam is a problem, vegetation filters of stiff long-stemmed grasses can be used with silt traps to reduce water velocity and cause more silt to be trapped before it enters the dam. A typical silt trap is about one-tenth the size of the dam.
- A fence around the dam wall and spillway can improve water quality downstream of the dam. Spillways should be kept well-grassed and free from debris. A build-up of debris in the spillway could reduce its capacity and cause the dam to be overtopped.
- Trees around the dam can help reduce evaporation and reduce the growth of undesirable water weeds and algae. Do not allow trees or shrubs to grow on or near the wall. When trees growing on the wall die, the decomposing roots can form tunnels which lead to seepage and leaks. Shrubs also provide cover for rabbits which can damage the wall by burrowing.

Rules

- (a) A gate should be provided in the fence so that the filter area can be renovated by light grazing during rapid growth seasons. Prolonged grazing in dam catchments has potential to cause algal and weed growth in the dam due to the introduction of nutrients from manure.

Figure 6.1 Typical Shape of Dam

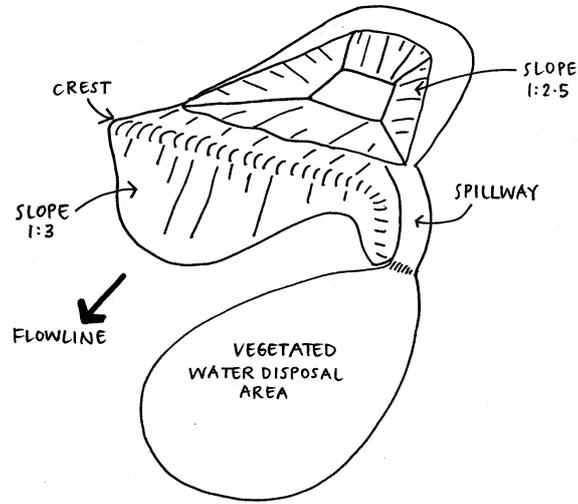


Figure D6.2 Typical plan view of dam

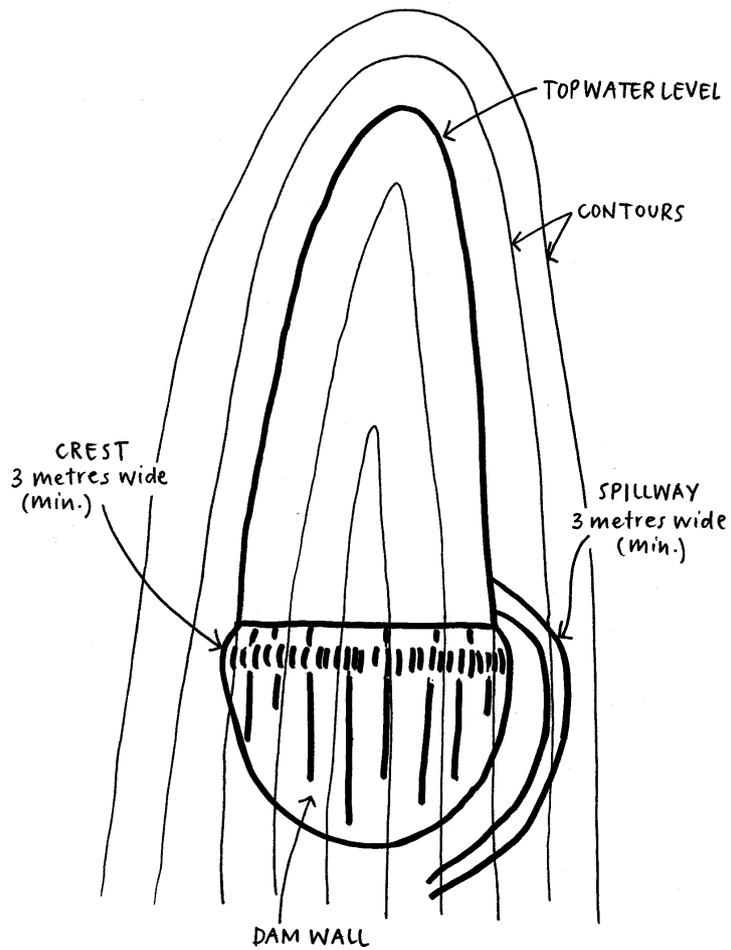
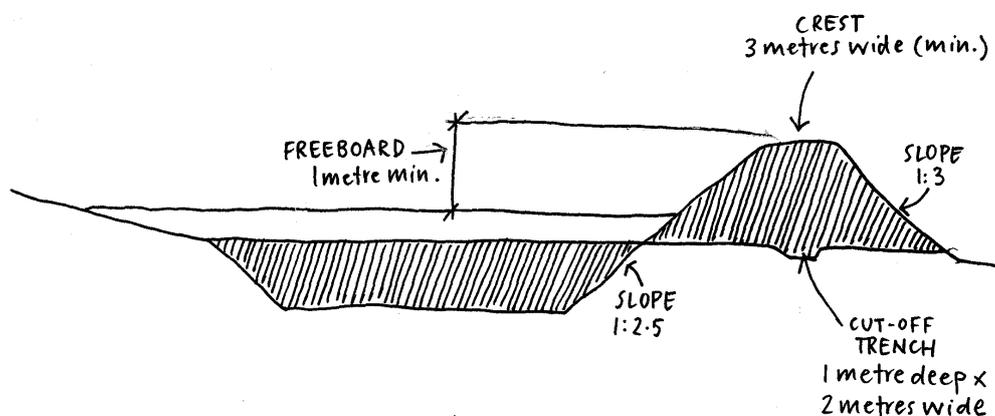


Figure D6.3 Typical cross section through dam



6.3.7 Hydrological Aspects

Objectives

- Consider the potential for excavation to intercept the groundwater, thereby causing direct hydraulic interaction with surface waters. Address potential concerns including impacts on the groundwater resource through evaporation losses and contamination.
- Consider potential contaminants entering the groundwater via the dam. This includes animal wastes, fertilisers, or other agricultural chemicals.

Rules

- (a) Clay lining and limiting depths of dam construction to above the water table are consent requirements to minimise the threat of contamination to groundwater.
- (b) All excavations which intercept the groundwater are required to be licensed by Department of Land and Water Conservation under the Water Act.

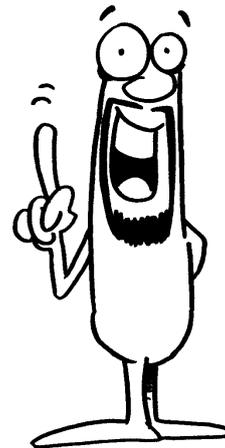
6.3.8 Dam Construction

Objectives

- Exposed areas which may be sources of sediment and associated nutrient mobilisation by strong winds or heavy rain. These areas need to be stabilised and planted down with a vegetative cover, to prevent erosion.
- Spillway areas also need to be carefully constructed and vegetated, preferably to spread water spilling from the dam rather than having a focused single point release that any lead to erosion below the spillway.

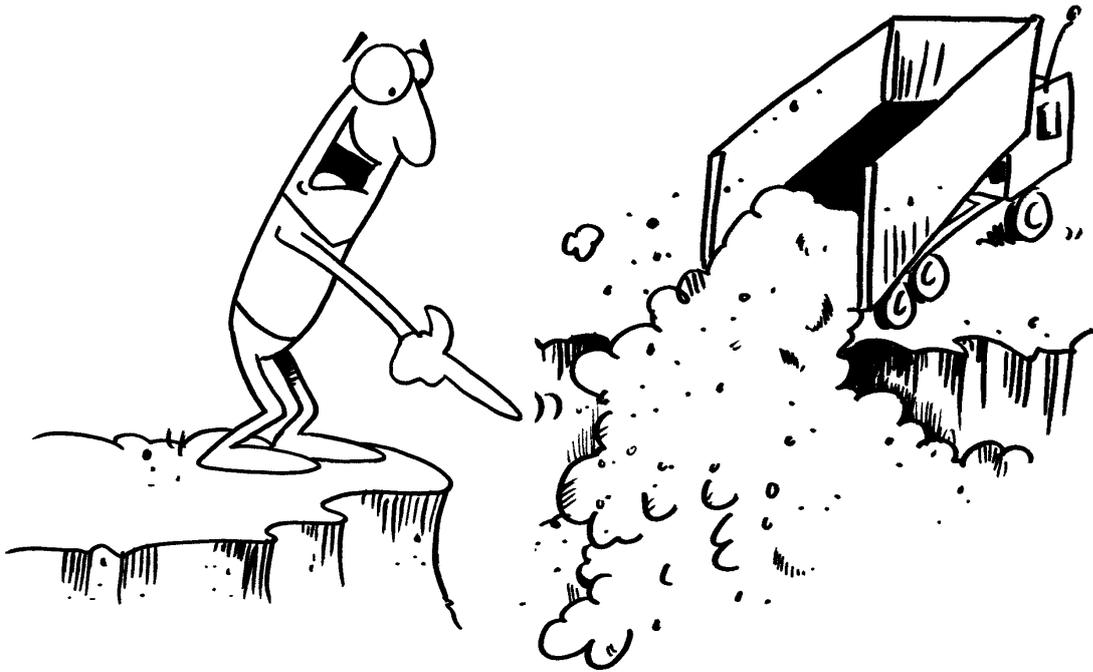
Rules

- (a) The dam wall is to be adequately compacted by track rolling or a sheet foot roller or similar in layers no greater than 150 millimetres.
- (b) Erosion and sediment control devices are to be installed and maintained to ensure that there is no increase in downstream levels of nutrients, litter, vegetation debris or other water borne pollutants.



Chapter 7

LANDFILL





7.1 GENERAL PRINCIPLES

The general principles applying to landfill in the City are to:

- allow alteration of land where it enhances the development and/or use of land;
- ensure that no adverse impact results on local drainage or floodway characteristics in a catchment from landfill works;
- ensure that fill material is satisfactory in terms of compaction, type and characteristics in order to mitigate against potential problems such as landslip, soil erodibility, sedimentation or siltation of natural watercourses or drainage lines;
- ensure that appropriate environmental measures are applied to landfill/earthwork sites in order to conserve the landscape and protect the surrounding environment;
- establish, maintain and promote appropriate site rehabilitation or revegetation techniques for landfill works in order to ensure properties are not sterilised for future land uses and protect the surrounding environment;
- maintain and enhance the visual and scenic quality of locality by controlling form, bulk and scale to complement the environment and have minimum environmental impact;
- ensure no adverse effects on adjoining properties (drainage, structure, stability, fences);
- protect, restore and maintain the local non-urban character of areas and ensure viable agricultural land is sustained;
- protect the health and safety of human residents;
- maintain water quality within the Hawkesbury Catchment area; and
- ensure that degradation of the environment does not recur from acid sulphate soils, sodic soil or saline soils.

7.2 TYPES OF LANDFILL

- The placement of clean fill and fill containing demolition material is permissible with Council's consent provided the placement and associated works conform to this section of the DCP. Landfill development using clean fill and fill containing demolition/builders material will only be approved where adverse impacts are unlikely. Appropriate restrictions will be applied to any approval on the placement or development of buildings upon such landfill.

- The placement of demolition material is also possible for the creation of flood free vehicular access. The fill material must be satisfactorily compacted and treated to prevent runoff or siltation problems. It must not adversely impact upon the local drainage characteristics of the catchment.
- Filling, using demolition material on sites situated in floodways or subject to high flood velocities, will generally only be allowed where such fill is placed in trenches and covered and compacted with a satisfactory depth covering of clean fill.
- A person must not use land for burying unshredded used motor vehicle tyres. Shredded for the purpose of this DCP means a motor vehicle tyre dissected into a minimum of 3 parts. A licence is required from the Environment Protection Authority for all tyre landfill proposals.
- The filling of land by the placement of shredded tyres is generally restricted to lands above the 1 in 100 year flood frequency level. However, in cases where flood liable lands are subject to very low velocity back-up water flooding, and where satisfactory provision has been made for shredded tyre retention measures, such filling will be considered by Council.



Objectives

- The final land reclamation or finished contour surface levels (after backfilling of trenches) of shredded tyre landfill operations or works must be a satisfactory minimum height above the enclosed tyre particles to help assist in retention and compaction.
- The placement of shredded tyres in excavated trenches must not generally exceed the existing natural contour/ground level.
- The development of a detention basin and/or associated diversion channels will be required to direct upstream runoff from disturbed areas.
- The placement of a bund wall around the site may be required to help direct runoff from the disturbed excavation/landfill areas.

Rules

- (a) The top 300 millimetres of fill must be topsoil in order to ensure site revegetation.
- (b) The minimum finished surface grade for tyre landfill developments must be 2% in order to allow satisfactory surface runoff and overcome potential ponding or water logging above finished trenches/cells.



- (c) The individual shredded tyre landfill trenches or cells should include a lateral drain to allow sub-surface drainage.
- (d) The provision of sedimentation traps and/or sedimentation detention basins will be required for shredded tyre landfill works in order to trap sediments associated with runoff from disturbed areas.
- (e) Containment and treatment of leachate must be monitored after completion of works by the owner for a period of 5 years after the completion of the works, with copies of all tests lodged with Council every 6 months.
- (f) The finished surface level will be subject to appropriate site regeneration/revegetation. The site regeneration works must include the spreading of topsoil and a combination of tube stock and seeding to help establish vegetation cover. The interim site revegetation program should include quick growing ground cover, particularly Japanese millet (in Spring/Summer) and Ryecorn (in Autumn/Winter).
- (g) Shredded tyre landfilling operations will not generally be approved on bushfire prone lands due to the stockpiling of shredded tyres being an unacceptable high fire hazard.

7.3 GENERAL LANDFILL REQUIREMENTS

7.3.1 Council Consent

Development consent may not be required for land filling when it is ancillary to another development that is the subject of consent already issued under the Act. Any land filling in these circumstances still require compliance with provisions of this DCP to prevent environmental degradation. A further exception is turfing and/or top dressing works to a depth less than 150 millimetres.

Any DA for landfill/earthworks should contain sufficient documentation to demonstrate that:

- soil erosion will be controlled;
- filling will have no adverse effect on the surrounding drainage systems (including overland flow);
- the height, scale and bulk of the fill will be in character with the surrounding topography (batter slopes and finished levels are particularly important) and will not be visually intrusive; and
- that fill material will be capable of sustaining plant growth and the proposed plant material is in character with the surrounding landscape.

Council will not grant consent to any application for earthworks/landfill which has the potential to mar the landscape or landform, degrade or destroy neighbouring bushland, create siltation of waterways and drainage lines, or pollute any waterway or drainage line. Any application shall be required to satisfy Council that suitable environmental safeguards are to be implemented during the filling operation and upon completion of such.

7.3.2 Riverbank/Foreshore Reshaping, Regrading and Stabilisation

The filling, reshaping or regrading of foreshore/riverbank lands is only permissible in situations where no material is removed from the subject property. Removal of sediment materials is classified as an "extractive industry" and is a prohibited purpose in 7(d1) environmental protection zones and in the river system.

The proposed filling, reshaping or regrading of foreshore/riverbank lands will require a report by a qualified person in respect of the proposed works and the associated implications on the river ecosystem. This report should incorporate the type, quality and quantity of such landfill works with analysis of the river/foreshore ecosystem and morphology, hydraulic capacity, flood levels, water flow velocities, channel protection/energy dissipation requirements, detention and storage calculations, spillways, overflows and maintenance of water resources, sediment and pollution control.

The concurrence from the NSW Public Works Department for tidal waters or DLWC for non-tidal waters under the *Rivers and Foreshores Improvement Act 1948* may also be required for the filling, regrading or reshaping of foreshore lands below or above high mean mark.

7.3.3 Temporary Stockpiles

Any temporary stockpiling of fill material must also be identified in a DA, with supporting plans to address the following matters/issues:

- location and configuration of fill stockpiles;
- land clearing and other proposed preparation requirements;
- proposed depth of stockpiled materials;
- proposed soil erosion/sedimentation mitigation measures;
- possibility of leachate resulting from fill stockpiles and their potential effect on the surrounding land, and ecosystems;
- quality, quantity and characteristics of stockpiled fill material; and
- proposed period of stockpiles.

7.3.4 Maintenance

A maintenance program should be required detailing the frequency of inspection, and provisions for the repair of damaged structures and vegetation must be provided.

The functioning of drainage systems which are installed should be regularly checked.

Maintenance of healthy ground cover is desirable on batters stabilised by vegetation. Mowing, intermittent application of fertiliser and, where practical, irrigation may assist in this respect.

A regular maintenance program should include eradication of any declared noxious plants.

Batter sections which slump should be reshaped and stabilised as early as possible, before adjacent sections are adversely affected.



7.3.5 Removal/Reinstatement or Removal/Rehabilitation

In some cases it may be necessary for unauthorised landfill to be removed from a site. In such instances the applicant will be required to consult with the EPA to determine an approved location to dispose of the subject filling material.

Documentation for removal of fill should include the following:

- erosion control and water management plan, including a perimeter silt fence/bund, sedimentation ponds, dust control details and site exit shaker ramps;
- bulk earthworks plan showing existing and proposed levels, haulage tracks, proposed site exit and details outlining the stages in which fill removal will take place;
- drainage plan showing how drainage will be controlled on finished surface, as previously specified;
- temporary/interim erosion control plan, including cover crop planting details and erosion control details;
- details of soil decompaction, aeration, detoxification and nutrient reconditioning to enable sustained plant growth; and
- landscape plan showing planting details.

7.3.6 Aboriginal/Archaeological Sites

Applicants for landfill within the rural and environmental protection scenic areas of Hawkesbury should consult with the National Parks and Wildlife Service to determine whether or not the subject site is affected by an Aboriginal habitation site, or a matter of archaeological significance.

7.3.7 Limited Consent

The filling, reshaping or associated alteration of land may be subject to a limited consent period in order to guarantee timely completion of works. This limited period includes all landfill works and final site rehabilitation works.

Council may extend or reduce this limited consent period for landfill developments where circumstances warrant. Should an extension be required, applicants are required to lodge a written request for an extension prior to the expiry of the limited consent date.

