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Kiama Development Control Plan 2020
Chapter 3. Common Requirement

RESPECT INNOVATION INTEGRITY TEAMWORK EXCELLENCE

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Chapter 3. Common Requirements

Topic 3.1 - Waste Minimisation and Management

Introduction

This section contains Council's requirements for waste minimisation, management and recycling for all development within the Kiama Municipality.

Topic 3.1 Waste minimisation and Management should be read in conjunction with the following *Environmental Health Guidelines;*

- Waste Collection Services Guideline
- Waste Management for Proposed Development Guideline

This Topic should be read in conjunction with the *LEP 2011* and other relevant sections of this DCP. Application of this Chapter prevails in the event of an inconsistency with any other Chapter of the Kiama DCP 2012.

This topics specifies the objectives and Controls that are required to be addressed when designing, planning, demolishing and constructing development in order to incorporate best practice waste management into all stages of the development.

Waste minimisation and management needs to be addressed for all applications for development, including subdivision, demolition, construction and the ongoing use of a site or premises.

The Statement of Environmental Effects (SEE) or the Environmental Impact Statement (EIS) is to include a Site Waste Minimisation and Management Plan (SWMMP) as the central document of compliance with this section's requirements.

Reference should also be made to any requirements specified in other legislation and standards and outlined in Kiama Council's Waste & Recycling Services Code.

A Waste Management Compliance Bond is payable for various types of developments. The reimbursement of this Bond is dependent on completion and submission of a Waste Compliance Certificate to be submitted prior to the issuing of the Final Occupation Certificate. This will be a condition of Development Consent.

The structure of service contracts plays an important role in ensuring efficient servicing of all types of developments. There are some collection services that can only be provided by Council and its contractor and other collection services that can either be undertaken by Council's contractor or a private contractor.

Indemnity and waste service flexibility are two important contract issues to be considered for larger types of developments and where an onsite collection service is proposed. You can contact Council's Waste Services Team to find out more information about Council's different waste services.

Controls for All Development Types

General

3.1.1 Waste and recycling management systems and collection services should be designed and operated to prevent the potential risk of injury or illness associated with the collection, recycling of material or disposal. This includes risk to:

- residents using the service
- building management and cleaning staff (if applicable) responsible for onsite management
- collection staff providing the service

- other people engaged in or affected by the waste and recycling management systems and collection services.

The designers, developers, site occupants and owners therefore have important roles in addressing these issues in planning design, construction and usage of the development when completed.

3.1.2 Collection methods and systems used for waste and recycling management in multi-unit developments, commercial development and larger scale developments must comply with the relevant and current occupational health and safety legislation and take into consideration industry guidelines and standards.

3.1.3 The underlying principles that also should be taken into consideration for all types of developments are:

- hygiene, safety and cleanliness are a priority
- sorting and storage waste and management recycling systems should be as simple as possible to use
- some waste and recycling management systems, particularly multi-unit or commercial or senior living developments may require a caretaker or manager
- onsite waste and recycling systems should aim to maximise source separation and the recovery of recyclable materials, garden waste and or food organics to comply with Council's or private service contractor requirements

3.1.4 Waste and recycling management systems provided to different developments may vary and require site specific design considerations, depending upon different site constraints.

Bins and Container Types

3.1.5 All garbage, recyclables and garden organics generated by a development need to be stored in the appropriate waste bins or containers with permanent, well-fitting lids. Waste bins and containers used should conform to the Australian Standard for mobile waste containers (AS 4213) if the standard is applicable for the selected bin or container type.

3.1.6 Waste bins and containers greater than 1700L where there is no Australian Standard should be designed to appropriate safety and other requirements.

3.1.7 For residential accommodation separate containers to encourage source separation of waste (garbage, recyclables, food and organics) should be provided to residents to be used to transport these materials to the bin storage area or disposal point.
This will require adequate storage space within the kitchen area for the location of these containers to be incorporated into design plans.

Waste Handling Equipment

3.1.8 If it is proposed to install waste handling equipment, including chutes and compactors, then this equipment should be designed and installed to conform to relevant design and safety standards. Design details will have to be submitted with the Development Application.

Controls for Subdivision

A Development Application for a subdivision may involve the demolition of building or structures reference should be made to the demolition controls of this section and the applicable Control requirements, including the need to prepare and submit an Asbestos and Hazardous Materials Assessment Audit Report.

A statement and information is also to be provided on how the General and Specific Objectives (for Subdivision) and the design Controls as listed below will be achieved and complied with.

3.1.9 A completed Site Waste Minimisation and Management Plan - Subdivision (SWMMP) shall accompany the Development Application. This should include a statement on how the General and Specific Objectives (for subdivision work) and the Controls as listed below will be achieved and complied with.

3.1.10 The preparation and submission of a Contaminated Land Site Assessment Report for the proposed subdivision site to identify any site contamination and remedial action required.

3.1.11 If any soil or other material is to be removed from site or brought onto the site reference must be made to Chapter 1 Section 9 Importation or Export Off-site of Soil/Materials to be used as Fill.

Refer to the additional demolition controls of this section.

Controls for Low Density Developments (single dwellings, dual occupancy, secondary dwellings and any associated additions)

Internal Bins/Containers (Source Separation)

3.1.12 Separate containers or bins are to be provided to residents/occupiers that can be stored within dwellings or other types of developments and used to transport recyclable, food organics and garbage to the storage area or disposal point.

3.1.13 There should be sufficient space provided and nominated within the kitchen (or an alternate location) for the interim storage in bins or containers as supplied of source separated garbage, recyclables and food organics.

Collection Bins

3.1.14 As part of the residential development each single dwelling house, dual occupancy, secondary dwelling and other residential accommodation shall:

- be provided with its own separate garbage, recycling and garden waste/food organics collection bins that comply with Council's Waste Services Code and capacity requirements
- be provided with bins that comply with Australian Standard 4123 (as amended) or applicable standard including designated colour schemes for the different types of bins and lids as specified in Kiama Council's Waste & Recycling Services Code.

External Bin Storage Area

3.1.15 The external bin storage area shall:

- have a minimum size of 2.1m x 1m to provide sufficient space for the storage of at least three (3) collection bins to be allocated to each dwelling for exclusive use
- not affect the aesthetics of the development but blends in with surrounding buildings and landscape
- be located behind the building line and where possible in the rear yard and screened from view from the public domain.

Roadside Bin Collection Point

3.1.16 The access paths to and from the external bin enclosure or bin storage room and leading to the nominated roadside collection points must:

- be designed and constructed to comply with legislative requirements for access and mobility, gradients for ramps and pathways
- be free from steps and obstacles
- be constructed of a durable material.

3.1.17 Ensure the nominated roadside collection point/s for bins that are located on Councils road verge are not:

- located near intersections
- located near roundabouts or slow-points
- located along busy arterial roads unless approved
- located in narrow lanes
- located where bins restrict pedestrian access or near pedestrian crossings
- located where parking will be obstructed or restricted or create a traffic hazard
- located near obstructions, including trees, overhanging buildings and overhead power lines.

3.1.18 The roadside bin collection point/s shall be nominated on a site plan and:

- be easily accessible for the collection vehicle
- have appropriate overhead clearances
- free from obstacles and traffic hazards
- should ensure adequate traffic and pedestrian safety is maintained
- have sufficient width to accommodate all bins
- be located to enable the mechanical pick-up of bins
- enable collection operations to be carried out on a level surface, away from driveways, vehicle ramps and not on steep gradients
- be in a location as approved by Council.

Note:- It is the responsibility of dwelling occupants to move bins to the identified collection point no earlier than the evening before collection day and to then return the bins to their storage area no later than the evening of collection day. Bins are to remain in their on-site storage area at all other times.

Controls for Medium Density Housing (3 or more dwellings/unit, including residential flat buildings, multi-unit dwelling housing, boarding houses, group homes, shop top housing, seniors housing)

Collection Bins

3.1.19 As part of the residential development each single dwelling house, flat, unit, shop top housing, group home and senior residential accommodation shall:

- be provided with its own separate garbage, recycling and garden waste/food organics collection bins that comply with Council's Waste Services Code and capacity requirements, with front lift waste containers being prohibited

Note: For multiunit developments that are vertically above each other or seniors housing and larger residential developments shared garbage and recycling bins, more frequent services may be an alternative option. However Council approval would be required before this option is submitted for consideration.

- be provided with bins that comply with Australian Standard 4123 and as amended including specific requirements for designated colour schemes for the different types of bins and lids.

External Bin Storage Area (not applicable to vertical type multi-unit or shop top housing developments)

3.1.20 An external bin storage area must be provided that complies with the following requirements:

- be located within the rear yard area of each dwelling and in a position from which bins may be readily wheeled to the street for collection
- have a minimum size of 2.1m x 1m to provide sufficient space for the storage of at least three (3) collection bins to be allocated to each dwelling for exclusive use

Garbage, Recycling Bin Storage Rooms (only applicable to vertical type multi-unit or shop top housing developments)

3.1.21 Garbage and recycling bin storage rooms must:

- be integrated into the design of the overall development with the external construction materials and finishes being similar in style and quality to the external materials used in the rest of the development
- be constructed in accordance with the requirements of the National Construction Code, Building Code of Australia and all relevant Australian Standards mobility and applicable legislation as amended including design requirements for access and mobility and gradients for ramps and pathways
- be located wherever possible be in a basement location within the main building envelope (rather than a separate stand-alone structure) or other approved location by Council
- be located and designed in a manner that reduces adverse impacts upon the inhabitants of any dwellings on the site and upon neighbouring properties

- be of adequate size to accommodate all garbage, recycling and of garden waste and or food waste bins associated with the development and in accordance with service frequency and standards
- be designed to have segregated areas for the location of garbage, recycling and garden/food organics waste if applicable and be identified with signage
- be provided with natural ventilation or mechanical ventilation or air conditioning complying with the National Construction Code, Building Code of Australia and all relevant Australian Standards
- be designed to minimise noise generated from the bins being moved in and out of the room and any compaction or other equipment located therein
- have the floor constructed and finished to a smooth even surface, coved at the intersection with walls and plinths
- have the floor drained to a sump that is connected to Sydney Water Corporation sewage system and complies with any applicable plumbing codes and legislation and license requirements
- be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock for bin washing purposes
- have walls constructed of solid impervious materials, cement rendered internally to a smooth even surface coved at all intersections and must finished in a light colour
- have the ceiling constructed of solid impervious materials with a smooth even and light colour finish and capable of being easily cleaned
- have a close fitting and self-closing door and in addition a roller shutter door may be permitted under special circumstances as approved by Council and conditional that a sign being erected in a conspicuous position requiring the roller shutter to be kept closed at all times when not in use
- be provided with artificial light controlled by switches located both outside and inside the storage room.

Roadside Bin Collection Point (where applicable)

3.1.22 The access paths to and from the external bin enclosure or bin storage room and leading to the nominated roadside collection points must:

- be designed and constructed to comply with legislative requirements for access and mobility, gradients for ramps and pathways
- be free from steps and obstacles
- be constructed of a durable material.

3.1.23 Ensure the nominated roadside collection point/s for bins that are located on Councils road verge are not:

- located near intersections
- located near roundabouts or slow-points
- located along busy arterial roads unless approved
- located in narrow lanes
- located where bins restrict pedestrian access or near pedestrian crossings

- located where parking will be obstructed or restricted or create a traffic hazard
- located near obstructions, including trees, overhanging buildings and overhead power lines.

3.1.24 The roadside bin collection point/s shall be nominated on a site plan and:

- be easily accessible for the collection vehicle
- have appropriate overhead clearances
- free from obstacles and traffic hazards
- should ensure adequate traffic and pedestrian safety is maintained
- have sufficient width to accommodate all bins
- be located to enable the mechanical pick-up of bins
- enable collection operations to be carried out on a level surface, away from driveways, vehicle ramps and not on steep gradients
- be in a location as approved by Council.

On-site Bin Collection Point

If a roadside verge collection point cannot be provided, then onsite collection via the private access road to the development may be considered and will be subject to Council approval.

Where developments require an on-site bin collection point the following applies:

3.1.25 The internal road and access driveways must be designed and constructed in accordance with the relevant standards including those specified in legislation, regulations, Councils Waste Management for Proposed Development Guideline and Waste Collection Services Guideline, and codes and specific Council requirements as outlined Kiama Council's Waste Services Code;

3.1.26 Design details, plans, specifications and swept path details of the proposed private access road are to be submitted with Development Application where onsite collection is proposed.

Factors to be addressed in the road design include:

- gradients for turning heads
- longitudinal road gradients
- horizontal alignments
- vertical curve
- cross-falls
- carriageway width
- verges
- pavement widths
- turning areas for the collection vehicles
- sight distance requirements
- entry and exit locations
- clearance heights manoeuvring clearance
- any other requirements as specified in Kiama Council's Waste Services Code

- road strength (industrial-type strength pavement is required, designed for a maximum wheel loading per axle to accommodate garbage and recycling collection vehicles
- any other requirements as specified in Kiama Council's Waste Services Code.

3.1.27 Some applications may require documentation from a Waste and Recycling Services Contractor certifying that the design plans and development site has been inspected and that a Waste Services Agreement will be entered into for onsite access for provision and collection of garbage, recycling garden waste and or food waste bins that meet Council's specifications.

3.1.28 Some applications may require a Waste Services Agreement to be entered into including any other specific requirements as specified by the waste contractor and Council that must be complied with by residents or site occupants and including location of collection point and presentation and removal of bins.

Ongoing Management

3.1.29 Where required, a caretaker or nominated representative must be provided and delegated the responsibility for the tasks involved in ongoing site waste management, including:

- moving bins to and from the storage room to the collection point (if required) on collection day
- washing bins and maintaining storage areas
- arranging for the prompt removal of dumped rubbish
- displaying and maintaining consistent signs on all bins and in all communal storage areas
- managing communal composting areas (if applicable)
- ensuring all residents are informed of the garbage, recycling, organics and bulky waste arrangements

Controls for Development with Two or More Land Uses

Council or a private contractor can provide garbage and recycling services to developments. However, in mixed use developments, urban residential ratepayers are required to pay the Domestic Waste Management Charge even if the development is serviced by a private contractor.

Developments comprising two or more individual land uses including a residential component and commercial land including retail/offices need to incorporate the following requirements as outlined.

3.1.30 The garbage and recycling management systems and services for the residential component of the development must be kept separate from the commercial use.

3.1.31 The garbage and recycling services provided to the residential component must only provided by Council's contractor. The frequency and collection days are set in accordance with Council's approved service schedule and collection zone. The Domestic Waste Management Charge applies to each individual unit. Rather than have individual bins for each residential unit/flat there may be an opportunity for shared bins and more frequent collection services. This would be subject to Council approval.

Residential Component

Refer to the medium density waste management controls for the residential component of developments with two or more land uses.

Non-Residential Component

Internal Bins /Containers (Source Separation)

3.1.32 Separate containers or bins are to be provided to residents/occupiers that can be stored within dwellings or other types of developments and used to transport recyclable, food organics and garbage to the storage area or disposal point.

3.1.33 There should be sufficient space provided and nominated within the kitchen (or an alternate location) for the interim storage in bins or containers as supplied of source separated garbage, recyclables and food organics.

Collection Bins

3.1.34 The non-residential development and commercial component of the mixed use development shall:

- be provided with its own separate garbage, recycling and garden waste/food organics collection bins that comply with Council's Waste Services Code and capacity requirements, with front lift or side lift waste and recycling containers being prohibited unless first approved by Council
- be provided with bins and containers used should conform to the Australian Standard 4123 as amended for mobile waste containers including specific requirements for designated colour schemes for the different types of bins and lids, if the standard is applicable for the selected bin or container. Waste bins and containers greater than 1700L should be designed to appropriate safety and other requirements.

Waste, Recycling Bin Storage Room

3.1.35 A separate storage room must be provided for the storage of garbage, recycling and or garden/food waste bins for the non- residential component of the development. Another storage room shall be provided for the residential component of the development.

3.1.36 Garbage and recycling bin storage rooms must:

- be integrated into the design of the overall development with the external construction materials and finishes being similar in style and quality to the external materials used in the rest of the development
- be constructed in accordance with the requirements of the National Construction Code, Building Code of Australia and all relevant Australian Standards mobility and applicable legislation as amended including design requirements for access and mobility and gradients for ramps and pathways
- be located wherever possible be in a basement location within the main building envelope (rather than a separate stand-alone structure) or other approved location by Council
- be located and designed in a manner that reduces adverse impacts upon the inhabitants of any dwellings on the site and upon neighbouring properties
- be of adequate size to accommodate all garbage, recycling and of garden waste and or food waste bins associated with the development and in accordance with service frequency and standards
- be designed to have segregated areas for the location of garbage, recycling and garden/food organics waste if applicable and be identified with signage
- be provided with natural ventilation or mechanical ventilation or air conditioning complying with the National Construction Code, Building Code of Australia and all relevant Australian Standards
- be designed to minimise noise generated from the bins being moved in and out of the room and any compaction or other equipment located therein
- have the floor constructed and finished to a smooth even surface, coved at the intersection with walls and plinths
- have the floor drained to a sump that is connected to Sydney Water Corporation sewage system and complies with any applicable plumbing codes and legislation and license requirements
- be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock for bin washing purposes
- have walls constructed of solid impervious materials, cement rendered internally to a smooth even surface coved at all intersections and must finished in a light colour
- have the ceiling constructed of solid impervious materials with a smooth even and light colour finish and capable of being easily cleaned
- have a close fitting and self-closing door and in addition a roller shutter door may be permitted under special circumstances as approved by Council and conditional that a sign being erected in a conspicuous position requiring the roller shutter to be kept closed at all times when not in use
- be provided with artificial light controlled by switches located both outside and inside the storage room.

Roadside Bin Collection Point (where applicable)

3.1.37 The access paths to and from the external bin enclosure or bin storage room and leading to the nominated roadside collection points must:

- be designed and constructed to comply with legislative requirements for access and mobility, gradients for ramps and pathways
- be free from steps and obstacles
- be constructed of a durable material.

3.1.38 Ensure the nominated roadside collection point/s for bins that are located on Councils road verge are not:

- located near intersections
- located near roundabouts or slow-points
- located along busy arterial roads unless approved
- located in narrow lanes
- located where bins restrict pedestrian access or near pedestrian crossings
- located where parking will be obstructed or restricted or create a traffic hazard
- located near obstructions, including trees, overhanging buildings and overhead power lines.

3.1.39 The roadside bin collection point/s shall be nominated on a site plan and:

- be easily accessible for the collection vehicle
- have appropriate overhead clearances
- free from obstacles and traffic hazards
- should ensure adequate traffic and pedestrian safety is maintained
- have sufficient width to accommodate all bins
- be located to enable the mechanical pick-up of bins
- enable collection operations to be carried out on a level surface, away from driveways, vehicle ramps and not on steep gradients
- be in a location as approved by Council.

On-site Bin Collection Point

Where developments require an on-site bin collection point the following applies:

3.1.40 The internal road and access driveways must be designed and constructed in accordance with the relevant standards including those specified in legislation, regulations, Councils Waste Management for Proposed Development Guideline and Waste Collection Services Guideline, and codes and specific Council requirements as outlined Kiama Council's Waste Services Code;

3.1.41 Design details, plans, specifications and swept path details of the proposed private access road are to be submitted with Development Application where onsite collection is proposed.

Factors to be addressed in the road design include:

- gradients for turning heads
- longitudinal road gradients
- horizontal alignments
- vertical curve
- cross-falls
- carriageway width
- verges
- pavement widths
- turning areas for the collection vehicles
- sight distance requirements
- entry and exit locations
- clearance heights manoeuvring clearance
- any other requirements as specified in Kiama Council's Waste Services Code
- road strength (industrial-type strength pavement is required, designed for a maximum wheel loading per axle to accommodate garbage and recycling collection vehicles)
- any other requirements as specified in Kiama Council's Waste Services Code.

3.1.42 Some applications may require documentation from a Waste and Recycling Services Contractor certifying that the design plans and development site has been inspected and that a Waste Services Agreement will be entered into for onsite access for provision and collection of garbage, recycling garden waste and or food waste bins that meet Council's specifications

3.1.43 Some applications may require a Waste Services Agreement to be entered into including any other specific requirements as specified by the waste contractor and Council that must be complied with by residents or site occupants and including location of collection point and presentation and removal of bins.

Ongoing Management

3.1.44 Where required, a caretaker or nominated representative must be provided and delegated the responsibility for the tasks involved in ongoing site waste management, including:

- moving bins to and from the storage room to the collection point (if required) on collection day
- washing bins and maintaining storage areas
- arranging for the prompt removal of dumped rubbish

Controls for Commercial and Retail Developments

Council or a private contractor can provide garbage and recycling services to these types of developments. However, in mixed use developments, urban residential ratepayers are

required to pay the Domestic Waste Management Charge even if the development is serviced by a private contractor.

Before submitting a development application you should consider who you want to provide garbage and recycling services to your development. Council can only service your development if it complies with all of the relevant requirements contained in this section.

In order for Council to provide garbage and recycling services to your development it is preferable for all waste and recycling material to be collected via a public roadside collection point.

Certain developments may require an onsite collection service there are special access and road design and storage criteria and liability and indemnity issues that need to be taken into consideration in the design process. You should speak to Council's Waste Service team for more information on Council's waste services, including the possibility of onsite commercial collection services. You can also request commercial garbage and recycling services by completing and submitting the relevant Application Form on Council's website: https://www.kiama.nsw.gov.au/your-council/forms/forms

Information Required for Council to determine if they can service your development

The bin or container capacity for commercial and retail developments will be dependent upon the type of development and the estimated quantity of waste to be generated and the frequency of service provided or required.

Frequency of service

The frequency of service will be dependent upon:

- the type development and size of development
- services provided (garbage, recycling, garden waste/food organics)
- scheduled collection days and collection zone
- bin or container capacity
- individual or shared bins or containers
- ability of service contractor to provide more frequent services

In general the frequency of service and bin capacity for the type of service (garbage, recycling, garden waste/food organics) will have to be determined for each development type. Reference should be made to the different types of development as outlined in this Chapter and Kiama Council's Waste & Recycling Services Code.

Onsite Collection Service Requirements

If a roadside bin collection point cannot be provided, then onsite collection via the private access road to the development may be considered.

Garbage and recycling service contractors will not enter private property with their vehicles unless indemnity against liabilities, losses, damages and other costs arising from the on-site collection service has been provided.

However before this can be considered a Deed of Agreement & Release including indemnity would have to be reached between Council or private service contractor and the developer owner of the site.

Also to allow the safe passage of a laden collection vehicles in all seasons, the internal road and access driveways must be designed and constructed in accordance with the relevant standards including those specified in legislation, regulations, Councils Waste Management

for Proposed Development Guideline and Waste Collection Services Guideline, and codes and specific Council requirements as outlined Kiama Council's Waste Services Code.

Design details, plans, specifications and swept path details of the proposed private access road are to be submitted with Development Application where onsite collection is proposed.

Ongoing Management

Where onsite collection is required, a caretaker or nominated representative must be provided and delegated the responsibility for the tasks involved in ongoing site waste management, including:

- moving bins to and from the storage room to the collection point (if required) on collection day
- washing bins and maintaining storage areas
- arranging for the prompt removal of dumped rubbish

Controls for Commercial Developments involving the preparation and/or sale of food

As outlined above, garbage and recycling services to these types of developments may be either provided by Council's or a private waste contractor.

Council may be able to provide a food waste organics collection service. You should speak to Council's Waste Service team for more information on Council's waste services, including the possibility a food waste organics collection service.

The frequency and collection days will be dependent upon the quantity and type of waste generated and to prevent nuisances from odours, vermin and flies.

There are specific legislative requirements relating to construction, storage and disposal of waste generated from premises where food is prepared, stored and sold.

The following design control standards apply and must be incorporated into the development plans and specifications.

Internal Bins/Containers (Source Separation Recyclables)

3.1.45 A garbage and recycling cupboard must be provided for each and every kitchen area in a development, including kitchen areas in hotel rooms, motel rooms and staff food preparation areas.

3.1.46 Each garbage / recycling cupboard must be of sufficient size to hold a minimum of a single days garbage/recycling and is to hold separate containers/bins for general garbage and recyclable materials. The bins or containers are to be separately labelled "*Recycling Only"* or "*Garbage Only".*

3.1.47 There should be sufficient space provided and nominated within the kitchen (or an alternate location) for the interim storage in bins or containers as supplied of source separated garbage, recyclables and food organics.

Collection Bins

3.1.48 Each separate commercial development shall:

- be provided with its own separate garbage, recycling and garden waste/food organics collection bins that comply with Council's Waste Services Code and capacity requirements. Front lift waste containers are prohibited unless first approved by Council before this option is proposed.

Note: For larger types of developments shared garbage and recycling bins and more frequent services may be an alternative option to separate bins. However Council approval would be required before this option is submitted for consideration.

- be provided with bins and containers that conform to the Australian Standard 4123 as amended including, specific requirements for designated colour schemes for the different types of bins and lids (if the standard is applicable for the selected bin or container).

Waste, Recycling Bin Storage Room

3.1.49 A separate external storage room must be provided for the storage of garbage, recycling and/or garden/food waste bins for the commercial development including food premises.

3.1.50 Garbage and recycling bin storage rooms must:

- be integrated into the design of the overall development with the external construction materials and finishes being similar in style and quality to the external materials used in the rest of the development
- be constructed in accordance with the requirements of the National Construction Code, Building Code of Australia and all relevant Australian Standards mobility and applicable legislation as amended including design requirements for access and mobility and gradients for ramps and pathways
- be located wherever possible be in a basement location within the main building envelope (rather than a separate stand-alone structure) or other approved location by Council
- be located and designed in a manner that reduces adverse impacts upon the inhabitants of any dwellings on the site and upon neighbouring properties
- be of adequate size to accommodate all garbage, recycling and of garden waste and or food waste bins associated with the development and in accordance with service frequency and standards
- be designed to have segregated areas for the location of garbage, recycling and garden/food organics waste if applicable and be identified with signage
- be provided with natural ventilation or mechanical ventilation or air conditioning complying with the National Construction Code, Building Code of Australia and all relevant Australian Standards
- be designed to minimise noise generated from the bins being moved in and out of the room and any compaction or other equipment located therein
- have the floor constructed and finished to a smooth even surface, coved at the intersection with walls and plinths

- have the floor drained to a sump that is connected to Sydney Water Corporation sewage system and complies with any applicable plumbing codes and legislation and license requirements
- be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock for bin washing purposes
- have walls constructed of solid impervious materials, cement rendered internally to a smooth even surface coved at all intersections and must finished in a light colour
- have the ceiling constructed of solid impervious materials with a smooth even and light colour finish and capable of being easily cleaned
- have a close fitting and self-closing door and in addition a roller shutter door may be permitted under special circumstances as approved by Council and conditional that a sign being erected in a conspicuous position requiring the roller shutter to be kept closed at all times when not in use be provided with artificial light controlled by switches located both outside and inside the storage room.

Grease Traps

3.1.51 Food premises must be provided with a grease trap connected to the sewerage system of Sydney Water Corporation (where sewer is available) and in accordance with any approvals and conditions or license requirements.

3.1.52 Premises which generate at least 50 litres per day of meat, seafood or poultry waste must have that waste collected on a daily basis or must store that waste in a dedicated and refrigerated waste storage area until collection.

3.1.53 All commercial tenants must keep written evidence on site of a valid contract with a licensed waste contractor for the regular collection and disposal of the waste and recyclables and grease trap wastes that are generated on the site.

3.1.54 Where required, a caretaker or nominated representative must be provided and delegated the responsibility for the tasks involved in ongoing site waste management, including:

- moving bins to and from the storage room to the collection point (if required) on collection day
- washing bins and maintaining storage areas
- arranging for the prompt removal of dumped rubbish

Controls for Industrial Developments

Industrial premises are likely to generate a variety of liquid, sludge, oils, chemical and hazardous wastes, bulky items, drums, general garbage and recyclable materials.

Specific legislation will apply to the usage, separation, storage of chemical and hazardous waste prior to collection. Some on these waste materials will also be collected by a licensed waste contractor and transporter and can be only be disposed of at specific disposal facilities or onsite treatment or disposed to the sewerage system subject license and approval.

It is important to identify the different types and quantities of these types of materials that are likely to be generated from the development and its ongoing use and treatment and disposal requirements. Environmental Management Plans may also have to be prepared for the particular use and processes undertaken.

As with commercial and retail developments, garbage and recycling services to these types of developments may be either provided by Council's or a private waste contractor.

Before submitting a development application you should consider who you want to provide garbage and recycling services to your development. Council can only service your development if it complies with all of the relevant requirements contained in this section.

In order for Council to provide garbage and recycling services to your development it is preferable for all waste and recycling material to be collected via a public roadside collection point.

Certain developments may require an onsite collection service there are special access and road design and storage criteria and liability and indemnity issues that need to be taken into consideration in the design process. You should speak to Council's Waste Service team for more information on Council's waste services, including the possibility of onsite commercial collection services. You can also request commercial garbage and recycling services by completing and submitting the relevant Application Form on Council's website: https://www.kiama.nsw.gov.au/your-council/forms/forms

Information Required for Council to determine if they can service your development

The bin or container capacity for commercial and retail developments will be dependent upon the type of development and the estimated quantity of waste to be generated and the frequency of service provided or required.

Frequency of service

The frequency of service will be dependent upon:

- the type development and size of development
- services provided (garbage, recycling, garden waste/food organics)
- scheduled collection days and collection zone
- bin or container capacity
- individual or shared bins or containers
- ability of service contractor to provide more frequent services

In general the frequency of service and bin capacity for the type of service (garbage, recycling, garden waste/food organics) will have to be determined for each development type. Reference should be made to the different types of development as outlined in this Topic and Kiama Council's Waste & Recycling Services Code.

Onsite Collection Service Requirements

If a roadside bin collection point cannot be provided, then onsite collection via the private access road to the development may be considered.

Garbage and recycling service contractors will not enter private property with their vehicles unless indemnity against liabilities, losses, damages and other costs arising from the on-site collection service has been provided.

However before this can be considered a Deed of Agreement & Release including indemnity would have to be reached between Council or private service contractor and the developer owner of the site.

Also to allow the safe passage of a laden collection vehicles in all seasons, the internal road and access driveways must be designed and constructed in accordance with the relevant standards including those specified in legislation, regulations, Councils Waste Management

for Proposed Development Guideline and Waste Collection Services Guideline, and codes and specific Council requirements as outlined Kiama Council's Waste Services Code.

Design details, plans, specifications and swept path details of the proposed private access road are to be submitted with Development Application where onsite collection is proposed.

Ongoing Management

Where onsite collection is required, a caretaker or nominated representative must be provided and delegated the responsibility for the tasks involved in ongoing site waste management, including:

- moving bins to and from the storage room to the collection point (if required) on collection day
- washing bins and maintaining storage areas
- arranging for the prompt removal of dumped rubbish

The following design Controls standards apply and must be incorporated into the development plans and specifications.

Internal Bins /Containers (Source Separation Recyclables)

3.1.55 A garbage and recycling cupboard or specified area must be provided for each and every staff kitchen, amenities and office areas in the development

3.1.56 Each garbage/recycling cupboard must be of a sufficient size to hold a minimum of a single days garbage/recycling and is to hold separate containers/bins for general garbage and recyclable materials. The bins or containers are to be separately labelled "*Recycling Only"* or "*Garbage Only".*

Collection Bins

3.1.57 The industrial development and any separate component shall:

- be provided with its own separate garbage, recycling and garden waste/food organics collection bins or containers that comply with Council's Waste Services Code and capacity requirements. Front lift or side lift waste and recycling containers may be used subject to compliance with design requirement for onsite collection;
- be provided with bins and containers used should conform to the Australian Standard 4123 as amended for mobile waste containers including specific requirements for designated colour schemes for the different types of bins and lids, if the standard is applicable for the selected bin or container. Waste bins and containers greater than 1700L should be designed to appropriate safety and other requirements.

Industrial Garbage, Other Waste and Recycling Storage Areas

The following design Control standards apply and must be incorporated into the development plans and specifications for waste and recycling storage areas.

3.1.58 Garbage and other waste/recycling storage areas must:

- be constructed in accordance with the requirements of the National Construction Code, Building Code of Australia and all relevant Australian Standards mobility and applicable legislation as amended including design requirements for access and mobility and gradients for ramps and pathways
- must be integrated into the design of the overall development
- must be located and designed in a manner that reduces adverse visual and noise impacts upon neighbouring properties and the streetscape
- be constructed and located to minimise odours emanating from the storage area and prevent harbourage vermin
- be able to accommodate separate general garbage/containers and recycling bins/containers which are of sufficient volume to contain the quantity of waste generated between collections
- have the gradient of the floors and the gradient of any associated access ramps sufficiently level so that access for the purpose emptying containers can occur in accordance with relevant Occupational Health and Safety legislation
- have a smooth, durable floor and enclosed with walls / fences that extend to the height of any bins containers which are kept within
- have lockable doors or gates to provide screening and security to prevent illegal dumping of waste
- have all doors and gates being able to be opened from inside and outside and must be wide enough to allow for the easy passage of garbage and recycling bins/containers
- have a sign to indicate that the door/gate is to remain closed when not in use
- have signage that clearly describes the types of materials that can be deposited into recycling and garbage bins/containers
- where bin/container washing is required, due to the nature of the waste materials being disposed, then an adequate supply of cold water mixed with hose cock shall be provided
- have the floor of the bin/container area drained to a sump connected to Sydney Water Corporation sewerage system that complies with any applicable plumbing codes and legislation and license requirements

Roadside Bin Collection Point (where applicable)

3.1.59 The access paths to and from the external bin enclosure or bin storage room and leading to the nominated roadside collection points must:

- be designed and constructed to comply with legislative requirements for access and mobility, gradients for ramps and pathways
- be free from steps and obstacles
- be constructed of a durable material.

3.1.60 Ensure the nominated roadside collection point/s for bins that are located on Councils road verge are not:

- located near intersections
- located near roundabouts or slow-points
- located along busy arterial roads unless approved
- located in narrow lanes
- located where bins restrict pedestrian access or near pedestrian crossings
- located where parking will be obstructed or restricted or create a traffic hazard
- located near obstructions, including trees, overhanging buildings and overhead power lines.

3.1.61 The roadside bin collection point/s shall be nominated on a site plan and:

- be easily accessible for the collection vehicle
- have appropriate overhead clearances
- free from obstacles and traffic hazards
- should ensure adequate traffic and pedestrian safety is maintained
- have sufficient width to accommodate all bins
- be located to enable the mechanical pick-up of bins
- enable collection operations to be carried out on a level surface, away from driveways, vehicle ramps and not on steep gradients
- be in a location as approved by Council.

On-site Bin Collection Point

These Control standards apply if roadside collection is not proposed or not approved by Council.

3.1.62 The internal road and access driveways must be designed and constructed in accordance with the relevant standards including those specified in legislation, regulations, Councils Waste Management for Proposed Development Guideline and Waste Collection Services Guideline, and codes and specific Council requirements as outlined Kiama Council's Waste Services Code.

3.1.63 Design details, plans, specifications and swept path details of the proposed private access road are to be submitted with Development Application where onsite collection is proposed.

Factors to be addressed in the road design include:

- gradients for turning heads
- longitudinal road gradients
- horizontal alignments
- vertical curve
- cross-falls
- carriageway width
- verges
- pavement widths
- turning areas for the collection vehicles
- sight distance requirements

- entry and exit locations
- clearance heights manoeuvring clearance
- any other requirements as specified in Kiama Council's Waste Services Code
- road strength (industrial-type strength pavement is required, designed for a maximum wheel loading per axle to accommodate garbage and recycling collection vehicles)
- any other requirements as specified in Kiama Council's Waste Services Code.

3.1.64 Some applications may require documentation from a Waste and Recycling Services Contractor certifying that the design plans and development site has been inspected and that a Waste Services Agreement will be entered into for onsite access for provision and collection of garbage, recycling garden waste and or food waste bins that meet Council's specifications.

3.1.65 Some applications may require a Waste Services Agreement to be entered into including any other specific requirements as specified by the waste contractor and Council that must be complied with by residents or site occupants and including location of collection point and presentation and removal of bins.

Ongoing Management

3.1.66 A caretaker or nominated representative must be provided and delegated the responsibility for the tasks involved in ongoing site waste management, including:

- moving bins/containers to and from the storage areas to the collection point (if required) on collection day or if required by collection contractor
- washing bins/containers and maintaining storage areas to prevent a nuisance form litter, odour and flies and liquids
- ensuring garbage and recycling bins/containers are only be washed in an area which drains to a sewer authority approved drainage connection
- arranging for the prompt removal of dumped rubbish, waste or recyclable material placed around bins
- displaying and maintaining consistent signs on all bins and in all communal storage areas
- ensuring all tenants are informed of the garbage, recycling, food organics and bulky items and other waste arrangements.

Controls for Demolition

Clause 2.7 of Kiama LEP 2011 relates to demolition work that requires Development Consent.

3.1.67 Where development consent is required by this or other environmental planning instruments then a development application must contain the following additional information:

- Asbestos and Hazardous Materials Assessment Audit in accordance with Councils Waste Management for Proposed Development Guideline, as prepared by Council or other regulatory authority and prepared by an appropriately qualified person meeting suitable to Council, and the Model

Asbestos Policy prepared by the Division of Local Government at www.lgnsw.org.au/key-initiatives/asbestos.

- Risk Assessment and Management Plan identifying applicable legislation, Council policies, level of risk associated, occupational health and safety requirements and procedures for removal and or treatment and nominated disposal facility.
- A Demolition Plan outlining the results of the Materials assessment. The name and licence number of all Demolition contractors including any specialist hazardous materials contractors.
- Waste Minimisation and Management Plan in accordance with Councils Waste Management for Proposed Development Guideline, as prepared by Council that identifies types and estimated quantities. Reference should be made to Councils Waste Management for Proposed Development Guideline and Waste Collection Services Guideline.

3.1.68 No demolition can occur prior to the issue of development consent.

3.1.69 A completed Site Waste Minimisation and Management Plan - Demolition (SWMMP) shall accompany any Development Application that proposes the demolition of buildings or other ancillary structures. This shall be accompanied with a statement and information on how the General and Specific Objectives (for Demolition) and the design Controls as listed below will be achieved and complied with.

3.1.70 Means are to be implemented to facilitate reuse/recycling by using the process of 'deconstruction', where various materials are carefully dismantled and sorted.

3.1.71 Identify all waste likely to result from the demolition and opportunities for reuse, recycling, mulching or composting of materials and estimated volumes, tonnages of materials and disposal locations. This includes soils, trees or vegetation to be removed and all structures to be demolished.

3.1.72 Identify and allocate an area on the site plan for the storage of materials for reuse, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements).

3.1.73 Provide details of the proposed separate collection bins or areas to be used for the storage of residual waste and recyclable material generated by onsite workers or contractors.

3.1.74 Provide details of signage as proposed for the purpose of identifying waste and recycling bins and storage areas.

3.1.75 A Statement providing details of who has been assigned the responsibility for the preparation of a Demolition Waste Compliance Certificate, including all documentation, is to be submitted to Council prior to the issuing of the Construction Certificate.

Topic 3.2 - Amenity

Solar Access

Objectives

O:3.2.1	All development must incorporate design to the internal layout and the siting of the development on the site to ensure a high level of solar access to both end users of the development and existing surrounding development

Controls

3.2.1 Where a proposed dwelling house/addition/dual occupancy/secondary dwelling is considered to adversely affect privacy or excessively overshadow an adjoining property, Council may request modification to the building design, requiring increased building setbacks, or failing this, refuse the application.

3.2.2 A proposed dwelling house/addition/dual occupancy/secondary dwelling should respect the reasonable desire of adjoining residents to direct sunshine and should not unreasonably reduce solar access to habitable rooms and recreation areas on adjacent residential properties.

3.2.3 Buildings must be designed to optimise solar access by positioning and orienting buildings to maximise north facing walls.

3.2.4 Where practicable; (and taking into account maximising views/amenity issues):

- habitable room windows should be placed within 30 degrees east and 20 degrees west of north.
- dwellings should be designed to locate living areas to the north and service areas to the south and west of the development.

3.2.5 Where avoidable, buildings must be designed so that there is no unreasonable overshadowing of solar collectors located on adjacent development.

Privacy

Objectives

O:3.2.2	To provide a high level of visual and acoustic privacy for existing and new residents

Controls

3.2.6 Development in excess of one storey beyond this point will be more critically analysed in respect to the amenity impacts on adjoining properties, by the development, with particular reference to the following:

- Maintenance of privacy into the adjoining dwellings and private open space areas
- Access to natural light and/or overshadowing
- Visual bulk

3.2.7 Treatments to reduce the likely amenity impacts on adjoining properties might include, screens, opaque glazing, highlight windows, increased side setbacks, broken roof lines, split floor levels or a general height reduction.

3.2.8 All development should be designed to provide a high level of privacy for end users without compromising access to light and airflow. Where, due to site or design constraints, potential overlooking is unavoidable. Detailing could include:

- offset windows of in new development and adjacent development windows,
- double glazing,
- operable louvers or screen panels to windows and/or balconies,
- screening through 1.5m high fencing or landscaping between dwellings.

3.2.9 Where a proposed dwelling house/addition/dual occupancy/secondary dwelling is considered to adversely affect privacy or excessively overshadow an adjoining property, Council may request modification to the building design, requiring increased building setbacks, or failing this, refuse the application.

Views & Visual Impacts

The Municipality has a range of significant ocean and escarpment views and vistas. Where significant views are available they can add greatly to the amenity and satisfaction of residents. Views can also contribute to a sense of place for both individuals and the public generally. A sense of place also contributes to the image of a development particularly in the minds of the residents. Similarly, adjoining residents who also enjoy views need to feel that their 'home' is not unreasonably affected by loss of views caused by new development. It is not possible in an urban environment to protect all views for all people.

Exceptions to compliance with view sharing principles may be granted in areas which have been targeted for higher density development however, sensitive design will still need to be undertaken to ensure that wherever possible view lines from existing development are maintained. In these instances a demonstrated sensitivity to view lines from public places will also need to be undertaken.

Objectives

O:3.2.3	To maintain view sharing principles though the development and redevelopment of areas.
O:3.2.4	To ensure that where practical new development is designed and sited not to significantly alter views (including water and/or escarpment views).
O:3.2.5	To ensure that primary private views are maintained through the addition of new development.
O:3.2.6	To retain views to and from the water.
O:3.2.7	To protect conserve and maintain the landform of the municipality.
O:3.2.8	To limit potential for large bulky housing and development.
O:3.2.9	To encourage sensitive siting of housing.
O:3.2.10	To maintain or enhance significant public view corridors and other opportunistic views available from the public domain.

View Sharing Principles

Views are essentially of two types - public views and private views.

Public views are those available to persons using public places such as roads and parks. They too add to the public amenity and sense of place. The siting and design of buildings should have regard to existing vistas from public places. These should be preserved where they are significant, for example - views of waterways, landmarks or well-known topographic or natural geological features that are visible at the ends of streets or between buildings from regularly used vantage points.

Private views are those enjoyed from dwellings by their occupants. They may be defined as primary and secondary views.

Primary views are those that feature significantly from frequently used living areas such as lounge rooms, living rooms and family rooms. These normally would be located when the dwelling is designed so that maximum advantage is taken of them.

Secondary views are those that represent a lesser or lower order of importance even though they may provide considerable enjoyment to the occupants. To the extent that the dwelling design did not see fit to feature them as primary views from frequently used living areas suggests they be considered of lower order priority than primary views.

The impact on views from living areas and kitchens is more significant than from bedrooms or service areas.

There will be instances where views will unavoidably be affected by new development. From a design viewpoint, the preservation of existing primary views from an adjoining dwelling would be of more importance than secondary views. These primary views should, to the maximum extent possible, be preserved.

New development should maximise views available to frequently used living areas within new dwellings without causing significant loss of views, and in particular primary views, enjoyed by existing residents, or significant loss of important vistas available from public places.

Controls

3.2.10 Any development in Kiama should incorporate view sharing principles into the design and siting of development to ensure that where possible with that existing view lines are not detrimentally impacted.

3.2.11 Development should maintain where possible of views from public places.

3.2.12 Development should ensure, where possible, that there is no unreasonable loss of existing view lines from existing development.

3.2.13 No one dwelling should be sited to maximise the views for its occupants to the exclusion of nearby resident or neighbours.

3.2.14 Building design should have regard to the topography of the site and avoid unnecessary bulk or alteration of natural ground levels.

3.2.15 Where there is a potential for view loss Council may require a maximum building height of less than the maximum allowable for part of the proposed building to ensure view sharing.

3.2.16 Council may consider varying setbacks and building lines where variance would result in a positive view sharing outcomes

3.2.17 Reference is to be made to principles handed down in the Land and Environment Court with regard to view sharing.

Landscaping

The purpose of this plan is to assist in the preparation of suitable landscape plans and documents for proposed commercial, industrial and residential developments within the Kiama Municipality. Basic information and design considerations are provided which will help applicants in meeting the requirements of the environmental legislation when preparing development applications.

Objectives

O:3.2.11	To provide a high standard of landscape design which complements the design of the development and integrates within the streetscape or rural setting in size, scale, mass and bulk throughout the Kiama Municipality.
O:3.2.12	To require landscaping to be considered in consultation with building and subdivision design as soon as possible in any development.
O:3.2.13	To incorporate environmentally sustainable practices within the design.
O:3.2.14	To reduce the impact of development activity on the landscape.
O:3.2.15	To provide landscaping which requires low maintenance.
O:3.2.16	To protect and enhance remnant native bushland areas by the retention and regeneration of indigenous flora.

Why Submit A Landscape Plan?

Most property development requires a landscape component which is assessed in order to improve the quality of the development by providing shade, privacy, streetscape, aesthetics, low maintenance and environmentally sustainable practices. To ensure a satisfactory standard of construction is achieved it is recommended that all landscape construction by carried out by a qualified landscape contractor. Membership to an accredited organisation encompassing both design and construction of landscapes is desirable.

Who Can Prepare Landscape Documentation?

To ensure that appropriate professional skills are being applied in the design as well as the presentation of landscape proposals, a suitably qualified Landscape Architect or Landscape Designer with relevant design experience is required to prepare landscape plans.

Information to be Submitted with Landscape Documents

This should be used as a checklist before submitting landscape plans.

- **Concept Landscape Plans**

A concept landscape plan is suitable when Development Approval only is required. The following details are required to be shown:

- Property owners name, postal address and contact details.
- Applicant's name, address and contact details.
- Landscape consultants contact details.

- North point.
- Scale of the plan (Generally 1:100 or 1:200 but for specific developments others may be required).
- Location of all existing and proposed buildings and adjoining buildings.
- Details of all existing trees 3.0 metres or more in height showing location, species, canopy spread and height.
- Location, height and finished floor levels of all existing/proposed buildings and structures.
- Location of roads, driveways, parking areas and footpaths with details of materials and finishes.
- Existing ground levels and proposed design levels e.g. contours, spot levels.
- Location and height of proposed retaining walls.
- Location of private open space clear of any garden beds, clothes lines and other encroachments.
- Schematic planting showing location and mature heights of planting.
- Further details which may be required
- Arborist report including the following details:
    - Reduced levels at tree base
    - Precise location
    - Height
    - Canopy spread and dripline
    - Name of species (Botanic and common)
    - Health and condition

- **Landscape Plans**

A fully detailed landscape plan is required prior to release of the Construction Certificate. Therefore it requires more detail than a concept plan. The following details are required to be shown:

- Property owners name, postal address and contact details.
- Applicant's name, address and contact details.
- Landscape consultants contact details.
- North point.
- Scale of the plan (Generally 1:100 or 1:200 but for specific developments others may be required).

- Location of all existing and proposed buildings and adjoining buildings.
- Details of all existing trees 3.0 metres or more in height showing location, species, canopy spread and height.
- Existing or proposed stormwater drains and drainage pits.
- Location, height and finished floor levels of all existing/proposed buildings and structures.
- Location of roads, driveways, parking areas and footpaths with details of materials and finishes.
- Existing ground levels and proposed design levels e.g. contours, spot levels.
- Location of utility services and stormwater drainage lines.
- Location and height of proposed retaining walls.
- Location of private open space wall over 600mm high will require Engineer's documentation clear of any garden beds, clothes lines and other encroachments
- Maintenance program.
- Planting schedule and plan to show:
    - Plant symbol
    - Botanic name and common name
    - Quantity
    - Mature height
    - Pot sizes
    - Plant spacings
    - Staking/tying
    - A specification describing the method of preparation of planting beds, turning, trees in grass, planting methods, fertilising, mulching, edging and staking.
    - Details of imported soils and plant growing medium.
    - Detail and location of all edge treatments
    - When necessary, standard construction and detail drawings e.g. sections through mass planting beds, tree planting details, retaining walls.
    - Location of service areas and screening details e.g. garbage receptacle area, drying area, letterboxes, play areas, common open space.

Further details which may be required:

- Construction details of permanent stock proof fencing.

- Location of all existing and proposed underground and overhead services and easements.
- Method used to protect individual trees or bushland areas during and after completion of the development.
- Irrigation layout/tap location if applicable.
- Details of special treatment e.g. erosion control, creek bank stabilisation, roof gardens etc.
- Arborist report of trees on the site and street trees including the following:
  - Reduced levels at tree base
  - Precise location
  - Height
  - Canopy spread and dripline.
  - Name of species (botanic and common name)
  - Health and condition
  - Tree protection Zones.

- **Site Analysis**

Specific developments nominated by Council may require more detailed analysis. Good site analysis will aid in the resolution of the landscape design. This has a flow on effect of creating a pleasant living environment for both the occupants of the 'development' in question and the neighbourhood. The following details are required to be shown:

- Consultant's name, address and contact details.
- Applicant's name, address and contact details.
- Site address, location map.
- Scale of plan 1:100. or 1:200
- Date of drawing.
- North point.
- Plan reference number.
- Site boundaries and dimensions.
- Location, use and height of existing buildings within the site.
- Relationship of existing buildings to adjoining properties and key developments.
- Topography, slope and aspect.

- Views from the site.
- Potential constraints relating to overshadowing and overlooking.
- Street character.
- Prevailing winds.
- Surface run-off and potential impact of altered groundwater flows.
- Existing buildings.
- Spot levels and contours related to AHD where practical location of utility services and stormwater drainage lines.
- Location of existing historical or archaeological features.
- Location of existing contaminated soils or fill.
    - Arborist report of trees on the site and or street trees including:
    - Levels at tree base (to AHD where possible).
    - Precise location.
    - Height.
    - Canopy spread and drip line.
    - Name of species (botanic and common name).
    - Health and condition.

- **Environmental Management Plans and Reports**

These documents shall be prepared by appropriately qualified consultants. Specific reports may be required for developments within environmentally sensitive areas. Council will set the scope of details required for the survey/report according to specific sites requirements. These may include the following:

- Heritage status and/or Conservation Report.
- Soil analysis.
- Survey of Endangered or Vulnerable Species or Endangered Ecological Communities Biodiversity Act 2016.
- Environmental Management Plan.
- Arborist Report.

- **Detailed Construction Plans**

Detailed construction plans of hard engineering works included in the landscaping such as retaining walls, raised gardens, roof gardens will be required to enable a comprehensive assessment of the landscape proposal.

- **Vegetation Surveys**

These will be required when there is remnant bushland vegetation on the site. The surveys must be carried out by a suitably qualified person approved by Council and in accordance with accepted standard scientific methodology. The minimum detail to be provided shall include the following:

- List of species present on site.
- Location of any Endangered or Vulnerable Species or Endangered Ecological Communities Biodiversity Act 2016.
- List of any weeds classified by Illawarra District Weeds Authority.
- Other detail which may be required include the following:
  - Condition of vegetation including degree of weed invasion.
  - Location and condition of significant trees.
  - Biodiversity assessment

General Landscape Controls

Street Tree Planting

It is the intention of street tree planting to establish a local identity.

3.2.18 When required, the tree selection must be in scale with the streetscape and offer sun and wind protection and improve the micro-climate of the area. Street tree planting is to be:

- Minimum 2.5m from either side of a driveway or vehicular crossing.
- Minimum 2.5m from either end of a car/bus parking bay.
- Minimum 20m from either side of an existing pedestrian crossing.
- Minimum 2.5m from electricity or telephone poles or pillars.
- Spaced so as not to block signage, access to services.
- Indigenous native species with preference over exotics where possible (See Appendix 2 for species list).
- Selected with consideration to overhead power lines and views.
- Minimum 1.0 metre tall when planted.

Protection of Existing Vegetation

3.2.19 Reference should be made to Council's Development Control Plan 2012 Chapter 3 Preservation of Trees and Vegetation regarding the removal or pruning of trees and the treatment of Trees of Special Significance.

3.2.20 Existing vegetation and the means of protecting that vegetation must be clearly shown on any landscape plans.

3.2.21 Consider the following points when landscaping work is adjacent to remnant bushland or existing vegetation:

- Do not alter the topsoil from within the dripline of existing trees on site.
- Do not alter the topsoil from within the dripline of trees, which are outside of the site boundaries yet have a dripline and root mass, which extends into site.
- Do not divert or alter overland water flows to existing vegetation.
- Do not use the area below the dripline of vegetation for site storage or stockpiling of materials.
- Do not run heavy machinery within the dripline of existing trees.
- Provide protection during the construction phase to trees or vegetation to be retained.
- Provide protection to natural elements such as native animal habitats and endangered plant communities.
- If landscaping adjoining remnant bushland use indigenous native species to link the remnant bushland.

Bond/Bank Guarantee for Specific Vegetation

3.2.22 For development occurring on sites containing remnant vegetation or significant trees, Council may levee a bond or guarantee on the applicant to ensure the protection of the trees or vegetation. The bond will be held by Council for the duration of the maintenance period or any period specified by Council.

3.2.23 The sum of the bond will be determined by Council. The sum will be a reasonable estimate of the cost of rectifying any damage to trees or vegetation caused by the development works.

Use of Footpath for Landscaping - A Deed of Lease

3.2.24 In certain circumstances where a developer or owner wishes to extend landscaping beyond the site boundary onto the footpath, application can be made to lease this land from Council.

3.2.25 Under the provision of the Roads Act 1993, if an encroachment occurs within a road reserve, an application must be made to Council to obtain a Lease Agreement over the encroaching structures e.g. landscaping, planter boxes etc.

3.2.26 All costs associated with the agreement setting out the liability and maintenance details shall be borne by the developer/owner. An annual fee will apply for the lease of the area and maintenance of the area will be the responsibility of the property owner.

3.2.27 Any works are to be approved as part of a landscape plan.

Undesirable Plants

3.2.28 These are plants which are considered unsuitable for landscape purposes in the Kiama Municipality because of the potential of these plants to cause serious environmental problems in the landscape. Therefore they are to be discouraged from use in gardens throughout the Kiama Municipality (See Appendix 1).

Recommended Plants

3.2.29 The use of native plant species in landscaping is encouraged. The use of local indigenous stock is particularly important in rural areas to preserve existing vegetation. Projects involving regeneration or enhancement of remnant bushland must use local indigenous stock grown from seed collected in the area. In order to assist in the selection of local indigenous native species a list of species suitable for use in landscaping is included in Appendix 2. This list is intended as a guide only and is not exhaustive, particularly for native bushland regeneration sites. The ultimate selection of suitable species is always dependent on specific site requirements.

Treatment of Trees of Special Significance

3.2.30 Kiama Municipal Council is concerned about the conservation of an important part of the heritage of the area that is the trees of special significance in the Municipality. These may be single trees, stands or avenues of trees which may be significant for a number of reasons. Refer to Development Control Plan 2012 Chapter 3 Preservation of Trees and Vegetation for the criteria that should be used as a guide in determining if a tree or group of trees are of special significance and the treatments required for their protection.

The Preservation of Trees and Vegetation

3.2.31 Certain trees in the Municipality are protected and may not be removed or pruned without a permit or development consent. Some trees are considered environmental weeds and may be removed or pruned without a Permit or Development Consent. These trees species are exempt and listed in Topic 2.4 of this Development Control Plan 2012.

Control for Residential Developments

3.2.32 Landscape plans are required for all Dual Occupancy Developments, Villa Homes, Courtyard Houses, Residential Flat Building and multi Housing Developments. A single residential dwelling on one lot does not require a landscape plan.

3.2.33 The following design guidelines must be incorporated where practicable:

- Provide planting at a scale in relation to the verticality of the buildings.
- Enhance boundary and driveway access with planting beds which are a minimum width of 1.0 metre (internal width). Include trees which reach a minimum mature height of 3.0 meters for screening where necessary.

- If possible, provide curved and splayed driveways to reduce a ‘gun barrel’ effect, particularly when placed against a side boundary.
- Landscape the front property boundary to include a range of tree canopy heights and differing plant forms and habits to provide linkage and amenity to the streetscape.
- Screen waste receptacles from street view.
- Provide mulch to garden beds and planted areas.
- Provide a suitable edging material to separate mulch and landscape from turf and hard surfaces.
- Maintain visibility of vehicular traffic moving in and out of the driveway. Refer to relevant Australian Standards.
- Consider the impact of the landscape on adjoining properties e.g. overshadowing, structural issues and views, by the careful selection and location of trees. Minimise shadow effects on residential courtyards, balconies and living areas.
- Use recessive colours if manufactured metal fencing is to be used.
- Provide private open space (POS) minimum 25m2 and clear of any garden beds, clothes lines and any other encroachments. For low density housing POS minimum 25m2 and minimum 4m by 6m. See Chapter 4 for more information on POS in low density housing.
- For medium density housing POS minimum 25m2 and minimum 5m in one direction. See Chapter 5 for more information on POS in medium density housing.
- Provide communal open space for developments of more than 8 dwellings at 5m2 of open space per dwelling. For more information on communal open space see Chapter 5 Section 8.
- Retaining walls over 600mm high require Engineer’s documentation.
- A minimum of 33% of the area forward of the building line must be landscaped.
- A minimum of 25% of the site area will be deep soil landscaped area. Landscape area means a part of the site used for growing plants, grasses and trees but does not include any buildings, structures or hard paved areas. Driveways and parking areas made of any surface material are excluded from the landscaped area.

3.2.34 All residential property owners must be aware that they will be responsible for the maintenance of the landscaping for the **26 week maintenance period** once the landscaping has been approved by a certifier as being complete and in accordance with the approved development consent.

The landscape maintenance period commences on the date of practical completion and extends for the duration of the specified maintenance period. A project is deemed to be at practical completion when all the hard and soft landscape features or any work depicted on the approved landscape plans have been installed and approved by a private certifying authority or Council.

These maintenance periods may be extended for specific developments.

3.2.35 A landscape maintenance program or specification is required with the landscape plan. This is to describe the means of maintaining the landscaping during the maintenance period and shall include but not be limited to plant establishment, watering, mowing, fertilising, weeding, staking, pruning, mulching, pest and disease control, and generally maintaining the site in a neat and tidy condition.

3.2.36 Missing, dead and unhealthy plants are to be replaced with plants of a similar size and quality and of identical species/variety, unless a substitution is approved by Council.

3.2.37 Garden mulch must be to the relevant Australian Standards.

3.2.38 Any pruning must be carried out to meet Australian Standards AS4373-2007 'Pruning of Amenity Trees' and shall comply with Council's Development Control Plan 2012 Chapter 3 Preservation of Trees and Vegetation.

Controls for Fencing

3.2.39 Fencing should be in character with the development and the surrounding streetscape.

3.2.40 Front Fencing Abutting a Road or Reserve (See Figure 2):

- Maximum 900mm high or 1500mm high but at least 70% visually permeable.
- A colour which is in harmony with the proposed building and adjoining properties.
- Maintain the integrity of existing frontages in "heritage precincts".
- Solid metal fencing is not acceptable.
- Vehicle site lines must be considered.

3.2.41 Side and Rear Fencing Abutting A Road:

- Maximum 1800mm high.
- Maximum 2/3 of the length of the boundary (the remaining 1/3 to be returned to the front fencing).
- Constructed of:
- Faced/rendered brick or rendered block work columns with infill panels of landscaping (hedges), decorative steel, wrought iron, timber pickets.
- Brushwood.
- Timber palings.
- Wire mesh.
- Solid metal fencing.
- Vehicle site lines must be considered.

3.2.42 Side and Rear Fencing Abutting a Reserve:

- Maximum 1800mm high
- Maximum 2/3 of the length of the boundary (the remaining 1/3 to be returned front fencing)
- Constructed of:
- Faced/rendered brick or rendered block work columns with infill panels of landscaping(hedges), decorative steel, wrought iron, timber pickets,
- Brushwood.
- Timber palings
- Wire mesh
- Solid metal fencing.

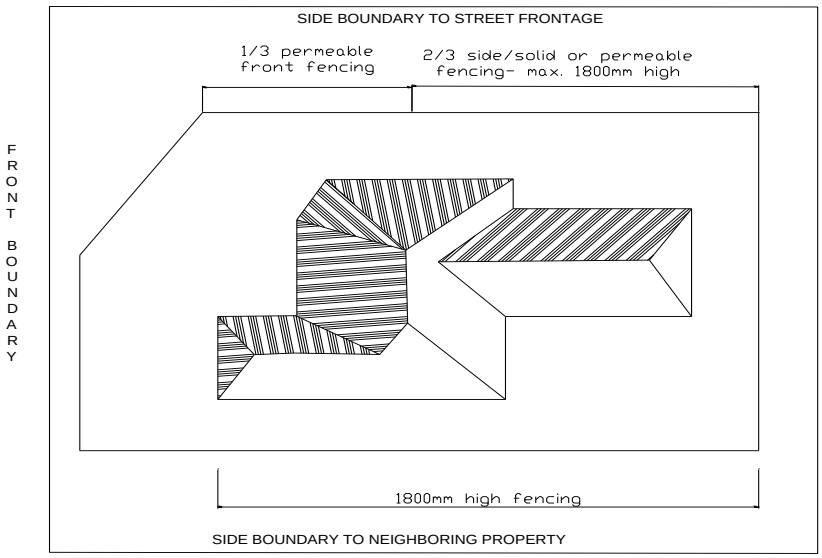


Figure 1: Front and side fencing abutting corner allotments

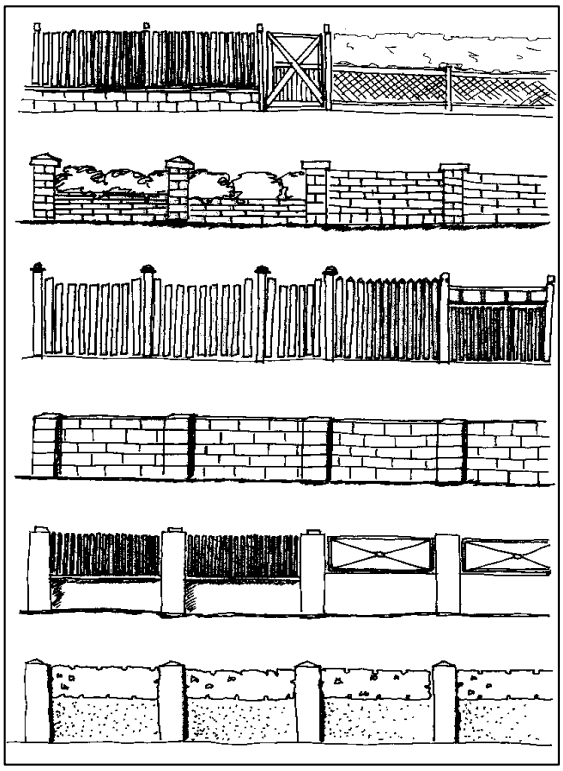


Figure 2: Example of fence types on street frontages

Controls for Rural Developments

3.2.43 Landscape Plans are required to be submitted to Council for approval for development on land identified as rural in the Kiama Local Environmental Plan 2011.

3.2.44 The following design guidelines must be incorporated where practicable:

- Buildings should not be located on the top of prominent ridge lines or knolls.
- Provide vegetative screening to dwellings, sheds, water tanks and outbuildings in such a way so as to break the form of the building and yet maintain desirable view corridors.
- Protect all areas of landscaping, adjacent to land used by stock by permanent stock proof fencing. This shall be maintained for 5 years in order for the planting to reach maturity.
- Provide details of stock fencing in landscape plan; (electrical tape is not considered permanent stock fencing).
- Minimise earthworks and soil erosion.
- Minimise the visual impact of driveways by the use of suitable materials and siting in relation to contours
- Incorporate indigenous species when linking the landscape design proposal into remnant vegetation.
- Consider fire risk in landscaping - refer to NSW Rural Fire Service publications regarding bushfire prone land.

- Avoid plant species that are known to be weed problem – See Appendix 1.
- The clearing of vegetation and trees to improve views, provide access and provide Asset Protection Zones is not permitted. Any building envelope shall be chosen to avoid the need to remove vegetation for the purpose of bush fire risk management.

See Bush Fire Prone Land controls contained in Topic 2.5 for more information.

3.2.45 All rural property owners must be aware that they will be responsible for the maintenance of the landscaping for the **52 week maintenance period** once the landscaping has been approved by a certifier as being complete and in accordance with the approved development consent.

The landscape maintenance period commences on the date of practical completion and extends for the duration of the specified maintenance period. A project is deemed to be at practical completion when all the hard and soft landscape features or any work depicted on the approved landscape plans have been installed and approved by a private certifying authority or Council.

These maintenance periods may be extended for specific developments.

3.2.46 A landscape maintenance program or specification is required with the landscape plan. This is to describe the means of maintaining the landscaping during the maintenance period and shall include but not be limited to plant establishment, watering, mowing, fertilising, weeding, staking, pruning, mulching, pest and disease control, and generally maintaining the site in a neat and tidy condition.

3.2.47 Missing, dead and unhealthy plants are to be replaced with plants of a similar size and quality and of identical species/variety, unless a substitution is approved by Council.

3.2.48 Garden mulch must be to the relevant Australian Standards.

3.2.49 Any pruning must be carried out to meet Australian Standards AS4373-2007 'Pruning of Amenity Trees' and shall comply with Topic 2.4 Tree Preservation Vegetation Management.

Controls for Commercial Developments

3.2.50 Landscape Plans are required to be submitted to Council for approval for commercial development applications.

3.2.51 The following design guidelines must be incorporated where practicable:

- Separate landscaped areas from car parking and driveway areas by devices that prevent vehicles from damaging the planting.
- Use raised planter areas to minimise the possibility of landscape areas being used for parking or storage areas.
- Integrate planting into existing streetscape themes to provide unity and pattern to commercial precincts.
- Provide mulch to garden beds and planted areas.
- Provide suitable edging materials to separate mulch and landscape from turf and hard surfaces.
- Screen waste and service areas with suitable plants and building materials.
- Provide a dedicated landscape treatment within or adjacent to the car parking area which includes shade and screening.
- Use recessive colours if manufactured metal fencing is to be used.
- Maintain visibility of vehicular traffic moving in and out of the driveway. Refer to relevant Australian Standard.
- Consider the impact of the landscape on adjoining properties e.g. overshadowing, structural issues and views by the careful selection and location of trees.
- Retaining walls over 600mm high require Engineer's documentation.

3.2.52 All commercial property owners must be aware that they will be responsible for the maintenance of the landscaping for the **26 week maintenance period** once the landscaping has been approved by a certifier as being complete and in accordance with the approved development consent.

The landscape maintenance period commences on the date of practical completion and extends for the duration of the specified maintenance period. A project is deemed to be at practical completion when all the hard and soft landscape features or any work depicted on the approved landscape plans have been installed and approved by a private certifying authority or Council.

These maintenance periods may be extended for specific developments.

3.2.53 A landscape maintenance program or specification is required with the landscape plan. This is to describe the means of maintaining the landscaping during the maintenance period and shall include but not be limited to plant establishment, watering, mowing, fertilising, weeding, staking, pruning, mulching, pest and disease control, and generally maintaining the site in a neat and tidy condition.

3.2.54 Missing, dead and unhealthy plants are to be replaced with plants of a similar size and quality and of identical species/variety, unless a substitution is approved by Council.

3.2.55 Garden mulch must be to the relevant Australian Standards.

3.2.56 Any pruning must be carried out to meet Australian Standards AS4373-2007 'Pruning of Amenity Trees' and shall comply with Topic 2.4 Tree Preservation Vegetation Management..

Controls for Industrial Developments

3.2.57 Landscape Plans are required to be submitted for Industrial Development Applications. This includes development of land for car parks, retail, institutional uses, light and heavy industry.

3.2.58 The following design guidelines must be incorporated where practicable:

- Provide planting beds a minimum 3 metres wide across the front of the site and a minimum 3 metres wide across the rear and 1 metre wide side boundaries where it adjoins residential property or public spaces, to screen the development and reduce the bulk and scale of the building. Refer to Chapter 9 for car parking requirements for additional information.
- Incorporate indigenous tree and shrub planting in the buffer zone areas if possible. A mix of planting forms and habits is desirable.
- Provide security fencing on street frontages of low visual impact, open design and located within and screened by planting beds.
- Provide landscape treatment within or adjacent to the car parking area which includes shade and screening.
- Separate landscaped areas from car parking and driveway areas by devices that prevent vehicles from damaging the planting.
- Use raised planter areas to minimise the possibility of landscape areas being used for parking or storage areas.
- Provide mulch to garden beds and planted areas.
- Provide suitable edging materials to separate mulch and landscape from turf and hard surfaces.
- Screen waste and service areas with suitable plant and building materials.
- Use recessive colours if manufactured metal fencing is to be used.
- Maintain visibility of vehicular traffic moving in and out of the driveway. Refer to relevant Australian Standards.
- Consider the impact of the landscape on adjoining properties e.g. overshadowing, structural issues, views, by the careful selection and location of trees.
- Retaining walls over 600mm high require Engineer's documentation.

3.2.59 All industrial property owners must be aware that they will be responsible for the maintenance of the landscaping for the **52 week maintenance period** once the landscaping has been approved by a certifier as being complete and in accordance with the approved development consent.

The landscape maintenance period commences on the date of practical completion and extends for the duration of the specified maintenance period. A project is deemed to be at practical completion when all the hard and soft landscape features or any work

depicted on the approved landscape plans have been installed and approved by a private certifying authority or Council.

These maintenance periods may be extended for specific developments.

3.2.60 A landscape maintenance program or specification is required with the landscape plan. This is to describe the means of maintaining the landscaping during the maintenance period and shall include but not be limited to plant establishment, watering, mowing, fertilising, weeding, staking, pruning, mulching, pest and disease control, and generally maintaining the site in a neat and tidy condition.

3.2.61 Missing, dead and unhealthy plants are to be replaced with plants of a similar size and quality and of identical species/variety, unless a substitution is approved by Council.

3.2.62 Garden mulch must be to the relevant Australian Standards.

3.2.63 Any pruning must be carried out to meet Australian Standards AS4373-2007 'Pruning of Amenity Trees' and shall comply with Topic 2.4 Tree Preservation Vegetation Management..

Universal Design

Adaptable Housing design (Australian Standard AS 4299) means designing Australian homes to meet the changing needs of home occupants across their lifetime:

This DCP adopts the Australian Standard for the housing needs of an ageing population in the Kiama local area and the need to provide housing more suitable to people with small children, people with disabilities or restricted mobility.

Liveable Housing

Liveable housing includes design features aimed at making homes easier and safer to use for all occupants. Applicants and their designers are encouraged to consider the information provided for universal housing before entering into contracts to buy or design new homes. In coming years, it can be anticipated that there may be more market desire and/or increased regulation requiring housing design to be more flexible and universal

Topic 3.3 - Earthworks and Retaining Walls

Objectives

O:3.3.1	To ensure dwellings and other ancillary development on unstable land are located and designed to maximise the structural design of buildings and the safety of their occupants.
O:3.3.2	To minimise the risk of land slip impacting on habitable buildings and access roads.

Controls

3.3.1 Cutting and filling on site is limited to 900mm.

3.3.2 Terracing on site may be permissible if earthworks are retained by engineer designed walls and stepped at minimum of 1 metre horizontal intervals.

3.3.3 A Soil Analysis Report in accordance with sampling and testing frequency as required under the Excavated Natural Material Exemption - General Exemption 2008 Regulation (as amended) and any other applicable legislation is required to be prepared and submitted to Council:

- if soil is to be taken off site, for reuse or disposal;
- if soil is to be brought onto the subdivision site for the filling of land;

Note: A Soil Analysis Certificate shall be provided by a suitably qualified person and be submitted to Council certifying that the soil material is suitable for the intended reuse and or meets the required criteria for acceptance at a disposal facility or other site or is suitable fill material for the subdivision site.

3.3.4 Dwellings and ancillary development must not be carried out on slopes with gradients exceeding 20% unless this is in accordance with an approved existing building envelope that has been registered on the land title as a Section 88E restriction under the Conveyancing Act.

3.3.5 If there is no approved building envelope registered on the land title, and if development on steep land is unavoidable due to the site terrain and other constraints on the land, the reasons for locating a dwelling or ancillary development on land with a gradient exceeding 20% must be explained and justified in the Statement of Environmental Effects.

3.3.6 Council may require that a geotechnical report suitably qualified geotechnical consultant and submitted with development application for dwelling or ancillary development for habitable purposes. The geotechnical report must include:

- Investigation of the stability and suitability of land identified within the identified building envelope for a dwelling and any ancillary habitable buildings.
- Engineering and design recommendations required to maintain the stability of the development site and the structural safety of any habitable building proposed to be erected within the building envelope.

3.3.7 The design of earthworks associated with dwellings and ancillary development must:

- minimise the extent of cut and fill to reduce the potential for land slip and visual impact on the landscape.
- restrict excavation for a building to not more than 1 metre below ground level (existing).
- restrict the height of any external retaining wall outside the walls of a building to not more than 1 metre above ground level (existing).
- restrict the design of any batter to not more than a gradient of 1:4 (absolute) and preferably 1:6.

3.3.8 Dwellings should be designed to step down steep sites by split level design to avoid the need for significant earthworks.

3.3.9 Any approved construction of a dwelling or ancillary development on land with a gradient exceeding 20% must be designed to minimise cut and fill and the risk of land instability, erosion and visual impact.

3.3.10 Where an earth batter is proposed, details of the revegetation works proposed to stabilise the batter and to prevent erosion and pollution of any nearby waterway must be included in the property landscape plan that accompanies the Development Application. Details must cover both the construction and post construction phases.

3.3.11 The use of coal wash or other waste products from the coal mining process is prohibited for use as landfill in accordance with the NSW Coal Washeries Exception Regulation 2009, specifically in relation to Clause 7.2, which requires that:

> "Coal washery rejects can only be applied to land in earthworks for civil engineering applications. This approval does not apply to any of the following applications:
>
> 7.2.1 Mine site rehabilitation or other mine site uses;
>
> 7.2.2 Quarry rehabilitation or backfilling of quarry voids;
>
> 7.2.3 Raising or reshaping of land used for agricultural purposes; and
>
> Construction of roads on private land unless:
>
> The relevant waste is applied to land to the minimum extent necessary for the construction of the road, and
>
> A development consent for the development has been granted under the relevant Environmental Planning Instrument (EPI), or
>
> It is to provide access (temporary or permanent) to a development approved by Council, or
>
> The works undertaken are either exempt or complying development."

That civil engineering is clarified as being 'construction work not classified under building construction, that is, construction of railways, roads, bridges, highways, airports, water and sewage, dams and irrigation, etc'.

Note: Rural producers are advised that coal wash can be utilised to upgrade private roads on their properties in accordance with the Protection of the Environment (Waste) Regulation.

Topic 3.4 - Utilities and Infrastructure

Utilities

Objectives

O:3.4.1	To ensure all development is supplied with appropriate utility services.
O:3.4.2	To ensure that required utility services do not detrimental detract from the visual amenity of the area.

Controls

3.4.1 Applicants must demonstrate how power supply will be provided to the proposed development. On isolated sites or sites that are difficult to service because of physical or environmental constraints, alternative sources of power such as solar energy must be adopted. Details of the proposed method of power supply must accompany a Development Application.

3.4.2 Where generators are proposed, controls may be placed on the hours of operation and levels of noise emission having regard to the proximity of neighbours. Council may impose conditions specifying noise emission standards to be met to protect neighbour's amenity.

3.4.3 Where wind turbines are proposed for power generation, they must be located and designed to minimises their visibility on the landscape setting in the locality if they will be visible from a public place.

3.4.4 Transmission lines and communications infrastructure must be located so that they do not require clearing of native vegetation. They must be located and designed to minimises their visibility on the landscape setting in the locality if they will be visible from a public place. Their location adjacent to an access road is generally preferred to minimise visual impact and loss of native vegetation and to facilitate maintenance.

Onsite Sewage Management

Topic 3.4 Onsite Sewage Management should be read in conjunction with the following *Environmental Health Guideline;*

- Onsite Sewage Management Guideline

This Topic should be read in conjunction with the *LEP 2011* and other relevant sections of this DCP. Application of this Chapter prevails in the event of an inconsistency with any other Chapter of the Kiama DCP 2012.

Council requires that waste water generated from all dwellings and ancillary development be properly treated and disposed of on-site in a manner that will not cause pollution or the transmission of unhealthy pathogens to a nearby waterway.

An On Site Sewage Management System (OSSM) is required for the disposal of effluent where a development involves effluent disposal and is not within the Sydney Water Corporation sewerage system catchment zone and an on-site sewage (wastewater) management system or a sewerage treatment system as defined by legislation is required to be provided.

Under Part C of the Section 68 of the *Local Government Act 1993*, the installation or alteration of an OSSM or the operation of a sewage management system requires Council

approval. This approval may be submitted concurrently with a Development Application or may be subject to a separate approval following determination of the consent.

Under Clauses 40 and 41 of the *Local Government (General) Regulation 2005*, Council must not approve of the installation of certain sewage management facilities unless the facility has been accredited by the NSW Department of Health. This is the only statutory role of NSW Health has in the regulation of on-site single domestic wastewater management systems.

The types of on-site sewage management facilities to which accreditation applies includes septic tanks, holding tanks and collection wells, aerated wastewater treatment systems, grey-water treatment systems, wet or waterless composting toilets and incinerating toilets which are available for purchase by retail.

Where an OSSM system or sewerage system meets the threshold criteria detailed in Schedule 3 of the EP&A Regulation 2000 for Designated Development, then a Development Application and supporting Environmental Impact Statement (EIS) must be lodged with the Council. The preparation of the EIS is required to be carried out in accordance with the requirements of the Director – General of the NSW Department of Planning.

There are also special design and operating requirements if the development site is located in the Sydney Water Catchment Area and reference with the requirements of the Sydney Catchment Authority

Further details are available from Council's Environmental Services Department.

Please refer to Councils Onsite Sewage Management Guideline for more technical controls.

Applications for rural development will require an appropriately designed and installed on site effluent disposal system.

Objectives

O:3.4.3	To ensure that waste water generated from dwellings and ancillary development is properly treated and the effluent disposed of or reused on the site is in an environmentally acceptable and safe manner.

Controls

3.4.5 A Water Cycle Management Study must be prepared by an appropriately qualified professional and submitted with the development application. This plan must take into account disposal of all waste water generated by dwellings and ancillary development, and be able to accommodate peak usage times.

3.4.6 The Water Cycle Management Study must include the following components:

- A clear outline of the proposed development, including a detailed site plan which includes site constraints,
- A summary of the water quality control measures proposed as part of the development and their location,
- A statement, based on the information in the Water Cycle Management Study, as to whether the development has a neutral or beneficial effect on water quality, consistent with the SCA's Neutral or Beneficial Effect on Water Quality.

Topic 3.5 - Water Management (Quality and Quantity)

Council requires that development will require a level of water storage for potable levels of water to be available for the occupants and visitors.

Areas that are affected by Bushfire Hazard ratings that will require applications for rural development to have the concurrence of the Rural Fire Service. As a part of this concurrence the Rural Fire Service may require the installation of water tanks devoted only for firefighting purposes. These tanks will need to be fitted with appropriate attachments to ensure that they are compatible with firefighting equipment and dedicated only for firefighting purposes.

Controls for Domestic Water Supply

Objectives

O:3.5.1	To ensure that this is an adequate supply of potable water for domestic consumption.

Controls

3.5.1 A satisfactory level of water supply is required for the development for both domestic use and fire-fighting purposes and details including capacity, siting and types of tanks/storage devices must be provided in the development application.

3.5.2 Rural dwellings must each have domestic water storage facilities capable of storing at least 100,000 litres of potable water for a principal dwelling and 40,000 litres for a secondary dwelling or ancillary development used for tourist accommodation purposes.

3.5.3 Tank inlets shall be screened or filtered and the tank maintained to prevent mosquitoes breeding.

3.5.4 Any motorised or electric pump associated with the tank shall not cause a noise nuisance.

3.5.5 If the rainwater tank is to be used for human consumption, the tank is to be installed and maintained in accordance with current best practice guidelines.

3.5.6 All tanks to be used for human consumption will be required to be fitted with a first flush diversion device.

3.5.7 Tanks should be finished in recessive tones to blend in with the rural environment.

Controls for Water Supply for Rural Fire Service

Objectives

O:3.5.2	To ensure that this is an adequate supply of potable water for firefighting purposes.

Controls

3.5.8 Where required an additional water supply must be separately provided and dedicated for fire-fighting purposes in accordance with the NSW Rural Fire Services Guidelines. As a minimum, at least one 10,000L water tank, designated for the exclusive use for firefighting purposes, is to be installed and fitted with a 65mm storz fitting and ball gate valve.

3.5.9 Provision must be made for the access of a heavy firefighting tanker to within 4m of this designated static water supply.

3.5.10 This water supply is to be clearly labelled for “firefighting purposes” only.

Topic 3.6 – Transport, Access and Parking

Parking

Objectives

O:3.6.1	To ensure that appropriate off-street parking is provided for new development commensurate with the land use.
O:3.6.2	To ensure adequate parking is provided for new development so that thoroughfares are not adversely impacted upon
O:3.6.3	To ensure that the design of car parking areas meet relevant adopted standards.
O:3.6.4	To ensure that adequate servicing of new developments can be undertaken with safety and efficiency.
O:3.6.5	To ensure adequate provision is made for people with a disability.
O:3.6.6	To ensure adequate provision is made for cyclists.
O:3.6.7	To ensure that parking facilities cater for the safety of all users and minimize visual impacts.

Controls - Parking Demand and Servicing Requirements

How much parking is required?

3.6.1 All new developments within the Municipality of Kiama shall provide parking spaces, servicing areas and maneuvering areas in accordance with the requirements of this section of Kiama Development Control Plan 2012. All deliveries and servicing associated with new developments must be provided within the same site.

3.6.2 Traffic generating applications may be referred to the relevant Traffic Authorities. Council reserves the right to determine parking requirements for such developments with due regard to the representations made by these authorities.

3.6.3 Parking spaces specified in the Schedule of Requirements below, unless stipulated otherwise, are for cars. Depending on the development proposed, parking for delivery/service vehicles, courier vehicles, bicycles, buses, taxis, emergency vehicles and motorcycles may also be required by Council.

3.6.4 Calculations should be rounded up to the nearest whole number for each use on the site and then combined to give the total amount. For example, if the calculation determines for the residential component that 5.3 spaces are required and for a commercial component that 8.7 spaces are required then 15 spaces would be required in total.

3.6.5 Where on-site parking has been provided as a condition of development consent and in accordance with this Plan, all spaces must be available for use by patrons/clients of the development at all times during operating hours and be clearly signposted. If parking spaces are required for the exclusive use of an owner or operator, then such spaces must be provided over and above those required by any development consent.

3.6.6 For developments which include more than one use, the number of parking spaces should be calculated on the basis of each separate use. As an example, a development comprising retail at ground level and serviced apartments above will be assessed at one (1) space per 35m² for the retail component and one (1) space per apartment.

3.6.7 Parking requirements for uses not included in the Schedule of Requirements below, or which are disputed by the applicant as being unwarranted will be determined by Council following the completion and submission of a Parking Impact Study prepared by a suitably qualified and experienced professional person.

3.6.8 All new developments shall comply with the land use parking requirements of the Roads and Maritime Services (RMS) "Guide to Traffic Generating Developments" (Guide), except where listed in the following Schedule of Requirements (Schedule). Where a State or Regional Classified road is affected by a development proposal, the RMS Guide shall take precedence.

Council also reserves the right to define a requirement for uses not referred to in the RMS Guide or Schedule according to the merits of the specific development.

Land Use Types in the Schedule are defined in Kiama LEP 2011.

Land Use Type	Minimum Car Parking Standards
Residential	
Dwelling house	1 dedicated space behind the building line and 1 space behind the front boundary.
Dual occupancy/attached dwelling	For each occupancy, 1 dedicated space behind the building line and 1 space behind the front boundary.
Secondary dwelling	1 space behind the front boundary for the secondary dwelling.
Multi-dwelling housing/residential flat building/shop top housing	1 dedicated space behind the building line (per one or two bedroom dwelling) and 1 additional space per three bedroom dwelling (and above) behind the front boundary plus 1 space per 2 dwellings for visitor parking behind the front boundary. NOTE: Enclosed rooms, that is nominated as a study (or similar) and is capable of being used as a bedroom is considered to be a bedroom for the purposes of calculating car parking requirements.
Boarding/house/hostel/group home	1 space per 4 beds and 1 space per staff member on shift.
Seniors housing	1 dedicated space per unit plus 1 space per 4 units for visitor parking.
Seniors housing (residential care facility)	1 space per 10 units, plus 1 space per 4 units for visitor parking, plus 1 space per staff member on shift, plus 1 space for ambulance parking.
Rural worker's dwelling	1 space per bedroom.
Home based childcare	1 space per 7 children in care.
Home business	1 space per employee.
Exhibition village	4 spaces per exhibition home.
Tourist and Visitor	

Backpackers accommodation	1 space per 4 beds plus 1 space per staff member on shift.
Bed and breakfast accommodation	1 space per bedroom.
Camping ground and caravan park	1 space per camping/caravanning site plus 1 space per 10 long term sites and 1 space per 20 short term sites for visitor parking plus 1 space per staff member on shift.
Farm stay accommodation	1 space per bedroom.
Hotel or motel accommodation	1 space for each occupancy plus 1 space per staff member on shift.
Serviced apartment	1 space per apartment plus 1 space per staff member on shift.
Short term rental accommodation	The home owner shall be able to demonstrate how parking is provided without adversely affecting existing neighbourhood amenity.
Food and Drink	
Restaurant (or reception centre) or café	1 space per 35m^2 of gross leasable floor area. NOTE: Where peak use in the CBD is after 6pm on-street parking may be taken into account. The submission of a Parking Impact Study prepared by a suitably qualified and experienced professional shall be provided to Council for its consideration in regard to this matter.
Pub/registered club	1 space per 5m^2 of licensed floor area plus 1 space per staff.
Take away food and drink premises	A merit based assessment will be undertaken by Council, taking into account hours of operation, seating, staffing and location.
Restaurants, reception centres and conference facilities used in conjunction with tourist accommodation	Consideration will be given for off-setting parking spaces where it is likely that patrons of the tourist accommodation will use the facilities on the following basis: • Within urban areas – 25% reduction on parking required for the restaurant/conference/reception facility; • Outside urban areas – 50% reduction on parking for the restaurant/conference/reception facility; • Where a restaurant is used by patrons of the tourist development only and is not open to the public, the assessment for the restaurant requirement will be excluded from the general rate for the tourist establishment.

Commercial	
Business premises/office premises	1 space per 35m^2 of gross leasable floor area.
Retail premises (if not otherwise defined below)	1 space per 35m^2 of gross leasable floor area.
Neighbourhood shop/kiosk	1 space per 35m^2 of gross leasable floor area.
Shopping centre (including supermarkets)	Refer to RMS Guide.
Market	On public lands – a merit based assessment will be undertaken by Council, taking in account available parking within walking distance of the market, hours of operation and staff numbers. On private lands – 2 spaces per stall.
Roadside stalls/cellar door premises	A merit based assessment will be undertaken by Council, taking into account proposed hours of operation, staffing, location and the type of goods for sale.
Garden centre/planning nursery	Whichever is the greater of: 15 spaces or 1 space per 50m^2 of the site area.
Hardware and building supplies/landscape material supplies/rural supplies/timber yard	1 space per 50m^2 of site area.
Service station (included with the convenience store)	1 space per 20m^2 gross leasable floor area. If a vehicle body repair workshop/vehicle repair station is included, 5 spaces per work bay is required.
Vehicle body repair workshop/vehicle repair station	5 spaces per work bay.
Vehicle sales or hire premises	1 space per 75m^2 of site area plus 5 space per work bay.
Animal boarding or training establishment	Whichever is the greater – 4 spaces or 1 space per 25 animal enclosures.
Industrial	
Light industry (if not otherwise defined below)	Whichever is the greater – 2 spaces per unit or 1.3 spaces per 100m^2 gross floor area.
Warehouse or distribution centres	1 space per 300m^2 gross floor area.
Depot/transport depot/truck depot	Parking requirements will be determined by Council following the completion and submission of a Parking Impact Study by a suitably qualified and experienced professional person.
Bulky goods premises	1 space per 50m^2 gross floor area.

Self storage units	Whichever is the greater – 4 spaces or 1 space per 50 storage units.
Infrastructure	
Hospital	1 space per 3 beds for general hospital or 1 space per 5 beds for convalescent hospital/respite day care centre; plus 1 space for ambulance, plus 1 space per doctor, plus 1 space per 3 staff. NOTE: Alternatively, parking requirements will be determined by Council following the completion and submission of a Parking Impact Study prepared by a suitably qualified and experienced professional person.
Medical centre	1 space per 25m^2 gross leasable floor area.
Health consulting room	1 space per practitioner on shift and 2 client spaces per practitioner on shift.
Veterinary hospital	1 space per 25m^2 gross leasable floor area.
Educational establishment/information and education facility/industrial training facility	For primary and high schools 1 space per 100 students, plus 1 space per staff, plus 1 space per 10 students in year 12 (where applicable). For tertiary institutions and other educational facilities 1 space per 3 students plus 1 space per staff. NOTE: Alternatively parking requirements will be determined by Council following the completion and submission of a Parking Impact Study prepared by a suitably qualified and experienced professional person.
Place of public worship/community facility	1 space per 5m^2 of gross leasable floor area. NOTE: Alternatively, parking requirements will be determined by Council following the completion and submission of a Parking Impact Study prepared by a suitably qualified and experienced professional person.
Child care centres	1 space per 7 children in care plus 1 space for each staff member on shift.
Cemetery/mortuary/crematorium/ funeral home	Parking requirements will be determined by Council following the completion and submission of a Parking Impact Study prepared by a suitably qualified and experienced professional person.
Recreation	
Amusement centre	1 space per 35m^2 of gross leasable floor area.
Entertainment facility	1 space per 5m^2 of theatre or hall area.

Recreation area/recreation facility (indoor)/recreation facility (outdoor)/recreation facility (major)	Where a use has not been addressed in the RMS Guide, parking requirements will be determined by Council following the completion and submission of a Parking Impact Study prepared by a suitably qualified and experienced professional person.

Additional Controls

3.6.9 For recreation, religious or educational land uses and where surplus on-street parking exists at the appropriate times, Council may consider a reduction in on-site parking requirements subject to a Parking Impact Study prepared by a suitably qualified and experienced professional person. Refer Traffic Assessment, Studies and Plans section of this Topic for the requirements of a Parking Impact Study.

3.6.10 An existing building altered, extended, remodelled with or without change of land use, may be required to comply wholly or partly with the provisions of this plan. In these cases the Council shall determine the extent of the parking provisions required in each case, having regard to the extent of the alteration, extensions and/or remodelling and the nature of the altered land use.

3.6.11 Where in the opinion of Council conditions are such as to render impracticable the compliance in full with the provisions of this plan, the Council may permit such departures as in Council's opinion, the circumstances warrant.

3.6.12 All assessment of parking requirements for clubs and related licensed premises will be open for a merit review by Council. A discount may apply where there is apparent pooling of uses within the club or licensed premises and where the premises proposes to provide a formal and regular bus service for patrons.

3.6.13 All development applications for commercial development, including '*Food and Drink Premises'*, shall contain calculations that indicate the area in square metres of each section of the gross leasable floor area or other required areas as defined in the Schedule of Requirements.

Parking Credits

3.6.14 For development applications lodged for existing buildings which change their use to *'Food and Drink Premises'* and involve no increase in the gross leasable floor area, then no additional parking spaces shall be required. Where there is an increase in the gross leasable floor area, the increase shall provide parking in accordance with the Schedule of Requirements.

3.6.15 Where a development/redevelopment has frontage to a public street, Council will take into account the loss of any existing on-street parking spaces arising from the construction of access, bus bays and parking restrictions, where these are directly related to the development proposal. The loss of any on-street parking will be required to be replaced on-site, or other satisfactory arrangements are made with Council, or will be deducted from any overall parking credits accrued for the development. Any replacement public parking spaces proposed on site shall be accessible at all times and shall be covered by an easement for parking on the property title in favour of Council.

3.6.16 If a development proposal involves the conservation of a heritage item identified within Kiama LEP 2011, Council may reduce the car parking requirements stipulated in this Topic, if it is felt that full compliance would be detrimental to the conservation works or heritage value of the building.

3.6.17 Where the development of a site is identified within Council's current Section 94 Contributions Plan as being capable of making a contribution towards off-street parking, a cash contribution paid to an appropriate trust account of Council may, in some circumstances, be accepted in lieu of provision of on-site parking.

3.6.18 Council may consider the construction of on road spaces in lieu of providing parking within the development site through a 'works in kind' planning agreement pursuant to Part 7 of the *Environmental Planning & Assessment Act 1979*.

3.6.19 Where development consent(s) exists for the lawful use of the site and such consent(s) define parking requirements, a parking credit for such sites will be:

i. any spaces provided and still in existence on-site in accordance with the consent(s); and
ii. any spaces paid for off-site by way of Section 94 contributions

3.6.20 Where defined in Council's strategic planning documents, a credit of one (1) parking space per thirty (30) square metres of area will be given for any land dedicated free of cost or encumbrances, for road widening or service lane purposes.

Controls – Parking Layout and Design Requirements

Access Requirements

3.6.21 For new developments which result in less than five occupancies being created, driveway access from a public road shall conform to the road widths stated in Council's current version of the "Driveway and Footpath Works Procedure Manual" (manual). Where a departure from the requirements of the manual is preferred by the applicant, reasons for the departure shall be provided with the development application for Council's assessment. New developments which propose five or more occupancies shall provide a driveway(s) of sufficient width to allow safe and efficient passing and manoeuvring of vehicles and also considers the safety of pedestrians and cyclists.

3.6.22 Access to parking areas shall be designed to minimise conflict between pedestrians, cyclists and traffic. Council may require road and traffic management works to ensure safe access to parking areas. Where developments front a busy road, access to rear lanes (if available) should be provided.

3.6.23 The location and width of all driveways shall conform with AS2890 and Council's 'Driveway and Footpath Works Procedure Manual' and shall be located to the street with the lowest traffic volume. See Note A for access driveway locations.

3.6.24 The layout of parking areas shall be designed so that parking spaces remain available and accessible for the intended users. These parking spaces shall have unrestricted access to a road by way of a corridor provided within the lot boundaries, but not through a building or other structure that could lead to closure of such access.

3.6.25 Parking areas except for single residences and dual occupancy buildings shall be designed so that all vehicles enter and leave the subject land in a forward direction and that all manoeuvring of vehicles takes place within the subject site and not the road reserve.

3.6.26 Pedestrian flow in parking areas shall be an integral part of the design and pedestrians should be separated from vehicular traffic wherever possible. Use of lighting should be considered where night use is involved. Please refer to the lighting section in this chapter.

3.6.27 Each site shall minimise the number of ingress and egress points to any street frontage. Where there is proposed more than one access point to a site, the first driveway reached by the nearest traffic lane shall be the entrance.

3.6.28 Where parking exceeds fifty (50) spaces, provision shall be made for separate ingress and egress.

3.6.29 Driveway ingress and egress points shall be a minimum of 1 metre from the side boundary and a minimum of 1 metre apart.

3.6.30 To ensure the safety of pedestrians, traffic calming shall be provided in locations where vehicular access intersects with a designated pedestrian route.

3.6.31 To ensure an adequate parking provision is made for people with disability, the minimum requirements for Class 3, 5, 6 7, 8, 9 buildings as defined in the Building Code of Australia (BCA) shall be included within the proposed development.

Location and Manoeuvrability Requirements

3.6.32 Off-street parking shall be located on the site of the development, and in places where they are easily and safely accessible to staff and customer entrances.

3.6.33 Council may accept parking on adjoining or nearby land owned by the applicant provided that the adjoining or nearby land is appropriately zoned and consolidated with lands the subject of the development or a restriction to user is created on nearby land so as to effectively tie the parking to the development for perpetuity.

3.6.34 In R3 Medium Density Residential zones, all parking shall be appropriately screened from the public domain and manoeuvring areas shall be located behind the front boundary.

3.6.35 To ensure that adequate space is provided for the manoeuvring of vehicles, turning paths and heights for vehicle access and parking shall be based upon the largest vehicles likely to utilise the premises, as defined in AS2890. At a minimum these are:

- Low density residential/Medium density zoned development (< 6 dwellings) – The B85 Vehicle shall be used in all situations identified in Note B.
- Medium density zoned development (7 dwellings or more) – The B99 Vehicle shall be used in the situations identified in Note B.
- Mixed use (residential and commercial uses in a single development) – The B99 Vehicle shall be used in the situations identified in Note B.
- Commercial Zoned Development (sites <600 m2) – Small Rigid Vehicle (SRV).
- Commercial Zoned Development (sites 600+ m2) - Medium Rigid Vehicle (MRV).
- Industrial Zoned Development – Heavy Rigid Vehicle (HRV).
- All sites - size of garbage collection vehicle to service the site**.**

3.6.36 Council may in exceptional circumstances consider reducing the above minimum vehicle type to service a site. In these situations, conditions of Development Consent will be applied to strictly enforce this vehicle size for future usage of the site.

3.6.37 The minimum height in undercover parking areas shall be 2.3 metres. Council may require a larger vertical clearance for the provision of delivery vehicles, disabled entry and the like in accordance with Australian Standards.

Design Requirements

3.6.38 Parking areas shall be suitably paved with a permanent, all weather surface such as two coat bitumen seal, concrete, asphaltic concrete or interlocking paving. Consideration shall be given to the relief of large areas of pavement by alternative surface textures. Engineering plans of the parking area will be required to be submitted to Council for approval with the development application. The plans are required to detail dimensions of the parking area, spaces, manoeuvring areas, access, levels and drainage.

3.6.39 Depending on the development type, the parking area pavement shall be designed to cater for the projected future usage, with a minimum as follows:

Rural development	All weather gravel standard with a minimum compacted pavement thickness of 200mm with associated stormwater drainage. The minimum pipe size in the table drain, where required, is 375mm diameter. For grades >12%, sealing of the parking area is required.
Retail/commercial development	• Paving bricks for light vehicular loading; or • Light duty reinforced patterned or coloured concrete, or • Pavement to be designed for a traffic loading of $2x10^4$ ESA, or • Standard asphaltic concrete (AC) for more than 6 spaces; or • 2 coat bitumen seal for 6 spaces or less.
Medium density residential development	• Exposed aggregate; or • Paving bricks for light vehicular loading; or • Coloured/patterned concrete.
Industrial	• Heavy duty concrete, or • Industrial asphaltic concrete AC10 with minimum pavement thickness of 200mm subject to pavement testing for a design load of $6x10^4$ ESA.

3.6.40 The following are the minimum pavement requirements:

- Bitumen Surfacing
  - The pavement shall be constructed to generally conform to the Roads & Traffic Authority (MR Form No 743), "Specification for construction of natural Gravel or Crushed Rock road pavement".
  - The minimum compacted depth of pavement is to be 150mm over a pre-compacted sub-base of acceptable material.
- Bitumen and Aggregate Sealing
  - Two coats of bitumen and aggregate sealing shall be applied to the parking areas.
  - Bitumen shall conform to the Roads and Traffic Authority Standard Specification (MR Form No. 337) "Residual Bitumen". Class 160 bitumen fluxed binder is to be used, with a rate of application of 1.2 litres/square metre.
  - Aggregate shall conform to the Roads & Traffic Authority Specification (MR Form No351) for the supply and delivery of cover aggregate. Nominal size of aggregate shall be 10mm. The rate of application of the aggregate shall be 1 cubic metre/100 square metres.
- Concrete Paving
  - Minor parking areas 100mm, 20MPa concrete with SL872 bottom reinforcement over a pre-compacted sub-base of acceptable material.
  - For larger parking areas (ie supermarkets) 150mm, 20MPa concrete, with appropriate reinforcement over a pre-compacted sub-base of suitable material.

For other forms of pavement, the developer is to submit specifications and details for approval. In circumstances where Council considers the use of parking areas to be of a limited nature, Council may consider construction to a lesser standard.

3.6.41 Adequate drainage for surface waters in all parking areas shall be provided and disposed of to a legal drainage system in accordance with Council Stormwater Drainage Design policy and the principles of Council's 'Water Sensitive Urban Design' policy.

3.6.42 Appropriate levels of lighting shall be provided in carparking areas for all users to ensure their safety and security. Such lighting may either be wall or ceiling mounted, free standing poles or bollard lights. In some instances, all forms of lighting may be incorporated to provide effective illumination.

All new public parking spaces shall be lit and shall comply with the requirements of AS/NZS1158 (2005) and shall comply with AS/NZS1158.3.1 - Pedestrian Area Lighting.

Prior to installation, all proposed lighting of public parking spaces shall be approved by the relevant authorities.

Miscellaneous Requirements

3.6.43 For all medium density residential developments, provision must be made for a car washing area at the rate of one (1) wash bay per twelve (12) dwellings or part thereof. This area must be identified on the site plan, be clearly signposted as a designated car washing area and be equipped with a tap and appropriate waste water drainage. A visitor car parking space may be utilised for the dual purpose of a car washing bay, provided it is appropriately signposted, have satisfactory bunding and is designed to drain waste water to the sewer.

3.6.44 All Service docks shall be designed to cater for the largest vehicle anticipated to use the premises and shall be designed to operate independently of other parking areas and to avoid the need for service vehicles to reverse across the pedestrian desire lines.

3.6.45 Provision for bicycle parking shall be made in accordance with the 'Cycling Aspects of Austroads Guide' (2011) as per the extract in Note C. Where it can be demonstrated that there is sufficient under-utilised bicycle parking in the vicinity of the proposal or that bicycle parking is not warranted in the circumstance, Council may totally or partially waiver this requirement.

3.6.46 Stack parking occurs when one vehicle is parked adjacent to another in a way that prevents the other vehicle from exiting. In general, Council does not favour the use of stack parking. However, it is prepared to consider the provision of parking in a stacked arrangement when the applicant can demonstrate that such a proposal:

- will not adversely affect use of the site;
- only requires the removal of one vehicle to enable another vehicle to exit and occurs wholly within the site;
- allows for a change of use/occupancy of a building without impacting on parking needs of other tenants/users; and
- No more than 10% of parking required in a commercial development will be stacked; will be for the use of employees of the same organisation or inhabitants of the same household.

3.6.47 An application to provide for carparking by the use of mechanical devices will be considered on its merit, where an applicant can demonstrate to the satisfaction of Council that conventional carparking cannot be provided. Mechanical parking systems may be considered appropriate in certain circumstances, subject to the following:

- Full details are provided on the system including, dimensions, noise & vibration levels, cycle times, traffic volumes using the system and hence predicted queue lengths at peak hour operation, general and emergency management procedures;
- There is a demonstrate need for a mechanical parking system and that its provision will not adversely affect the use of the site or the immediate locality;
- No visitor parking is included in the system;
- The system can accommodate 100th percentile vehicles (ie small sports cars to large 4WD's); and
- Adequate queuing space is provided within the site on the approach to the system, without the queue extending onto the public road network.

3.6.48 Signage and pavement markings shall be provided in accordance with the relevant Australian Standard to clearly identify:

- Vehicle entry and exit points,
- Parking bays and loading facilities,
- Direction of traffic movement,
- Pedestrian paths and crossing points.

Traffic Assessments, Studies and Plans

3.6.49 The carparking component of the study must include:

a) A detailed carparking survey of a similar development located in the same locality which demonstrate similar traffic and parking demand characteristics;
b) Assessment of the current traffic flow conditions in the local road network and performance of key intersections in the locality;
c) Assessment of existing on-street carparking and whether the locality is experiencing traffic and on-street parking congestion issues;
d) Anticipated traffic generation rate for the development;
e) Assessment as to likely impact of the development on traffic flows and traffic safety within the local road network and the demand for on-street parking in the future as a result of the proposed development; and
f) Assessment of the on-site carparking requirements based on the detailed carparking survey of other similar developments and localities.

3.6.50 In developments where there is more than one land use and the time of a peak demand for each use does not coincide, Council will consider a reduction from the requirements for the individual uses subject to the submission of a Parking Impact Study prepared by a suitably qualified and experienced professional person.

Active Transport

Objectives

O:3.6.8	To ensure adequate pedestrian and cycleway linkages to facilities and services within the surrounding locality is provided.
O:3.6.9	To ensure the road network adequately caters for the safety of pedestrians, cyclists and motorists through the provision of adequate sight lines at critical locations such as intersections, driveway crossings, bus stops and crossing points.
O:3.6.10	To ensure all pedestrian footpaths and shared pathways/cycle ways are designed in accordance with relevant Australian Standards and AUSTROADS guidelines.
O:3.6.11	To ensure all pedestrian footpaths and cycle ways are designed to incorporate Crime Prevention through Environmental Design (CPTED) principles by minimising any potential hiding places.
O:3.6.12	To encourage bus services to link existing urban areas with new residential subdivisions.
O:3.6.13	To ensure residential subdivisions are designed to ensure safe, convenient and efficient bus routes within reasonable walking distance to the majority of residential lots in a subdivision.
O:3.6.14	To provide safe and convenient bus stops along the planned bus route.

Controls

3.6.51 Any residential subdivision should identify the overall layout of dedicated pedestrian footpaths and cycle ways within the subdivision. The constructed pedestrian footpath shall be a minimum width of 1.2 metres. For any shared pedestrian footpath/cycleway, a minimum 2.5 metre width is required and widened to 3 metres if the shared footpath/cycleway, is located adjacent to any structure or obstruction.

3.6.52 Pedestrian and cycle ways should be provided to link roads particularly cul-de-sacs and to directly access public transport routes such as bus stops as well as public reserves.

3.6.53 Pedestrian footpaths should have a maximum longitudinal grade of 15%, except in cases where the approved road carriageway will have a longitudinal grade greater than 15%. Path ramps connecting pedestrian footpaths with roads must be designed to meet the needs of people with a disability (eg wheelchairs or sight impairment) and people with a pram. The pathway should be constructed of concrete, except where varied by Council.

3.6.54 Safe pedestrian crossings are to be created with the use of pedestrian refuges, slow points, thresholds or other appropriate measures.

3.6.55 All cycle ways are to be provided in accordance with AUSTROADS guidelines and *Kiama Development Code*.

3.6.56 All footpaths and cycle ways are to be provided with appropriate lighting and designed to incorporate Crime Prevention through Environmental Design (CPTED) principles by minimising any potential hiding places.

3.6.57 Large residential subdivisions should be designed to make provision for a bus service to link existing urban areas with the new residential subdivisions. The bus route should be designed to provide adequate servicing by bus companies. Therefore, consultation should take place with the local bus companies and the relevant NSW Government Transport Agency to determine whether a bus service can be provided in the new residential subdivision.

3.6.58 The bus route should be primarily designed along collector roads and linked up to sub-arterial or arterial roads, due to the requirement for wider road carriageways.

3.6.59 Indented bus parking bays should be provided at nominated bus stops.

3.6.60 Bus stops should be generally located within 400 metres walking distance for 90% of the lots in the immediate locality.

3.6.61 Any proposed roundabout on a bus route must be designed to satisfactorily accommodate bus manoeuvring through and around the roundabout.

3.6.62 Bus shelters are to be provided at key bus stops. In this regard, bus shelters are to be no more than 800 metres apart and are to be located in positions that will service the maximum number of dwellings. The approved bus shelters are to be installed during the subdivision construction stage by the property developer involved in the subdivision.

3.6.63 Bus stops should be easily accessible for all people (including people with a disability), well defined and within casual observation from nearby dwellings, whilst minimising any interference with the streetscape amenity of the locality.

3.6.64 Safe pedestrian crossing points should be provided at each bus stop by the introduction of non-raised pedestrian thresholds and refuges.

Road Hierarchy and Design

General Road Hierarchy

Objectives

O:3.6.15	To provide a defined hierarchy of roads, in order to provide an acceptable level of access, safety and convenience for all road users.
O:3.6.16	To ensure that the design features of each residential road within a subdivision reflects the role of the road within the overall road network.

O:3.6.17	To provide an acceptable level of access, safety and convenience for all road users within existing urban areas and new release areas, whilst ensuring acceptable levels of amenity and minimising traffic management issues in the particular locality.
O:3.6.18	To provide appropriate road access for larger and special purpose vehicles including garbage and recycling trucks, fire trucks, delivery trucks etc.

Controls

3.6.65 The road hierarchy generally relates to the division of the road network into identifiable road classifications or road types. A hierarchical road network is essential to maximise road safety, residential amenity and legibility. Each class of road in the road network service a distinct set of functions and is designed accordingly. The design of the road network is required to covey motorists the predominant function of the road.

3.6.66 The road classifications are:

- Access Place

Are relatively short in length (up to 100m), generally straight and cater for up to 10 dwellings. They are to be designed as shared zones with good passive surveillance. Access ways may either be dedicated as public road or alternatively may be private roads under a Community Title subdivision

- Access Street

Generally cater for up to 30 dwellings, with low traffic volumes and low parking demand. The street would generally comprise two travel lanes or a travel lane and staggered parking.

- Access Road

Are local roads to cater for low volume, localised short distance travel and access to properties and cater for traffic up to 100 dwellings. They are the predominant street type in a neighbourhood subdivision. The street would generally comprise two 3m wide travel lanes and a parking lane.

- Minor Collector Roads

Are used to connect the local road network to the sub-arterial or arterial roads. They generally cater for up to 300 dwellings and usually carry local bus routes within as well as between neighbourhoods. Local centres are usually located along these routes. The street would generally comprise two 3.5m wide travel lanes and a parking lane.

- Major Collector Roads

As per minor collectors, however they are wider to accommodate additional traffic flows from up to 600 dwellings. The street would generally comprise two 3.5m wide travel lanes and a parking lane either side.

- Sub-Arterial Roads

Cater for high traffic volumes and/or longer distance travel for through traffic. They carry traffic from on sub-region to another sub-region and often include major public transport routes. These roads do not have direct property access and are designed in accordance with Austroads/RMS guidelines.

Road Types and Characteristics of Roads

Objectives

O:3.6.19	To ensure sufficient road carriageway and verge widths are provided for each road type, in order to enable all roads to perform their designated function within the road network.
O:3.6.20	To ensure that the road reserve adequately caters for all required functions including the safe and efficient vehicular and pedestrian movement throughout the road network, provision of on-street parking and the provision of street tree planting and other landscaping, where appropriate.
O:3.6.21	To ensure road verges are of sufficient width to physically accommodate all necessary infrastructure assets and utilities.
O:3.6.22	To provide road geometry that is consistent with the designated function of the specific road as well as the physical characteristics of the locality.
O:3.6.23	To ensure the road network is simple and safe for all road users, including motor vehicles, pedestrians and cyclists.
O:3.6.24	To ensure that appropriate vehicle speed limits are incorporated into the road design to enhance the safety of pedestrians and cyclists, the young and people with a disability.
O:3.6.25	To ensure new release areas are designed to provide for safe, convenient and efficient bus routes.

Controls – Road in Residential Road Networks

3.6.67 Characteristics of Roads In Residential Road Networks:

Street Type	**Traffic Volume (1) (vpd)**	**Target Speed (2)**	**Carriage way width(3) (m)**	**Verge Width(4) (m)**	**Road Reserve**	**Pavement Type**	**Parking Provision in Road Reserve**	**Concrete Footpath**	**Shared Path(6)**
Access Place(7)	<100	15	3.5	3.5(8)	10.5	Reinforced Concrete	1 hardstand verge space per 2 dwellings	No	No
Access Street	<300	40	6.5	3.5(8)	13.5	Asphalt	Carriage way(9)	No	No
Access Road	301-1000	40	8	3.5(8)	15	Asphalt	Carriage way(9)	1.2m wide one side(10)	No
Minor Collector	1001 - 3000	50	9.5	3.5(8)	16.5	Asphalt	Carriage way	1.2m wide one side	Provide within street

								away from kerb[10]	pave-ment [11]
Major Collector [12]	3001 - 6000	50[13]	11.5	Min. 3.5	Min 18.5	Asphalt	Carriage way	1.2m wide along one side away from kerb	2.5m wide along one side
Sub-Arterial [14]	>6000	60[13]	Design using road performance criteria & guides ie Austroads, RMS standards etc [15]						

Notes:

1. For single dwelling allotments apply a traffic generation rate of 10 vehicles per day. For multi-unit dwellings apply a traffic generation rate of 6 vpd or a rate based on local data. Peak hour traffic volume is assumed at 10% of Annual Average Daily Traffic. Where lots have the potential for re-subdivision and/or dual occupancy, such potential shall be taken into account when estimating AADT.
2. Streets are to be designed to achieve the target speed and sight distances to accord with design speed.
3. The carriageway width must make provision for service vehicles to manoeuvre. Widening is required at bends to allow for wider vehicle paths (using AUSTROADSTurning Templates). The provisions of the NSW Rural Fire Service publication “Planning For Bushfire Protection” guidelines must also be met and will take precedence.
4. Each verge must be of sufficient width to accommodate relevant services, landscaping and to ensure a total setback to residential dwellings which satisfies prescribed traffic noise exposure levels at the facade.
5. The minimum street reserve widths apply after satisfying the other criteria within this table and other site-specific requirements.
6. A shared path is required if the street is part of a dedicated off road cycle route.
7. Maximum length is 100 m. A passing bay is required if the length is greater than 80m.
8. Where an Access Place or Access Street is adjacent to public open space on rural zoned land, the verge adjacent to the open space or rural land may be reduced to 1m.
9. Lot layouts shall be designed to ensure staggered on-street parking in order to present a clear travel lane with passing opportunities.
10. Footpaths are to be provided on both sides of streets serving as bus routes.
11. Refer to AUSTROADS guidelines.
12. Painted centreline and edge lines are required to define carriageway lanes.
13. Reduced speed environments is required at designated pedestrian and shared crossing points.
14. Direct vehicle access to lots not permitted.

An acoustic assessment is required to assess the need for wider verges and/or acoustic barriers.

Controls - Roads in Rural Road Networks

3.6.68 Characteristics of Roads In Rural Road Networks:

Road Type	**Minimum Road Carriageway Width (m)**	**Minimum Verge Width Each Side (m)**	**Minimum Total Road Reserve Width (m)**
Public Road servicing less than 30 dwellings / lots	7.5	3.5 with upright kerbing	14.5
Cul-de-sac (Public Road)	7.5 with a minimum 12 wide cul-de-sac bulb	3.5 with upright kerbing	14.5
Minor Public Road / Access Way servicing a maximum of 10 dwellings / lots	6	3.5 with roll kerbing	13
Private Access Road/Right of Carriageway Battle – axe handle servicing a maximum of 3 dwellings/lots	4 (ie where the access handle is less than 200 metres in length) 4 metres but enlarged to 6 metres (ie with 20 metre long passing bays) at every 200 metre interval along the access road / ROW, to enable fire fighting trucks to access the lot(s). Whilst also allowing resident vehicles to exit the site during bush fire emergencies	N/A	6 (ie where the access road is less than 200 metres in length) or 8 (ie where the access road is greater than 200 metres in length and requires passing bays)

Controls- Road Naming

3.6.69 Council has a responsibility to clearly identify public roads in accordance with the *Roads Act 1993*, and in the interests of public information and safety.

3.6.70 Developer's suggestions for the names of new road(s), together with the reasons for the names proposed, should be submitted to Council to be assessed by Council's Streets and Reserves Naming Committee.

3.6.71 Council's policy is to give first preference to names with historical, zoological, botanical or geographic associations with Kiama and the Illawarra Region, and if possible with the locality where the subdivision is proposed.

3.6.72 Where more than one street exists within a subdivision, consideration should be given to a street naming "theme" to help create a distinct identity for the area.

3.6.73 Where no suggestions are received for the naming of roads, Council will determine the street names.

3.6.74 New street name signs are to be paid for by developers.

3.6.75 As part of the road naming procedures under section 162 of the *Roads Act 1993*, Council will forward the proposed road names in a subdivision to the Geographical Names Board for the Board's appropriate comment. In cases where the Geographic Names Board does not support the proposed road naming, Council will request alternative road names and in certain cases will liaise with the applicant.

3.6.76 For any classified roads, the NSW Roads & Maritime Services will determine the road name in consultation with the Geographic Names Board.

Road Design Requirements

Objectives

O:3.6.26	To establish a legible and well connected road network that promotes safe pedestrian and bicycle movement as well as convenient vehicular access.
O:3.6.27	To provide improved road, pedestrian and cycleway connections linking residential areas with public reserves, business centres, public services and facilities.

Controls - Road Connectivity, Permeability and Legibility

3.6.77 New roads should be designed to be integrated and connected with the existing local road network of the surrounding neighbourhood, wherever possible. In new subdivisions, cul-de-sacs should be minimised, wherever possible, in order to ensure connectivity within an estate.

3.6.78 Road design taking into account the surrounding local road network in the locality, especially the existing road hierarchy.

3.6.79 The subdivision design must achieve enhanced vehicular permeability and legibility in the location and layout of the road pattern.

3.6.80 The integration of new subdivision roads with existing roads will help to:

- Improve interconnections and minimise travel distances to / from facilities and services.
- Provide a choice of routes.
- Spread traffic loads throughout the local road network, rather than intensifying traffic volumes to a restricted number of roads

3.6.81 Connected grid networks may also improve safety when dwellings are sited to address block edges, to enable passive surveillance.

3.6.82 The road network should provide internal connectivity to allow for a distributed traffic flow as well as encourage walking and cycling within the subdivision and wider area.

3.6.83 Pedestrian footways and cycleways should be safe and convenient to encourage alternative transport options to motor vehicles.

3.6.84 A larger subdivision should be designed to minimise any excessive "backtracking". Therefore, the creation of multiple cul-de-sacs and "no through" roads within a larger subdivision is discouraged.

Controls - New Road Works, Drainage Works and Infrastructure Construction

Objectives

O:3.6.28	To ensure all residential lots have suitable, safe and efficient access to and from public roads and that all road and stormwater drainage infrastructure works are properly constructed in compliance with *Kiama Development Code*.

3.6.85 All allotments in a subdivision must gain direct access to / from a properly formed public road.

3.6.86 The full cost of the construction of new roads, (including the construction of the road carriageway, footpaths and/or bicycle shareways, full kerbing and guttering, street tree planting etc) stormwater drainage and the provision of infrastructure services to a subdivision will be borne by the subdivider / developer.

3.6.87 The required road, stormwater drainage and infrastructure works shall be constructed in accordance with *Kiama Development Code* and any necessary requirements by the infrastructure service authority. The roadworks, drainage works and infrastructure services shall be completed, prior to the issuing of a Subdivision Certificate. For approved staged subdivisions, all required road, drainage and infrastructure works must be completed for each stage prior to the issue of the Subdivision Certificate for each respective stage.

Controls - Upgrading of Poorly Constructed or Unformed Public Roads

Objectives

O:3.6.29	To ensure all residential lots have suitable, safe and efficient access to and from public roads and that all road and stormwater drainage infrastructure works are properly constructed in compliance with *Kiama Development Code*.

3.6.88 All allotments in a subdivision must gain direct access to/from a properly formed public road.

3.6.89 In areas where the proposed subdivision fronts a poorly constructed or unformed public road, the subdivision will be subject to the construction of full kerbing and guttering, stormwater drainage, full or half road construction and sealing in addition to the provision of nature strips with a 3% cross fall to the roadway. The required work must include the transitioning or linkage to existing road infrastructure, where necessary, either side of the proposed development. All associated construction work will meet with the design and construction requirements of *Kiama Development Code*.

Controls - Residential Cul-De-Sacs and Turning Heads

Objectives

O:3.6.30	To restrict the length of cul-de-sacs within a residential subdivision to improve accessibility to public transport facilities, such as bus stops, and to provide more direct vehicular access arrangements for emergency vehicles.
O:3.6.31	To ensure cul-de-sacs and turning heads are designed to provide safe and efficient vehicular access for cars, waste collection and recycling trucks, removalist trucks, emergency vehicles etc.
O:3.6.32	To ensure all new residential lots are capable of being either accessed or serviced by emergency vehicles and other non-passenger vehicles such as

	waste and recycling collection trucks and removalist trucks, without adversely affecting the performance or safety of the surrounding road network.
O:3.6.33	To restrict "T" or "Y" turning heads to smaller cul-de-sacs which serve a limited number of residential lots within a subdivision.

3.6.90 The maximum length of any cul-de-sac should be 80 metres, in order to ensure adequate accessibility to public transport facilities such as bus stops as well as suitable access arrangements for emergency service vehicles and waste disposal vehicles.

3.6.91 The minimum road reserve radius for the turning head of any small residential cul-de-sac (ie serving a maximum 30 dwellings/allotments) shall be 12 metres with a minimum road carriageway radius of 8.5 metres.

3.6.92 "T" or "Y" turning heads will only be permitted within small cul-de-sacs/access roads which serve up to a maximum of 10 lots/dwellings. In most cases, a "Y" turning head configuration is preferred, in order to discourage potential parking in the turning space. Turning heads must provide sufficient space for larger vehicles such as waste and recycling collection trucks to make a three point turn.

3.6.93 Where a "T" or "Y" turning head is proposed, a suitable waste and recycling bin storage area(s) must be carefully positioned on the left hand (forward direction of the truck). The bin storage area(s) must not be located any closer than 5 metres from the forward end and 8 metres from the reverse end of the "T" or "Y" turning head. This is to ensure that waste and recycling collection trucks are able to satisfactorily service the bin storage areas.

Controls - Road Junction Spacing

Objectives

O:3.6.34	To ensure road junctions are properly designed to minimise any potential traffic management or traffic safety issues.

3.6.94 The minimum distance between an access road and a collector road shall be 60 metres where the junction is on the same side of the road or 40 metres where the junction is located on the opposite side of the road.

3.6.95 The minimum distance between collector roads shall be 120 metres if the junction is on the same side or 100 metres where the junction is staggered on the opposite side of the road.

3.6.96 All intersections are to be T-junctions or roundabouts.

Controls - Splay Corners

Objectives

O:3.6.35	To provide appropriate splay corners at intersections within residential subdivisions, to ensure adequate sight line distances.

3.6.97 All intersections in a subdivision shall be provided with a minimum 4.25 metre splay or as required by Council's Director Engineering and Works.

Controls - Restricted access to Arterial or Sub-Arterial Roads

Objectives

O:3.6.34	To restrict access to any arterial or sub-arterial road to maintain satisfactory traffic flows and safety along such roads, where alternative public road access is available and practicable.

3.6.98 Direct access to any arterial or sub-arterial road will not be permitted where alternate public road access is available. However, direct property access to / from an arterial or sub-arterial road will not be restricted until such time as alternate public road access is available.

3.6.99 Council may require as a condition of consent as part of any subdivision or development that a suitable restriction on the use of land be created pursuant to the provisions of Section 88B of the Conveyancing Act 1919, in order to legally prohibit direct access to / from any adjoining Arterial or Sub-Arterial Road where alternative direct public road access is available to / from the subject site.

3.6.100 Temporary access may be granted to a designated road (arterial or sub-arterial road) where alternate public access has not yet been completed. However, this temporary access arrangement will be dependent upon the nature of the access arrangement in relation to the arterial or sub-arterial road.

Controls - Traffic Calming Devices

Objectives

O:3.6.35	To provide appropriate traffic calming devices, in order to improve traffic management flows within large residential subdivisions.

3.6.101 The location of traffic calming devices must be consistent with the streetscape requirements of the locality and must also be based upon the location of existing and / or proposed street lighting, drainage pits, driveway crossings, on-street car parking requirements and the location of utility services.

3.6.102 Any proposed traffic calming device must be designed to enable emergency vehicles to reach all properties from the road.

3.6.103 A reduction in vehicular speed can be achieved by creating a visual environment conducive to lower speeds through using landscaping treatments and other traffic calming devices to segment streets into relatively short road lengths (ie generally less than 300 metres long).

3.6.104 Speed reduction can also be achieved through using traffic calming devices which shift vehicle travel paths laterally (eg slow points, roundabouts, corner treatments) or vertically through humps, platform intersections etc).

3.6.105 The main streetscape issues to be taken into account in the design of traffic calming devices include the following:

- Improve the landscape character of the locality.
- Reduce the linearity of roads by segmentation.
- Avoid continuous long straight lines (kerb lines) for local roads.
- Maximise the continuity between existing and new landscape areas.

Controls - Street Lighting

Objectives

O:3.6.36	To provide effective street lighting along all roads within the subdivision, to maximise vehicular and pedestrian safety.
O:3.6.37	To provide appropriate street lighting at key intersections and pedestrian crossings as well as traffic calming device locations to maximise vehicular and pedestrian safety.
O:3.6.38	To provide appropriate lighting along all pedestrian pathways and/or shared pathways/cycle ways, in order to maximise pedestrian and cyclist safety.

3.6.106 Street lighting systems are to be provided for roads and intersections, cycle ways and pathways, as well as pedestrian crossing and traffic calming device locations in accordance with AS/NZS 1158.

Property Access

Objectives

O:3.6.39	To provide clearly identifiable, legal and safe access linkages between public roads and private access roads.
O:3.6.40	To make sure that that private access roads are suitable for use by conventional two- wheeled-drive vehicles and emergency services vehicles.
O:3.6.41	To minimise the environmental impact caused private access roads and services infrastructure on the land suitable for agriculture, the natural environment, waterways and the scenic landscape, rural dwelling amenity.
O:3.6.42	To ensure that private access roads meet bush fire protection standards.
O:3.6.43	To minimise the length of access roads and their associated reduction in the amount of productive or potentially productive agricultural land.
O:3.6.44	To enable rapid and safe evacuation of residents, and easy access to emergency services vehicles, in the case of a bush fire, flood or storm event or any other emergency requiring access to or evacuation of people from dwellings.

3.6.107 Except as required to meet bush fire safety requirements in the particular circumstances of the land, only one access road to a lot or land holding is permitted to be connected to a public road. This does not apply to access to paddocks.

3.6.108 Access to a lot or landholding must only be provided from a public road or a legal right of way that is connected to a public road.

3.6.109 The point of access to a public road must be located to provide safe sight distance and safe ingress and egress to and from the land.

3.6.110 The location and design of an access road and services infrastructure must minimise the amount of land suitable or potentially suitable for agriculture being permanently lost for agricultural production.

3.6.111 The location and design must also avoid, minimise or otherwise mitigate any adverse environmental impact on:

- land containing biodiversity/native vegetation as identified in Kiama LEP 2011 or other Council vegetation maps.
- land containing any endangered ecological communities.
- a waterway.
- water quality.
- riparian lands identified in Kiama LEP 2011.
- an aquatic ecosystem.
- the natural habitat of a threatened species.
- the scenic landscape of the locality.
- the amenity of other adjoining residents.

3.6.112 An access road must be designed in accordance with this Council's Engineering technical specifications to minimise visual impact and earthworks.

3.6.113 An access road or any fire trails to a dwelling on a lot or associated with a subdivision containing bush fire prone land must comply with all relevant NSW Rural Fire Services' requirements.

3.6.114 A soil, water and vegetation management plan must be provided with the development application. Such plan must demonstrate how access road, services infrastructure construction works and revegetation of disturbed land will be managed in the construction and post construction rehabilitation phases to minimise soil erosion, pollution of waterways and to ensure the survival of any required revegetation to maturity.

3.6.115 Revegetation associated with an access road must be addressed in a property landscape plan accompanying the DA.

3.6.116 Developments located on a main or arterial road or in the vicinity of traffic management controls on any classification of road must provide for vehicles to enter and exit the site in a forward direction.

3.6.117 Where a proposed subdivision of land requires road construction or road upgrading and the combined lots created will permit further development at a ratio of more than 33 dwellings per hectare, Council may require that the road widths be widened in the proposal to accommodate additional on-street parking and improved access and servicing arrangements.

Definitions

The following definitions are additional definitions or are a redefinition of the definitions in the Roads and Maritime Services' *"Guide to Traffic Generating Developments".*

- **Amenities -** means staff and public toilets, as well as staff only facilities.
- **CBD -** means the same areas included in Topic 12.1 of Chapter 12 and Topic 12.7 of Chapter 12 of Kiama Development Control Plan 2020
- **Designated Stock Storage Area -** means an area within the internal faces of the walls of a building, which is purposely designed and constructed for storage only, physically separated from the retail floor area and not in the immediate sight of customers.
- **Gross Leasable Floor Area** – means the sum of the area within the internal faces of the walls of a building, excluding stairs, lifts, circulation areas and amenities, but includes the designated stock storage areas.
- **Licensed Floor Area -** means the floor area which is licensed for the purposes of serving liquor in accordance with current NSW legislative requirements.

Topic 3.7 - Character and Design

Character

Objectives

O:3.7.1	To ensure that development will not disrupt the streetscape or the unity of a group of buildings and spoil the existing character

Controls

3.7.1 To maintain and improve the existing amenity and environmental character of residential zones, Council will only approve of new dwelling houses/additions where they are compatible with the existing and environmental character of the locality and have a sympathetic and harmonious relationship with adjoining development.

3.7.2 Unsympathetic development will disrupt the streetscape or the unity of a group of buildings and spoil the existing character. These buildings may not only cause a loss of built heritage and/or environmental amenity but may also interfere with adjoining owners privacy and sunlight.

3.7.3 New buildings do not have to imitate the architecture of those nearby. However they should respect the scale, form, orientation etc. of buildings in the street.

3.7.4 New urban development is consistent with best practice neighbourhood and environmental design principles including:

- accessibility to the town and its community facilities;
- energy and water efficiency;
- urban form and design in both the private and public domains;
- livableness and neighbourhood character; and
- appropriate housing choice.

Crime Prevention Through Environmental Design

Development can create an environment which enhances safety and security from property damage, theft and personal threat. Where possible, utilise 'Safer by Design' methodology recommended by NSW Police Service. This encourages crime prevention through environmental design by the application of design features, routine activities and space management which alter conditions that create opportunities for criminal behaviour. The following principles are central to this:

- *Surveillance* – includes natural, formal and technical surveillance. Natural focuses on the orientation of buildings, street layout, landscaping, fencing etc.
  - Formal or organised surveillance involves the tactical use of work areas, offices etc near high risk areas.
  - Technical surveillance is achieved through mechanical/electronic measures.
- *Access Control* – includes physical and psychological barriers to restrict, encourage and channel pedestrian and vehicle movement.
- *Territorial Reinforcement* relies upon design features, actual and symbolic boundary markers and other means to encourage a community's sense of responsibility for places and facilities.

- *Space management* involves the formal supervision, control and care of urban space.
- Generally the safety for pedestrians and vehicles should be provided for by the following:
- Illuminate pedestrian access and driveways in communal open space and integrated developments (using relevant Australian Standards).

Objectives

O:3.7.2	To increase the likelihood crime may be prevented by detection.
O:3.7.3	To increase and contribute to the safety and perception of safety in public and private spaces.
O:3.7.4	To encourage the consideration and application of crime prevention principles when designing and siting buildings and spaces.
O:3.7.5	To encourage dwelling layouts that facilitates safety and encourages interaction and recognition between residents.

Controls

3.7.5 Development is to be designed to incorporate and/or enhance opportunities for effective natural surveillance by providing clear sight-lines between public and private places, installation of effective lighting and the use of open landscaping of public areas.

3.7.6 Development is to incorporate design elements that contribute to a sense of community ownership of public spaces. Encouraging people to gather in public spaces through appropriate design techniques, helps to nurture a sense of responsibility for a place's use and condition.

3.7.7 Council will refer development applications that may provide the opportunity for an increase in crime to the NSW Police for comment. The types of development applications that may be referred to the NSW Police include major new development, childcare centres and development which will provide public entertainment and/or service of alcohol.

3.7.8 Security for the public domain including parks, swimming pools, public toilets and transport facilities should have the following attributes:

- appropriate lighting that illuminates pedestrian pathways
- landscaping that does not obscure visibility
- adequate signage describing pathways and facilities including taxi ranks, bus stops and community facilities
- maximises surveillance from adjoining areas v minimises opportunities for graffiti
- pavement treatment that defines uses and movement
- pedestrian pathways and routes with clear sight-lines

3.7.9 The incorporation of crime prevention measures in the design of new buildings and spaces is not to detract from the quality of the streetscape.

3.7.10 Building facades which immediately adjoin a public area must not contain recesses, fin walls, etc at ground level

3.7.11 Where visitor spaces are required to be provided in a development, they should be located close to or within the front setback.

3.7.12

Private open space should be clearly defined for private use. This can be achieved by its siting in relation to the dwelling and enhanced by landscaping and screening.

Appendix 1 Plants Considered Unsuitable

PLANTS CONSIDERED UNSUITABLE FOR LANDSCAPE PURPOSES IN THE KIAMA MUNICIPALITY

The following plants listed should not be used in any gardens in the Municipality of Kiama. Some of these plants listed have been in common use for generations but are now acknowledged to be serious weeds of native bushland. Their replacement with non-invasive species is encouraged.

Botanical Name	Common Name
Trees	
Acacia baileyana	Cootamundra Wattle
Acacia saligna	Golden Wreath Wattle
Ailanthus altissima	Tree of Heaven
Cinnamomum camphora	Camphor Laurel
Erythrina x sykesii	Coral Tree
Ficus elastic	Rubber Tree
Grevillea robusta	Silky Oak Tree
Lagunaria patersonii	Norfolk Island Hibiscus
Ligustrum sinense	Small Leaf Privet
Ligustrum lucidum	Large Leaf Privet
Olea africana	Wild Olive
Olea europaea subspp africana	African Olive
Pinus radiata	Radiata Pine
Populus species	Poplar Tree
Pittosporum undulatum	Native Daphne
Robinia pseudoacacia	False Acacia
Salix species	Willow Tree
Schefflera actinophylla	Umbrella Tree
Toxicodendron succedaneum	Rhus Tree
XCupressocyparis leylandii	Leylandii Pines
Shrubs	
Ageratina adenophora	Crofton Weed

Botanical Name	Common Name
Agave americana	Yucca Plant
Baccharis halimifolia	Groundsel Bush
Canna indica	Canna Lily
Cestrum parqui	Green Cestrum
Chrysanthemoides monilifera	Bitou Bush
Cortaderia spp	Pampas Grass
Coreopsis lanceolata	Coreopsis
Cotoneaster spp	Cotoneaster
Coprosma repens	Mirror Plant
Cytisus scoparius	English Broom
Genista spp	Broom
Hypericum perforatum var angustifolium	St John's wort
Lantana all species	Lantana
Lilium formosanum	Formosa Lily
Nerium oleander	Oleander
Ochna serrulata	Mickey Mouse Plant
Phyllostachys spp	Bamboo
Polygala myrtifolia	Myrtle-leaf Milkwort
Polygala virgata	Purple Broom
Pyracantha angustifolia	Firethorn
Ricinus communis	Castor Oil Plant
Senna pendula var glabrata	Cassia
Senna pendula	Cassia
Ulex europaeus	Gorse
Opuntia spp	Prickly Pear
Zantedeschia aethiopica	Arum Lily

Botanical Name	Common Name
Groundcovers/Climbers	
Acetosa sagittata	Turkey Rhubarb
Colocasia spp.	Elephant Ears
Anredera cordifolia	Madiera Vine
Araujia hortorum	Moth Vine
Bryophyllum delagoense	Mother of Millions
Cardiospermum grandiflorum	Balloon Vine
Crocosmia x crocosmiiflora	Montbretia
Delairea odorata	Cape Ivy
Gazania rigens	Gazania
Gloriosa superba	Glory Lily
Hedera helix	English Ivy
Hedychium gardneranum	Wild Ginger/Ginger Lily
Hieracium spp	Hawkweed
Hydocotyle ranunculoides	Pennywort
Ipomoea indica	Morning Glory
Jasminum polyanthum	White Jasmin
Lonicera japonica	Honeysuckle
Macfadyena unguis-cati	Cat's Claw Creeper
Myrsiphyllum asparagoides	Bridal Veil Creeper
Nephrolepis cordifolia	Fishbone Fern
Parietaria judaica	Pellitory/Sticky or Asthma Weed
Passiflora edulis	Passionfruit
Pennisetum alopecuroides	Oxtail Grass
Persicaria capitata	Japanese Knotweed
Protasparagus plumosus	Climbing Asparagus
Protasparagus aethiopicus	Asparagus Fern

Botanical Name	Common Name
Pyrostegia venusta	Golden Shower
Ranunculus repens	Creeping Buttercup
Tecomaria capensis	Cape Honeysuckle
Thunbergia alata	Black-eyed Susan
Tradescantia fluminensis	Wandering Jew
Tropaeolum majus	Nasturtium
Vinca major	Blue Periwinkle
Watsonia bulbifera	Bugle Lily
Palms	
Phoenix canariensis	Canary Island Date Palm
Syagrus romanzoffianum	Cocos Palm
Aquatics	
Alternanthera philoxeroides	Alligator Weed
Cabomba caroliniana	Cabomba
Elodea Canadensis	Canadian Pondweed
Eichornia crassipes	Water Hyacinth
Equisetum spp	Horsetail
Ludwigia peruviana	Ludwigia
Myriophyllum aquaticum	Parrots Feather
Pistia stratiodes	Water Lettuce
Salvinia molesta	Salvinia

Planting of these species will have significant impacts on our environment. Avoid the use of these species in the landscape. Reference should also be made to Illawarra District Weed Association current weed list.

Appendix 2 Suitable Indigenous Plants

Kiama Indigenous Plants Suitable for use Particularly in Regeneration or Enhancement of Remnant Bushland

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Smallish Trees - Suitable For Habitat									
Acacia binervata	Two-Veined Hickory	small, regen	•		•				
Acacia maideni	Maidens Wattle	small-medium, regen	•		•				
Acacia melanoxylon	Blackwood	small-medium, regen	•		•				
Acmena smithii	Lilly Pilly	stays small in harsh/ coastal sites	•				•		
Alectryon subcinereus	Native Quince	small, general use			•	•			
Allocasuarina littoralis	Black She-Oak	tall shrub-small tree, dry sandy				•			
Allocasuarina verticillata	Drooping She-Oak	small, hardy, coastal		•					
Archontophoenix cunninghamiana	Bangalow Palm	slender palm to 15m	•						
Austromyrtus acmenoides	Scrub Ironwood	small, general landscaping				•			
Backhousia myrtifolia	Grey Myrtle	small, hardy, attractive				•		•	
Banksia integrifolia	Coast Banksia	tall shrub-small tree, coastal, dry sites				•		•	
Banksia serrata	Old Man Banksia	tall shrub-small tree, dry sites	•		•				
Callistemon salignus	Pink Tips	small paperbark, poorly drained sites	•			•			
Canthium coprosmoides	Coast Canthium	small, coastal	•			•			
Cassine australis	Red-Fruited Olive-Plum	small, most sites coastal	•			•			

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Clerodendrum tomentosum	Native Clerodendrum	small, hardy, all soils,	•						
Croton verreauxii	Green Carscarilla	shrub-small tree, coloured leaves	•	•					
Diospyros australis	Black Plum	small, sheltered sites	•			•			
Duboisia myoporoides	Corkwood	small-medium, coast on sand, littoral rainforest	•						
Ehretia acuminata	Koda	small-medium, deciduous	•			•			
Eupomatia laurina	Bolwarra	tall shrub-small tree, moist sites			•				
Exocarpos cupressiformis	Brush Cherry	small, drier, poorer sites					•		
Ficus coronata	Sandpaper Fig	small, riparian, edible fruit	•						
Geijera salicifolia	Brush Wilga	small, dry rainforest regeneration		•					
Hedycarya angustifolia	Native Mulberry	shrub-small tree, rainforest, trial general use	•	•	•				
Livistona australis	Cabbage Palm	palm, slow growing, widespread use						•	
Melaleuca armillaris	Bracelet Honey Myrtle	tall shrub-small tree, shallow latite, dry					•		
Melaleuca styphelioides	Prickly Melaleuca	tall shrub-small tree, widely used	•						
Melicope micrococca	White Euodia	tall shrub-small tree, rainforest regeneration	•			•			
Myoporum acuminatum	Boobialla	hardy, breaks in high wind	•	•	•	•			
Notolaea venosa	Native Olive	hardy, dry, coast, rainforest	•						
Omalanthus populifolius	Bleeding Heart	small, common, coloured leaves	•			•			

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Pararchicodendrum pruinosum	Snow Wood	small-medium., foliage, flowers, pods	•						
Planchonella australis	Black Apple	small rainforest, edible 'apple'		•					
Polyosma cunninghamii	Featherwood	small, rainforest	•			•			
Polyscias elegans	Celery-Wood	palm-like, height in confined space	•		•				
Polyscias murrayi	Pencil Cedar	palm-like, height in confined space		•		•			
Rapanea howittiana	Muttonwood	small rainforest, fruit, gardens	•			•			
Rapanea variabilis	Muttonwood	small rainforest, gardens	•						
Rhodamnia rubescens	Brown Malletwood	small rainforest gardens	•						
Stenocarpus salignus	Scrub Beefwood	small, rainforest regeneration, farm forestry	•			•			
Streblus brunonianus	Whalebone	shapely, hardy, wind-prunes		•					
Synoum glandulosum	Bastard Rosewood	better soils, rainforest regeneration		•					
Medium Trees - Suitable for Habitat									
Acmena smithii	Lilly Pilly	medium-tall, edible berries	•	•	•	•			
Acronychia oblongifolia	White Lilly Pilly	medium , edible fruit	•			•			
Alphitonia excelsa	Red Ash	medium, rainforest regeneration, street	•						
Angophora floribunda	Rough-Barked Angophora	tall, dry sites			•	•			
Brachychiton acerifolius	Illawarra Flame	medium, most sites, colour	•	•					

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Casuarina cunninghamiana	River Oak	tall, riparian					•		
Casuarina glauca	Swamp Oak	medium, regen,, coast, not near building				•			
Ceratopetalum apetalum	Coachwood	tall, sandy soils higher areas		•					
Cinnamomum oliveri	Camphorwood	tall, relative of Camphor Laurel		•					
Cryptocarya glaucescens	Native Laurel	tall, rainforest regeneration	•	•					
Cryptocarya microneura	Murrogun	tall, rainforest regeneration	•	•					
Doryphora sassafras	Sassafras	medium-tall, moist, shady sites	•	•					
Elaeocarpus kirtonii	Pigeonberry Ash	tall, rainforest regeneration, esp. riparian		•			•		
Eucalyptus botryoides	Bangalay	tall, coastal, sandy				•			
Eucalyptus eugenioides	Stringybark	tall, drier regen			•				
Eucalyptus fastigata	Brown Barrel	tall, upper scarp, farm forestry			•				
Eucalyptus paniculata	Grey Ironbark	tall, sandy, volcanic soils			•				
Eucalyptus pilularis	Blackbutt	tall, farm forestry			•	•			
Eucalyptus quadrangulata	Coast White Box	tall, lower escarpment			•				
Eucalyptus smithii	Gully Peppermint	tall, escarpment, farm forestry			•				
Eucalyptus tereticornis	Forest Red Gum	tall, drier latite, farm forestry			•				
Euroschinus falcata	Blush Cudgerie	medium-tall, coastal rainforest	•			•			

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Ficus macrophylla	Moreton Bay Fig	extra tall, for Flying Fox		•			•		
Ficus obliqua	Small-Leaved Fig	extra tall, for Flying Fox		•			•		
Ficus superba var. henneana "	Deciduous Fig	extra tall, for Flying Fox	•			•			
Glochidion ferdinandi	Cheese Tree	medium, streetscape, general	•		•	•			
Guioa semiglauca		medium rainforest regeneration, coast on sand	•			•			
Litsea reticulata	Bolly Gum	medium-tall, rainforest regeneration		•			•		
Melia azedarach	White Cedar	tall, grub prone, but attracts birds	•	•			•		
Podocarpus elatus	Plum Pine	tall, edible fruit		•		•	•		
Sarcomelicope simplicifolia	Yellow Wood	to 10m, lemon scented leaves	•	•		•			
Scolopia braunii	Flintwood	to medium tree , hardy, coastal extremes,	•			•			
Schizomeria ovata	Crab Apple	tall rainforest, edible fruit, shade		•					
Syncarpia glomerulifera	Turpentine Tree	tall, moist sites, farm forestry			•				
Symplocos thwaitesii	Buff Hazelwood	medium rainforest tree, floors, shade	•	•					
Syzygium australe	Brush Cherry	tall, edible fruit, riparian					•		
Toona ciliata	Red Cedar	tall, deciduous, heritage, rainforest moist		•			•		
Shrubs - Suitable for Habitat									
Acacia sophorae	Coast Wattle	semi-prostrate shrub, coastal				•			
Alchornea ilicifolia	Native Holly	tall shrub, general use, foliage	•			•			

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Allocasuarina littoralis	Black She-Oak	tall shrub-small tree, dry sandy			•	•			
Allocasuarina verticillata	Drooping She-Oak	tall shrub-small tree							
Commersonia fraseri	Brown Kurrajong	ugly shrub, regeneration only						•	
Coprosma quadrifida	Prickly Coprosma	prickly low bush, regen		•					
Correa lawrenciana ssp. macrocalyx		shrub, flowers			•				
Dodonaea viscosa Viscid	Hop Bush	shrub 1-3m, drier sites			•				
Duboisia myoporoides	Corkwood	coast on sand, littoral rainforest	•			•			
Elaeocarpus reticulatus	Blueberry Ash	shrub, sandy soils			•	•			
Eucalyptus apiculata	Mallee Gum	tall shrub, multi-stemmed, small gardens			•				
Eupomatia laurina	Bolwarra	tall shrub-small tree, moist sites	•			•			
Exocarpos cupressiformis	Brush Cherry	shrub-small tree, drier, poorer sites	•		•				
Goodia lotifolia		to 3m, flowers, regen, gardens	•		•				
Hakea dactyloides		tall shrub, general purpose, poor sites			•				
Hedycarya angustifolia	Native Mulberry	shrub-small tree, rainforest, trial general use		•					
Hibiscus heterophyllus	Native Hibiscus	short-lived, rainforest regen., flowers	•		•	•			
Hymenanthera dentata	Tree Violet	tall shrub, trial general use	•	•	•				

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Indigofera australis	Indigo Peabush	<1m, pink flowers, gardens			•	•			
Leptospermum laevigatum	Coast Tea Tree	tall shrub, widely used, hedges well				•			
Leptospermum morrisonii	Common Tea Tree	tall shrub, trial as street tree, gardens			•				
Melaleuca armillaris	Bracelet Honey Myrtle	shrub-small tree, shallow latite, dry						•	
Myoporum boninense	Boobialla	low shrub, headlands, coastal				•			
Olearia argophylla	Silver Bush	tall, rainforest margins, trial in gardens		•	•				
Olearia viscidula	Wallaby Weed	shrub to 2m	•		•				
Omalanthus stillingifolius	Bleeding Heart	shrub, gardens public and private				•			
Prostanthera incisa	Cutleaf Mintbush	shrub, fragrance, flowers, shady gardens			•				
Prostanthera lasianthos	WhiteFlowered Mintbush	tall shrub, shade, flowers		•					
Prostanthera linearis	Linearleaf Mintbush	shrub, sunny latite							•
Rubus rosifolius	Native Raspberry	suckering shrub, edible fruit, regeneration	•	•	•	•	•	•	
Solanum aviculare	Kangaroo Apple	shrub, edible fruit, shade	•	•		•			
Tasmannia insipida	Pepper Bush	1-2m, peppery seeds, cooler, better soils		•					
Telopea speciosissima	Waratah	native Budderoo on good soils			•				
Trema aspera	Poison Peach Bush	Non-descript, regeneration only	•		•				
Westringia fruticosa	Coastal Rosemary	dense, salt hardy shrub1-2m				•			

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Wilkiea huegeliana	Veiny Wilkiea	Prickly shrub, rainforest including Littoral, regeneration	•						
Westringia fruticosa	Coastal rosemary	dense, salt hardy shrub 1-2m				•			
Zieria granulata	Kiama Zieria	tall shrub, shallow latite, eg headlands						•	
Zieria smithii	Sandfly Zieria	shrub, flowers, stinky aromatic, gardens	•		•				
***Groundcovers/Grassy Sward* - Suitable for Habitat**									
Aneilema acuminatum		herb, spreading, moist		•			•		
Canavalia rosea	Coastal Jack Bean	vine, hardy, coastal				•			
Centella asiatica	Arthritis Weed	grassy sward, grassed areas, coastal						•	
Cissus antarctica	Native Grape Vine	vine, groundcover	•		•	•			
Dichondra repens	Kidney Weed	grassy sward, shady grass areas						•	
Doodia aspera	Rasp Fern	fern, hardy groundcover	•	•			•		
Hardenbergia violacea	False Sarsparilla	vine, hardy groundcover eg headlands						•	
Hibbertia dentata		vine, groundcover						•	
Hibbertia scandens	Golden Guinea Flower	vine, groundcover						•	
Hydrocotyle spp.	Pennywort	grassy sward, shaded grass areas						•	
Kennedia rubicunda	Running Postman	hardy vine, groundcover, exposed sites						•	
Oplismenus aemulus	Mat Grass	grassy sward						•	
Oplismenus imbecilis	Mat Grass	grassy sward						•	

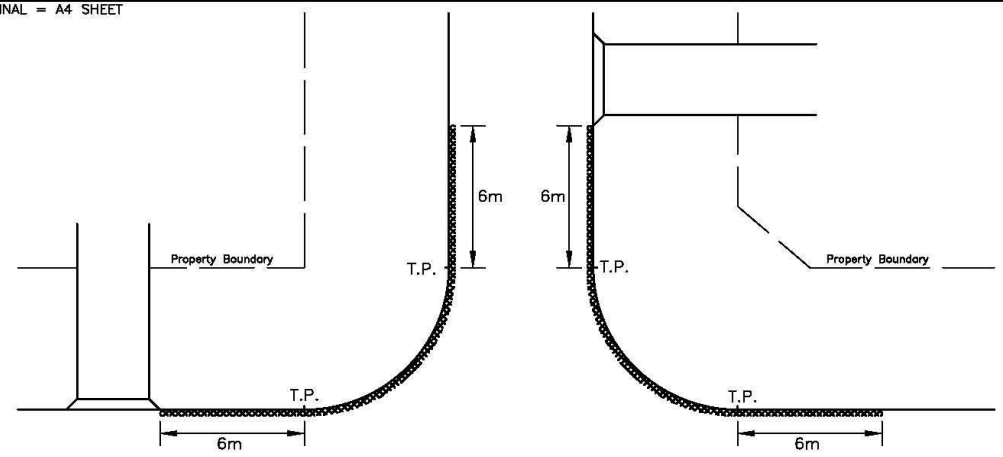
Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Pollia crispata	Pollia	groundcover, moist sites					•		
Scaevola calendulacea	Dune Fan Flower	groundcover, blue flowers				•			
Smilax glyciphylla	Sarsparilla	vine, bush 'cure', dry exposed	•		•	•			
Sporobolus virginicus var. *minor*	Marine Couch	grass, ground cover, salty, coastal				•			
Stellaria flaccida	Swamp Starwort	groundcover, very moist only					•		
Suaeda australis	Seablite	groundcover, salt tolerant sandy				•			
Tetragona tetragonoides	New Zealand Spinach	groundcover, edible, coastal				•			
Themeda australis	Kangaroo Grass	groundcover grass, hardy, coastal, regen,						•	
Viola hederacea	Native Violet	groundcover, flowers, shaded sward					•		
Water Plants – Suitable for Habitat									
Alisma plantago-aquatica	Water Plantain	<1m perennial, rooted in mud dams							
Cyperus exaltatus		Perennial to 2m, rooted in mud, dams							
Elatostema eticulatum	Waterfall Spinach	Herb, on streambanks, water gardens							•
Eleocharis sphacelata	Tall Spikerush	Tall rush, spreads in still water							•
Isachne globosa	Swamp Millet	Groundcover grass, seed, boggy areas							•
Juncus usitatus		Sedge to 1m, water's edge, damp places							•
Ludwigia peploides	Water Primrose	Floating, flowers, still pools							•

Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Ottelia ovalifolia	Swamp Lily	Floating, flowers, still pools							•
Paspalum distichum	Water Paspalum	low grass, spreads, edge of still water							•
Persicaria decipiens	Slender Knotweed	Herb, spreading, shallow water, dams							•
Persicaria strigosa	Spotted Knotweed	Herb, spreading, shallow water, dams							•
Phragmites australis	Common Reed	1-2m, spreading, waterbird habitat							•
Plants which form Clumps - Suitable for Habitat									
Bracteantha bracteata	Golden Everlasting	annual herb, gardens, 6						•	
Alocasia brisbanensis	Cunjevoi Lily	lily, riparian, shady					•		
Crinum pedunculatum	Native Crinum Lily	lily, form, flowers-used at Olympic site, 4a				•			
Cymbopogon refractus	Barbed Wire Grass	grass, coastal, shallow soils, 6						•	
Dianella spp.	Flax Lily	groundcover/coastal, general, 1,3,4	•		•	•			
Eustrephus latifolius	Wombat Berry	vine, bush tucker, decorative, 1,3,4	•		•	•			
Gahnia aspera	Small Saw Sedge	sedge, open forest regen, 3			•				
Gymnostachys anceps	Settlers' Flax	sedge, trial landscape use, shape, 1,2	•	•					
Helichrysum elatum	White Everlasting	perennial herb, flower gardens, 3			•				
Lepidosperma laterale		small sedge <1m, 3			•				
Lepyrodia gracilis		weeping sedge, trial water gardens, 3			•				

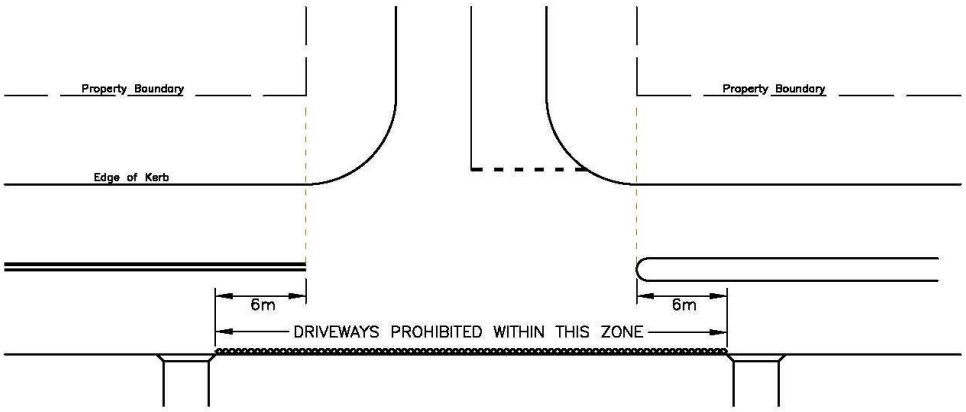
Species	Common Name	Form/Features/Suitable For:	Dry Rainforest	Moist Rainforest	Open Forest	Coastal	Riparian	Open grassy	Aquatic
Lomandra longifolia	Mat Rush	Sedge, widely used, very hardy, 3,4			•	•			
Plectranthus graveolens	Cockspur Flower	herb on latite, 6						•	
Plectranthus parviflorus	Cockspur Flower	widespread herb, 1,3	•		•				
Poa labillardieri a	Snowgrass	clumps to 1m height , 3			•				
Pteris tremula	Tender Brake	fern, clumps ,shady sites, 2,5		•			•		
Ferns – Suitable for Habitat									
Adiantum aethiopicum	Maidenhair Fern	groundcover, seepage areas					•		
Adiantum formosum	Giant Maidenhair	groundcover, moist shade					•		
Adiantum hispidulum	Rough Maidenhair	groundcover, moist shade					•		
Asplenium australasicum	Bird's Nest Fern	groundcover, grow from spore		•					
Cyathea cooperi	Tree Fern	slender upright to 3m, semi shade	•	•					
Dicksonia antarctica	Soft Tree Fern	stout trunk to 2m, full shade	•	•					
Doodia aspera	Rasp Fern	ground fern, groundcover	•	•			•		
Pellaea falcata	Sickle Fern	substitute for Fishbone Fern	•	•		•	•		
Platycerum bifurcatum	Elkhorn Fern	grow from spore		•					
Pteris tremula	Tender Brake	fern, clumps, shady sites		•			•		

Appendix 3 Driveway Location

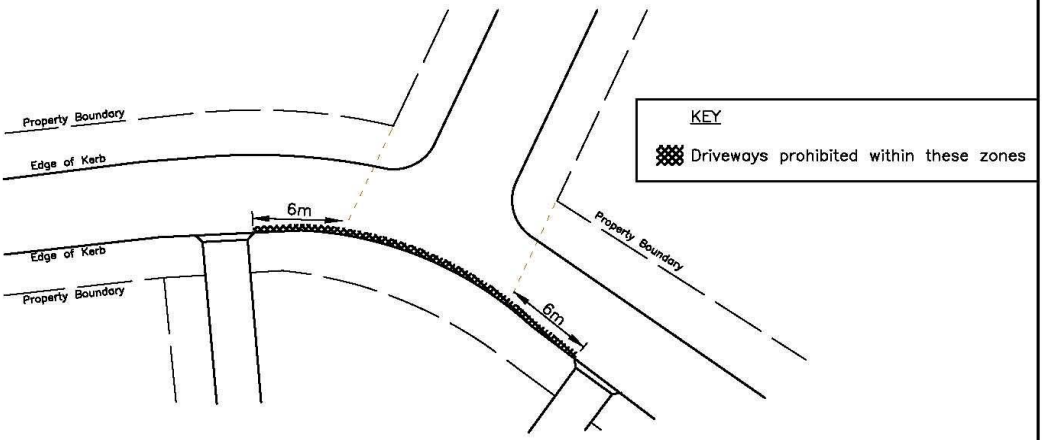
ORIGINAL = A4 SHEET



a) Driveway locations in relation to corner sites



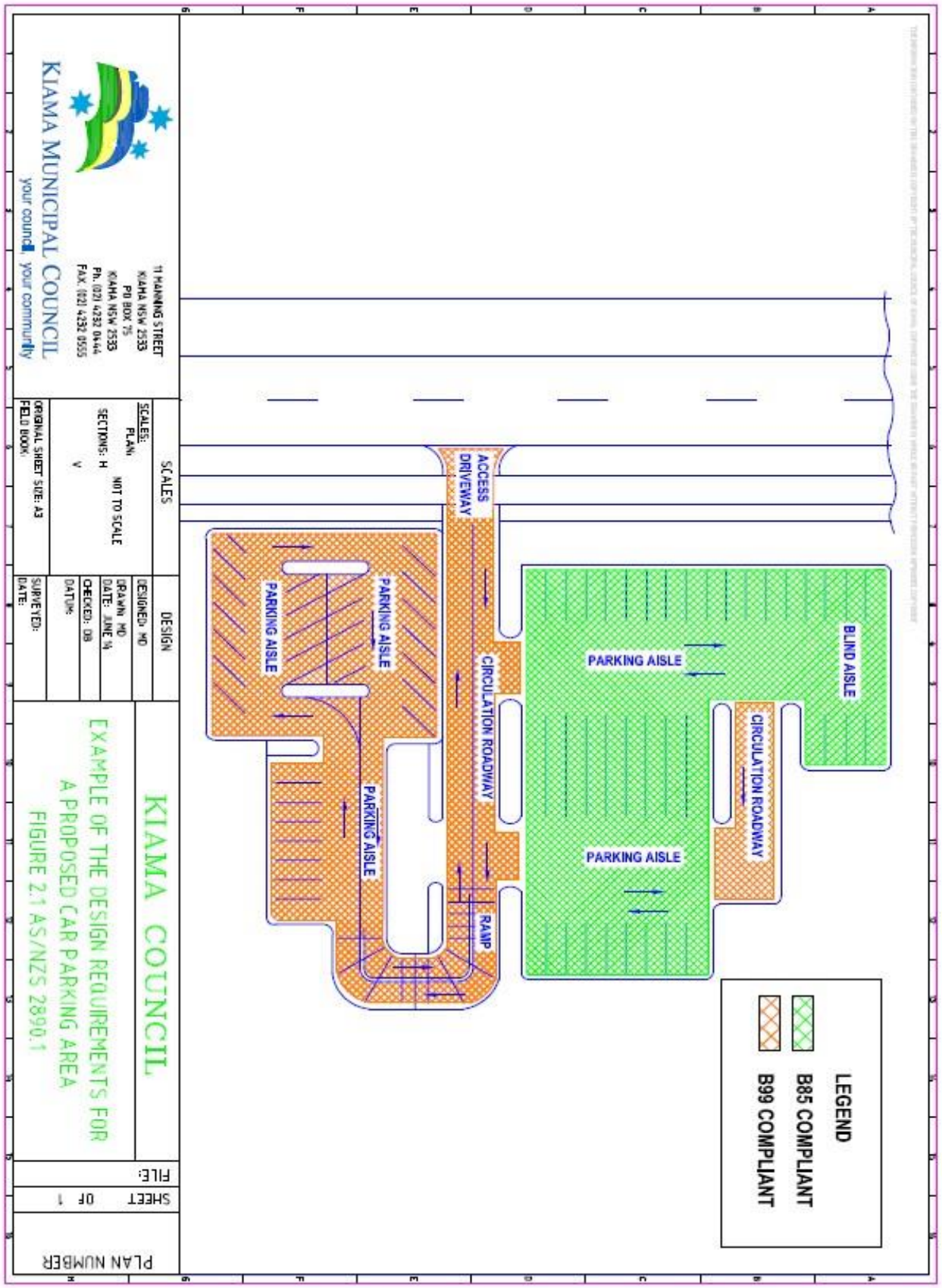
b) Driveway locations in relation to intersections



c) Driveway locations in relation to curved intersections

Scale	N.T.S	**Issue No.**	A	KIAMA MUNICIPAL COUNCIL	**Std Dwg.**
Drawn	T.H	**Datum**	Assumed	DRIVEWAY LOCATIONS	R09
Checked	D.B	**Date**	JUNE 2010		

Appendix 4 Maneuvering Requirements



Appendix 5 Bicycle Parking Requirements

Table F 2: Bicycle parking provision

Land use	Employee/resident parking spaces	Class	Visitor/shopper parking spaces	Class
Amusement parlour	1 or 2	1 or 2	2, plus 1 per 50 m^2 gfa	3
Apartment house	1 per 4 habitable rooms	1	1 per 16 habitable rooms	3
Art gallery	1 per 1500 m^2 gfa	2	2, plus 1 per 1500 m^2 gfa	3
Bank	1 per 200 m^2 gfa	2	2	3
Café	1 per 25 m^2 gfa	2	2	3
Community centre	1 per 1500 m^2 gfa	2	2, plus 1 per 1500 m^2 gfa	3
Consulting rooms	1 per 8 practitioners	2	1 per 4 practitioners	3
Drive-in shopping centre	1 per 300 m^2 sales floor	1	1 per 500 m^2 sales floor	3
Flat	1 per 3 flats	1	1 per 12 flats	3
General hospital	1 per 15 beds	1	1 per 30 beds	3
General industry	1 per 150 m^2 gfa	1 or 2	–	3
Health centre	1 per 400 m^2 gfa	1or 2	1 per 200 m^2 gfa	3
Hotel	1 per 25 m^2 bar floor area 1 per 100 m^2 lounge, beer garden	1 1	1 per 25 m^2 bar floor area 1 per 100 m^2 lounge, beer garden	3
Indoor recreation facility	1 per 4 employees	1 or 2	1 per 200 m^2 gfa	3
Library	1 per 500 m^2 gfa	1 or 2	4, plus 2 per 200 m^2 gfa	3
Light industry	1 per 1000 m^2 gfa	1 or 2	–	3
Major sports ground	1 per 1500 spectator places	1	1 per 250 spectator places	3
Market	–	2	1 per 10 stalls	3
Motel	1 per 40 rooms	1	–	3
Museum	1 per 1500 m^2 gfa	1	2, plus 1 per 1500 m^2 gfa	3
Nursing home	1 per 7 beds	1	1 per 60 beds	3
Office	1 per 200 m^2 gfa	1 or 2	1 per 750 m^2 over 1000 m^2	3
Place of assembly	–	2	–	3
Public hall	–	1 or 2	–	3
Residential building	1 per 4 lodging rooms	2	1 per 16 lodging rooms	3
Restaurant	1 per 100 m^2 public area	1 or 2	2	3
Retail show room	1 per 750 m^2 sales floor	1	1 per 1000 m^2 sales floor	3
School	1 per 5 pupils over year 4	2	–	3
Service industry	1 per 800 m^2 gfa	1	–	3
Service premises	1 per 200 m^2 gfa	1	–	3
Shop	1 per 300 m^2 gfa	1	1 per 500 m^2 over 1000 m^2	3
Swimming pool	–	1 or 2	2 per 20 m^2 of pool area	3
Take-away	1 per 100 m^2 gfa	1	1 per 50 m^2 gfa	3
University/Inst. of Tech	1 per 100p/t students 2 per 100f/t students	1 or 2 2	–	3

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KIAMA MUNICIPAL COUNCIL
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