

SUBDIVISION MANUAL

Tweed Shire Council

Tweed Development Control Plan Section A5



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Infrastructure Planning Unit

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A5 - SUBDIVISION MANUAL

A5.1 INTRODUCTION

A5.1.1 Aims of this Section

- Present Council's strategic plan objectives for the development of subdivisions.
- Achieve the highest quality and "best practice" of subdivision development in the Shire.
- Implement the policies and provisions of the NSW State Government in terms of seeking to achieve quality of subdivision planning and development.
- Provide guidelines and development standards for the development of subdivisions.
- Advise on:
 - Preliminary planning and design of the subdivisions.
 - The approval processes.
 - Procedures and documentation for seeking subdivision approvals.
 - How to prepare development applications and construction certificate applications for subdivisions and subdivision works.
 - How to implement subdivision works in accordance with approvals.
 - How to complete the subdivision by obtaining a subdivision certificate.

A5.1.2 Land to which this Section applies

This plan applies to all of the land within the Shire of Tweed.

A5.1.3 What is a Subdivision?

"Subdivision of Land" means the division of land into two or more parts and it includes registration of the plan of subdivision at the Land Titles Office. It includes the creation of lots in strata and community title subdivisions.

A5.1.4 How to use this Section

Development applications for subdivisions will be assessed in accordance with the guidelines and requirements contained in this Section. Council may refuse consent to an application which does not comply with this Section, or may modify the development by way of conditions so that it does comply. Where development does not comply strictly with the provisions of this Section, Council may still consider approving the development where the applicant demonstrates that the proposal is consistent with the objectives of this Section and the intention of the particular guideline, and the proposed development will result in an environmentally more satisfactory development.

In preparing an application for development there are a number of specific steps that should be followed:

- Step 1:** Check the zoning of the site under Tweed LEP 2000 to ensure that the proposed development is permissible and to determine what related provisions apply.

- Step 2:** Establish what other Sections of this DCP or Policies apply to the site.
- Step 3:** Follow the applicable design guidelines and refer to other applicable Sections and Policies to prepare your application. It is these components that Council will use to assess any development proposal.
- Step 4:** Discuss your final application with Council staff then lodge it for determination.

A5.1.5 Current Legislation & Government Department Names

Where there are references or exerts in this manual to/from legislation, government policies and/or guidelines which have been changed/amended since the date of adoption of this manual, such references shall be deemed to be to the current version.

Where the names of government departments or statutory authorities have changed, references in this manual are deemed to be to the current department/authority name.

A5.2 STRATEGIC AND POLICY CONTEXT

A5.2.1 Development and Environmental Factors

Tweed Shire has the highest non-metropolitan growth rate in New South Wales (NSW). Historically Tweed Shire has had a level of completed subdivisions that represent approximately 10% of the number of lots released in the whole of the Sydney Metropolitan region.

The population of the Tweed Shire at the time of the 2001 census was 74,380 – an increase of 7,515 or 11% since 1996. Due to various factors the pressures for development and the rate of population growth are anticipated to accelerate in the future – particularly on the Tweed Coast. At the same time as having these highly significant development pressures, Tweed Shire has the second highest biological diversity on the eastern sea board of Australia – second only to the Daintree region. There are also highly significant scenic and coastal environmental values.

Over the next 10 years there will be major developments of subdivisions at Cobaki Lakes, West Kingscliff, South Kingscliff, Casuarina Beach, Kings Forest, Seabreeze and Black Rocks in proximity of Pottsville. The population of Tweed Shire is anticipated to grow to approximately 120,000 by the year 2021.

A5.2.2 Tweed Shire 2000+ Strategic Plan

The Tweed Shire 2000+ Strategic Plan and related Tweed Development Program were adopted by Council in December 1996. This Development Control Plan has been prepared to achieve the outcomes and policies of the Strategic Plan.

The major outcomes, policies and principles of the Tweed Shire 2000+ Strategic Plan relevant to subdivision planning and development are:

(a) Urban Development & Management

- Housing and subdivision designs need to be integrated.
- Design principles for new development should have:
 - o a sense of identity through setting, history, topography, landscape and built character to give residents sense of belonging, community, pride and security;

- o mixed uses to encourage vitality and give people the opportunity to fulfil most of their needs locally;
- o a linked series of streets, squares, arcades and parks to allow easy access on foot to main elements of the city, town, village or suburb;
- o pedestrian priority to reduce pedestrian and vehicle conflict, provide good accessibility for those without cars and provide pleasant healthy movement throughout urban and suburban areas;
- o a human scale at which people do not feel overwhelmed by buildings, allowing people to live comfortably at higher densities;
- o acknowledgement of ecological interaction to help people to appreciate the natural attributes of their surroundings and understand how development and infrastructure can impact on fragile natural resources if not properly planned, designed and constructed.
- Residential development should:
 - o adopt ecologically sustainable principles of design for subdivisions;
 - o utilise land efficiently so community and commercial facilities are accessible by foot or bicycle generally within 800m;
 - o conform to guidelines for neighbourhood design and amenity;
 - o provide public transport and local community facilities operating from initial stage of development.
- Neighbourhood shopping centres located to service catchments of up to 5,000 and facilitate village character with high levels of social interaction.
- Residential neighbourhoods are planned as a network of self contained local and town centres connected by public transport and cycleways. They provide the principal commercial and community facilities for their populations.
- Urban parkland is provided on basis of accessibility to residents, size, quality and function of the facility.
- Ridgelines are preserved without visual intrusion of unsightly dwellings and excessive benching.
- Housing and other forms of urban development are designed to integrate with natural features, not dominate or remove them.
- There are green space buffers between urban localities to contain urban sprawl and maintain identities of localities.
- There is public access to foreshores of all waterways in urban areas.
- Stormwater runoff from urban areas does not to reduce water quality in the rivers, creeks, Broadwaters and estuaries.

(b) Strategic Principles

- Retain the Tweed's environmental and scenic values as a primary focus of all Council's decision making.

- Approve future development to create containment of existing villages and communities through the provision of green buffers between urban developments and retain character and identity within each area.
- Base the management of urban release areas on the full cost recovery of public infrastructure already provided, and the provision of infrastructure needed to service growth at no cost to existing ratepayers.
- Where development is proposed outside of the orderly sequence detailed in the Strategic Plan and the Tweed Development Program, require premium payments to meet full cost of the services needed without that cost being shared with other developments in the area.
- In asset management, include Council's explicit consideration required of the consequences and financial liabilities of acquiring new assets. This assessment will include the costs over the life of the asset and the impact on rates to maintain the assets at the most cost effective level.
- Apportion growth related infrastructure on the way in which the need or demand for the additional infrastructure is created rather than by the incidence of benefits.

(c) Policies and Actions

- Environmental areas, where they abut urban development, will be protected from the threats of domestic and feral animals, exotic plants and bushfire hazards, by regulations and public education programmes.
- Council will encourage and provide incentives (based on developer entitlements) to developers to obtain:- establishment of public walking trails, river foreshore public access, environmental rehabilitation and revegetation.
- Apart from land covered by Section B5 Kings Beach (where the 50years + 30 metres erosion line applies), new development is to be behind the 100 year erosion line.
- Identify contaminated land and assess for remedial work.
- Council will ensure the identification of open space areas of high value within proposed and existing release areas through performance based standards. It will amend the Subdivision guidelines so that these open space requirements are fully satisfied before approval. The guideline will include appropriate environmental requirements and provide for adequate buffers and/or open space between different uses.
- Council will ensure that private development adjacent to public land, foreshores and beaches does not impede public and open space networks.
- The release of new urban development will be managed by a Tweed Development Program which will:
 - o provide infrastructure to match anticipated growth in residential lots;
 - o provide for a developer to proceed "out of sequence" only if all necessary infrastructure is provided at no cost to the community;
 - o manage new urban development to minimise public sector costs in providing related infrastructure.

- Council will, through the Public Transport Working Group and its public transport policy, give greater emphasis to public transport in subdivision design, road network design and interrelated land use planning.
- Council will look toward setting traffic reduction targets giving priority to public transport; walking and cycling; improving traffic control systems; adopting revised parking policies; reducing trips needed and trip length; and promoting public awareness.
- Future development will be based on integration of land use and transportation planning, i.e. urban settlement patterns which promote neighbourhood self-containment; provision for alternative accessways for walking/cycling; provision for public transport and mixed use development to reduce private car dependence.
- Council will employ contemporary urban design principles to maximise the desirability of town and district centres for public use. Consideration will be given to social interaction, recreation, amenity, culture, delivery of support services and transaction of commerce.
- To avoid the creation of “urban sprawl”, Council will encourage local identity and preserve scenic and environmental qualities of urban areas. Future urban development will be based on the concept of compact, self contained centres. To achieve that:
 - o neighbourhood centres will contain appropriate community, commercial and employment centres within walking distance of residences;
 - o Land use and transportation planning will be integrated, including walkways, cycleways, traffic calming and public transport. The road network to be designed to encourage use of public transport and minimise use of private vehicles;
 - o open space green belts to be set aside between centres. Where possible green belts will be in public ownership. Where that is not feasible, limited development with extensive landscaping, which does not detract from green belt concept may be permitted.
- Council will:
 - o require evaluation of urban stormwater drainage on a catchment basis rather than site by site;
 - o require urban stormwater runoff to meet standards set by Council.

A5.2.3 NSW Coastal Policy and State Environmental Planning Policies No 71 & Major Projects 2005

These policies demonstrate the NSW Government's commitment to strategic planning and consistent decision-making on applications in the coastal sector of NSW. Within the coastal zone the NSW Minister for Planning becomes the consent authority for:

- subdivision of land within a residential zone into more than 25 lots.
- subdivision of land within a rural residential zone into more than 5 lots.
- subdivision of land within any zone into any number of lots if effluent will be disposed of by a non-reticulated system.

The Policies also requires that a consent authority must not grant consent for certain types of land subdivision unless the Minister has adopted a master plan for land to which the development applies. Master plans are required for:

- subdivisions in a residential zone or rural residential zone if part or all of the land is within a sensitive coastal location.
- subdivisions on land that is zoned residential into 25 lots or rural residential into 5 lots where that land is not within a sensitive coastal location.

A5.2.4 Tweed Local Environmental Plan 2000

The Tweed Local Environmental Plan (Tweed LEP 2000) seeks to give legal effect to the Tweed Shire 2000+ Strategic Plan, provide a legal basis for the making of the DCP such as this and to achieve high quality design of developments such as subdivisions. It also seeks to achieve ecologically sustainable development in the Shire.

A5.2.5 How does this Section relate to other Sections?

This Section has been prepared to provide more detailed provisions for the subdivision of land than are contained in Tweed Local Environmental Plan 2000. This Section supplements the provisions of the LEP, however where there are any inconsistencies the provisions of the LEP will prevail. The following Sections, where applicable also apply to subdivision of land.

Section A1	-	Multi-Dwelling Housing and Tourist Accommodation
Section A2	-	Site Access and Parking Code
Section A3	-	Development of Flood Liable Land
Section A9	-	Energy Smart Housing
Section A12	-	Dual Occupancy Controls
Section A13	-	Socio-Economic Impacts of Development
Section B3	-	Banora Point/Tweed Heads South
Section B4	-	West Kingscliff
Section B6	-	Murwillumbah West
Section B7	-	Cobaki Lakes
Section B8	-	Keith Compton Drive
Section B10	-	Searanch
Section B12	-	Fraser Drive, Banora Point
Section B13	-	Marana Park Density Controls
Section B14	-	Peter Street (South) Residential Development Controls
Section B15	-	Seabreeze Estate, Pottsville
Section B16	-	Kingscliff

Within Part A

This Section is generally consistent with the other Sections from Part A of this DCP. Where there is an inconsistency then the higher standard/requirement shall prevail.

Between Part A and Part B

In the event of any inconsistency between this Section and a Section from Part B of this DCP, the provisions of the Section from Part B shall prevail.

A5.2.6 The Value of Structure Plans and Master Plans

The value of structure plans and master plans is demonstrated by:

- the inter-relationships of different land uses.
- showing the distribution of public open space.
- the hierarchy and road network – road standards etc.
- identifying landscaping requirements.
- pedestrian and cycleway connectivity and orientation to main community destinations.
- establishing criteria for design quality.

A5.3 PLANNING AND DESIGNING A SUBDIVISION**A5.3.1 Preliminary Planning****When is a Master Plan Required?**

- SEPP 71 requires master plans for subdivisions in the coastal zone that:
 - o are in a sensitive coastal zone; or
 - o comprise more than 25 lots; or
 - o comprise more than 5 rural residential lots.
- This Section requires a master plan for all subdivisions and stages of subdivisions, where the ultimate lot yield (all stages) will be more than 25 lots, and where the urban pattern (street and open space network, neighbourhood structure etc) is not determined by:-
 - o existing development and street/neighbourhood development pattern; or
 - o an existing site specific Section that determines the general street and neighbourhood layout.
- A development consent for subdivision of land to which this Clause applies will not be granted unless a master plan, prepared in accordance with this Clause has been approved.
- A development application for subdivision of land subject to an approved master plan must be consistent with that master plan.

A5.3.2 Master Plans**Master Plan Content**

- SEPP 71 prescribes requirements for content of master plans in the coastal zone.
- The content of master plans required by this development control plan shall conform with the following criteria:

- o The master plan shall demonstrate how issues arising from the proponents objectives, site analysis, design guidelines and statutory requirements have been resolved;
- o There are two levels of master plans to be addressed, neighbourhood master plans and Town/District master plans:
 - Neighbourhood size (or smaller) subdivisions must obtain Council approval for a neighbourhood structure plan;
 - Subdivisions containing a number of neighbourhoods (as defined in Clause A5.4) must also submit a Town/district structure plan.
- o Master Plans are to contain the information in Table A5-1 and be supported by a written report that addresses the relevant objectives and criteria in Clause A5.4 – Urban Subdivision Design Guidelines and Development Standards;
- o Master plans should desirably be accompanied by a preliminary socio economic assessment addressing the principles in Section A13 – Socio-Economic Impacts of Development.

Table A5-1 Master Plans	
Level 1 - Neighbourhood Master Plans	Level 2 - Town/District Master Plans
which should show: • walkable neighbourhoods, represented by boundaries approximating in size/shape circles of 500 - 850 m radius around proposed neighbourhood centres, should be superimposed over the master plan: • open space network: - o natural features for conservation; - o green space network: passive, recreation and sporting; - o water cycle (drainage) open space. • landform including any proposed changes to landform and/or drainage pattern changes. • special spaces: - o existing and proposed neighbourhood centres; - o proposed schools and community/cultural facilities; - o special heritage/character places or buildings/structures to be retained. • street block layout. • movement network:	which should show: • regional pattern of settlement and context of this proposal. • location and boundaries of level 1 neighbourhoods (as represented by boundaries approximating in size/shape circles of 500 - 850 m radius), together with their neighbourhood centres. • existing and proposed town/district and higher level centres. • arterial routes and neighbourhood connector streets. • major public transport routes and facilities. • open space network: - o natural features for conservation such as watercourses, significant topographical features and vegetation; - o major elements of green space network and water cycle open space.

Table A5-1 Master Plans	
Level 1 - Neighbourhood Master Plans	Level 2 - Town/District Master Plans
- o access and movement all modes; - o proposed street network, including street types; - o proposed transportation corridors, public transport network and cycle and pedestrian networks. • proposed land uses; including for residential uses the distribution of medium and lower density residential. • proposed building types (where applicable).	• general landform and any significant proposed landform and/or drainage pattern changes. • proposed land use distribution; and • proposed schools and community facilities.

Master Plan Process

- The suggested design process for master plans required by this Section is:
 - o Subdivider identifies land, preliminary capability assessment and determine his/her subdivision objectives for the site;
 - o Consultation with Council staff (and if required other statutory authorities) regarding above, receive initial feedback;
 - o Site analysis (including consultation with neighbours to determine if there are boundary issues to be resolved);
 - o Prepare concept structure plan options and test for compatibility with owners objectives; site analysis; Council design guidelines/ subdivision development standards; statutory authority requirements);
 - o Exclude non conforming options, fine tune;
 - o Select preferred option;
 - o Review with Council staff, amend if needed;
 - o Submit for approval.

A5.3.3 Master Plan Approval

- Master plans required by SEPP71 will be prepared, submitted to the minister and determined in accordance with that policy.
- Master plans required in accordance with this Section will be processed as follows:
 - o A draft master plan may be prepared by or on behalf of the subdivider;
 - o The draft master plan shall be prepared in accordance with this chapter and comply with objectives and criteria in Clause A5.4;
 - o After receiving a draft master plan, Council will exhibit the draft master plan for a minimum 28 days, advertise it in a local newspaper and ask for public comment;

- o After considering the draft master plan, Council may:
 - Adopt the master plan without variation; or
 - Adopt the master plan with such variations as Council considers appropriate; or
 - Reject the draft master plan.
- A master plan may be amended or replaced by a subsequent master plan.
- An amendment to a master plan may be dealt with concurrently with a development application.

A5.3.4 Subdivision Design -for Development Application Stage

Overview of Design Process

Subdivision design is an iterative process, which given a site's attributes, opportunities and constraints, seeks to achieve a balance between:

- high quality urban design outcomes;
- conforming with statutory constraints;
- the subdivider's vision for development of the land; and
- economic outcomes.

This will initially involve investigation/survey/analysis to determine the sites attributes, research to determine statutory requirements and consultation with stakeholders (Council, neighbours, relevant government departments) to determine their needs and requirements. In this regard, this manual contains Council's standard requirements for subdivision design.

Having obtained this information, the subdivider can prepare trial design layouts that achieve his/her objectives, whilst being compliant with site attributes and statutory requirements. When these trial layouts approach optimisation of these objectives, a preferred option or a number of competing options may emerge.

At this stage it may be advisable to meet with Council staff, present the preferred option and discuss unresolved issues or areas of non-compliance that may have arisen in the trial layout stage.

Having resolved these issues, the subdivider can finalise the subdivision design and transform it into a formal development application for subdivision.

Site Investigation, Survey and Analysis

Site investigation and survey is required to determine the sites attributes, opportunities and constraints.

In this regard site investigation and survey should generate:

- plan of site showing existing real property lots and boundaries.
- plan of site showing existing contours, topography, drainage, roads, structures, existing trees and vegetation.
- plan of environmental constraints.
- plan of upstream and downstream drainage catchments.
- site soil attributes.

- Constraints mapping (plans of site environmental constraints ie. contaminated land, flood liable land, slip or subsidence risk, bushfire risk, threatened species/population/ecological communities/habitats, significant vegetation, scenic landscape features, waterways/water bodies/riparian vegetation, acid sulphate soils, heritage/cultural items).
- plan showing existing services and/or location of nearest available connections for water supply, sewerage, electricity, and telecommunications.
- aerial and ground based photography.
- locality plans which identifies the site in the context of its local community including:
 - o district road/street system showing:
 - location of shops, schools and other local facilities;
 - public transport routes;
 - distance to major suburban or regional facilities.
 - o plans of adjoining development and adjacent and nearby land that is likely to be affected by the proposal showing:
 - current land use;
 - existing topography/contours.
- existing landscape and vegetation pattern.

The site analysis should include consultation with neighbours and other affected stakeholders to determine their needs and/or requirements. Stakeholders may also include affected statutory authorities.

The site analysis should examine the above material to determine how constraints are to be dealt with or overcome, and address the opportunities of the site to see how these can be used to advantage.

Statutory and Council Requirements

This Clause provides a guide for Council's standard design requirements for subdivisions, Council's other Sections should also be consulted for any general or site-specific subdivision requirements. Attention is drawn to Clause A5.3 - Design Guidelines and Clause A5.4 - Development Standards of this manual. Subdividers should also be familiar with the requirements of the Environmental Planning and Assessment Act 1979 and Regulations and environmental planning instruments (Tweed LEP 2000, North Coast Regional Environmental Plan, State Environmental Planning policies).

In some circumstances other government departments and legislation may be directly involved and should be consulted. These may include:-

Issue	Department	Legislation
Threatened Species, critical habitat etc.	Department of Environment and Conservation (National Parks and Wildlife Service Division).	Threatened Species Conservation Act 1995.
Aboriginal relic/place.	As above.	National Parks and Wildlife

Issue	Department	Legislation
		Act 1974.
In any waters, dredging, reclamation or interfering with marine vegetation.	NSW Fisheries.	Fisheries Management act 1994.
Excavation, removal of material or works that will detrimentally affect water flow in or within 40m of a watercourse.	Dept Natural Resources.	Rivers and Foreshores Improvement Act 1948.
Alteration of watercourse, bores/wells, flood control works. Surface water extraction, works that intersect the groundwater table and construction of a weir, dam or structure for impounding water.	As above.	Water Management Act, 2000.
Clearing native vegetation in rural (non urban) zones.	As above.	Native Vegetation Act 1997.
Bushfires.	NSW Rural Fire Service.	Rural Fires Act 1997.
Dredging from tidal waterways, use/occupation/development on or adjacent to crown land.	Dept Natural Resources.	Crown Lands Act, 1989.
Actions likely to have a significant impact on a matter of national environmental significance.	Environment Australia.	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth Legislation).

Subdivision Design Trial Layouts and Optimisation

The site analysis, Council's design guidelines/development standards, statutory requirements and the subdividers own objectives are the basis for producing trial subdivision design layouts. As trial layouts are produced they must constantly be checked for design compliance and non-compliant layouts discarded. This process will lead to optimisation of the subdivision design and a preferred option or a number of alternative options will emerge.

At the trial layout stage preliminary design of subdivision engineering works may be required to ensure that these works are feasible. This particularly applies to landforming and drainage where it needs to be established that the preferred subdivision layout can be drained given landform, upstream and downstream catchment constraints. For urban subdivisions, checks are also needed to verify the feasibility of extending water supply and sewerage services to the site, and the capability of the local road network and public transport to service the site, and to take into account the necessary site configuration and planning for regeneration of vegetation, post development. For flood liable sites, subdivision layout, landforming and road

design must be checked to ensure high level evacuation routes are achievable for flood emergency response.

Pre Application Consultation

At this stage it is advisable for the preferred option or unranked alternative options to be presented to Council staff, neighbours and other significant stakeholders and seek their reaction and comments.

Council staff should be consulted in regard to issues that arise from layouts that may be marginally non-compliant with design guidelines, development standards or statutory requirements. Feedback from these consultations may enable a preferred option to be selected and fine tuned prior to submission as a formal development application. Identifying and resolving compliance and stakeholder issues and urban form, design and landscape considerations at this stage can significantly improve both the speed and eventual outcome of the development application determination process.

Transforming the Subdivision Design into a Development Application

Having settled on the preferred subdivision design option it remains to transform it into a formal development application.

The requirements for presenting a formal development application for subdivision are detailed in Clause A5.6.

A5.4 URBAN SUBDIVISION DESIGN GUIDELINES & DEVELOPMENT STANDARDS

A5.4.1 Guidelines Scope & Structure

Scope

This chapter provides guidelines for urban master planning and subdivision design which elaborate on the principles and policies of Council's Strategic plan and provide the overall framework for neighbourhood and subdivision design in Tweed Shire.

Good subdivision design will respond to natural systems, topographic features and cultural remnants to produce a rich and satisfying urban environment where vegetation regeneration is achievable.

Where there is an inconsistency between the guidelines and standards of this Section and those of a site specific, Sections or S94 Contributions Plan, the provisions of the site specific Section shall prevail.

Structure

The guidelines have the following structure:

Physical Constraints

- Environmental constraints

- Landforming

- Stormwater runoff, drainage, waterways and flooding

- Buffers

A5.4.2 Urban Structure

Neighbourhood & town structure

Movement network

Open space network

Lot layout

Infrastructure

Infill Subdivisions

Infill subdivisions may be constrained by an existing urban structure that may make it difficult to comply with some of the urban design objectives and criteria in this manual. Infill subdivisions will therefore be exempt from those requirements where their application is so constrained.

A5.4.3 Amendments to Existing Subdivision Development Consents

Where a subdivision has been approved prior to 27/6/03, a Section 96 application to amend the consent may be approved with the amount of cut and fill landforming works that were approved in the initial consent, notwithstanding that the landforming does not strictly comply with acceptance criteria in Table A5-3. This Clause only applies to S96 applications lodged within 2 years of the date this Section becomes operational.

A5.4.4 Physical Constraints

OBJECTIVES

Prior to detailed master planning of a site the physical constraints of a site must be identified, mapped and constraint issues resolved. The objectives of this section are:

- a) To determine the existence, location and significance/magnitude of environmental constraints on the development site or on adjacent land that may constrain the proposed development.
- b) To ensure that the presence of environmental constraints are appropriately accounted for in the neighbourhood and subdivision design process.
- c) To conserve the environmental heritage of Tweed Shire and ensure that urban development does not adversely affect the heritage significance of heritage items and heritage conservation areas and their settings.
- d) To achieve urban forms that:
 - respond to the natural landform and drainage system in the layout of streets, open space and parks;
 - take advantage of topographical features of the site;
 - integrate with natural water and catchment systems and preserve/enhance natural watercourses and riparian vegetation;
 - avoid significant changes to the natural landform and large scale earthworks;
 - encourage building construction techniques that are responsive to the natural landform.
- e) To preserve the visual quality of the natural landform.

- f) To encourage land development to take place sequentially from the lower end of a catchment progressing upstream and, ensure as staged development proceeds that all necessary downstream/off site, drainage and stormwater quality treatment works are in place.
- g) To ensure the long term safety of occupants of floodplain development.

A5.4.5 Environmental Constraints

CRITERIA

Contaminated Land

- Development sites must be assessed to determine the likelihood of contamination.
 - o If land is identified as being contaminated it must be demonstrated that it is suitable for development pursuant to State Environmental Planning Policy No 55 or be excluded from development.
- A development application for subdivision of land which:-
 - o is within an investigation area under Division 2 of Part 3 of the Contaminated Land Management Act 1997; or
 - o is being or has been known to be used for the purposes in "Schedule 1 of Council's Contaminated Lands Policy"; or
 - o is proposed to be used for residential, educational, recreational, child care or hospital purposes, and on which there is no (or incomplete) knowledge of past uses; or
 - o must be accompanied by a report specifying the findings of a preliminary investigation in accordance with "Planning Guidelines for Contaminated Land, NSW DUAP/EPA 1998" as amended.
- If contaminated land is to be excluded from the land to be developed, the excluded land is to be retained in the proponent's ownership (so that the area does not become an "orphan site") and will require preparation of a management plan to manage contamination on the site.

Land with risk of land slip or subsidence

- Development sites must be assessed to determine if they are at risk from landslip or subsidence:
 - o originating either on or off the development site; or
 - o from an existing risk or a risk that will result from proposed subdivision works; or
 - o elements at potential risk include proposed lots, roads, open space and public infrastructure.
- Development proposals for sites that are at risk from landslip or subsidence must account for this risk by:
 - o excluding the land at risk from the land suitable for development; or
 - o demonstrate that, notwithstanding the risk, the land is suitable for its intended use; or
 - o demonstrate that remediation works will eliminate the risk and render the land suitable for development.

- To fully assess the nature, location and degree of risk from unstable land.

See “*Development Design Specification D6 - Site Regrading*” for geotechnical certification requirements on subdivisions with earthworks batters or retaining walls over 1m in height.

Bushfire risk

Statutory Requirements

Subdivision of land for residential or rural residential use in bush fire prone land is “integrated development” and requires authorisation under s100B of the Rural Fires Act 1997 in respect of bush fire safety.

Assessment of Threat

- A bushfire threat assessment must accompany all proposals where the development site adjoins bushland or other potential sources of bushfire risk.
- If a threat is identified the proposal must account for this threat in accordance with “Planning For Bushfire Protection - A Guide For Land Use Planners, Fire Authorities, Developers And Home Owners - NSW Rural Fire Service 2001” and the development standards in this manual.
 - o The assessment of threat from bushfire must examine impacts of the proposal both within and external to the site, including the capacity of the existing road network serving the site and its capacity to accommodate traffic in emergency situations.

Managing the threat

- Where a bushfire threat is identified:-
 - o The subdivision design (including lot shape/size/orientation, road layout/width, as well as bushfire protection measures such as asset protection zones, perimeter roads and fire trails) must be designed in accordance with Chapter 4 of “Planning For Bushfire Protection - A Guide For Land Use Planners, Fire Authorities, Developers And Home Owners – NSW Rural Fire Service 2001”.
 - o Fire protection measures must be capable of being maintained by owners and users.
 - o Asset protection zones must be contained wholly within the subject site, and may incorporate fire trails, perimeter roads and cleared verges and rely on fixed building lines.
- A bushfire management plan must accompany the development application for subdivision.

The bushfire management plan must:-

- ensure that streets and fire trails are designed, located and connected to allow safe and efficient movement for emergency vehicles and evacuation;
- provide appropriate perimeter roads or reserves to circumscribe the hazard side of the development with appropriately owned and managed asset protection zones between the source of bushfire risk and urban development;
- design lots to facilitate the siting and design of houses incorporating bushfire protection measures;
- Comply with the provisions of Development Design Specification D10 - Bushfire Protection.

Asset Protection Zones

- Where a bushfire hazard exists on or adjacent to the development site, an asset protection zone is to be established on the hazard side of the development in accordance with Chapter 4.2 of “Planning For Bushfire Protection - A Guide For Land Use Planners, Fire Authorities, Developers And Home Owners - NSW Rural Fire Service 2001”. Figures 4.1 & 4.2 and Table 4.1 from the guide are reproduced in this manual to illustrate basic requirements, but the manual itself should be consulted for planning, design and assessment purposes.
- Asset protection zones are to be placed wholly within the subdivision they are intended to protect.
- Asset Protection Zones within the subdivision allotments are to be enforced by title restrictions on burdened allotments. Restrictions are to:-
 - o ensure habitable and storage structures are excluded from the zone;
 - o identify the level below which fuel loading is to be maintained;
 - o where appropriate require/permit owners to maintain fire protection facilities (fire trails, other parts of the asset protection zone) on other appropriately burdened land.
- Asset protection zones are not permitted on land which is considered environmentally sensitive.
- Hazard reduction within asset protection zones must be capable of being carried out in a manner that minimises site disturbance. This may require reduction to be carried out by hand with trees being felled rather than being pushed over.
- Perimeter roads and/or fire trails are to be provided/located within the asset protection zone in accordance with Section 4.2.2(c) of “Planning For Bushfire Protection - A Guide For Land Use Planners, Fire Authorities, Developers And Home Owners - NSW Rural Fire Service 2001”.

Figures 4.2, 4.2 and Table 4.1 that follow are extracts from “Planning For Bushfire Protection - A Guide For Land Use Planners, Fire Authorities, Developers And Home Owners - NSW Rural Fire Service 2001”

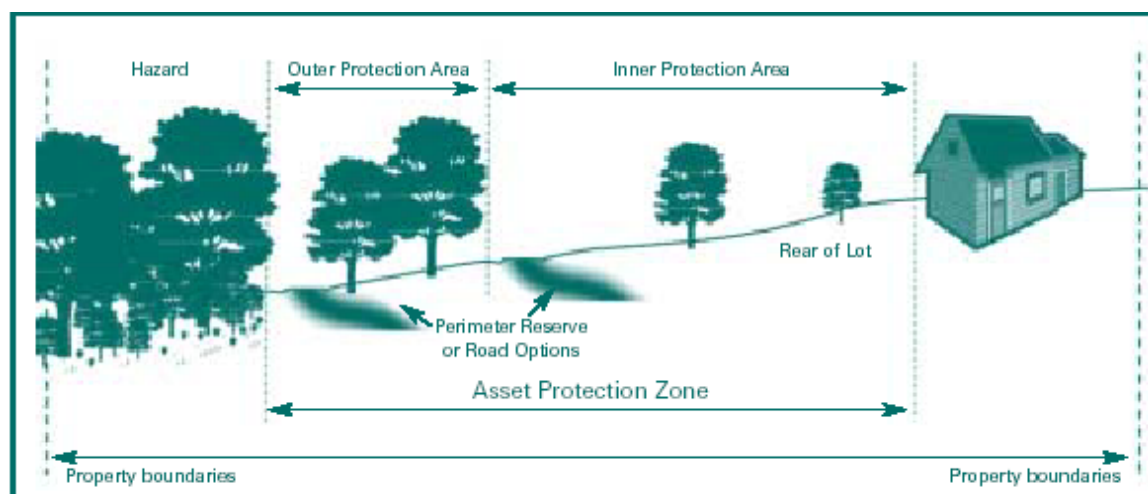


Figure 4.1 Components of an Asset Protection Zone

Table 4.1
Minimum Specifications for Asset Protection
Zones (APZ) for Residential Purposes in Bushfire-prone
Areas

Forests (Grp 1 see Fig.A2.2)		
Slope	Upslope	APZ = IPA + OPA
>5°		20 = 20 + 0
5–0°		30 = 20 + 10
>0–5°	Downslope	40 = 30 + 10
>5–10°		50 = 40 + 10
>10–15°		60 = 50 + 10
>15–18°		70 = 60 + 10
Woodlands, heaths, open scrub (Grp 2 see Fig.A2.2)		
Slope	Upslope	APZ = IPA + OPA
>5°		20 = 20 + 0
5–0°		30 = 20 + 10
>0–5°	Downslope	35 = 25 + 10
>5–10°		40 = 30 + 10
>10–15°		50 = 40 + 10
>15–18°		60 = 50 + 10
Rainforests, grasslands, open woodlands, mallee (Grp3 see Fig.A2.2)		
<i>Minimum separation distance of 20m (cleared/managed vegetation) required regardless of construction level for all slopes. Fire trail recommended.</i>		
Distance in metres. See Appendix 2 to interpret table.		
IPA – Inner Protection Area		
OPA – Outer Protection Area		

Note: The slope refers to the slope from the building line towards the vegetation communities.

Access

- Perimeter roads and roads connecting perimeter roads to neighbourhood connectors (or higher classification) must be a minimum 7.5m between kerbs and have 1m width of clear verge on either side to enable emergency vehicles to pass. Traffic calming devices that may restrict the passage of emergency vehicles should be restricted. Road pavements must be designed for fully loaded heavy fire fighting vehicles. Curves must have a minimum 6m internal radius. Maximum grades should not exceed 10°. There must be 6m vertical clearance above the road at all times.
- Perimeter roads must have a 20m minimum reserve width.
- Perimeter roads should be through roads. If dead ends are unavoidable they must be not more than 200m, must incorporate a minimum 12m radius turning circle and be sign posted as dead ends.

- Perimeter roads must be linked to the internal road system at intervals of no more than 500m. Perimeter and their connecting access roads should not traverse through a wetland or other land subject to periodic inundation. They should be clearly sign posted, and lots clearly marked easy for navigation by emergency services.

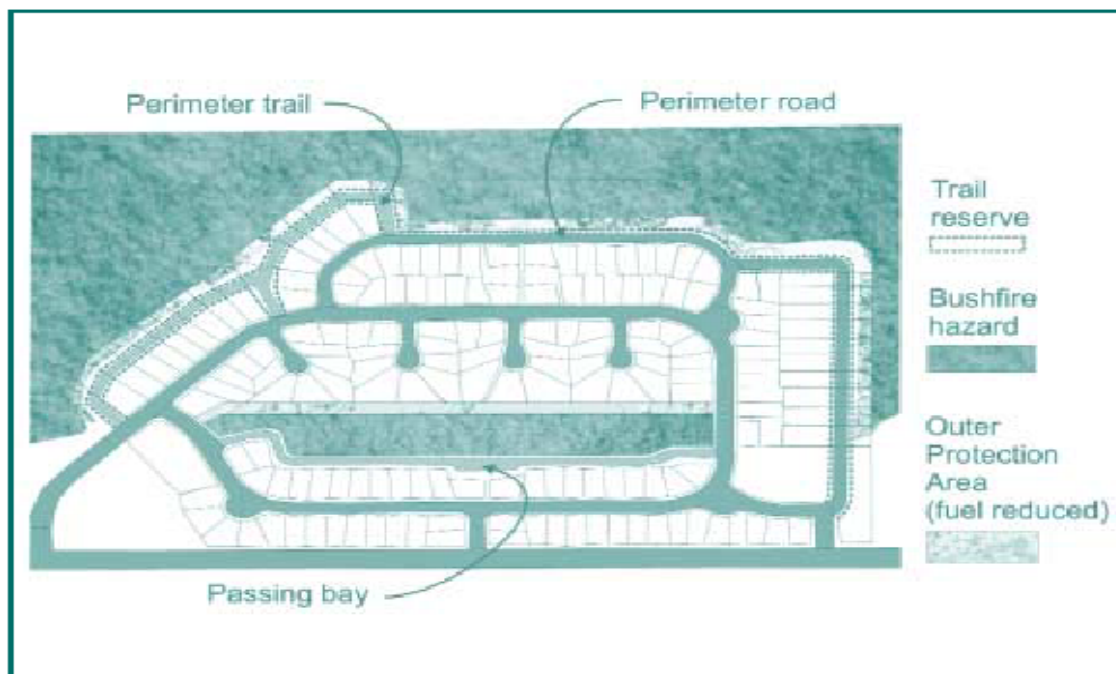


Figure 4.2 Perimeter roads and fire trails

Design and Staging of Subdivisions in Bushfire Prone areas

- Perimeters of urban subdivision to bushfire hazards should be minimised and roads designed to provide direct egress at the shortest distances.
- “Hourglass” shapes are to be avoided which maximise perimeters and bottlenecks.
- Accessible refuge areas are to be provided.
- Long and convoluted subdivision layouts which lead to isolation of particular pockets and subdivision patterns with narrow streets and battle axe blocks which create access difficulties are to be avoided.
- New stages should expand from the perimeters of existing development (to prevent isolation and minimise perimeters).
- See also *Development Design Specification D10 - Bushfire Protection*.

Threatened species, population or ecological communities or their habitats

- Proposed subdivisions and associated subdivision works must be assessed in accordance with section 5A of the Environmental Planning and Assessment Act 1979 to decide whether there is to be a significant effect on threatened species, population or ecological communities, or their habitats.
- Where there is likely to be significant effect, proposed neighbourhood and subdivision design may be altered or certain lands excluded to eliminate such effects.

Coastal lands

Development of coastal lands needs to:

- be consistent with the Coastal Policy 1997;
- maintain and enhance visual amenity of the coastal zone;
- be sited, designed and managed to avoid risks to environmental assets, people and property and impacts on coastal processes;
- avoid beaches and frontal dunes except for essential public purposes (such as surf clubs); beach management works that do not compromise the natural and cultural values of the area; rehabilitation of disturbed foreshore areas; and rationalisation of beach access ways;
- be consistent with the Coastal Design Guidelines for NSW.

Coastal Wetlands

- Land containing SEPP14 wetlands are to be preserved and no works should be proposed in these areas unless there are no other alternatives available.
- A 50m buffer is to be provided around any wetland. This buffer is to be managed in accordance with a management plan submitted by the applicant and approved by Council. Such areas should be dedicated to Council if public ownership is necessary to achieve the objectives of the management plan.

Littoral Rainforests

- No development is permitted on land designated in State Environmental Planning Policy No 26 Littoral Rainforests.
- A 50m buffer is to be provided between urban development and areas containing littoral rainforest. This buffer is to be managed in accordance with a management plan submitted by the applicant and approved by Council. Such areas should be dedicated to Council if public ownership is necessary to achieve the objectives of the management plan.

Koala Habitat

- Areas containing Koala habitat are to be identified.
- Where there is core koala habitat identified on the development site an overall koala management plan must be prepared in accordance with State Environmental Planning Policy No 44.
- Land containing “core koala habitat” can only be developed in accordance with the management plan.

Significant vegetation

- Development sites must be assessed to determine if there are areas of significant vegetation.
- The categories of significant vegetation to be located, mapped and assessed are:
 - o Ecologically significant vegetation;
 - o Stands of vegetation and individual trees that contribute to the scenic amenity or distinct local identity of the landscape.

- Ecologically significant vegetation is defined as:
 - o Regionally significant natural areas type 1 & 2, Core ecological areas and corridors Types 1 & 2 and Other significant remnants as defined in Part 9 and Table 9.2 of the Tweed Vegetation Management Plan 1999; and
 - o Vegetation with Condition Code 1 & 2 of Table A5-2 Vegetation Codes of this Section; and
 - o Riparian vegetation.

TABLE A5-2: VEGETATION CONDITION CODES

Condition Code	Condition Category	General Site Criteria
1.	Old-Growth /Undisturbed /Excellent Condition	• Vegetation with negligible unnatural disturbance • A significant proportion of plants with age-related features (such as tree hollows) and a species composition characteristic of the ecologically mature forest ecosystem • May include non-woody communities (eg. heathland, sedgeland, etc.) of native vegetation in excellent condition • Abundant habitat for wildlife • Mature upper stratum • A well developed understorey will usually be present
2.	Relatively Natural/Good Condition	• Vegetation that is relatively homogenous and intact • Minimal canopy disturbance • Understorey usually present • Advanced regrowth may be present • May have a history of logging or burning but has retained a significant component of its original vegetation diversity. May contain a low to moderate proportion of weed species in the understorey
3.	Heavily Modified /Disturbed /Poor Condition	• Vegetation that has been substantially modified by clearing for agriculture, logging, mining or other disturbance • Canopy removal typically between 70% & 30% • Includes recent regeneration • Understorey usually disturbed or absent • May have extensive weed invasion in the understorey • May include medium to advanced regrowth

- Areas of significant vegetation are to be preserved.
- Proposals for sites that contain significant vegetation must:
 - o Demonstrate that the development proposal does not detract from the ecological, scenic landscape or local identity values of the significant vegetation;
 - o Include significant vegetation where possible into the open space/drainage network or within road reserves;
 - o Provide a street and lot layout; and/or lot sizes and shapes that will enable the proposed development to take place whilst also providing sufficient space (outside building platforms) on lots to enable significant individual trees or small stands of vegetation to be retained.

Landscape visual character

- All master plans must be accompanied by a “Scenic Impact Assessment”.

- The neighbourhood and subdivision design should protect the landscape character of the locality by contributing to the scenic amenity of the landscape and the distinct identity of the area.
- Neighbourhood and subdivision design must protect the visual landscape character of the locality.
- Proposed subdivisions of more than 50 lots or subdivisions that include more than 15,000m² of earthworks must include a “Scenic Impact Assessment Report” in the development application which shall:
 - o Demonstrate that the proposal does not detract from and will contribute to the significant landscape characteristics of the site (see Tweed Shire Scenic Landscape Evaluation -1995, Catherine Brouwer);
 - o Illustrate the nature and visibility of the proposal from both within the site and from significant viewpoints outside the site;
 - o Detail the local urban or cultural context in regard to township and scenic-cultural identity.

Acid sulphate soils

- All master plans must be accompanied by a detailed assessment of the risk of the occurrence of acid sulphate soils on the land.
- Disturbance of areas containing acid sulphate soils is to be minimised.
- Development applications that may result in works that cause disturbance of acid sulphate soils must be accompanied by an acid sulphate soils management plan prepared in accordance with EPA guidelines (see Clause 35 TLEP 2000).

Heritage or cultural items of Aboriginal or European origin

- Development sites must be assessed by suitably qualified persons to determine the presence of any heritage or cultural items of Aboriginal or European origin.
- Items of heritage or cultural significance are to be preserved.
- A site plan showing the location, settings and characteristics of any identified items must be submitted with a development application for subdivision.
- For items identified, a report must accompany the development application demonstrating how the subdivision design accounts for these items and protects the heritage and cultural values of the site and how these items are to be preserved, given the future proposed land uses in the area.

Constraint Mapping

- Having established the environmental constraints limiting full exploitation of the site, constraint maps should be prepared identifying the residual lands available for subdivision.

A5.4.6 Landforming

OBJECTIVE

Natural topography is an important characteristic of an area. The extent of landform change to render a site suitable for subdivision should be kept to a minimum. Site regrading should be sensitive to existing landforms and topography (of both the subdivision site and

neighbouring areas) so that the natural setting may be preserved to the greatest extent possible. The subdivision should be designed to fit the topography rather than altering the topography to fit the subdivision.

CRITERIA

- Proposals to alter natural landform must:
 - o not adversely impact other land, persons or public infrastructure.
 - o preserve levels at site boundaries.
 - o preserve significant natural watercourses, riparian vegetation, environmental and topographical features.
 - o preserve the visual character of the landform as viewed from within and outside the land site.
 - o preserve cross boundary drainage conditions.
 - o ensure runoff from upstream or upslope land is not adversely impeded.
 - o ensure there are no adverse geotechnical consequences to the site or to other land.
 - o ensure there are no adverse consequences to public infrastructure.
 - o minimise earthworks.
 - o comply with the provisions of Development Design Specification D6 - Site Regrading, and the acceptance criteria in Table A5-3 below.

Table A5-3 Site Regrading Acceptance Criteria

A. General Criteria 1. Significant Natural Features Site regrading is not to take place on: • topographical features that are significant to the character of the site or locality. • existing or natural watercourses with catchment areas of 100ha or more. • riparian zones (see Table A5-5) associated with above. 2. External & Perimeter Issues (a) Cross Boundary Drainage; • Runoff from the subject land to other land shall not be significantly increased; • Runoff from upstream or upslope of the subject land shall be conveyed unimpeded across the land; • Public infrastructure in land to be regraded shall be preserved and if necessary for its continued viability be reconstructed to suit the new landform. Public infrastructure continuity shall be preserved at external boundaries. • Alteration of the locations of cross boundary stormwater drainage/watercourse discharge should be avoided. If alterations are proposed, then the written agreement of all effected downstream landowners is required. (b) Perimeter levels; Pre development levels must be preserved at external (perimeter) boundaries of a subdivision, preferably without the use of boundary (or within 3m of the boundary) retaining walls exceeding 1.2m in height. The application of this criteria may be varied in infill subdivisions in flood liable areas where there is general filling to provide flood	
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Table A5-3 Site Regrading Acceptance Criteria

immunity B. Mass Landform Change Criteria 1. Residential, includes residential subdivisions in Village, Urban Expansion and Rural Living zones. The proportion of a subdivision site (plan area) that contains cut or fill areas with finished surface levels that depart from natural surface levels by more than 5m shall not exceed 10%. Variations up to 15% of site area may be considered if such variations have a demonstrated environmental benefit (eg. avoidance of importing borrowed fill off site). 2. Industrial, Business and Mixed Use Subdivision, includes industrial, business and mixed use subdivisions in Village and Urban Expansion zones. The proportion of a subdivision site (plan area) that contains cut or fill areas with finished surface levels that depart from natural surface levels by more than 8m shall not exceed 20%. For the purpose of this Section "subdivision site" includes the parcels of land created for private sale and formal parks, and does not include undeveloped areas, areas retained for environmental purposes, roads, or residual allotments. If a subdivision contains a mix of urban and rural/rural residential uses, the rural/rural residential areas must be excluded from the urban areas for the purposes of complying with this Clause. C. Shape/Surface Criteria 1. Residential and Rural Living Subdivision, includes residential subdivisions in Village and Urban Expansion zones: • The finished landform shape (concave/convex, rolling, stepped etc) of the subdivision site should mimic existing and local surrounding natural topography. • Except as provided in Note 1 below, no sharp changes of gradient (eg associated with batters or retaining walls) are permitted at or near inter lot boundaries or within lots. • Batters and retaining walls are not permitted for the purpose of creating terraced lots. • Sharp changes of gradient are permitted at road and public land boundaries. • See Figure 4.2.2. Note 1: A retaining wall or batter of maximum "combined height" (as defined in Section E) of 1.2m at or adjacent to inter lot boundaries may be permitted to ease lot gradients, where lot longitudinal or cross gradient would exceed 10% in the absence of such retaining wall or batter. 2. Industrial, Business and Mixed Use Subdivision, includes industrial, business and mixed use subdivisions in Village and Urban Expansion zones: • Terraced lots with sharp changes of gradient associated with retaining walls or batters are permitted. • Sharp changes of gradient (ie associated with batters or retaining walls) are permitted at or near lot, road and public land boundaries. Sharp changes of gradient are permitted within lots.	
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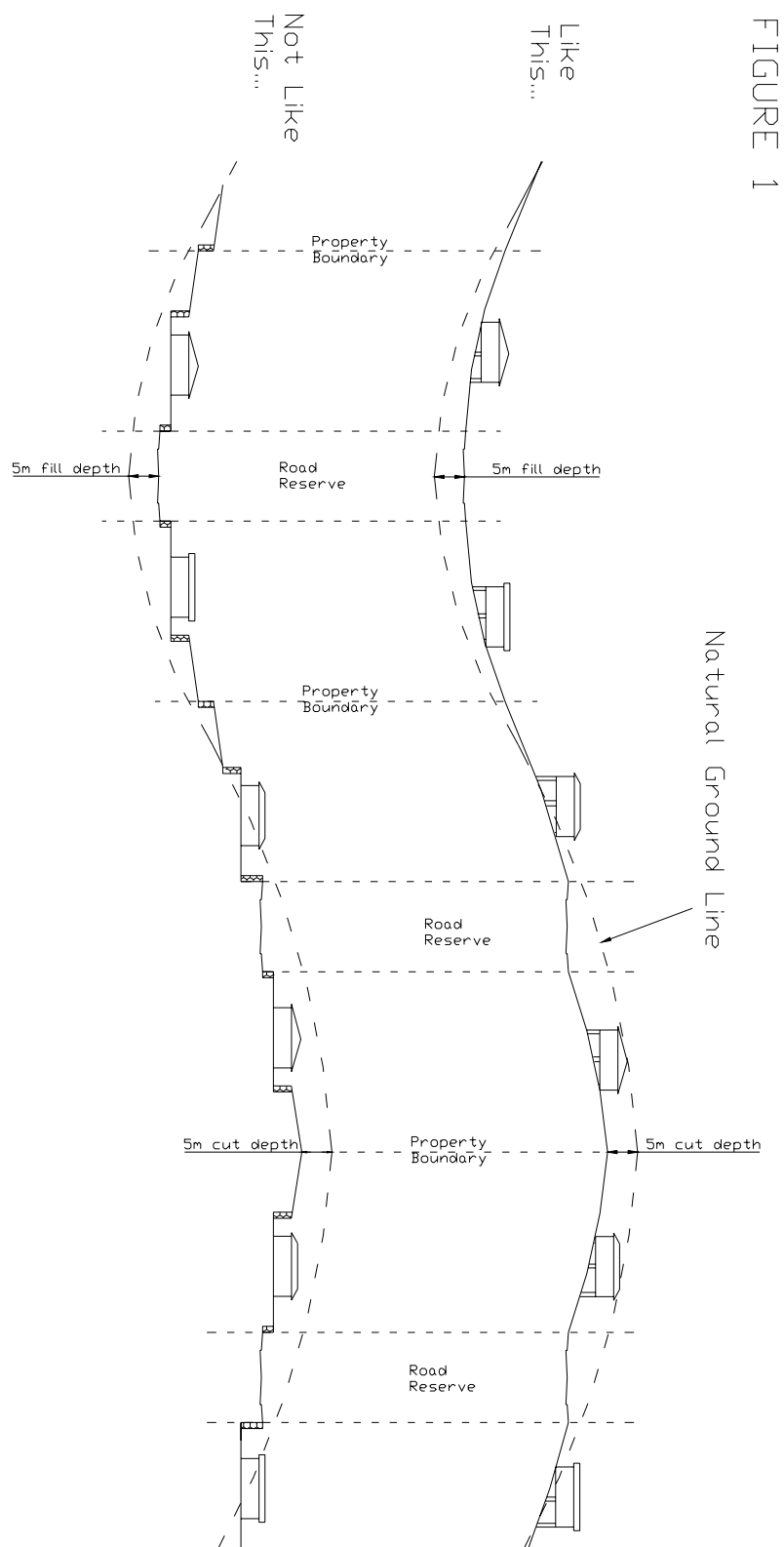
Table A5-3 Site Regrading Acceptance Criteria

Figure 4.2.2

D. Plans Criteria

Site regrading proposals must be accompanied by the plans specified in Development Design Specification D13 – Engineering Plans (Subdivisions) clause D13.03 5(a)

Table A5-3 Site Regrading Acceptance Criteria**E. Retaining Walls and Batters Criteria****1. Definitions:**

"retaining wall" is defined as a structure required to retain soil, rock and other materials. It includes retaining and revetment structures as defined in clause 1.1 of AS 4078 - 2002.

"batter" is defined as the sloping surface of artificial cuttings and embankments that have a gradient exceeding 25%. It excludes natural slopes.

"Combined height" is defined as the vertical height difference at or adjacent to the boundary between top of batter or retaining wall and bottom of batter or retaining wall. Adjacent to a boundary includes any batters or retaining walls that lie either wholly or partly within a distance of 5m measured horizontally from the allotment boundary.

2. Criteria

- (a) The combined height of retaining walls or cut/fill batters on an allotment boundary shall not exceed the following:

MAXIMUM PERMISSIBLE COMBINED HEIGHT OF RETAINING WALLS OR BATTERS

Type of Subdivision	Perimeter boundary of subdivision	Boundaries of lots created within subdivision		
		Side and Rear Boundaries	Street Boundary	
			Above Street Level	Below Street Level
Residential	1.2	1.2 see Note 1 of Table A5-3(C)(1)	1.8	2.4
Industrial	1.2	5	2.5	5
Business	1.2	5	1.2	2.4
Rural Living	1.2	Nil	1.2	2.4

- (b) Where retaining walls or batters are utilised to create a level difference between adjacent allotments or an allotment and a road and the retaining wall is located in the lower allotment, the top of batter or top of retaining wall shall be located a minimum 0.5m horizontally from the boundary.

- Significant land reforming proposals where >10% gross site area or >1.0ha is to have surface levels changed by more than 5m or where earthworks exceed an average of 10,000m³ per ha must be justified in context with this Section and shall:
 - o identify the impact of the proposed landforming on the environment, landscape visual character and amenity, natural watercourses, riparian vegetation, topographical features of the environment (including landscape visual character) and public infrastructure;
 - o demonstrate compliance with objectives and criteria in this Clause;
 - o demonstrate compliance with the provisions of Development Design Specification D6 - Site Regrading;

- o assess the impacts and benefits of the proposal to all impacted persons and the general public;
- o provide measures to compensate for and minimise any net adverse impacts.

The use of high earthworks batters and retaining walls to achieve flat building platforms should be avoided.

Preliminary plans indicating the final landform are required to be submitted with any master plan or subdivision application.

A5.4.7 Stormwater Runoff, Drainage, Waterways and Flooding

CRITERIA

Water sensitive urban design

- Urban structure and subdivision design is to incorporate the principals of water sensitive urban design as specified in “*Development Design Specification D7 – Stormwater Quality*”.
- Subdivision drainage systems should minimise runoff, delay its passage and where possible accommodate it within the landscape of the subdivision by utilising techniques such as reuse, detention, retention and infiltration.
- Subdivision drainage systems should mimic natural (pre-development) flows by utilising such techniques as reuse, detention, retention and infiltration.
- Subdivision drainage systems should mimic natural flows by utilising wherever possible such techniques as retention and infiltration to improve water cycle management on site, and stormwater recycling for non-potable use especially in parks and open space.
- Permanent stormwater quality treatment must be in accordance with “*Tweed Urban Stormwater Management Plan*” Section 5.5.3 “Stormwater Objectives During the Post Construction or Occupational Phase of Development”.

Erosion and sediment control

- Erosion and sediment control must be in accordance with “*Development Design Specification D7 - Stormwater Quality*” and its Annexure A - “Code of Practice for Soil and Water Management on Construction Works”.
- An Erosion and Sediment Control Plan is to be submitted with all development applications.

Permanent stormwater quality facilities

- The subdivision and drainage system must be designed to meet the requirements of the “*Tweed Urban Stormwater Management Plan*” Section 5.5.3 “Stormwater Objectives During the Post Construction or Occupational Phase of Development” (Table A5-4) and “*Development Design Specification D7 - Stormwater Quality*”.

Table A5-4 Stormwater Treatment Objectives for Post Construction (Occupational) Phase of Development

Pollutant			
Nutrients	Maximum permissible load that may be discharged kg/ha/year		
	Average year (1719mm)	Wet Year (2185mm)	Dry Year (929mm)
Suspended solids (SS)	300	400	120
Total Phosphorus (TP)	0.8	1.1	0.35
Total Nitrogen (TN)	4.5	6	1.5
Litter	Retention 70% of annual litter load greater than 5mm		
Coarse sediment	Retention of 90% of annual load of sediment coarser than 0.125 mm		
Oil and grease (hydrocarbons)	<10 mg/litre in flows up to 40% of Q1 peak.		

Drainage

Lawful point of discharge

- Stormwater runoff and drainage must only be discharged from a subdivision at a “lawful point of discharge”. This must be on or immediately adjacent to the development site and may be:
 - a natural watercourse or waterway to which the development site naturally drains;
 - a “lawful point of discharge” agreed to by Council (ie an existing constructed public drain).
- where no acceptable point of discharge presently exists, the subdivider must:
 - acquire and dedicate to Council connecting reserves or easements that provide legal continuity from the development site to an offsite legal point of discharge in a natural watercourse or waterway or suitable (appropriate location, size/capacity) public drain;
 - construct the necessary connecting drainage works.

Major drainage systems

- Major systems must be provided to convey Q100 flows in the public domain, in a manner that is safe for persons, vehicles and property.
- ‘Natural’ channel designs should be adopted for significant, non-tidal, off street open drains. ‘Natural Channel Designs’ involve the creation of channels with attributes of natural channels, including a meandering plan, pool and riffle zones, use of natural materials and riparian/floodplain vegetation.

Minor drainage systems

- The minor storm drainage system must have the capacity to convey stormwater flows under normal operating conditions for the relevant design storm without blockage.
- The minor system design must minimise undesirable ponding for prolonged periods.

Drain Safety

- Appropriate barriers must be provided to exclude the public from drainage and water quality facilities that present safety risks.

Attenuation of peak flow rates

- Subdivision layout, drainage and detention systems must be designed to ensure peak flow rates are attenuated to ensure no adverse impact on downstream aquatic environments, watercourses and property.

Watercourses traversing the subdivision

- Where a subdivision development site contains watercourses and/or drains traversing the site that are sourced externally, provision must be made for:
 - o conveyance of stormwater flows (including the ARI 100 year event) through the site, in a manner that does not adversely impact on upstream or downstream watercourses or property;
 - o The natural alignment of watercourses should be retained, except where feasible adjustments can be made to improve the urban structure without compromising the natural environment (such watercourse changes are subject to the final approval of the Department of Natural Resources).
- The subdivider of land receiving external stormwater runoff is not required to treat and remove externally derived pollutants and nutrients.

Waterways; water bodies; riparian areas and riparian vegetation

- Waterways, water bodies riparian areas and riparian vegetation are to be clearly identified and an assessment of the environmental values provided.
- Development in or adjacent to waterways, water bodies, wetlands or within their catchments must:
 - o Ensure preservation of fish and aquatic habitat;
 - o Not create barriers to fish passage;
 - o Ensure development does not result in pollution or adversely effect quality or quantity of flows of water into the water way, water body, wetland or habitat;
 - o Provide public foreshore reserves and public access to those reserves;
 - o Provide a riparian buffer of 50m along major streams (Tweed River, Rouse River, Oxley River, Cudgen Ck, Cudgera Ck, Mooball Ck and major tributaries) and a width along other streams in accordance with Table 4.23;
 - o Conserve native vegetation surrounding waterways, water bodies, wetlands by the retention of riparian buffers.
- Proposals to convert natural watercourses to artificial drains (or remove riparian vegetation or adversely affect existing aquatic habitats) will only be considered if such proposals are part of a site management plan that will result in an enhanced net

environmental outcome. Such proposals also require the approval of Dept of Planning who have indicated they do not generally support conversion of natural watercourses to artificial drains.

- An aim of development should be to increase the length and connectivity of streams with adequate native riparian vegetation.
- Riparian buffers along major streams shall be dedicated to Council and placed under active management in accordance with a plan of management submitted by the applicant and approved by Council.
- Riparian buffer zones shall be revegetated and fences or other appropriate barriers provided to prevent transverse crossing of the riparian buffer (except in designated areas).
- Where stream/waterway edge based land use is proposed in the riparian buffer (recreation, public utilities, wharves/jetties/marinas, tourist facilities etc) such proposals are to be accompanied by a riparian zone assessment which addresses:
 - o The impact of the proposed use on the ecological values of the riparian zone, adjacent stream and aquatic habitat;
 - o The impact of the proposal on the current and future connectivity of the riparian zone habitat;
 - o Measures to minimise and fully compensate for any adverse impacts.
- Subdivision layouts and works are to be designed to avoid adverse impacts on fish and aquatic habitat and are to comply with the NSW Fisheries (1999) Policy and Guidelines Aquatic Habitat Management and Fish Conservation and the Fisheries Management Act 1994 and Fisheries Management (General) Regulation 1995.

Table A5-5 Riparian Buffer Widths for other streams

Upstream Catchment Area (ha) of streams or drains	Buffer Distance (m) (either side of high bank)
<100ha	nil
>100ha and <500ha	10m
>500ha and <1,000ha	20m
>1,000 and <5,000ha	30m
>5,000ha and <10,000ha	40m
>10,000ha	50m
Environmentally sensitive*	50m

* >75% of the catchment and >1,000ha is land zoned "Environmental Protection" 7a, 7f, or 7i or "National Parks & Nature Reserves" 8.

Flood liable land

- In the case of an inconsistency arising between DCP Section A5 - Subdivision Manual and Section A3 - Development of Flood Liable Land with respect to flooding, the provisions of Section A3 take precedence.
- Development sites must be assessed to determine if they are flood liable.
- Development sites that are and will remain flood liable must be excluded from uses that are incompatible with inundation. This assessment must consider all floods up to the probable maximum flood (PMF). Refer Section A3 to determine PMF levels for development sites.
- Residential subdivision is considered incompatible with inundation unless high level road evacuation route(s) to land above PMF level are provided, which are accessible to all allotments via (as a minimum) pedestrian access at or above 100 year ARI flood level not exceeding 100m in length.
- Infill subdivision may be constrained by existing urban development from providing a high level road evacuation route, and in such cases will be considered incompatible with inundation unless covenants are created on the land titles of each new allotment that cannot achieve suitable high level road/pedestrian evacuation route(s) to land above PMF level, requiring the provision of adequate refuges above PMF level in all future habitable development on that land.
- For the purpose of this clause, a "high level evacuation route" is a road or footway (as applicable based on the development type), whose entire length has a level (measured at top of kerb for roads) of not less than the design flood level and, which provides a route to enable people to evacuate to land above the PMF. Ideally a high level evacuation route will have a rising grade that ensures users will not be cut off as floodwaters rise. Overland stormwater flow paths on high level evacuation routes must be designed to remain trafficable when conveying the 100 year ARI design stormwater flow. High level evacuation routes should have levels that in combination with effective warning time, development type and flood duration, provide adequate time for evacuation to land above the PMF.
- For the purpose of this clause, "infill subdivision" is limited to the subdivision of land less than 5 hectares in area, which is surrounded by existing urban development and/or constrained by the urban land form from further expansion.
- Subdivision land and public infrastructure must have flood immunity appropriate to its intended land use as designated in *Section A3 - Development of Flood Liable Land*, Council's Flood Risk Management Policy, and Floodplain Risk Management Plan(s).
- Flood liable land may be filled to provide a level of flood immunity that is appropriate to an intended land use only if the filling is in accordance with:
 - o *Section A3 - Development of Flood Liable Land*, Council's Flood Risk Management Policy, Floodplain Risk Management Plan(s), or other site specific Sections and development standards in this manual.
- If the area is not covered by such Sections filling land to provide flood immunity will only be considered if accompanied by a flood management study that:
 - o Contains a flood study prepared in accordance with "*Floodplain Development Manual: The Management Of Flood Liable Land*" - NSW Government 2005,

“Appendix F - Flood Study Preparation” that considers the existing flood behaviour and predicted flood behaviour after the proposed filling. The study is also to consider the cumulative affects on flood behaviour of incremental filling that may or is likely to take place in the area;

- o Determines the proposed development and any other likely incremental development will not cumulatively increase the danger to personal safety or flood damage to other properties, or adversely affect them in any way (such as elongation of inundation times) during times of flood.

Drainage and water quality facilities in parks

- Permanent or semi-permanent stormwater facilities may be incorporated into parks where they are compatible with the parks primary functions. The area used for these facilities will not be credited towards open space commitments unless, they comply with the development standards for open space in Section A5.4 and contribute to the amenity and recreational opportunities of the park.

Other government approvals for works near waterways

- Certain works in or near waterways and water courses also require the approval of government agencies Preliminary enquiries should be made with these agencies to ascertain the likelihood and terms of any approval. Any development consent for such activities is conditional on the applicant receiving necessary approvals and complying with the terms of such approvals.
- The approval of NSW Fisheries is required for dredging, reclamation, crossings and roadworks in watercourses and any works which harm marine vegetation (seagrass, mangroves and seaweeds).
- A “Part 3A Permit” under the Rivers and Foreshores Improvement Act 1948 must be obtained for making an excavation, removal of material or works, (or for anything that detrimentally affects, or is likely to detrimentally affect the flow of protected waters) in or within 40 metres from the top of the bank of any protected waters (protected waters being any river, lake, lagoon or permanent/temporary channel between a coastal lake/lagoon and the sea.).
- Land within 20 metres of nominated rivers is “Protected Lands” under the Native Vegetation Conservation Act, 1997 the approval of the Department of Natural Resources is required for removal of riparian and other trees in “Protected Lands.

Buffers

There is a need for buffer areas between subdivisions and some other specified landuses to minimise landuse conflicts, protect water quality and environmentally sensitive areas, minimise risk to life and property and protect agricultural, environmental and extractive resource assets. See Appendix E for recommended buffers from identified land uses.

A5.4.8 Urban Structure

OBJECTIVES

The objective of this section is to provide guidelines to:

- facilitate an environmentally sustainable approach to urban development by minimising non-renewable energy use and car dependence; encouraging greater local self-containment of neighbourhoods and towns; and protecting key topographical, natural and cultural assets;

- provide safe, convenient and attractive neighbourhoods and towns that meet the diverse and changing needs of the community and offer a wide choice of housing, leisure, local employment opportunity and associated community and commercial facilities;
- provide neighbourhoods that are compact, understandable and walkable for a five to ten minute walk from most homes to a centre so that many daily needs may be met locally and which cluster to form towns with a high degree of street connectivity;
- provide traditional main street neighbourhood and town centres offering a mix of uses and linked by public transport to other centres;
- provide a movement network which has a managed, interconnected street network that clearly distinguishes between arterial routes and local streets, establishes good internal and external access for residents, maximises safety, encourages walking and cycling, supports public transport patronage and minimises the impact of through traffic;
- provide a network of well distributed parks and recreation areas that offer a variety of safe, appropriate and attractive public open spaces;
- to provide public utilities in a timely, equitable, cost efficient and effective manner;
- ensure a site responsive approach to urban development that avoids unjustifiable changes to the natural landform and large scale earthworks and responds to the topography, drainage system, flood risk, environmental constraints and natural features of the site in the location of street patterns, special places and open space networks to create a strong local character, identity, and sense of community.

A5.4.9 Neighbourhood and Town Structure

CRITERIA

The layout of any master plan should contain the following characteristics:

- Have highly interconnected neighbourhoods and towns;
- Neighbourhood size and shape be defined by an acceptable walking distance;
- Town and neighbourhood centres act as a community focus;
- Town and neighbourhood centres are located on or at the intersection of important streets served by public transport;
- Activities are co-located to create the opportunity for multiple use of facilities such as car parks;
- An interconnected, easily navigable and logical street network with strong links between town and neighbourhood centres that has good accessibility, route choice and detailing to make walking and cycling pleasant, efficient and safe;
- A range of residential densities that increase toward the neighbourhood and town centres;
- Local traffic movements are focused onto local streets rather than arterial roads;
- The layout should provide a choice of clear and multiple links to adjoining and future urban areas and regional open space;
- As many pedestrian and cycle linkages as possible are provided and road linkages have a strong pedestrian and cycle component;

- Rear lanes are provided around neighbourhood or town centres to enable rear parking to facilitate small lot development with frontages to the street;
- Town centre is central to the cluster of neighbourhoods and well linked to neighbourhoods;
- Neighbourhood centres should preferably be aligned along public transport corridors;
- The town centre is located adjacent to the intersection of arterial routes and has a major public transport stop;
- The town centre should provide for a range of housing types with residential densities that increase toward the centre and can, over time, support sufficient population to foster local self-containment;
- Land use allocation should provide for jobs within the neighbourhood by including sufficient land and appropriate street and lot layout for a wide variety of business and home-based business development opportunities, arranged to minimise land use conflicts;
- At least 60% of dwellings within a 500- 850 m radius from an existing or potential neighbourhood or town centre should be within safe walking distance;
- Street and lot layouts should provide for perimeter blocks that are generally in the range of 70-120 m deep by 120-240 m long;
- There are preferably 15 dwellings per hectare (excluding parkland) within a 5 minute walk or 450m of a neighbourhood centre;
- Six to nine neighbourhoods are needed for adequate population to sustain a town centre;
- All flood prone allotments (those below probable maximum flood level) are located in proximity to high level flood evacuation routes in accordance with Clause A5.4.7.



Diagram of the neighbourhood unit which is based on 500 - 850m acceptable walking distance

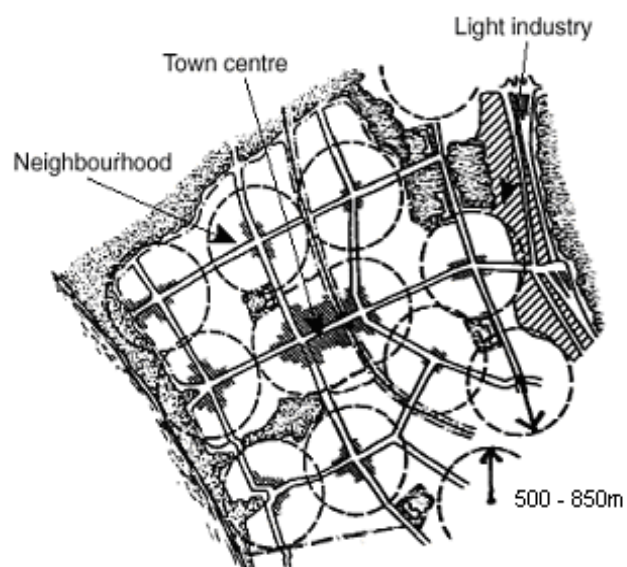
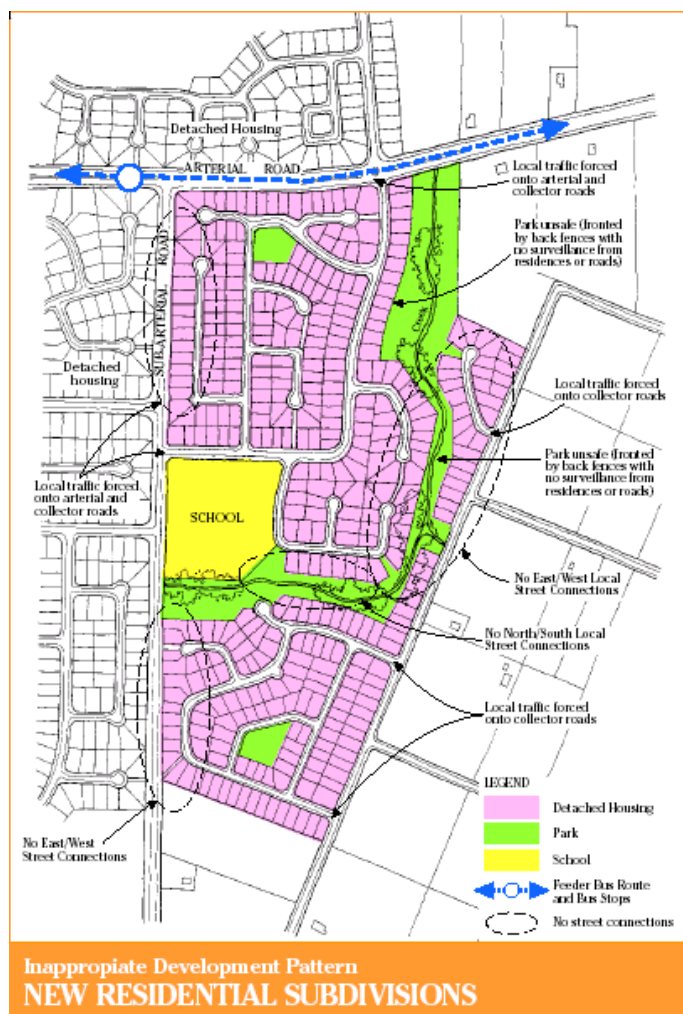


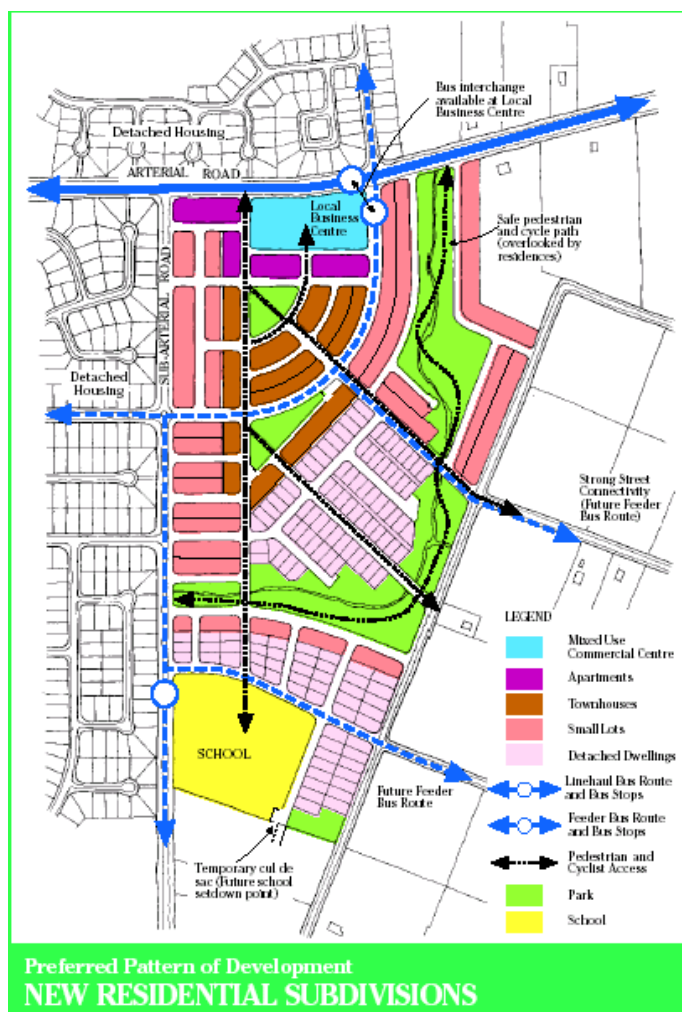
Diagram of neighbourhoods clustered to form and support a town centre.

The following two graphics are examples of inappropriate and preferred development patterns by "Queensland Department of Transport; Shaping up"



Opportunities Lost

- A. The disconnected street pattern makes it necessary to travel by car using the connector and arterial street network – even when travelling locally.
- B. The poor pattern of streets makes it difficult to achieve new street connections between the existing community to the west, and the area still to be developed to the east.
- C. Few opportunities exist to walk or cycle. Safe, direct routes through the area are not provided for either pedestrians or cyclists.
- D. The poor connections through the area and low density of residential development make it impossible to provide an efficient local bus service.
- E. Opportunities do not exist to meet the residential needs of various demographic groups and the travel needs of those with differing lifestyles.
- F. The parkland is potentially unsafe because there are few opportunities for casual or passive surveillance.
- G. The parkland and open space is not well used to create amenity and add value to adjacent properties.



Key Success Factors

1. The highly connected local street system allows high levels of movement within and external to the estate without being forced to use the connector and arterial road system.
2. Multiple opportunities are created for pleasant, safe and relatively direct pedestrian and cyclist movement both through the subdivision and to other major attractions for such trips.
3. The creation of an integrated business, retail and community centre provides local employment, allows multi-purpose trips, and is the focus for public transport services and community activities
4. Higher density housing is developed close to the local business and shopping centre.
5. The improved connections between local streets with clusters of higher density residential and commercial development make it attractive to provide a local bus service.
6. Town houses front the creek open space system with its cycle path. The park front location maximises amenity for this higher intensity residential use whilst the residences, in turn, improve safety for park users by fronting and overlooking the park.
7. Rear lanes are used to improve pedestrian accessibility and to enable rear car parking (thus enabling small lot development with frontages to the street).
8. Land uses change at the rear of lots, rather than on opposite sides of the street (this enables privacy and traffic generation issues to be more easily addressed).

A5.4.10 Movement Network

CRITERIA

- The street network should facilitate walking, cycling and use of public transport for access to daily activities, and enable relatively direct local vehicle trips within and between neighbourhoods and to local activity points.
- The choice of direction and possible routes should be maximised, with streets and footpaths substantially capable of surveillance by residents.
- Road networks (street length; intersection type, stagger and spacing) should be designed to control traffic speeds to appropriate limits.
- The street network should be of a grid type, that can deform and kink with the site topography.
- The layout of streets should generally provide for neighbourhood perimeter blocks to facilitate connectivity and a relatively continuous street frontage for safe, attractive and efficient circulation of pedestrians, cyclists and drivers.
- The layout of streets should enable development to front all streets, urban parks and natural areas. Where rear lanes are necessary they should be arranged to ensure adequate natural surveillance.
- Neighbourhood permeability is provided by having streets between blocks at spacings of not more than 240m.
- Where constrained by landform alteration limits, the maximum length of cul-de-sacs may be increased to 200m and 24 dwellings and consideration may be given to modification of road connectivity requirements.
- Where constrained by landform alteration limits, the maximum length of cul-de-sacs may be increased to 200m and 24 dwellings and consideration may be given to modification of road connectivity requirements, if this leads to better urban design outcomes.
- In flood prone developments (below the probable maximum flood level) the street and pedestrian network must incorporate high level evacuation route(s) in accordance with Clause A5.4.7.

Future connections

- Street stubs should be provided at spacings of 200m or closer to enable street connections to be made to adjacent future urban areas. The location of these connection points should consider the future overall network requirements of the district.

Intersection spacing

- Intersections between local streets and arterial routes should be provided in accordance with Table A5-6 "Junctions On Local Streets And Arterial Routes" to reduce overloading on major intersections and to contribute to shortened vehicle trips. Junctions between local streets should be located to provide a safe and permeable local network. Adequate junction spacings may be achieved if spaced in accordance with Table A5-6.

Table A5-6 Junctions on Local Streets and Arterial Routes

Street Type	Typical* average junction spacing (m)	Min spacing of staggered junction	
		L/R	R/L
Local Streets			
Laneway	N/A	N/A	N/A
Access Street	40	20	20
Neighbourhood connector	80	40	40
Arterials			
<15,000 vpd	100	60	40
15,000 – 20,000 vpd	150	150	50
>20,000 vpd	300 - 1,000	200	200

- Typical average junction spacing relates to the total number of junctions along both sides of the specified local street or traffic route. Each cross road counts as one junction. A right/left stagger on an arterial route counts as one junction.
- Median breaks in arterial routes should generally be greater than 300m in spacing, with a minimum of 200m.
- Additional left in, left out turns to supplement cross roads and staggered junctions should be provided wherever practical.

Note: that the length on the left-right stagger is greater to provide a waiting area for turning vehicles.

Table A5-7 Function and characteristics of Roads - Urban Cross Section Elements #

Street type and function	Street characteristics	Max target speed and traffic volume (vehicles per day - vpd)	Street reserve & pavement width (m)	Verge width min each side ⁽¹⁾⁽²⁾ m	Parking within street reserve	Foot Path (m)	Cycles *
URBAN AREAS			**				
Laneways Provide access to the side or rear of lots principally for access to garages. Must be provided behind all properties in commercial zones or retail shopping strip precinct.	Laneways may incorporate services and provide rubbish collection. Used when smaller lot layouts justify rear access to garages and where alternative vehicle access is needed for lots fronting major streets, parkland or conservation areas.	15kph 300vpd	6m 6m	Nil	No	No	Share with vehicles
Access Streets To accommodate shared pedestrian, bike and vehicular movements. The requirements of adjacent landuses to be supported by street design	To cater for traffic volumes in residential areas, closer to neighbourhood centres, more intensive land and higher density land use or where flexibility is required for future land uses and where there is a low demand for on street parking Access street with bus route	40kph to 50kph 3,000vpd 50kph 50kph	14 - 16 7.5 17+	3.5+ 5.5+ WSUD 4+ 5.5+	Yes Yes	1x 1.2 1x 1.2 (up to 1500v pd) 1x	Share with vehicles Share with vehicles

Street type and function	Street characteristics	Max target speed and traffic volume (vehicles per day - vpd)	Street reserve & pavement width (m)	Verge width min each side ⁽¹⁾⁽²⁾ m	Parking within street reserve	Foot Path (m)	Cycles *
	(includes school bus routes)	8,000vpd	9	WSUD		2.0 (1500 to 3000vpd)	
	Industrial access streets	30kph	20	3.5+ 5.5+			Shared path
	For use in industrial areas or where regular use by heavy or articulated vehicles is anticipated	10000vpd	13	WSUD	Yes		
	Shopping strip access street		30	4.5 5.5+			Share with vehicles
	For use where shops are adjacent to a street. If shops one side only adjust appropriately		21	WSUD	Yes	1x1.2	Share with vehicles
					Yes, + bus bays	2x1.2	Share with vehicles
						2x2.5, see D1	
Neighbourhood connectors	Low volume. Connector. To cater for higher volumes than wider access streets. Normally undivided with two traffic lanes and two parking lanes.	60kph	18+	3.5+ 5.5+	Yes	<3,000 vpd, 2x1.2	
Streets with predominantly residential frontage, typically provide lower order sub arterial network. Service and link neighbourhoods and towns.	Normal neighbourhood connector.	5,000vpd	11	WSUD			
	2 lane undivided or may have median depending on context, function and adjacent land use. Where densities >15 dwellings per hectare, and/or business or mixed use development is anticipated, wider reserves may be required to accommodate additional parking	60kph	20.4+	3.5+ 5.5+	Yes, indents or on carriage way	>3,000 vpd 1x2.5 +1x1.2	Share with vehicles
	Shopping strip neighbourhood connector	7000vpd	2 lane 13.4 or with median 2x6.8 lanes	WSUD			Shared footpath
	For use where shops adjacent to a connector. If shops one side only adjust appropriately	30kph	30	4.5+ 5.5+	Yes + bus bays		Share with vehicles
		10000vpd	21 being 11+2x5 (for angle parking)	WSUD			

Street type and function	Street characteristics	Max target speed and traffic volume (vehicles per day - vpd)	Street reserve & pavement width (m)	Verge width min each side ⁽¹⁾⁽²⁾ m	Parking within street reserve	Foot Path (m)	Cycles *
Arterial Distributor Roads Will be designated as such in Tweed Road Contributions Plan	Design based on performance criteria and designated in Tweed Road Contributions Plan or use values to the right as a default minimum	As required >10,000	32 2x10 + 3 median	4+ 5.5+ WSUD			

- (1) Water Sensitive Urban Design (WSUD) is encouraged. Where longitudinal grades are between 1% and 5%, grass swales may be substituted for kerb and gutter with bollards or castellated kerbs on road edges to exclude vehicles from the verge. Verge width is to be increased to 5.5m minimum. Driveway surfaces are to be flush with verge/swale surface.
- (2) Verge minimum width is to be increased to 4m if accommodating a 2.5m footway/cycleway.
- (3) Regardless of the above table, if any road forming part of any subdivision application is identified in the Tweed Road Contribution Plan No 4 (TRCP) as a Distributor Road, such road will be required to be constructed in accordance with the standards specified in the TRCP.

* Where a S94 Contributions Plan CP22 - Cycleways route occurs in a subdivision road reserve, that road reserve (and the road pavement width if a shared cycleway) is to be widened by 2m.

** Minimum perimeter road and connecting road pavement width in bush fire prone area 7.5m and verge must be clear for 1m on each side to allow emergency vehicles to pass in opposite directions, see Clause A5.4.

This table is indicative only, for further details refer to *Development Design Specification D1 – Road Design*.

Arterial Routes

- Arterial routes should provide for long distance traffic.
- Street networks should be designed to optimise the use of arterials by ensuring they will operate at high volume/capacity ratios at peak times.
- Service roads with frontage development should be provided along arterial routes wherever possible.

Local streets

- Local streets should be provided to support short trips for local traffic moving within and between neighbourhoods. Local traffic is spread to keep volumes low.
- Local streets should be designed to discourage through-traffic.
- Local streets should be designed to enable development to front them.
- Abutting development should be designed so vehicles entering the neighbourhood connector can do so travelling forward.
- A network of local streets focussed towards existing or proposed schools should be identified and detailed to provide safe and efficient pedestrian and bike access to the school.

- The street network around schools should be designed to provide safe conditions for school buses, car collection and set down with on-site parking where practical.

Laneways

- Laneways should be considered to provide access to parking for small lots where lot widths are narrow, medium density housing, retail/commercial areas, busy streets and development fronting open space in some circumstances.
- Laneways for rear lane access are to be provided for lots in and around proposed and future neighbourhood centres to enable future business, commercial and mixed use development.
- Typically 6m wide, laneways can be reduced to 3m over limited lengths where performance can be justified, such as at entrances. Note: 90° access to laneways less than 6m in width is not feasible and proposed subdivisions deriving their access solely from a lane frontage need to demonstrate adequate visitor parking and postal and garbage servicing.

Cul-de-sac

- Cul-de-sacs can be used occasionally in a clear urban structure, but not as the primary street type.
- The street network should have no more than 15% of lots fronting cul-de-sacs.
- Maximum cul-de-sac length should be 100 m and serve no more than 12 dwellings.
- Where constrained by landform alteration limits, the maximum length of cul-de-sacs may be increased to 200m and 24 dwellings and consideration may be given to modification of road connectivity requirements, if this leads to better urban design outcomes.
- From the junction with the street, one should be able to see the end of the cul-de-sac and see that it is a no through road.
- Cul-de-sacs should be located in through street reservations with linking access for pedestrians and cyclists. The possibilities for longer-term connection for through traffic should be incorporated wherever possible.
- Cul-de-sac heads should be designed to minimum dimensions but must allow a rubbish truck to make a three-point turn. Recommended dimensions for turning areas are set out in *Development Design Specification D1 –Road Design*.

Public transport

- Bus routes should be located on neighbourhood connectors or integrator arterials to provide highly accessible and relatively direct routes wherever practical.
- Streets near railway stations or bus interchanges should be focussed towards stops to optimise the walkable catchments and have fronting uses which provide a high level of activity and surveillance.
- Bus routes should be located on neighbourhood connectors or integrator arterials to provide highly accessible and relatively direct routes wherever practical. An efficient bus service may be achieved by:
 - o locating bus stops conveniently for the walkable catchment served at an average spacing of 300-400 m to balance accessibility with running time;

- o locating bus stops at potential destinations including schools, neighbourhood and town centres, stations, recreational areas, industrial and employment areas;
- o locating bus stops adjacent to traffic lights and median islands on busy roads;
- o ensuring bus stops will have surveillance from surrounding development; and
- o ensuring traffic management devices are bus-friendly.

Street Design

Road Design

- The local street network should be designed to produce the target street speeds in *Development Design Specification D1 - Road Design*. Parked cars on the street help to achieve target street speeds. Additional measures such as surface obstructions, sharp bends or other traffic control devices may be introduced where warranted.

Streetscape

- The design of each street should convey to the user its primary function, character and identity, and encourage appropriate driver behaviour. Street design should respond to landscape features, vegetation and landforms.
- Appropriate street trees should be provided in all streets except rear laneways for pedestrian shelter, streetscape and amenity, and traffic management

Street reserves, road width and cross sections

- The street reserve and road width must be sufficient to cater for all functions that the street is expected to fulfil, including safe and efficient movement of all users; provision for parking on the majority of streets; buffering residents against traffic nuisance; provision of public utilities and landscaping. This will normally be satisfied by using the indicative street designs shown in “Table A5-7 Function and Characteristics of Roads – Urban Cross Section Elements” however additional cross section width may be required in special circumstances eg, to accommodate acoustic mounds, trunk utility services, batters or retaining wall. For full details refer to *Development Design Specification D1 – Road Design*.

Verges

- Verge widths should be at least as set out in Table A5-7. Increases to allow space for larger scale landscaping, indented parking, future road widening, acoustic mounds, retaining walls, dual use paths or swale drains may be needed.

Traffic calming

- See *Development Design Specification D1 - Road Design* for details on speed control devices to be included to achieve the target speeds. Any slow points including road narrowings should be designed to take into account the needs of cyclists, either by ensuring speed compatibility, adequate space for concurrent passage or by off-street diversions. *Austrroads Guide to Traffic Engineering Practice Part 14* provides examples.

Truncations

- Truncations of 3 m x 3 m should generally be provided on corner lots, except in site-specific circumstances where increased sight lines are required as a result of narrow verges, topography, street alignment or street reserve width.

General geometric criteria and traffic engineering

- See Development Design Specification D1 - Road Design for general geometric criteria and road design specifications. “Liveable Neighbourhoods - Street Layout, Design and Traffic Management Guidelines - WA Planning Commission 2000”, is to be used for traffic engineering guidance in the design of subdivision roads and road networks in conjunction with Austroads Guide to Traffic Engineering Practice.

Street landscaping

- Landscaping must be provided on road reserve unpaved areas including: verges, roundabouts (unless fully paved), pathway/cycleway links, noise buffers and mounds, subdivision entry treatments and the like. Landscape design for these areas must be in accordance with *Development Design Specification D14 – Landscaping*

Cycleway network

- An integrated cycleway network must be provided, including road and off road routes, providing efficient and safe access from residences to points of attraction within and beyond the development, which links with district and regional cycling routes.
- The cycleway should cater for both experienced and less experienced cyclists.
- It must be compatible with the route network in S94 Contributions Plan No.22, and locally respond to:
 - o projected bike travel demand;
 - o expected vehicular traffic volumes and composition;
 - o linkages between trip attractors such as schools, local centres and other community facilities; and
 - o safety, security and convenience for users.

Cycling on paths

- Specifically designed bike paths not within streets should be designed in accordance with approved construction standards and take into account the specific requirements of long distance commuter cycling and recreational cycling.
- Paths for the use of pedestrians, wheelchairs/motorised wheelchairs, and cyclists should be constructed in accordance with the approved construction standard, and take into account the safety requirements of all potential users.
- Dual use paths must be provided with facilities for the separation of pedestrians and cyclists where appropriate (e.g. meeting points or junctions on high use activity areas).
- Dual use path width and design should cater for projected user types and volumes, and to facilitate ease of use by the disabled, aged and the very young. Grade separations can be provided where topography assists or where the road crossed is such that a direct path route is desirable.

Pedestrian path network

- An integrated pedestrian path network must be provided, principally utilising the street network, but also utilising and linking open space corridors (greenway network, dual use drainage corridors, parks etc.) and providing efficient and safe access from residences to points of attraction within and beyond the development.

Footpaths in streets

- The location of footpaths in streets is designated in *Development Design Specification D1 - Road Design*. Footpaths should be designed and located taking into account pedestrian amenity, sun and shade, postal deliveries and likely use patterns.
- Shared zones should be designed and detailed to enable pedestrians and vehicles to share the same pavement with a sense of equal priority. Reference to road traffic regulations is required before using shared zones.
- Pedestrian crossings of roads should be provided at-grade wherever practical. Grade separated pedestrian crossings should only be used where topography can be used to advantage and adjacent development gives good surveillance.
- The local street network should provide a permeable network of low volume, low speed routes for cyclists in order to promote on-pavement cycling to daily activities. Abutting cul-de-sac heads should have a bike path connection. Wherever practical, provide a continuous local street system for cyclists parallel to arterial streets (rather than providing bike lanes or separate paths on arterials).
- In residential areas where projected traffic volume is less than 3,000 vpd cycling should generally be on-road, shared with cars.

A5.4.11 Open Space Network

PERFORMANCE CRITERIA

Public open space function and distribution

- Public open space should:
 - o meet the needs of the local and district communities to be served;
 - o create a linked open space network and support legibility of an urban environment and the establishment of neighbourhood identity by incorporating natural and cultural features and landmarks;
 - o be provided jointly wherever practicable with the drainage system.
- Public open space is to be distributed so that it contributes to the legibility and character of the development, provides for a range of uses and activities, is cost-effective to maintain and assists with urban water management.
- Casual open Space (parks) for community recreation, social needs and passive enjoyment is required to be dedicated and embellished.
- Structured open space for sportsfields is required to be dedicated and embellished.
- Aquatic environments, natural watercourses, riparian buffers and foreshores within the development site must be dedicated to the public.
- Environmentally sensitive areas and visually significant topographical/landform features within the development site should be dedicated to the public unless their environmental/scenic/visual values and appropriate management can be guaranteed in perpetuity in private ownership.
- Dual use of drainage facilities for open space purposes is encouraged as a means of establishing a linked open space network, however only those parts of the drainage areas

that conform to the Chapter 4 standards will be credited towards structured and casual open space commitments.

- The linear shaped land which is used and predominantly occupied by connecting pedestrian/cycle paths will not be accepted as casual open space.

Parkland and sportsfields, frontage and surveillance

- The location, layout and design of subdivision and development surrounding public open space should minimise potential problems relating to personal security and surveillance, property security, vandalism and poor visual amenity in relation to the park and its boundaries. This may be achieved by:
 - o bounding public open spaces with streets and ensuring adjacent lots front and overlook open spaces;
 - o where streets cannot be provided, battle-axe lots may front to parks and public open space; and
 - o providing access to parks via the local street system rather than pedestrian access ways.

Casual open space (parks)

- Local, neighbourhood and district parks are to be created to provide landscaped areas for passive enjoyment and/or for informal recreation and non-organised leisure.
- Parks are to be of varying sizes that respond to the topography, subdivision pattern and other open space elements.

Local sportsfields

- Local sportsfields are to be provided for formal outdoor sporting activities to meet the need of the local community.
- The area and dimensions must be adequate to allow for standard size playing fields, ancillary buildings, parking, movement areas and safe play margins.

Shirewide (regional) open space

- Regional open space areas and facilities will be sited in accordance with section 94 Contributions Plan No 26. If these nominated facilities are within the development site they shall be provided as part of the subdivision works, and s94 credits will be allocated in accordance with the plan. If the subdivision development site does not contain any nominated Shirewide (district) open space facilities, the developer will pay contributions in accordance with the S94 plan.

Land for community facilities

- Subdivisions which contain land nominated in Section 94 Contributions Plan No 15 for community facilities, must dedicate this land and an appropriate credit will be granted in accordance with the plan.

Greenway links

- Greenway links are to be provided to ensure connectivity between the open space proposed in the subject development, other existing and proposed areas of public open space and places, commercial centres and schools.

Foreshores open space

- All land classified as coastal protection under any environmental planning instrument is to be dedicated as public open space.
- In new areas provide edge roads (or unformed pedestrian pathways) between all urban areas, foreshore reserves and orient streets to provide:
 - o direct pedestrian access to the foreshore;
 - o views to the foreshore as well as distant views and vistas.
- All dune management works are to be in accordance with Coastal Dune Management: A Manual of Coastal Dune Management and Rehabilitation Techniques, Coastal Unit DLWC, Newcastle 2001.
- Large scale subdivisions adjacent to dunes and beaches will need to be accompanied by a dune management plan consistent with the above manual and to the satisfaction of the Department of Natural Resources and any appointed reserve trust manager.

Table A5-8 Summary of Categories of public open space to be provided in subdivisions

Category of open space	Area requirements	How provided	Development standards
a. Environmental open space • aquatic environments (waterbodies, waterways) • natural watercourses and riparian buffers • foreshores • areas impacted by threatened species/habitat issues • ecologically significant vegetation • visually significant features, landforms, stands of vegetation	site dependent, dedication of these areas is normally in addition to b1 - b3. The last two sub categories may be retained in private land if management systems are put in place to preserve the values	See A5.4.4 and A5.4.6	Table A5-8.1
b. Casual Parks - b1 Local park - b2 Neighbourhood park - b3 District park	population based formula, aggregate area (of b1+b2+b3), 1.13ha per 1,000 persons	Dedicated on site unless below threshold area then by s94 contribution	Table A5-8.2.1 Table A5-8.2.2 Table A5-8.2.3
c. Sports Playing Fields	population based formula, aggregate area, 1.7ha per 1,000 persons	Dedicated on site unless below threshold area then by s94 contribution	Table A5-8.3
d. Regional Parks	as above	s94 contribution, unless land identified in CP26 is within subdivision	Table A5-8.4
e. Excess to requirements open space	nil	By negotiation	Table A5-8.5
f. Drainage open space	drainage need dependent	primarily for drainage purposes	Table A5-8.6
g. Pedestrian path and cycleway	that required to	as part of	Table A5-8.7

Category of open space	Area requirements	How provided	Development standards
links	accommodate the path and cycleway links	movement network	

Landscaping

- Development Design Specification *D14 - Landscaping Public Space* provides further development standards and specifications for:
 - o Landscaping requirements of subdivision works;
 - o Preparation and embellishment of subdivision land to be dedicated as public open space.
- Subdivision works that require landscaping include:-
 - o Public open space (all categories);
 - o Road reserves;
 - landscaping and tree planting on verges;
 - roundabouts;
 - entry and threshold treatments, temporary display areas;
 - noise buffer mounds.
- Other
 - o pedestrian path and cycleway links;
 - o parking areas;
 - o drainage areas;
 - o utility installations (pump stations, amenities blocks etc.)

Embellishment of Open space

Development Design Specification *D14 - Landscaping Public Space* details the preparation and embellishment requirements for public open space. It includes details of the type, size, number and location of facilities as well as providing landform, drainage and landscaping standards and specifications.

Lighting

Open space should include provision for lighting where appropriate in accordance with Australian Standard 1158.1 (1986).

Development standards for public open space

Tables A5-8.1 to A5-8.7 provide detailed development standards for public open space.

TABLE A5-8.1: DEVELOPMENT STANDARDS FOR ENVIRONMENTAL OPEN SPACE

	OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
	AREA REQUIRED	
	1. aquatic environments (waterbodies, waterways)	All of waterway or waterbody and immediate bank area.
	2. natural watercourses and riparian buffers	See A5.4.6.
	3. foreshores (adjacent to beaches, rivers and lakes)	1. Minimum 5m width (must be sufficient to accommodate walking/cycle path), plus widening at 200m intervals to accommodate seating and other foreshore based public activities. Additional land may be required for surf life saving or other emergency services. 2. Public transport, pedestrian and cyclist accessible, preferably at minimum 200m intervals. 3. Public parking areas to be provided close to, but, not detracting from quality of area. Number of spaces to be determined from demand analysis. 4. In new areas provide edge roads (or unformed pedestrian pathways) between all urban areas and foreshore reserves. 5. Clearly defined entry points and access routes through and along foreshore reserves are to be provided that protect dunes, coastal heath vegetation, littoral rainforest, headlands, banks and riparian vegetation.
	4. areas impacted by threatened species/habitat issues	As determined by species impact statement, recommended management plans
	5. ecologically significant vegetation	a. Regionally significant natural areas type I & 2; Core ecological areas and corridors Types 1 & 2, Other significant remnants and defined in Part 9 and Table 9.2 of the <i>Tweed Vegetation Management Plan 1999</i>; and b. Vegetation with Condition Code 1 & 2 of Table A5-2.
	6. visually significant features, landforms, stands of vegetation	Incorporate into the subdivision design in accordance with Clause A5.4.4 "Significant vegetation" and "Landscape visual character".
	MANAGEMENT	Areas are to be managed to preserve/enhance to environmental/other values. Threatened species areas to be managed in accordance with the management plans recommended in an approved species impact statement.
	REHABILITATION	Riparian buffers are to be: • restored and revegetated to their natural state. • fenced to control transverse access and exclude stock.
	CREDITS	Environmental open space may be considered for a credit towards provision of open space category b1- local parks and/or the casual open space component of category b3 (district/regional parks) if the environmental open space complies with the performance criteria and development standards for those categories.

TABLE A5-8.2.1: LOCAL PARKS - DEVELOPMENT STANDARDS

Small intimate space used for children's play and adult respite

OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
AREA DISTRIBUTION	Area of 0.25 to 0.4ha. The number and distribution of these parks is to be such that 95% of residents are located within a 400m walking distance.
CONFIGURATION SHAPE	Contain a central activity zone of 400m ² for play areas and equipment (with a 20m buffer to residential boundaries), balance of area to be for passive use. The length/width ratio shall not to exceed 3:1
LANDFORM	>80% of area to have slopes <8%. Site well drained with surfaces grassed, landscaped, paved or provided with soft fall. In floodplain areas must be filled to at least, Q100 -1m. To be considered for detention basin dual use must have at least Q1 flood immunity.
ACCESS	Vehicular access from local roads (preferably more than 1, but internally configured to discourage through traffic) in locations that are permeable to the catchment with adequate access for garbage collection and maintenance. Safe and easy access to bicycle/pedestrian networks.
ROAD FRONTAGE	>50% of perimeter.
AMENITIES	Appropriately embellished with play equipment, soft fall surfaces under play equipment, kick about area, paving for ball games, seating with shade, landscaping, drinking fountains, general shade and lighting. Play areas appropriately fenced from balance of park area to delineate changed use.
SERVICES	Access for garbage collection, regular maintenance, water, electricity.

TABLE A5-8.2.2: NEIGHBOURHOOD PARKS - DEVELOPMENT STANDARDS

Areas of landscaped green space that enhance the amenity and character of the neighbourhood and provide space for leisure and/or informal recreational pursuits, may include a play area.

OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
AREA	Medium sized space of 1.0 to 1.5ha framed mainly (>75% of perimeter) by streets, and having 90% of its catchment (about 600 tenements) within 800m safe walking distance.
SHAPE	It is accepted that the shape may be topographical dependent and irregular on part of the perimeter, however in general the length/width ratio shall not to exceed 4:1. A multiple series of smaller connected shape compliant areas is generally not acceptable.
LANDFORM	>80% of area to have slopes <15%. See separate section if play area included. In floodplain areas must be filled to at least, Q100 -1m. To be considered for detention basin dual use must have at least Q1 flood immunity.
ACCESS	Vehicular access from local roads (preferably more than 1, but internally configured to discourage through traffic) in locations that are permeable to the catchment with adequate access for garbage collection and maintenance. Safe and easy access to bicycle/pedestrian networks.
ROAD FRONTAGE	>75% of perimeter for surveillance, security and visibility.
AMENITIES	Drinking fountains, seating, shade, landscaping, walkways, paving, turf or ground cover, toilet block if catchment >1,000 persons equipped with 1M, 1F, 1 disabled and additional toilets at rate of 1 per 500 over 1,000 persons in catchment, lighting appropriate to use.
CONSTRAINTS	Must not contain contaminated land and must be separated from busy roads, waterways and overhead electricity cables.
SERVICES	Access for garbage collection, regular mowing, water, sewerage, electricity.

TABLE A5-8.2.3: DISTRICT PARKS - DEVELOPMENT STANDARDS

Areas of landscaped green space that enhance the amenity and character of the neighbourhood and provide space for leisure and/or informal recreational pursuits, may include a play area.

OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
AREA	Parkland of >2.5ha serving a collection of neighbourhoods and being no more than 1.5km walk from 90% of dwellings in the catchment..
SHAPE	It is accepted that the shape may be topographical dependent and irregular on part of the perimeter, however in general the length/width ratio shall not to exceed 4:1. A multiple series of smaller connected shape compliant areas is generally not acceptable.
LANDFORM	>80% of area to have slopes <15%. See separate section if play area included. In floodplain areas must be filled to at least, Q100 -1m. To be considered for detention basin dual use must have at least Q1 flood immunity.
ACCESS	Vehicular access from local roads (preferably more than 1, but internally configured to discourage through traffic) in locations that are permeable to the catchment with adequate access for garbage collection and maintenance. Safe and easy access to bicycle/pedestrian networks.
ROAD FRONTAGE	>50% of perimeter for surveillance, security and visibility.
AMENITIES	Drinking fountains, seating, shade, landscaping, walkways, paving, turf or ground cover, toilet block if catchment >1,000 persons equipped with 1M, 1F, 1 disabled and additional toilets at rate of 1 per 500 over 1,000 persons in catchment, lighting appropriate to use.
CONSTRAINTS	Must not contain contaminated land and must be separated from busy roads, waterways and overhead electricity cables.
SERVICES	Access for garbage collection, regular mowing, water, sewerage, electricity.

TABLE A5-8.3: SPORTS PLAYING FIELDS - DEVELOPMENT STANDARDS

Areas of local structured open space for formal outdoor sporting activities

OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
AREA SHAPE	To be provided at the rate of 1.7ha per 1,000 persons, and of sufficient area to allow for playing fields, ancillary buildings, parking, movement areas and safe play margins: Minimum area of 5 hectares, minimum dimensions of 210m by 170m. North south orientation, buffering to adjacent residences.
LANDFORM	Slopes appropriate for sports fields to be compliant with appropriate Australian/International standards, but, sufficient slope for natural drainage. Generally slopes >1:100 and <1:70 with no catchments longer than 100m between drains. In floodplain areas must be filled to at least, Q100 -1m.
ACCESS	Off connector road with vehicle access and off street parking provided. Linked to paved bike/path network.
ROAD FRONTAGE	>50% of perimeter.
AMENITIES	Toilets and change rooms (minimum 1M +1F +1 disabled toilets plus 1 extra toilet or equivalent per 300 persons in catchment), lighting, off street parking area (1 per 100 persons in catchment minus adjacent on street parking capacity that will not adversely impact on nearby residents), irrigation, drinking fountains, seating, turf surfacing, benching/mounds for informal seating.
CONSTRAINTS	Must not contain contaminated land and must be separated from busy roads, waterways and overhead electricity cables.
SERVICES	Access for garbage collection, regular mowing, water, sewerage, electricity, irrigation.

TABLE A5-8.4: DEVELOPMENT STANDARDS REGIONAL PARKS & SPORTSFIELDS PROVISION AND EMBELLISHMENT

OPEN SPACE DESIGN ELEMENT	LOCATION AND CREDITS	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
ALL	Regional open space areas and facilities will be sited in accordance with Section 94 Contributions Plan No 26. If these nominated facilities are within the development site they shall be provided as part of the subdivision works, and S94 credits will be allocated in accordance with the plan. If the subdivision development site does not contain any nominated Shirewide (district) open space facilities, the developer will pay contributions in accordance with the S94 plan.	See S94 Contributions Plan No 26.

TABLE A5-8.5: EXCESS TO REQUIREMENTS OPEN SPACE

Open space areas within a subdivision that are in excess or not required in accordance with Tables 4a or 4b and are unsuitable, because of topographical or other constraints, for subdivision or other commercial exploitation.

OPEN SPACE DESIGN ELEMENT	SPECIFIC PERFORMANCE CRITERIA
ACCEPTANCE AS PUBLIC OPEN SPACE	In addition to areas required in Tables 4.26a, 1, 2 & 3 and 4.26b Council will consider accepting as public open space: • areas that assist in achieving greenway links. • areas with visually significant vegetation or topographical features. • areas that will significantly enhance the amenity and character of the neighbourhood. This consideration will also be dependent on: • any liabilities related to the land (noxious weeds, fire hazards, landslips etc). • likely long term maintenance demands and costs to the public realm.
CREDITS	Land that is in excess of Table A5-8 b1,2,3 requirements will not attract s94 Contribution Plan credits.

TABLE A5-8.6: DRAINAGE OPEN SPACE

Areas provided primarily for drainage corridors, overland flow paths or stormwater quality purposes

OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
CREDITS	Parts of drainage open space will be considered for a credit towards provision of open space category b1- local parks if the drainage open space under consideration complies with the performance criteria and development standards in Table A5-8 b2 for that category, provided: 1. All channels, lakes, wetlands and drainage corridors between banks >1m high are excluded. 2. Dry detention basin inundation does not exceed once in 3 months. 3. Adjacent areas of drainage open space not suitable for local parks use and/or present safety/risk issues are excluded by appropriate barriers.

TABLE A5-8.7: PEDESTRIAN PATH & CYCLEWAY LINKS

Areas provided primarily as part of the pedestrian/cycleway movement network

OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)
ALL	1. Structural/geometric standards see D1. 2. Landscaping see D14.
CREDITS	linear open space with the primary function of accommodating pedestrian paths and cycleways will not be credited towards provision of open space category b1- local parks.

The following two graphics are examples of undesirable and better practice for open space networks from the NSW Coastal Council Design Guidelines Discussion Paper.

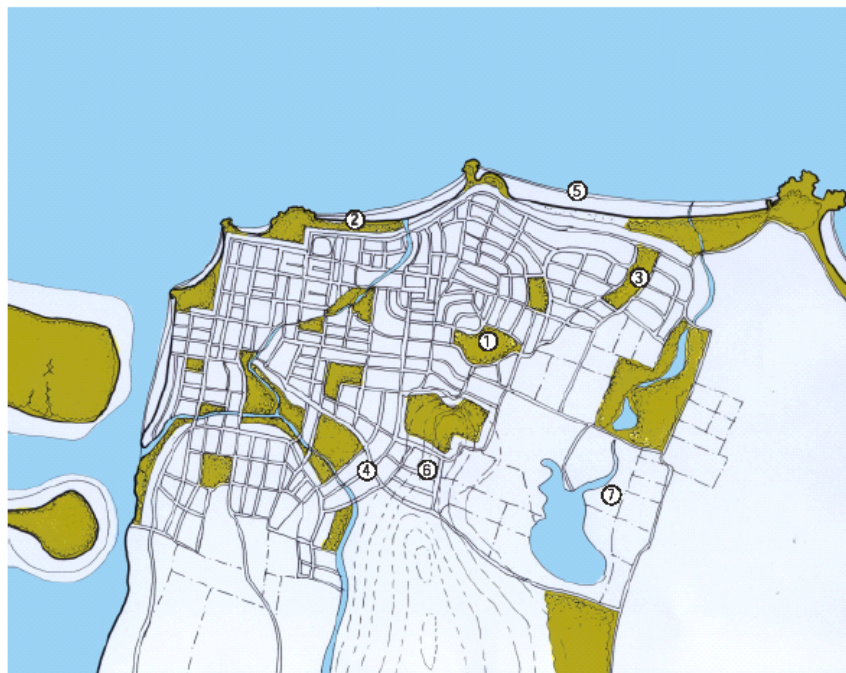
Open space network

Undesirable practice

In this example open space was not considered in the planning of the settlement. This has resulted in left over land being designated for open space.

The open spaces do not provide:

- ① for the community's recreational needs
 - ② adequate environmental protection and setbacks
 - ③ linkages between open space area and reserves, which form isolated pockets within the urban area
 - ④ protection of creek lines in the reserves
 - ⑤ protection from foreshore development, which is encroaching on the beaches
 - ⑥ protection from future urban development for the hills behind the settlement
 - ⑦ environmental setbacks around the lake and along the river
- no public roads around public open spaces.



Open space network



Better Practice

This example shows an urban area where the open space network was considered early on in the settlement's development. The network creates a high quality urban setting with easy access for residents to a range of recreational opportunities as well as long term environmental protection.

The open space network protects environmentally sensitive lands. These networks are:

- ① continuous public foreshore access
- ② wildlife corridors along the creek system linking the hinterlands with the coast
- ③ riparian zones to rivers and lakes
- ④ foreshore reserves along the coast
- public roads around public open spaces.

A5.4.12 Lot Layout

PERFORMANCE CRITERIA

Residential lot size and diversity

- The structure plan is to make provision for variety of lot sizes and types to facilitate housing diversity and choice and meet the projected requirements of people with different housing needs.
- Lots must have appropriate area and dimensions to enable efficient siting and construction of a dwelling and ancillary outbuildings, provision of private outdoor space, convenient vehicle access to a public road and adequate parking.
- Smaller lots and lots capable of supporting higher density are to be located close to town and neighbourhood centres, public transport and adjacent to high amenity areas such as parks.
- Street and lot orientation and lot dimensions should facilitate the siting and design of dwellings. These should minimise non-renewable energy use and be appropriate for the climatic conditions. These should be a predominantly east-west and north-south street layout for temperate climates.

Mixed use development

- Adequate lots for non-residential or mixed use development should be provided in proposed and future centres and other appropriate locations to facilitate business and employment generation.
- Mixed use or non-residential areas are to be located around town and neighbourhood centres and along arterial routes.

- Where non-residential land uses are provided, the change of use should occur along the rear boundary line of lots, rather than the street frontage wherever possible to provide a compatible use transition.
- Where land for industrial or similar uses is proposed, the size and dimensions of lots abutting or across streets from residential lots should be appropriate and available for development that provides an effective high amenity transition.

Schools and land for community Uses

- The layout should provide for State education facilities in accordance with NSW Department of Education and Training standards.
- Primary schools should be adjacent to bus routes and located to minimise walking/cycling distances to catchments.
- Secondary schools should generally be located on arterial routes near public transport.
- Schools should be located adjacent to community playing fields and open space.
- Land is to be identified for community uses, particularly community centres, multi use halls, childcare centres and places of worship.

Dedication of lots for public and community use

- In each neighbourhood (or in the absence of a defined neighbourhood structure for catchments of 2,000 residences) a lot of 1,500m² is to be provided for and dedicated to Council for a multifunction community centre.
- For catchments of 6,000 residences (being generally a collection of neighbourhoods) a lot of minimum size 3,000m² is to be provided for and dedicated to Council for a multiuse hall.
- In each neighbourhood (or in the absence of a defined neighbourhood structure for catchments of 2,000 residences) a lot of minimum size 1,500m² is to be provided for a childcare centre.
- In each neighbourhood (or in the absence of a defined neighbourhood structure for catchments of 2,000 residences) at least one lot of minimum size 1,500m² is to be provided for a place of worship.
- Public school sites should be provided as follows:
 - o one primary school site per 1,500-2,000 dwellings, around 3ha size within 1.6km of the majority of its catchment. The catchment is preferably to be a single neighbourhood.
 - o one high school site per 4,500-6,000 dwellings, around 6ha in size preferably away from commercial areas, especially where liquor outlets may be located.
- School sites are to be on land above the 1 in 100 flood level, well drained and slope not greater than 1 in 10.

Criteria for selection of lots to be provided for community facilities,

(a) Neighbourhood multifunction community centre

Size – min 1,500m²

Shape – regular shape with length to width not greater than 4:1

Gradient – not more than 1m fall across lot

Location – in or adjacent to neighbourhood centre with public road frontage, able to share parking facilities with other neighbourhood centre uses

(b) Multi use hall

Size – min 3,000m²

Shape – regular shape with length to width not greater than 4:1

Gradient – not more than 1m fall across lot

Location – in or adjacent to a neighbourhood or town centre with public road frontage, able to share parking facilities with other neighbourhood/town centre uses

(c) Child care centre

Size – min 1,500m²

Shape – regular shape with length to width not greater than 4:1

Gradient – not more than 1m fall across lot

Location – within walkable distance of 80% of catchment.

(d) Places of worship

Size – min 1,500m²

Shape – regular length to width not greater than 4:1

Gradient – not more than 1m fall across lot

Location – within walkable distance of 80% of catchment.

Local identity

- The layout should enhance an areas unique local identity by responding to the site context, existing landscape, natural landform, historical features, site characteristics, setting, landmarks, special places and views.
- The layout should incorporate elements of natural and cultural significance; and establish legible street and open space networks. The layout must reflect the findings of a “Scenic Impact Assessment Report”.

Noise-buffering

- Subdivision layouts abutting external noise-sources such as arterial routes, railways, or industries should provide lots capable of accommodating: non-residential uses which provide a shield to residential uses behind.
- Lots abutting major roads and other noise sources may require acoustic fences or barriers, to reduce noise to acceptable levels, however, this must not compromise the objective of a permeable street network and neighbourhood. Acoustic barriers must not be used to create de-facto “gated communities”.

Geometric requirements

Specific minimum geometric requirements for lots in each urban zone are detailed in Tables A5-9.1 to A5-9.10.

Residential allotments must also comply with:

- solar access, orientation and associated minimum dimension;

- access (including right of way access) requirements;
- Battle-axe or hatchet shape allotment geometric requirements.

Table A5-9.1: Land in Zone 2(a) Low Density Residential

Development Type	Lot size (m2)	Dimensions, Shape, Orientation	Comments
Dwelling house	min 450	contains a building platform minimum dimension 10m x 15m	
Dual occupancy	min 900 or min 1000 if corner lot	contains a building platform minimum dimension 10m x 15m	Must be nominated as dual occupancy lots in DAs for subdivision of > 10 lots and must be <20% of lots in a subdivision. See also <i>Section A12</i> .
Dual occupancy within 300 m of business centre*	min 500	contains a building platform minimum dimension 10m x 15m	
Integrated housing	min 1,350	Length to width ratio must not exceed 4:1	See Section A1.
Integrated housing but within 300 m of business centre*	min 750	Length to width ratio must not exceed 4:1	See Section A1.
Multi dwelling housing	Size and shape to be commensurate with density taking into account requirements of <i>Section A1 - Residential Development</i>		Density: One dwelling per 450m ² site area or one dwelling per 250m ² site area if within 300m of business centre *
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking and water sensitive design		

* listed under Schedule 8 of Tweed Local Environmental Plan 2000;

Table A5-9.2: Land in Zone 2(b) Medium Density Residential

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Multi dwelling housing	Size and shape to be commensurate with density taking into account requirements of <i>Section A1 - Residential Development</i>		
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking and water sensitive design		
Dwelling house (not	min 450	contains a building platform	low density single dwellings contrary to zone objectives and

Development Type	Lot size (m2)	Dimensions, orientation	shape,	Comments
encouraged)		minimum dimension 10m x 15m		are discouraged

Table A5-9.3: Land in Zones 2(c) Urban Expansion and 2(d) Village (sewered) ⁽¹⁾

Development Type	Lot size (m2)	Dimensions	Comments
In 2(c) zone subdivision for uses other than public purposes, dwelling houses/dual occupancy/integrated housing, is only permitted when such uses have been identified on a site specific Section, a master plan approved by Council prepared in accordance with Chapter 3.2 of this manual, a master plan approved in accordance with SEPP 71 or a preliminary plan prepared in accordance with Environmental Planning and Assessment Regulation 2000, Clause 92A			
Dwelling house	min 450	contains a building platform minimum dimension 10m x 15m	
Dual occupancy	min 900 or min 1000 if corner lot	contains a building platform minimum dimension 10m x 15m	Must be nominated as dual occupancy lots in DAs for subdivision of > 10 lots and must be <20% of lots in a subdivision. See also Section A1.
As above but within 300 m of business centre*	min 500	contains a building platform minimum dimension 10m x 15m	
Integrated housing	min 750	contains a building platform minimum dimension 10m x 15m	Integrated housing developments in zones other than 2(a) Low Density Residential are to have a minimum site area of 250m ² /dwelling. If individual sites are < 450m ² they must be on a strata (not Torrens title) subdivision. See also Section A1.
Multi dwelling housing	Size and shape to be commensurate with density taking into account requirements of Section A1 - Residential Development		
Business (generally associated with neighbourhood centres)	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking		Lots to be provided with vehicular access from rear lane, frontage vehicular access not permitted.

Development Type	Lot size (m2)	Dimensions	Comments
Industrial	min 1,000		Min frontage 20m or as determined by the Director Development Services having regard to the proposed use.
Mixed uses	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking and water sensitive design		See Section A1. Lots to be provided with vehicular access from rear lane, frontage vehicular access not permitted. See principles of Section A9 regarding residential component.
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking and water sensitive design		

* listed under Schedule 8 of Tweed Local Environmental Plan 2000, not applicable to Village zone

⁽¹⁾ Zones 2(d) Village (unsewered)

Minimum lot size 1,000m² and allotment must be capable of accommodating adequate facilities for the disposal of sewage and domestic waste.

Table A5-9.4: Land in Zone 2(e) Residential Tourist

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Dwelling house	min 450	contains a building platform minimum dimension 10m x 15m	
Dual occupancy	min 500 or min 1000 if corner lot	contains a building platform minimum dimension 10m x 15m	Must be nominated as dual occupancy lots in DAs for subdivision of > 10 lots and must be <20% of lots in a subdivision. See also Section A1.
Integrated housing	min 750	contains a building platform minimum dimension 10m x 15m	Integrated housing developments in zones other than 2(a) Low Density Residential are to have a minimum site area of 250m ² /dwelling. If individual sites are < 450m ² they must be on a strata (not Torrens title) subdivision. See also Section A1.
Multi dwelling housing	Size and shape to be commensurate with density taking into account requirements of Section A1 - Residential Development		

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Mixed uses	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design		Lots should be provided with vehicular access from rear lane, frontage vehicular access not encouraged. See principles of Section A9 regarding residential component. See also Section A1.
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design		

Table A5-9.5: Land in Zone 2(f) Tourism

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Dwelling houses (except caretakers) are prohibited in the zone, however Tweed LEP 2000 Schedule 3, permits dwelling houses in certain circumstances on Portions 194, 301 and 312 Kings Beach, South Kingscliff. In these cases use development standards for dwelling houses (and associated dual occupancy and integrated housing) for 2(e) zone.			
Multi dwelling housing	Size and shape to be commensurate with density taking into account requirements of Section A1 - Residential Development		
Mixed uses	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design		Lots should be provided with vehicular access from rear lane, frontage vehicular access not encouraged. See principles of Section A9 regarding residential component. See also Section A1.
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design		

Table A5-9.6: Land in Zones 3(a) Sub-regional Business, 3(b) General Business and 3(e) Special Tourist (Jack Evans Boatharbour)

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Mixed uses (with multi-dwelling housing located above non residential ground floor development)	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design.		See Section A1. Lots to be provided with vehicular access from rear lane, frontage vehicular access not permitted.
Business and commercial development	Size and shape to be commensurate with proposed uses and zone objectives, taking into account: access, setback, landscaping, car parking and water sensitive design.		Lots to be provided with vehicular access from rear lane, frontage vehicular access not permitted.
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design.		Lots to be provided with vehicular access from rear lane, frontage vehicular access not permitted.

Table A5-9.7: Land in Zones 3(c) Commerce and Trade

Development Type	Lot size (m2)	Dimensions	Comments
Commercial, bulky goods retailing, trade activities	Min 1,500	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design.	Minimum frontage 25m or as determined by the Director Development Services having regard to the proposed use.
Business			
Other uses permissible in the zone			

Table A5-9.8: Land in Zones 3(d) Waterfront Enterprise

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Dwelling house	min 450	contains a building platform minimum dimension 10m x 15m.	

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Dual occupancy	min 900 or min 1000 if corner lot	no hatchet shape.	Must be nominated as dual occupancy lots in DAs for subdivision of > 10 lots and must be <20% of lots in a subdivision. See also Section A1.
Mixed uses (with multi-dwelling housing located above non residential ground floor development)	Size and shape to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design.		See Section A1.
Waterfront, recreation, marine and associated tourism activities	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking.		Lots to be provided with vehicular access from rear lane, frontage vehicular access not permitted.
Industrial (directly associated with waterfront or tourism uses)	Min area 2,000 m ² . Min frontage 30m or as determined by the Director Development Services having regard to the proposed use.		
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking and water sensitive design.		

Table A5-9.9: Land in Zone 4(a) Industrial

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Industry, factories warehouses etc	min 2,000	contains a building platform minimum dimension 10m x 15m.	Min frontage 30m or as determined by the Director Development Services having regard to the proposed use.
Other uses permissible in the zone	Size and shape to be commensurate with proposed uses taking into account; access, setback, landscaping, car parking and water sensitive design.		

Table A5-9.10: Land in Zones 5(a) Special Uses, 6(a) Open Space, 6(b) Recreation

Development Type	Lot size (m2)	Dimensions, shape, orientation	Comments
Uses permissible in the zone	Size, shape, dimensions and orientation to be commensurate with proposed uses and zone objectives, taking into account; access, setback, landscaping, car parking and water sensitive design.		

Residential solar access, orientation and associated minimum dimensions

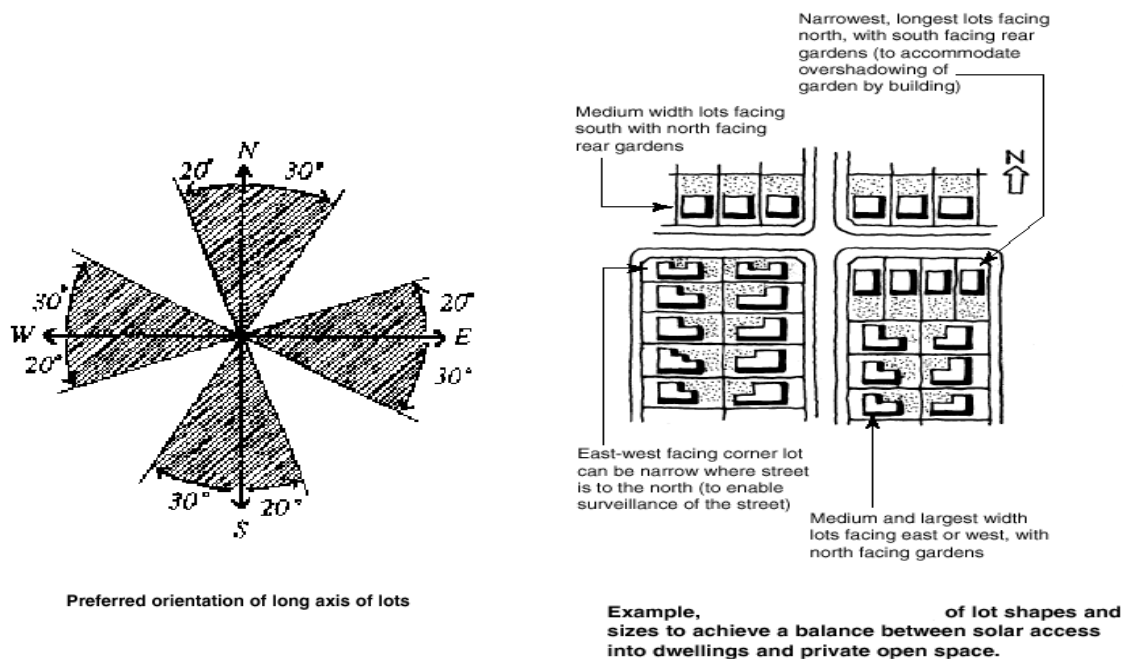
Wherever possible, residential lots are to be orientated to facilitate siting of dwellings and private open space to take advantage of winter solar access and summer sun deflection.

In this regard:

- (a) 70% of lots must be orientated to facilitate siting of dwellings to take advantage of solar access by ensuring the long axes of lots are within the range N20°W to N20°E, or E20°N to E30°S, see adjacent diagrams.
- (b) North-facing slopes improve opportunities for solar access; small lots are therefore best suited to north-facing slopes with gradients of less than 15% (or 1:9).
- (c) South-facing slopes impose a penalty on solar access; therefore, large lots/lowest densities are best suited to south-facing slopes or other areas where solar access is poor.
- (d) Dimensioning the depth of north-south orientated lots to provide longer, narrower lots on the south side of the street and shorter, wider lots on the north side.
- (e) Allotments are to be generally rectangular in shape and preferably not splayed.
- (f) Lots with an east-west major axis are to have a minimum width of 14m.
- (h) Infill lots must have no more than one third of its area covered by the shadow of an existing development on noon 21 June.

Minimum Street Frontage

A minimum of 9.0 metres of kerb frontage is required for each lot unless alternative provisions are made for parking.



Access to lots (including right of way access)

Every lot shall have feasible access from a street.

Where access is on a right of way over another property, the following minimum standards shall apply:

Benefited Properties	Standard of Access	Width of right of way
1	3m minimum pavement plus controlled drainage	Pavement width plus width required for earthworks, batters, retaining walls, longitudinal drainage and services. The minimum ROC shall not be less than 4.0m.
2 (or reciprocal)	As above plus provision for passing bays	As above
3 to 5	4.5m minimum pavement	As above

The maximum number of allotments that may share in the above right of way access arrangements is 5.

Battle-axe or Hatchet Shape Allotments

- Battle-axe lots must only be used where they can achieve adequate amenity for residents and neighbours, and enhance community safety, in situations including:
 - o outlook over parks;
 - o providing frontage to major streets;
 - o elevated views;

- o providing vehicle access to sloping sites; and
- o in very limited circumstances, larger lots adequate for self-containment of a dwelling and its outlook.
- Aggregate access leg width must be a minimum of pavement width as designated in Table above plus width required for earthworks, batters, retaining walls, longitudinal drainage and services (absolute minimum additional 1.0m). For further details and standards for multiple leg accesses see *Development Design Specification D1- Road Design*.”
- Battle-axe allotments must not be used for multi dwelling housing, dual occupancy, business, industrial, commerce and trade allotments.
- The area of battle-axe handles is not to be included in determining minimum lot sizes.

Lot Design and Layout in Bushfire Prone Areas

- In bushfire prone areas, subdivision design must ensure that each lot is provided with a building platform of minimum dimensions 10mx15m that is protected from a bushfire hazard by an Asset Protection Zone (see “Planning For Bushfire Protection - A Guide For Land Use Planners, Fire Authorities, Developers And Home Owners – NSW Rural Fire Service 2001”, and for infill development section 4.6 of the guide).

Frontage to parks and natural areas

- Lots adjacent to parks or natural areas should be orientated to front parkland and natural areas to enhance amenity while contributing to personal and property security and deterrence of crime and vandalism. Frontage to parks may be achieved by a variety of lot layout solutions.

Frontage to streets and arterial routes

- Lots should be orientated to front streets and arterial routes to provide good streetscape amenity and surveillance, and to facilitate business and home-based business development.
- On streets with vehicle volumes greater than 3,000 vpd, lot layout must ensure that vehicle egress will not involve reversing into the street. Appropriate egress may be achieved by a variety of lot layout solutions that still maintain frontage, including:
 - o using service roads to busier arterial routes;
 - o providing rear lane access;
 - o using battle-axe lots to provide vehicle access from side or rear streets;
 - o arranging lots to side onto busier streets, with vehicle access from a side street;
 - o providing for frontwards exit layouts for garages and driveways for some larger lots fronting neighbourhood connectors; and
 - o providing shared driveways to garages at rear, arranged to require frontwards.

Lot width and garage location

- Residential lot widths should be suited to provision of car parking, garaging and driveway access in a manner that does not result in garages or carports dominating the street frontage. This may be achieved by:

- o providing rear lanes for garage access where most of the lot widths are less than 10m;
- o requiring restrictive covenants on lots less than 13m wide to require garages accessed from street frontages to be single width, setback behind dwelling fronts and accessed by a single width kerb crossover; and specifying car parking, access locations and building envelopes to setback garages behind the front of a dwelling with at least 5m from the street frontage to provide an additional tandem parking space.

A5.4.13 Infrastructure

CRITERIA

Infrastructure required

- All lots created in urban areas for private occupation must be fully and individually serviced with sealed road (equipped with kerb and gutter both sides of the road) frontage, water supply, sewerage, underground electricity and telecommunications.
- A drainage system that provides Q100 immunity from local stormwater flooding and must have surface levels above the Q100 flood levels of regional river/creek flooding.
- Utilities and services are to be designed to minimise long term maintenance and ownership costs.
- Urban subdivision infrastructure must be provided in accordance with Table A5-10.

Management Lots

"Management lots" are defined as subdivision lots that are not yet subdivided for their ultimate yield. It does not include lots where the proposed subdivision is to separate non-urban land from urban zoned land. Proposed management lots must be:

- fully provided with roads, drainage (including downstream drainage to a lawful point of discharge) and service connections that are sized for the ultimate subdivision yield and landuse of the management lot;
- shaped to their final form at and within a minimum 10m of lot boundaries;
- incorporate necessary easements, service connections and drainage facilities necessary for the ultimate development of the surrounding land.

Table A5-10: Subdivision Infrastructure Requirements

Infrastructure Required	Where Required	Standard of Infrastructure	Comments
Sealed road frontage with kerb and gutter both sides	All lots for private occupation, community facilities lots and public open space lots	See Development Design Specification D1	
Landform			
Water Supply	All lots for private occupation, community facilities lots, sports fields, parks, play areas, other utility facilities (pump stations etc)	See Development Design Specification D11	

Infrastructure Required	Where Required	Standard of Infrastructure	Comments
Sewerage	as above	See Development Design Specification D12	
Electricity	as above	Must be underground and provided in accordance with suppliers and Australian standards. Verge service location is to comply with <i>Development Design Specification D1</i>	
Telecommunications	All lots for private occupation, community facilities lots and sports fields. As required for other utility facilities).	as above	Service must be such that standard connection is available to local/national/overseas networks
Gas	Optional	as above	
Drainage system	Must provide Q100 local flooding immunity for all lots for private occupation and community facilities. Major/minor system required, roads public open space may (subject to other development standards) be used for Q100 overland flow paths. Must be equipped with stormwater treatment facilities to meet section A5.4.6 standards	See Development Design Specifications D5 and D7.	
Flood Immunity	All lots for private occupation must have surface levels above the Q100 level for regional creek/river flooding. All lots must be in proximity to high level evacuation route(s) to land above PMF level, in accordance with Clause A5.4.7. See section A5.4.10 of this chapter for public open space standards.		See Section A3 - Development of Flood Liable Land for detailed requirements.
External Connections and/or upgrades		The subdivider must provide all external connections required to connect subdivision infrastructure and upgrade external infrastructure to cater for the additional subdivision load. See also <i>D1, D5, D7, D11, D12</i>	

A5.5 RURAL SUBDIVISION GUIDELINES AND DEVELOPMENT STANDARDS

A5.5.1 Guidelines Scope & Structure

Scope

Clause A5.5 provides guidelines for rural planning and subdivision design in Tweed Shire.

Structure

The guidelines have the following structure.

Physical Constraints

Rural Watercourses and drainage.

Rural Subdivision Structure

Subdivision and lot layout.

Movement network.

Water Supply and Waste disposal

Infrastructure.

A5.5.2 Physical Constraints

CRITERIA

- See “A5.4.3 Physical Constraints”, “A5.4.4 Environmental Constraints” and “A5.4.5 Landforming” in “Chapter A5.4 Urban Subdivision – Design Guidelines & Development Standards” for general requirements.
- Prior to detailed planning of a site the physical constraints of a site must be identified, mapped and constraint issues resolved. The physical constraints for rural subdivision are generally similar to those for urban subdivisions. Some differences are:-
 - o Due to the larger areas of rural lots, constrained land may be included in rural subdivision lots where the lots that contain constrained land also contain sufficient unconstrained land (and buffers) to enable proposed land uses to be carried out there without significant adverse impacts.
 - o Lots containing constrained land may need to be larger than unconstrained lots.
 - o Constraint mapping is still required, however the design response may be different.

Flood liable land

- Rural subdivision proposals (unless entirely for non residential purposes) must substantiate that a nominated residential building platform on each lot has flood immunity at least to the predicted ARI 100 year flood level. Each building platform must also have a high level road and/or pedestrian route to land above the probable maximum flood (PMF) level. The high level evacuation route must be at a level not less than the ARI 100 year flood level for its entire length.
- Filling of land on floodplains to provide a flood free dwelling site and/or high level evacuation routes is only permissible if the applicant can demonstrate that such work will not have any adverse effects on floodwaters in the locality.

Bushfire risk

- This issue is generally covered in Clause A5.4.4 of Section 5.
- Access roads in rural subdivisions with bushfire risk are to comply with Clause A5.4.2 of *“Planning For Bushfire Protection - A Guide For Land Use Planners, Fire Authorities, Developers And Home Owners - NSW Rural Fire Service 2001”*.
- Design and staging of rural subdivisions with bushfire risk is to be in accordance with sections 4.4 – 4.8 of the above guide.
- The provision of bushfire safe building sites, adequate asset protection zones within each lot, provision of bushfire safe access and perimeter roads may be a significant constraint for rural subdivision design.

Native Vegetation Act

- Rural subdivision proposals that involve clearing of native vegetation must comply with the provisions of the Native Vegetation Conservation Act 1997. Native vegetation means any of the following types of indigenous vegetation: trees, understorey plants, groundcover, plants occurring in a wetland. The minister administering the act is the consent authority for development applications to clear native vegetation.
- A development consent is required from the minister for any clearing of state protected lands (unless exemptions apply).

Significant vegetation

- Significant vegetation and habitat areas should be retained in public land or in parts of lots that are not intended for uses incompatible with environmental protection objectives. Subdivision works should contain proposals for environmental repair and revegetation of degraded areas and/or remnants of native vegetation

Landscape visual character

- The subdivision should be integrated with the surrounding rural environment and complement existing scenic rural landscapes. Roads and dwelling platforms must be sensitive to the landscape of the area and must not occupy ridgelines and prominent locations that detract from the scenic quality and external views of the locality.

Suitability for on site effluent disposal

- Suitability for onsite effluent disposal in rural areas not connected to the sewer is an additional environmental constraint which may result in the need for increased allotment sizes, buffer distances to watercourses, dams and corresponding revision of the proposed lot layout.

A5.5.3 Rural Watercourses and Drainage**CRITERIA****Natural watercourses and drainage systems**

- Rural subdivisions and associated works must be designed to preserve natural drainage systems by:
 - o retaining the location and cross section of natural flow paths;
 - o ensuring works do not impede natural flow paths, and do not significantly change natural flow rates;

- o providing subdivision roads with adequate numbers of transverse drains that allow unimpeded flow of the natural drainage system;
- o Minimising roadway longitudinal drains and barriers that impede natural overland flow.

Drainage standards

- See also Development Design Specifications
 - D1 Road Design
 - D5 Stormwater drainage Design
- Erosion and sediment control must be in accordance with “Development Design Specification D7 - Stormwater Quality” and its Annexure A - “Code of Practice for Soil and Water Management on Construction Works”.

Drainage

Lawful point of discharge

- Stormwater runoff and drainage must only be discharged from a subdivision at a “lawful point of discharge”. This must be on or immediately adjacent to the development site and may be:
 - o a natural watercourse or waterway to which the development site naturally drains;
 - o a “lawful point of discharge” agreed to by Council (ie an existing constructed public drain).
- where no acceptable point of discharge presently exists, the subdivider must:
 - o acquire and dedicate to Council connecting reserves or easements that provide legal continuity from the development site to an offsite legal point of discharge in a natural watercourse or waterway or suitable (appropriate location, size/capacity) public drain;
 - o construct the necessary connecting drainage works.

Waterways; water bodies; riparian areas and riparian vegetation

As per A5.4.6

A5.5.4 Rural Subdivision Structure

OBJECTIVES

Facilitate rural subdivision that is consistent with zone objectives, provides land for uses that are appropriate to rural areas and protect rural character and amenity.

- Ensure the viability of agriculture by:
 - o protecting prime agricultural land from fragmentation and competing land uses;
 - o discouraging fragmentation of ownership that will adversely affect the continuance or aggregation of sustainable agricultural units;
 - o discouraging potentially incompatible residential development adjacent to or near agricultural land.
- Discourage isolated residential development, and the likely resultant demand to provide public amenities and services, in an uncoordinated and unsustainable manner.

- Discourage fragmentation of land needed of for long term urban expansion.
- Ensure a site responsive approach to rural subdivisions that:
 - o protects natural and cultural features;
 - o acknowledges site and environmental constraints;
 - o appropriately accounts for bushfire risk in the subdivision design;
 - o avoids significant changes to the natural landform and large scale earthworks;
 - o responds to the topography, drainage system and natural features of the site in the location of roads and allotment boundaries;
 - o appropriately accounts for flooding risk in the subdivision design;
 - o has a design integration, quality and scale compatible with, and making a positive contribution to, the existing character of the area.
- Provision of a movement network that:
 - o ensures an appropriate level of road access to each lot;
 - o provides a pedestrian/cycle network that enables residents to conveniently access places within their locality and access to the wider shire road network;
 - o avoids disturbance to environmentally or scenically significant areas.
- Ensure adequate provision is made for water supply, waste disposal and bushfire protection.

A5.5.5 Rural Subdivision and Lot Layout

CRITERIA

General layout

- The subdivision design should:
 - o protect and encourage appropriate management of natural habitat and vegetation;
 - o provide for reforestation and tree planting;
 - o protection of watercourses, water quality and riparian vegetation;
 - o promote the continuation of agricultural uses in adjoining land;
 - o encourage agricultural use of high class agricultural land;
 - o promote the control of weeds, domestic and feral animals;
 - o provide buffer areas between potentially conflicting land uses;
 - o provide for bushfire protection;
 - o minimise soil erosion;
 - o avoid development on land with environmental constraints;
 - o retain significant vegetation and habitat areas;
 - o provide for protection of koalas and koala habitat;
 - o be integrated with the surrounding rural environment and complement existing scenic rural landscapes;

- o provide well distributed rural open spaces that contribute to the character of the development, provide for a range of uses, are cost effective to maintain, and contribute to stormwater management and environmental care;
- o provide an access road network with a high level of accessibility and good external connections for local vehicle, pedestrian and cycle movements, with traffic management to restrain inappropriate vehicle speed, deter through traffic and create safe conditions for all road users;
- o reinforce local identity by retaining items, trees/vegetation, and places of cultural significance.

Rural lots

- Lots for residential purposes in rural areas must have an identified building platform that:
 - o has access to a public road that is readily upgraded to all weather two wheel drive standard;
 - o is free from environmental constraints;
 - o is safe from bushfire;
 - o is above Q100 flood level and has high level road and/or pedestrian access to land above probable maximum flood level;
 - o has adequate solar access;
 - o will not impact on rural activities on nearby land;
 - o has appropriate area and dimensions for the siting and construction of a dwelling and any ancillary outbuildings.

Lot boundaries

- Lot boundaries should be located, taking into account:
 - o slope of the land;
 - o natural boundaries;
 - o existing fencing and paddock structure;
 - o protection of natural or cultural features;
 - o site environmental constraints;
 - o retention of special features such as trees and scenic topographical features.

Tweed LEP 2000 minimum lot size requirements

Zone	Standard Minimum Lot Size	Comments, Exceptions
Zones 1(a), 1(b2), 7(d) or 7(l)	40ha	May be less than 40ha if Council is satisfied lot will be used for permissible use other than agriculture or residential purpose.
1(b1)	10ha	May be less than 10ha if Council is satisfied lot will be used for permissible use other than agriculture or residential purpose.

Zone	Standard Minimum Lot Size	Comments, Exceptions
1(c)	For residential purposes: 0.4ha if connected to reticulated sewerage system and 1 ha otherwise.	Each lot must be connected to reticulated sewerage or capable of accommodating adequate facilities for treatment and disposal of sewerage.

A5.5.6 Rural Movement Network

PERFORMANCE CRITERIA

Movement network

- The rural road network, whilst providing an acceptable standard of vehicular access to each lot, must:-
 - o complement and facilitate the design guideline elements for rural subdivision structure, environmental constraints and lot layout;
 - o be located to minimise earthworks and impacts on topography and watercourses.
- Rural subdivision roads and pathways are to be designed to encourage pedestrian and cycle access to lots and special places and to preserve and enhance links with existing constructed roads, unconstructed roads and crown road reserves.
- Pathways and cycleways are to be provided in rural subdivisions to:
 - o complement the road network by providing connectivity links and permeability that minimise non vehicular travel distances between neighbours, particularly in subdivisions with dead end (cul-de-sac roads);
 - o provide access to special places within the locality (scenic places, streams, public spaces etc);
 - o provide access and connectivity to unconstructed roads and road reserves in the area.

Rural subdivision roads

Rural road design standards

- Small lot subdivisions.
- Small lot rural residential subdivision is defined as:
 - *Subdivisions where the average lot size, excluding residual and non residential lots is <5,000m².*
- Urban street design criteria (see Development design specification D1 – Road Design) shall be used for urban and small lot rural residential subdivisions.
- Rural road design criteria (see D1) shall be used for all other rural subdivisions (other than small lot rural residential) and for rural connecting roads to urban subdivisions. All further references to road design criteria/specifications in this section apply to rural road design criteria.

Intersections

- Intersections within rural subdivisions and intersections of new subdivision roads with existing roads must be designed in accordance with “Guide to Traffic Engineering

Practice, Part 5, Intersections at Grade” Austroads 1988 on the basis of ultimate rather than current volumes. On all roads directly linking villages, the safe movement of cyclists and pedestrians through the intersections shall be demonstrated. On other roads its need shall be addressed. Signage, line marking and lighting in accordance with relevant standards is required.

Road Design Specification

- Rural subdivision road design must comply with Development Design Specification D1 - Road Design.

Access to Dwellings

- Each lot shall have a sealed driveway, constructed from the road to 3m inside the property boundary. A gate shall be installed for the driveway in the boundary fence. The driveway location must be such that internal 2 wheel drive access can be constructed from the driveway to the nominated building site. The driveway must be located on the subdivision road at a location where there is sight distance from both driveway and road of:

Design Speed (of road)	Sight Distance required
30	30
40	35
50	50
60	70
70	95
80	115
90	145
100	180
110	215
120	260

- Development applications must demonstrate that an environmentally sensitive, 2 wheel drive standard access can be located between the driveway (referred to above) and the nominated building platform on each lot.
- For lots of >40ha the development application must demonstrate the existence of at least one compliant site. Such sites must also be compliant with other criteria eg. waste disposal area availability, bushfire protection, suitable slope, geotechnical stability etc. Where multiple compliant sites are demonstrated the applicant may apply to Council to seek deferral of construction of the gate and driveway from road edge to boundary.

Right of way access

- Where access is on a right of way over another property, the following minimum standards shall apply:

Benefited Properties	Standard of Access	Width of right of way
1	3.6m minimum pavement plus controlled drainage	Pavement width plus width required for earthworks, batters, retaining walls, longitudinal drainage and services
2 (or reciprocal)	As above plus provision for passing bays	As above
3 to 5	4.5 minimum pavement	As above

The maximum number of allotments that may share in the above right of way access arrangements is 5.

Battle-axe or hatchet shaped allotments

- Aggregate access leg width must be a minimum of pavement width as designated in Table above plus width required for earthworks, batters, retaining walls, longitudinal drainage and services (absolute minimum 2.5m). For further details and standards for multiple leg accesses see *Development Design Specification D1 – Road Design*.

Water Supply and Waste Disposal

Water Storage

- Unless a public reticulated water supply (or Council approved potable bore water supply) is available, each dwelling in a rural subdivision lot must be provided with a rainwater tank with minimum storage of 20,000 litres.

Water supply for fire fighting

- The above water storage tanks must be located in a position that is accessible to fire fighting vehicles and equipment, and must be equipped with an outlet or access hatch that is compatible with NSW Rural Fire Service equipment.

Water Sources

- New rural residential development must not be reliant on groundwater, creek or river sources to satisfy domestic or non-domestic water needs.

On site sewerage management

Lots <5ha, not connected to a reticulated sewerage system.

- Subdivision development applications must include a detailed “on-site sewage management strategy”. This strategy shall be prepared in accordance with Environment and Health Protection Guidelines - On-site Sewerage Management for Single Households - January 1998, NSW Government, and include:
 - o nominated residential building platform(s) for each allotment;
 - o a detailed site and soil evaluation in accordance with the information on site and soil assessment in Section 4 of the guidelines;

- o proposed treatment technologies and on-site sewage management methods for each allotment;
 - o site specific, dimensioned plan of the proposed land application area for each allotment based on an assessment of the minimum land application area required including details of setbacks to watercourses, boundaries, etc;
 - o proposed performance standards or criteria, in relation to effluent quality - suspended solids, biochemical oxygen demand (BOD), faecal coliforms, etc. - and quantity.
- proposed vegetation retention/planting/harvesting.
 - proposed water conservation measures.
 - On site effluent disposal system designs must also address the relevant provisions of the Local Government (Approvals) Regulation 1999.
 - Lots <5ha, not connected to a reticulated sewerage system.
 - Subdivision development applications must identify suitable areas on each allotment for effluent disposal. These areas must be appropriately located to service the identified building platform.

Solid waste disposal

- Rural subdivision proposals must demonstrate that suitable arrangements have been made for removal or disposal of garbage from future residences.

Rural Subdivision Infrastructure

- Rural subdivision infrastructure is to be provided in accordance with Table A5-11.

Table A5-11: Rural Subdivision Infrastructure Requirements

Infrastructure Required	Where Required	Standard of Infrastructure	Comments
Rural roads generally.	Small lot rural residential subdivision is defined as: - Subdivisions where the average lot size, excluding residual and non residential lots is <5,000m ² . Urban street design criteria (see <i>Development design specification D1 – Road Design</i>) shall be used for urban and small lot rural residential subdivisions. Rural road design criteria (see <i>D1</i>) shall be used for all other rural subdivisions (other than small lot rural residential) and for rural connecting roads to urban subdivisions.		
Sealed roads.	All new subdivision roads, existing roads fronting new lots and the road connecting new lots to the nearest existing sealed road. Where a new subdivision of <12 lots (all stages) is proposed on an existing unsealed road, then a 6m formation with full width gravel pavement, minimum 150mm roadbase depth, is required for all new lot frontages and from that development to the nearest sealed road.	See Development Design Specification D1.	
Kerb and gutter.	On roads in rural subdivisions where the average lot size, excluding residual lots	As above.	Council will consider other road pavement

Infrastructure Required	Where Required	Standard of Infrastructure	Comments
	and non residential lots, is <5,000m ² .		edge options that preserve the road edge asset and prevent parking on unpaved areas.
Reticulated water supply.	Must be provided for all lots connected to a reticulated sewerage system. Otherwise optional requirement, but, future dwellings not connected to reticulated water, will be required to provide rainwater tank water storage with minimum capacity 20,000 litres.	See Development Design Specification D11.	
Sewerage.	For zone 1(c) lots, reticulated sewerage must be provided for lots of 1ha or smaller. In other rural zones lots with dwelling entitlements must have lot size not less than 1ha and have sufficient land for wastewater effluent disposal.	See Development Design Specification D12.	
Reticulated electricity.	Mandatory for all zone 1(c) lots and rural lots in other zones with dwelling entitlements and size <40ha. In 1(c) zone underground reticulation is mandatory for all lots <4,000m ² and for the entire subdivision where the average lot size, excluding residual lots and non residential lots, is <5,000m ² .	Verge service location is to comply with <i>Development Design Specification D1</i> .	If electricity is not supplied to a lot, a section 88 instrument must be attached to lot titles advising: 1. Reticulated electricity supply is not available to the subject allotment, and that: (a) Financial arrangements have been made with the electricity supplier; or (b) Alternative stand alone electricity supply system has been installed to the allotment prior to the creation of the new title. electricity will not be available unless financial arrangements are made with the electricity supplier of a stand alone system is installed.

Infrastructure Required	Where Required	Standard of Infrastructure	Comments
Tele-communication s.	As above.	As above.	As above.
Drainage system.	Transverse and longitudinal road drainage required. Road drainage must be sufficient to eliminate any adverse upstream or downstream impacts on other land and property. Full urban style underground drainage is required for roads with kerb and gutter. Subsoil drainage is required for all road edges where the finished surface is <300mm above natural surface.	See Development Design Specifications D1, D5 and D7.	Drainage (culverts, catch drains, mitre drains, etc) outlets must discharge to natural watercourses/waterways or to drainage easements/reserves created for that purpose.
Flood Immunity.	All lots with dwelling entitlements must contain an identified building platform with surface levels above the Q100 level for local stormwater and regional creek/river flooding. All lots must have high level road and/or pedestrian access to land above PMF level.		See Section A3 - Development of Flood Liable Land for detailed requirements.
External Connections and/or upgrades.	The subdivider must provide all external connections required to connect subdivision infrastructure and upgrade external infrastructure to cater for the additional subdivision load.	See also D1, D5, D7, D11, D12.	

A5.6 THE ASSESSMENT & DECISION MAKING PROCESS

A5.6.1 General

Overview of Approval Process

“Subdivision of Land” means the division of land into two or more parts and it includes registration of the plan of subdivision with *Land & Property Information NSW*. It includes the creation of lots in strata and community title subdivisions.

A typical application has the following steps:

- Preliminary planning (large subdivisions only, see Chapter 3).
- Prepare and submit to Council, development application (DA) for subdivision.
- DA approved with conditions.
- Subdivider, in writing appoints the consent authority as the Principal Certifying Authority (PCA) for the subdivision.
- Do the things necessary to comply with conditions of consent which may include:
 - o Subdivision works (required physical works and activities);

- prepare and submit construction certificate application (must include all detailed plans/drawings of the works) to Council or accredited certifier;
- obtain construction certificate approval;
- construct works;
- obtain subdivision works compliance certificate (to prove works are constructed as required) from subdivision works accredited certifier;
- o Pay developer contributions;
- o Produce and submit required reports, management plans etc to Council;
- o Obtain required compliance certificates;
- Submit subdivision certificate application to Council.
- Receive subdivision certificate.
- Apply to the Registrar General at Land and Property Information NSW to register subdivision plan and issue of new land titles.
- Subdivision works defects liability period (six months) commences when subdivision registered and works become publicly owned.
- Off defects liability inspection, return balance of defects liability bond.

Subdivisions Under the Strata Titles Act

Strata subdivisions in Zone 2 (a), 2 (b), 2 (c), 2 (d), 2 (e), 2 (f), 3 (a), 3 (b), 3 (c), 3 (d), 3 (e), 4 (a), 5 (a), 6 (a) or 6 (b) do not require development consent. Strata subdivisions in the remaining zones require development consent and must comply with the conditions of a development consent.

All strata subdivisions require the issue of a subdivision certificate.

Subdivisions Under the Community Titles Act

General

This form of subdivision generally includes communally owned property and infrastructure. Both development consent and issue of a subdivision certificate are required for community title subdivisions and a construction certificate is required for subdivision works. Subdivision works will include internal community owned infrastructure and external works and/or connections.

Design Guidelines and Development Standards

The design guidelines and development standards for community title infrastructure are generally the same as those for conventional subdivisions except that Council will consider proposals that justify departure from standards for road and verge widths. Standards for street and lot layout are the same as for conventional subdivisions.

Design Development Element	Guideline or Standard	Community Title Variations	Comments
Urban Structure		No change.	
Environmental Constraints		No change.	

Design Development Element	Guideline or Standard	Community Title Variations	Comments
Landforming		No change.	
Movement network		Council will consider proposals to vary road and verge widths.	
Lot layout		No change.	
Open Space network		Council will consider proposals to vary local sports field provision that can be justified by demand projections. The community subdivision must provide internal and perimeter public open space links that provide access to foreshores and special places and are consistent with and provide continuity for the outside urban and open space structure.	
Runoff, drainage, waterways and flooding		No change except stormwater quality and detention/retention devices must be located on community land prior to discharge into the public realm.	
Infrastructure (a) Water, Sewer (b) Other Utilities		No change to level of service for each allotment. The water supply is to be metered at the public/community boundary and the community responsible for internal metering and charging. Sewerage is to be collected and pumped as required by the community to a designated discharge point in the public realm. No change to level of service required. Installations to be in accordance with utility authorities requirements.	

Community Title Subdivision Works

A construction certificate is required for subdivision works which include internal community owned infrastructure as well as external works and/or connections. The requirements for compliance certification of these works is the same as for conventional subdivisions.

Operation, maintenance, repair and replacement of internal infrastructure is the responsibility of the community body corporate and management plans will be required to direct and fund these activities.

At the subdivision certificate application stage a defects liability bond will only be required for works to be transferred to the public realm. Internal infrastructure works to be owned and maintained by the community will not be subject to a defects liability period or bond.

A5.6.2 Development Application Process

When Is a Development Application Needed?

Subdivision Development That Needs Consent

There are a number of development classes defined in the *Environmental Planning & Assessment Act 1979*

Types of development				
Development that does not require consent		Development that requires consent		Prohibited development
		Local development (Council is generally the consent authority that receives and determines applications, however SEPP 71 now requires subdivisions over 25 lots in the coastal zone to be determined by the minister)	State significant development (declared as such and is determined by the minister). Under SEPP71 includes subdivisions over 25 lots in coastal zone.	
Statutory authority development where no consent required under Part 4 but Part 5 of the EP&A Act applies.	Exempted by Tweed LEP 2000	Integrated development		Consent cannot be granted because it is prohibited by Tweed LEP 2000 or other statutory instrument
		Designated Development		
		Advertised development		
		Complying development (does not apply to subdivisions in Tweed Shire)		

Consent Exempted by Tweed LEP 2000

The following subdivisions are exempted from requiring development consent by the *Tweed LEP 2000* below:

- Subdivision under the *Strata Schemes (Freehold Development) Act 1973* or the *Strata Schemes (Leasehold Development) Act 1986* may be carried out without consent if the land is within Zone 2 (a), 2 (b), 2 (c), 2 (d), 2 (e), 2 (f), 3 (a), 3 (b), 3 (c), 3 (d), 3 (e), 4 (a), 5 (a), 6 (a) or 6 (b).
- Subdivision for the purposes of widening a public road, creating an allotment for use by a public utility undertaking, or as a public reserve or the like, notwithstanding that an allotment created by the subdivision may not comply with the minimum lot size applicable to the zone in which the land is situated.

The above exemptions are not applicable to private Torrens Title subdivisions.

Integrated Development

This is the term used for development that requires development consent plus one or more other statutory approvals. The application form lists the other approvals that may be required. When an application is submitted as “integrated development” the applicant notes on the form which other approvals requested and on receipt by Council copies of the application are forwarded to the relevant statutory authorities for their assessment and determination. The statutory authority has a limited time to then deal with the application and forward back to Council the terms (conditions) of its approval. If the statutory authority will not grant an approval that is required for the subdivision to be lawfully carried out, Council must

refuse consent. Council will include the terms of a statutory bodies approval in the DA conditions of consent.

Designated Development

Categories of development with the potential for major impacts have been declared as “designated development”. These applications must be accompanied by a full environmental impact statement, prepared in accordance with a specification obtained by the applicant from Planning NSW. The list of designated development categories can be found in the *Environmental Planning and Assessment Regulation 2000* - Schedule 3. The Act and regulations also detail the requirements for submission of designated development applications and preparation of an environmental impact statement.

Preparation of Development Applications

Do it Properly, Use Competent Consultants

Development applications must be properly completed and accompanied by sufficient information to enable Council to fully assess the proposal.

The statutory requirements for preparing, assessing and determining development applications for the subdivision of land are complex and as such require a multi-disciplinary approach. Delays in processing and refusal of applications can often be attributed to a lack of knowledge of planning law and practice by applicants and inadequate information being submitted by their consultants.

Applicants are responsible for ensuring that an adequate and valid application is lodged. To minimise processing delays and risk of refusal it is recommended that subdividers engage qualified Consultants in all relevant disciplines (particularly in major and comprehensive subdivisions) to assist in preparing applications.

What Information Must I Submit with a Development Application?

The application form itself contains extensive details of the information that must be submitted with a DA. This chapter provides more detail on the information that must be submitted with a DA for subdivision. The act and regulations provide the statutory details of what is required.

Statutory Check List

The following Clause relating to Submission Assessment and Development Applications details the matters Council (as determining authority) must consider when assessing a development application. The subdivider should include an assessment of this checklist in the development application to ensure they are adequately addressed.

Subdivisions with Stages or Management Lots

Where a subdivision is to be developed in stages or where “management” lots are to be created, a master plan must accompany the initial development application and each progressive stage development application. See *Development Design Specification D13 - Engineering Plans (Subdivisions)*, section D13.03 for details of additional information to be provided.

Submission and Assessment of Development Applications

Invalid, Incomplete or Unclear Development Applications

Applications that are not statutorily valid (i.e. submitted on prescribed form; with prescribed fee; include consent of all owners; contain plans and all necessary supporting information eg

Statement of Environmental Effects, Environmental Impact Statement) will be refused on lodgement.

Applications that are statutorily valid, but, manifestly inadequate in terms of the supporting information OR conformity with the LEP, this manual or other relevant Council policies/codes/Sections are likely to be promptly refused.

Applications that are statutorily valid and generally adequate but raise some issues that require further information or clarification, will result in a request for further information or clarification (usually within a 21 day period).

Your Application May Attract Submissions from Other Authorities and the General Public

Other subdivision applications (apart from “integrated development”) may also attract submissions regarding approval/refusal and consent conditions from a range of interested statutory authorities. Submissions may also be received from neighbours, affected persons or landowners and the general public. All submissions will be given the consideration required by the *EP&A Act*.

Assessment

DAs for subdivisions are assessed in accordance with *Section 79C of the Act* which considers matters including:-

- provisions of environmental planning instruments (or drafts that have been placed on exhibition). These include State Environmental Planning Policies (SEPP), Regional Environmental Plans (REP), Local Environmental Plans (LEP);
- provisions of Development Control Plans (DCP), in particular this manual;
- environmental impacts of the development on natural and built environment;
- social and economic impacts on the locality;
- suitability of the site for development;
- submissions;
- the public interest.

SEPP 11 requires subdivision DAs with 200 or more lots or with 50 or more lots with access onto an arterial road or onto a connecting road within 90m of an arterial road to be referred to the Traffic Authority. In determining the DA Council will consider any resulting representation from the Traffic Authority.

Determination of Development Application for Subdivision

Granting Consent, Conditions of Consent, Refusal of Consent

The DA is determined by granting consent or refusing consent.

Consents for subdivisions will normally be accompanied by a number of conditions of consent.

There may be a “deferred commencement” condition that says the consent cannot operate until the applicant has performed certain actions.

Conditions of Consent

Matters covered in conditions of consent for subdivisions may include:-

- deferred commencement requirements;
 - o that the subdivision is to be completed in accordance with the submitted DA and accompanying plans, or with designated alterations.
- payment of monetary contributions (in accordance with section 94 Contributions Plans).
- submission of cash bonds or bank guarantee (to secure uncompleted works, maintenance period etc).
- designation of subdivision works (roads, drains, utilities, enhanced public open space, etc) that must be provided (both on the subdivision site and external to the site); and
 - o how these works are to be designed and constructed;
 - o that a construction certificate must be approved for these works before they are started;
 - o means of certifying that works have been satisfactorily completed.
- special requirements for staged subdivisions or creation of master lots.
- requirement for a Water Supply Authorities Act certificate of compliance (that water and sewerage services have been satisfactorily connected to new lots) and contributions required for water supply and sewerage headworks.
- dedication of land and easements for public purposes (public open space, roads, utility easements etc).
- requirements to insert restriction as to user and/or covenants on proposed lots to control uses of the lots (eg. animal control, Koala protection.
- requirements for survey of the lots and production of the plan of subdivision.
- pre-requisites for submission of a subdivision certificate application.
- submission of evidence that lots conform with development standards (building platform, solar access etc).
- production of management plans:- koalas, threatened species, landscaping, bushfire management, contaminated land remediation, stormwater management, erosion and sediment control etc.
- reports on collection of data, monitoring environmental parameters (eg. water quality) etc.
- for integrated development, conditions that include the general terms of approval from the subject statutory authorities.

A5.6.3 Development Application Documentation

Statutory Requirements

Statutory requirements for the content, form and information required to accompany development applications are contained in *S78A of the Environmental Planning and Assessment Act 1979 ("the Act")* and *Clause 50 and Schedule 1 Forms - Part 1 of the Environmental Planning and Assessment Regulation 2000 ("the Regulations")*.

Section 79C(1)(a)(i) of the Act directs the determining Authority (Council) when assessing a development application to take into consideration the requirements of any applicable development control plan. For subdivisions in Tweed Shire, this manual is the major applicable development control plan and applications must therefore comply with this manual.

The following sections describe the content, form and information required to accompany a development application for subdivision in Tweed Shire that conforms with both statutory requirements and the provisions of this manual.

Subdivision - Development Application Form

Development Applications for subdivision must be submitted on the standard form provided by Council.

DAs for subdivisions are to be accompanied by a subdivision information statement prepared in accordance with this manual.

Subdivision Information Statement

The *Subdivision Information Statement* must be attached to the DA form and contain the following information:-

Note: The following format is principally for urban subdivisions. For rural subdivisions inapplicable information requirements is to be deleted. Rural subdivisions must include an assessment relating to on-site effluent disposal where the subdivision is not provided with sewer connection.

Item 1. Description of Development

- Existing site details:
 - o plan of site showing existing real property lots and boundaries;
 - o above plan site showing existing contours and topography;
 - o above plan showing existing trees and vegetation;
 - o buildings/structures;
 - o aerial photographs (if available).
- Plans of adjacent and nearby areas that are likely to be affected by the proposal showing:
 - o current land use;
 - o existing topography/contours.
- Development proposed:
 - o plan of proposed street, lot and open space layout;
 - o above plan with proposed contours and trees/vegetation to be retained;
 - o general details and location of proposed subdivision works on a background plan of proposed street and lot layout;
 - o where a subdivision is to be developed in stages or where “management” lots are to be created, a master plan of the above must accompany the initial application and each progressive stage application.
- Design and Compliance Reports:
 - o Master Plan;

- Master plans are required for subdivisions of 25 lots or more (all stages) where the urban pattern is not yet determined, or where required in accordance with SEPP 71.
- Master Plans are to contain the information in Table A5-1 of Clause A5.3 and be supported by a written report that addresses the relevant objectives and criteria in Clause A5.4.
- o Design Report to include:
 - a site analysis;
 - how design guidelines and development standards of this manual have been applied to the proposed subdivision;
 - summary of the proposed subdivision design and its underlying urban design principles.
- o Compliance Report:
 - a detailed report addressing all relevant objectives and criteria in Clause A5.4. Full justification is required if there are any significant departures proposed.
 - Address matters identified in section 79C of the Act that are not dealt with elsewhere ie :-
 - provisions of environmental planning instruments (or drafts that have been placed on exhibition). These include State Environmental Planning Policies (SEPP), Regional Environmental Plans (REP), Local Environmental Plans (LEP);
 - provisions of the Development Control Plan/Sections.

Item 2. Preliminary Engineering Drawings and Attachments

Preliminary Engineering Drawings and Attachments of proposed subdivision infrastructure are to be submitted in accordance with *Development Design Specification D13 - Engineering Plans (Subdivisions)*. The full details of drawings and reports required are detailed in D13, however in summary cover the following areas:-

Site plan showing existing and proposed levels; drainage catchments; roads; drainage system; water supply system; sewerage system; earthworks; electricity; telecommunications; gas; indicative landscaping and embellishment of open space; preliminary erosion and sediment control plan; preliminary stormwater management plan; Master plan (for staged and management lot subdivisions).

Item 3. Statement of Environmental Effects (Required for All Subdivisions that are Not Designated Development)

Note: For Designated development, an Environmental Impact Statement must be prepared in accordance with *section 78A(8) of the Act* and *clauses 71, 72 and 73 of the Regulations*; and the EIS is to be submitted in lieu of the Statement of Environmental Effects as detailed below:

3(a) Description of proposed development (this need only refer to Item 1)

3(b) Description of the existing environment

- Natural environment;
 - o slopes, levels, topography, drainage system, vegetation, natural features such as watercourses, views, visual character.

- Cultural environment;
 - o historical features, special places, character of the area, archaeology, heritage items.
- Land use environment;
 - o current site land use, adjoining and nearby land uses.
- Infrastructure environment;
 - o description of existing infrastructure available to service the subdivision (roads, water supply, sewerage, drainage, other utilities).

3(c) Assessment of Environmental Constraints

The following assessments, reports, statements etc are required to be submitted:

- Contaminated land;
 - o Preliminary investigation to determine if the site is contaminated;
 - o Report on how issues raised in above report are to be addressed.
- Flood liable land;
 - o Assessment of flood status of land;
 - o If area is flood liable, a report addressing relevant matters in Clause A5.4.
- Land with risk of landslip or subsidence;
 - o Assessment to determine if site is at risk from subsidence or landslip either on the site or from land off the site, and either from an existing risk or a risk that will result from the proposed subdivision works;
 - o If site has a risk from landslip and/or subsidence, then a report addressing the matters in Clause A5.4.
- Bushfire risk;
 - o Assessment of bushfire risk of proposed subdivision;
 - o If site has a risk, report on how subdivision design addresses these threats as per Clause A5.4.
- Threatened Species, population or ecological communities or their habitats;
 - o Assessment in accordance with section 5A of the EP&A Act to decide if there is to be a significant effect on threatened species, population or ecological communities;
 - o Where there is a significant effect “a species impact statement”, see Clause A5.4.
- Coastal and foreshore lands;
 - o Identify requirements of the NSW Coastal Policy and Design Guidelines and demonstrate compliance;
 - o Identify any requirements for dune or foreshore management plans.
- Significant vegetation;
 - o Determine if there are areas of significant vegetation and map them on a site plan. See Clause A5.4;

- o If there are areas of significant vegetation on the site, a report in accordance with Clause A5.4 demonstrating that:
 - the development proposal does not detract from the ecological, scenic landscape or local identity values of the significant vegetation;
 - where possible significant vegetation has been incorporated into the open space/drainage network or within road reserves;
 - the street/lot layout has been designed to enable significant individual trees or small stands of vegetation to be retained on larger lots outside the building platforms.
- Landscape;
 - o For subdivisions of 50 lots or more, a “Scenic Impact Assessment Report”. See Clause A5.4.
- Waterways, water bodies, riparian areas and riparian vegetation;
 - o Report demonstrating compliance with relevant section of Clauses A5.4.
- Acid Sulphate Soils;
 - o If proposed works may result in disturbance of class 1, 2, 3, 4 or 5 soils on Council’s “Acid Sulphate Soil Planning Map” an “Acid Sulphate Soils Management Plan”.
- Heritage or cultural items of Aboriginal or European origin;
 - o A site plan showing the location, settings and characteristics of any identified items;
 - o If there are items identified, a report on how the subdivision design accounts for these items and how these items are to be preserved, given the future proposed land uses.

3(d) Landforming assessment

If the subdivision contains significant land reforming, defined as >10% of the gross site area or >1.0ha is to have surface levels changed by more than 5m or total earthworks exceed an average of 10,000m³ per ha, then a landforming impact assessment report is required containing:-

- identification of the impact of the proposed landforming on the environment, landscape visual character and amenity, natural watercourses, riparian vegetation, topographical features the environment (including landscape visual character) and public infrastructure;
- assessment of the impacts and benefits of the proposal to all impacted persons and the general public;
- proposed measures to compensate for and minimise any net adverse impacts.

3(e) Socio Economic Impact assessment

An assessment is required in accordance with the provisions of *Section A13 - Socio-Economic Impact Assessment*.

For larger subdivisions of >50 lots/dwellings in all stages (unless exempted by Clause A13.5.2 of Section A13), Section A13 requires a Socio-economic Impact Statement for containing:

- Summary;

- Statement of Objectives of the subdivision;
- Analysis of Alternatives to carrying out the subdivision, including not carrying out the subdivision;
- Identify likely impacts of the development;
- Evaluate Socio-Economic impacts by:
 - o Scoping - identify issues and affected groups;
 - o Profiling - data collection, historic trends, assessing current social and economic context;
 - o Predicting - identify possible future impacts;
 - o Assessing - analyse the impacts;
 - o Consult with the community and other local agencies to determine acceptable limits of impacts associated with the development.
- Justification of Development;
 - o Justify carrying out the development with respect to economic and social considerations and to achievement of Ecologically Sustainable Development and social capital.

3(f) Infrastructure Capability Assessment

Summary of infrastructure capability issues identified in Item 2.

3(g) Impacts of the proposed subdivision

From assessments in 3(a) to 3(d) and 3(f) identify any adverse impacts.

Identify how the development impacts on the existing and likely future amenity of the locality.

Describe the measures that have been taken to mitigate any identified adverse impacts. Where applicable, this may be done by reference to measures already identified in assessments in 3(a) to 3(d) and 3(f).

A5.7 IMPLEMENTING A SUBDIVISION CONSENT

A5.7.1 Complying with the DA Conditions of Consent

Timing of Compliance

Some conditions can be left to the subdivision certificate stage eg. payment of contributions, production of final plan of subdivision, dedication of land etc.

Conditions relating to deferred commencement and the provision of subdivision works are time critical.

In regard to subdivision works, pre-requisites before they commence include:-

- requirements of *S81A(4) of the Act*.
 - o the subdivider has appointed Council as the Principal Certifying Authority.
 - o a construction certificate for the work has been issued by Council or an accredited certifier.

- o Council has been given at least two days notice of the intention to commence work.
- specific conditions of DA consent and provisions of this manual.
- for external works and connection to existing public infrastructure;
 - o S138 Roads Act consent for any works on existing public roads;
 - o S68 Local Government Act approval for connection of subdivision infrastructure (water supply, sewerage, stormwater drain age) to existing public infrastructure;
 - o owners consent for works on private land.
- compliance with other statutory requirements.

Appointing a Principal Certifying Authority

The subdivider must appoint a principal certifying authority for the carrying out of the subdivision. *Section 109D of the Act* and *Tweed LEP 2000*, require the consent authority to be the principal certifying authority for all private subdivisions.

The subdivider must make a request in writing for the consent authority to be the principal certifying authority. If this is acceptable the consent authority will issue a statement that it accepts appointment as principal certifying authority.

The subdivision certificate for a subdivision involving subdivision works, can only be issued by the principal certifying authority appointed for the carrying out of the subdivision.

A5.7.2 Construction Certificates

Construction Certificate is Needed Before Commencing Subdivision Works

- *Section 81A(4) of the Environmental Planning and Assessment Act 1979* advises that subdivision works cannot commence until a construction certificate (for those works) has been issued. Requirements for the content, form and information required to accompany development applications are contained in *s109C and 109F of the Act* and *Clauses 139, 140 and 141 and Schedule 1 Forms - Part 3 of the Environmental Planning and Assessment Regulation 2000* ("the Regulations").
- The "construction certificate" (CC) is in effect, an approval of detailed engineering plans and attachments for the subdivision works.
- The DA conditions will designate what subdivision works are to be provided and how they are to be designed and constructed. These conditions will require the subdivision works to be designed in accordance with this manual and in particular the Development Design Specifications called up in Appendix A.
- If subdivision works are proposed on existing public roads, the construction certificate application must be accompanied by a *S138 Roads Act 1993* consent for the works, issued by the road authority (the road authority is Council except for roads under RTA control).
- If subdivision works propose connection of subdivision infrastructure to existing public infrastructure (water supply, sewerage, stormwater drainage), the application must be accompanied by *S68 Local Government Act 1993* approvals from Council authorising such connections.
- A valid (in accordance with the regulations) construction certificate application may be approved and a construction certificate issued only if the detailed plans and specifications

accompanying the application comply with the conditions of DA consent. Once these plans have been endorsed by the construction certificate, they are referred to in this manual as the *Approved Design Plans*.

Variation of works approved in a Construction Certificate

If the subdivider wishes to amend the subdivision works approved by the construction certificate, a further construction certificate application must be submitted accompanied by amended **plans** and attachments. The amended construction certificate must be issued before any works amended by that certificate are commenced.

Who May Issue a Construction Certificate for Subdivision Works?

Section 81A(4) of the Act says a construction certificate may be issued by the consent authority (Council) or an accredited certifier.

To issue a construction certificate for subdivision works, an accredited certifier must be a "Principal Certifier - Subdivision" in accordance with the *Institution of Engineers, Australia - Accreditation Scheme for Certifiers under the Environmental Planning and Assessment Act (NSW)*.

An applicant therefore has a choice; the application may be forwarded to either Council or an accredited certifier - *Principal Certifier Subdivision* (IE Aust).

A5.7.3 Construction Certificate Documentation

The detailed engineering plans to be submitted with a construction certificate application for subdivision works are specified as required engineering plans and attachments in *Development Design Specification D13 - Engineering Plans (Subdivisions)*. They are summarised in Table A5-12. The construction certificate application must also be accompanied by a compliance certificate, from an accredited certifier, certifying that the plans and attachments accompanying the construction certificate application conform with the conditions of development consent.

Table A5-12: Required Engineering Plans:

No	Plan Group	No	Plan group
1	Title/cover.	18	Hydrology and hydraulic calculations sheets.
2	Overall layout and key plan.	19	Erosion and sediment control.
3	Road set-out plans.	20	Permanent stormwater quality devices and controls.
4	Bulk earthworks and site regrading.	21	Water supply strategy plans.
5	Detail plans.	22	Water supply reticulation and details.
6	External works plans.	23	Water supply pumping stations, reservoirs, special structures, power supply, control systems and telemetry.
7	Typical cross section template and pavement details.	24	Sewerage strategy and catchment plans.
8	Road long-sections.	25	Sewer reticulation and details.
9	Road cross sections.	26	Sewer long sections.
10	Intersection, kerb development details.	27	Sewage rising mains.

No	Plan Group	No	Plan group
11	Off street parking areas.	28	Sewerage pumping stations.
12	Cycleways and pathways.	29	Sewerage septicity controls; special systems, structures, control systems and telemetry.
13	Line marking, signage, traffic facilities and signals.	30	Street, car park and public place lighting.
14	Structures.	31	Other utilities, electricity, gas, telecommunications.
15	Drainage catchments.	32	Open space and landscaping.
16	Drainage long sections.	33	Bushfire Management.
17	Drainage details, structures, schedules.		

Required Engineering Plan attachments:

No	Attachment Group	No	Attachment Group
1	Erosion and sediment control plan	5	Sewerage Strategy
2	Stormwater management plan	6	Pavement Design
3	Traffic management control plan	7	Bushfire Management Plans
4	Water Supply Strategy		

A5.7.4 Subdivision Works, Construction & Certification

Completion of Subdivision Works

- Completion of subdivision works is usually the major, most expensive and most time consuming, pre-requisite for lodgement of a subdivision certificate. The Act provides a mechanism (that in each case will require the consent authorities (Council's) agreement) for bonding all or part of the subdivision works - S109J(2)(b) &(c).
- The subdivision works must be constructed in accordance with the "Approved Design Plans", DA conditions of consent (that apply to how works are to be constructed and will include the requirements of this manual) and legislative requirements. Subdivision works must be constructed in accordance with the Development Construction Specifications called up in **Appendix B**.
- Prior to commencement of subdivision works, the subdivider must appoint a suitably qualified *Subdivision Works Accredited Certifier* (SWAC), who is responsible for certifying the compliance of completed works.
- The quality control requirements for subdivision works and the means by which they are compliance certified are set out in **Appendix C**.
- When works are satisfactorily completed the SWAC may, in accordance with the procedures designated in **Appendix C** of this manual, issue a *Subdivision Works Compliance Certificate*.

Bonding Incomplete Subdivision Works

What Works Have To Be Completed and What Can Be Left Incomplete and Bonded?

Prior to issue of a subdivision certificate the subdivision works must be completed, except the consent authority may enter into an agreement to accept cash or security for designated minor works.

Key infrastructure that is required to service the subdivision and lots therein *must be completed* and this includes:-

- roads and ancillary traffic facilities,
 - o all internal roads;
 - o all external arterial/connector road improvements, intersection upgrades etc.
- drainage
 - o all internal drainage;
 - o all downstream works to the legal point of discharge;

- o all permanent stormwater quality treatment facilities.
- sewerage
 - o all internal sewerage facilities;
 - o all pumping stations, rising mains, odour control facilities and any external works necessary to deliver subdivision sewage to designated discharge point.
- water supply
 - o all internal water supply works;
 - o all connecting mains and any other external works necessary to ensure adequate water supply to the subdivision lots.
- electricity supply – all works.
- telecommunications – all works.

Infrastructure that may be bonded includes:

- concrete footpaths on road verges;
- landscaping on road verges;
- acoustic fencing;
- other minor structures approved by the consent authority.

The consent authority may require the above works to be bonded in cases where future dwelling house construction and the traverse of construction vehicles is likely to result in premature damage and reduced life span.

Nature of Bond and Assessment of Amounts

The amount of bond shall be 135% of the agreed estimated value (or contract value if applicable) of outstanding works. All valuations are to include GST and any other statutory costs.

The bond shall be in the form of cash or an unconditional, unlimited time bank guarantee lodged with the consent authority.

Remedying Defects After Completion of Subdivision Works

Defects Liability Period

For a period of 6 months after their completion, the subdivider must remedy any defects or omissions in the subdivision works. Defects do not include reasonable wear and tear or damage caused to the works by inappropriate use (e.g. damage or abuse from traffic accidents or vandalism).

A defects liability bond must be submitted to the consent authority, with the subdivision certificate application as surety that the subdivider will carry out these remedial works in the manner and times required by this manual.

For the purpose of defining the defects liability period, the works (or the part of works in the subject stage) are considered to be “completed” when all the following pre-requisite conditions have been met:-

- The SWAC has issued a Subdivision Works Compliance Certificate for the whole of the works or the applicable stage of the works; and

- A subdivision certificate has been issued for the subdivision or the subject stage of the subdivision; and
- The subdivision is registered; and
 - o the works are available for their designated public use; and
 - o the lands in which the works occur are appropriately dedicated to the public or easements created for public use of the works.

When all these conditions have been met, the subdivider may apply to the consent authority for a *Notice of Commencement of Subdivision Works Defects Liability Period*. The application must be accompanied by documentary evidence and dates verifying that the above conditions have been met.

If it is satisfied with the evidence submitted with the application, the consent authority will issue a *Notice of Commencement of Subdivision Works Defects Liability Period* to the subdivider and a copy to the SWAC.

The *Notice of Commencement of Subdivision Works Defects Liability Period* shall contain:-

- a description of the works or stage of the works covered by the notice;
- the date of commencement of the maintenance period, being the date that all the above pre-requisite conditions were met.

Defects Liability Bond

The subdivision works defects liability bond must be submitted with the subdivision certificate application.

The bond must be in the form of cash or unconditional bank guarantee for an amount of 5% of the agreed value of the subdivision works.

Remedying Defects During the Defects Liability Period

At any time during the defects liability period, the consent authority may direct the subdivider to rectify any omission or defect in the subdivision works. Defects will include any damage to the subdivision works that occurs in the maintenance period from legitimate use of the infrastructure, but will exclude reasonable wear and tear.

The direction will identify the work of rectification and state the time by which the subdivider shall complete the work of rectification (or stages of the rectification) and may state the time by which rectification shall commence. The directions may initially be given verbally, but must be confirmed up in writing within a period of 7 days. Where public safety is involved the consent authority may require the rectification to be carried out within 5 hours of notification.

Where the defect or omission is causing a loss of service to occupied subdivision lots or interference with traffic the consent authority may require rectification within 12 hours.

If the defect is such that public safety is involved, the consent authority or Council will initially install appropriate signs/barricades to exclude the public from the area and may at its discretion carry out emergency repair works.

The subdivider shall perform the remedial works in accordance with the consent authority's direction and in the time period specified in the direction. If the subdivider fails to conform with the direction or part of the direction, the consent authority may perform the works and charge costs to the subdivider.

The consent authority will deduct the following costs from the defects liability bond:-

- The consent authority's and any Council costs to perform remedial works when the subdivider, fails to perform the remedial works in accordance with Consent Authority's direction and the time period specified in the direction;
- Where public safety is involved, Consent Authority's and Council costs to install appropriate signs/barricades to exclude the public from the area and emergency repair works deemed necessary by the Consent Authority or Council.

Off Defects Liability

At the expiry of the defects liability period the subdivider may apply to the consent authority for an off defects liability inspection and request a return of the defects liability bond.

An application for an *Off Defects Liability Inspection* must be accompanied by an *Off Defects Liability Compliance Certificate*, issued by the SWAC.

The *Off Defects Liability Compliance Certificate* must:-

- include a CCTV inspection report of all sewer and stormwater pipelines (including pits, manholes and benching) taken on or immediately after the expiration of the maintenance period;
- certify that on, or immediately after, the date of the expiry of the maintenance period, the subdivision works (including the CCTV inspection report) were fully inspected to determine if there were any defects and/or omissions; and
- certify that all defects and/or omissions have been satisfactorily remedied;
- include a schedule of the defects and omissions found (type and location) and repaired (type of repair and date completed).

On receipt of the application for an *off defects liability inspection* (accompanied by the SWAC's *Off Defects Liability Compliance Certificate*) the Consent Authority will arrange the inspection which is to be attended by the SWAC, the Consent Authority, Council and the subdivider.

The Consent Authority and Council representatives will conduct the inspection which may include:-

- Review of SWAC's *Off Defects Liability Compliance Certificate*, SWAC to satisfactorily answer questions from the Consent Authority or Council regarding detected defects/omissions and repairs. Selected inspections of defects/omissions/repairs.
- Inspection of earthworks and road works
 - o Concrete kerbs and walkways/bikeways;
 - o Pavements and surfacing for deformation/damage and may include random load testing;
 - o Landscaping, surfacing and tree planting of road verges;
 - o Street signs, lighting, furniture and line marking (Note: Unserviceable line marking must be reinstated and will not be considered to be the result of legitimate wear and tear).
- Public open space

- o Coverage of open spaces with surfacing, turf or ground cover as specified in approved plans;
- o mowable surfaces satisfactory for easy maintenance;
- o Successful establishment of landscaping and tree planting;
- o Free from noxious weeds;
- o Embellishments, playground equipment, structures, buildings in good order and fully functional;
- o Stormwater systems;
- o Landscaping, surfacing and tree planting of road verges and public open spaces, embellishment of public open spaces;
- o Stormwater systems, overland flow paths and treatment facilities functional and in good order.
- Stormwater drainage
 - o roads, pipes, structures, inlets, outlets, flowpaths clear of silt and debris;
 - o no ponding on roads, in pipes, structures, kerbs or flowpaths;
 - o turfing/surfacing of open drains;
 - o pipes for damage/movement;
 - o exposure or corrosion of reinforcing steel;
 - o overland flow paths for profile;
 - o stormwater treatment facilities fully functional, cleaned out (where appropriate eg GPT, silt traps etc) and in good order;
 - o inter-allotment drainage system;
 - o downstream culverts/pipes and water courses cleared of saltation.
- Water Supply
 - o system functioning satisfactorily, no visible leaks or malfunctions, pressures and flow at service connections satisfactory;
 - o hydrants, valves and other fittings functioning and surrounds and associated markings still clearly visible;
 - o height of valves and hydrants in accordance with approved design plans;
 - o no signs of surface subsidence along alignment.
- Sewerage
 - o system functioning satisfactorily, no visible faults or malfunctions;
 - o no infiltration of groundwater into sewer lines/system;
 - o no signs of any surface deformation along alignment;
 - o no ponding of surface water above manholes;
 - o pump stations, odour control systems and the like functioning to design specifications.

On completion of the *off defects liability inspection*, if the Consent Authority and Council are satisfied that all defects and omissions in the subdivision works have been satisfactorily remedied, Council will issue a *Infrastructure Release Notice* for the off defects liability, scheduled inspection and the Consent Authority will advise the subdivider in writing that the subdivision works are off defects liability and return the balance of the defects liability bond. If unremedied subdivision works defects or omissions are detected by the Consent Authority or Council in the off defects liability inspection, the subdivider must remedy these works and re-apply for an off defects liability inspection.

When the Consent Authority has advised that the subdivision works are off defects liability the balance of the bond to be returned shall be calculated as follows:

Defects liability bond amount submitted with subdivision certificate:

- minus Consent Authority and Council costs (plus on costs and overheads) to perform remedial works when the subdivider, fails to perform the remedial works in accordance with the Consent Authority's direction and the time period specified in the direction given under Clause A5.6 of Section A5.
- minus Where public safety is involved, Consent Authority's and Council costs (plus on costs and overheads) to install appropriate signs/barricades to exclude the public from the area and emergency repair works deemed necessary by the Consent Authority or Council.
- minus Consent Authority and Council costs for attending the off defects liability inspection(s).

Community Title Subdivisions

A defects liability bond will only be required for community title subdivision works to be transferred to the public realm. Internal infrastructure works to be owned and maintained by the community will not be subject to a defects liability period or bond.

A5.7.5 Complying with other (Not Related To Subdivision Works) Conditions of Consent

Other Statutory Authority Terms of Approval (Integrated Development)

The subdivider must comply with the terms of other statutory authority approvals, which in integrated development become part of the DA conditions of consent. These terms of approval may also impact on the manner and timing of parts of the subdivision works.

Other Conditions

Many of the remaining (not related to subdivision works) conditions of consent will refer to matters that must be complied with in the preparation of the subdivision certificate application and accompanying information, contribution, reports/manuals/management plans etc, and the completion of these matters can be deferred to that stage. Other conditions may require action prior to that stage eg. monitoring environmental criteria, environmental repair and/or compensatory works, water quality sampling, contaminated land remediation etc. The subdivider must comply with all these remaining conditions of consent, in the time period designated in the condition.

A5.7.6 Subdivision Certificates

Process

When a subdivision certificate has been issued the subdivider may apply to the Registrar General at *Land and Property Information NSW* for registration of the plan of subdivision and issue of titles for the newly created lots.

The purpose of the subdivision certificate application is to formally submit the plan of subdivision (the survey plan that is proposed to be the “deposited plan” of the subdivision) and demonstrate to the Principal Certifying Authority compliance with all the conditions of the DA consent so that a subdivision certificate can be issued.

The subdivision Certificate application will be determined by the Principal Certifying Authority by approval or refusal. If refused the PCA will give reasons for approval and the applicant’s rights for appeal against the refusal.

Subdivision Certificate Documentation

Applicants must ensure all the information and accompanying documents required by regulation 157 are submitted with the application. As well as formal details of the applicant, land and owners consent, regulation 157 requires the following documents:

Document	Comments
Plan of subdivision.	Include all associated instruments (easements, caveats, S88 etc).
Development consent.	Relevant to the subdivision.
Construction certificate.	For the subdivision works.
Detailed subdivision engineering plans.	Approved by construction certificate.
For deferred commencement consent, evidence of matters being satisfied.	
Evidence of compliance with all relevant conditions of DA consent.	
Certificate of compliance from water supply authority (if relevant).	The applicant must apply to Council (as the water supply authority) to obtain this certificate of compliance.
If subject of an order of section 40 of the Land and Environment Court Act 1979, evidence that required drainage easements have been acquired.	
For subdivisions involving subdivision work, evidence that the work has been completed or other agreements reached with consent authority re payment/security.	Subdivision works compliance certificate required, see A5.7.6 below and Appendix C.

Note: 7 copies of the Subdivision Certificate Application are required. The application may be lodged electronically in accordance with “*The Conveyancing Amendment Act 2002* (e-Plan)”.

Evidence that Subdivision Work Has Been Completed

Clause 157 of the Regulations requires the applicant for a subdivision certificate to provide “evidence that the work has been completed”. *Section 109J of the Act* requires the principal Certifying Authority (PCA) to be satisfied that the work has been completed prior to issuing a subdivision certificate. In this regard evidence that will be satisfactory to Council is production of a “*Subdivision Works Compliance Certificate*” issued by a subdivision works accredited certifier (SWAC) in accordance with this manual. See *Appendix C - Subdivision Works, Compliance Certification* for details of certification requirements.

APPENDIX A - SUBDIVISION WORKS - DEVELOPMENT DESIGN SPECIFICATIONS

A5.A.1 Development Design Specifications to be Used in Subdivision Design

Subdivision works and infrastructure are to be designed in accordance with the “Tweed Shire Council, Development Design Specification” series specified below:-

Specification No.	Specification Title
D1	Road Design
D2	Pavement Design
D3	Structures Bridge Design
D4	Subsurface Drainage System
D5	Stormwater Drainage Design
D6	Site Regrading
D7	Stormwater Quality
D9	Cycleway and Pathway Design
D10	Bushfire Protection
D11	Water Supply
D12	Sewerage System
D13	Engineering Plans (Subdivisions)
D14	Landscaping Public Space

A5.A.2 Certification of Tweed Shire Council, Development Design Specifications

A development design specification version is certified if it has on the inside cover page, the signature of the Director of Engineering Services and the date the version of the specification came into force.

A5.A.3 Use Current Version

Subdivisions shall be designed in accordance with the current version of the design standards.

A5.A.4 Amendments to Versions

The Director of Engineering Services may at any time, amend the Development Design Specifications, by certifying a new version that amends and replaces the previous version.

When amendments are made, the latest version shall be posted on Council's internet web site on the date it comes into force. The internet web site shall also contain a log of amendments and versions for all the specifications, to enable easy checking of the currency of versions.

The internet web site will contain information bulletins advising of proposed changes to design specifications, current issues, draft amendments for comment etc.

A5.A.5 Designs, and Associated Plans and Attachments to Accompany Applications

Detailed requirements for **plans** and attachments associated with subdivision works that are to accompany:

- Development Applications (for subdivisions);
- Construction Certificate Applications (for subdivision works);
- Subdivision Certificate Applications.

Are specified in D13.

D13 also specifies who may prepare and certify such designs, plans and attachments.

A5.A.6 Preparation of Designs, Plans and Attachments for Subdivision Works

In the preparation of designs, plans and attachments for subdivision works the subdivider shall:-

- engage suitably qualified, experienced and competent persons.
- comply with Section A5 and the accompanying Tweed Shire Council, Development Design Specifications.
- comply with all statutory requirements.
- comply with occupational, health and safety requirements, traffic control and safety, and environmental requirements relating to noise, dust, air, water and sediment discharges.
- carry out all site investigations (including underground and site boring) to provide adequate information to prepare designs and assess construction methods. This may also include investigations of the immediate subdivision area which may include investigation of connections to existing works and services, traffic analysis of adjoining areas etc.
- be responsible for all necessary geotechnical investigation and analysis to ensure that the subdivision and all works associated with the subdivision are stable and will not be subject to subsidence, landslip, mass movement or significant erosion in the short and long term.

In the preparation of designs, plans and attachments of subdivision works to accompany a Construction Certificate Application the subdivider shall:-

- ensure that the designs, plans and attachments comply with the conditions of development consent

Where it will be necessary for the execution of works to enter upon or construct works (such as connecting drainage, pipelines, roads etc) on property not owned by the subdivider must obtain necessary permits or easements or acquire land to construct such works.

A5.A.7 Existing Services

Council will provide the developer with access to all relevant records of Council services and installations within the subdivision area and adjacent connection areas.

The subdivider must confirm the accuracy this information by necessary site investigations and exploratory excavations.

The subdivider is responsible for locating all other non Council services and utility locations within the subdivision works area.

The subdivider is responsible for the arranging and cost of removing/alteration of any existing services, where such action is necessary for the subdivision works to proceed.

A5.A.8 Subdivisions Involving Staging, or Management/Master Lots

Attention is drawn to the requirements of the Development Design Specifications - *D13* regarding the additional detail required when proposing staged or management/master lot subdivisions.

APPENDIX B - SUBDIVISION WORKS - DEVELOPMENT CONSTRUCTION SPECIFICATIONS

A5.B.1 Development Construction Specifications to be Used in Subdivision Design

Subdivision works and infrastructure are to be constructed in accordance with the *approved design plans* and attachments approved with the Construction Certificate and unless otherwise specified in those plans, also with the "Tweed Shire Council, Development Construction Specification", "C-Series" specified below:-

C101 General	C245 Asphaltic Concrete
C201 Control of Traffic	C247 Mass Concrete Sub base
C211 Control of Erosion and Sedimentation	C248 Plain or Reinforced Concrete Base
C212 Clearing and Grubbing	C254 Segmented Paving (deleted)
C213 Earthworks	C255 Bituminous Micro surfacing
C220 Drainage	C261 Pavement Markings
C221 Pipe Drainage	C262 Signposting
C222 Precast Box Culverts	C263 Guideposts
C223 Drainage Structures	C264 Non Rigid Road Safety Barrier Systems
C224 Open Drains Including Kerb and Gutter	C265 Boundary Fence
C230 Subsurface Drainage General	C271 Minor Concrete Works
C231 Subsoil and Foundation Drains	C273 Landscaping
C232 Pavement Drains	C401 Water Reticulation
C233 Drainage Mats	C402 Sewerage System
C241 Stabilisation	C501 Bushfire Protection Perimeter Tracks
C242 Flexible Pavements	CQC Quality Control Requirements
C244 Sprayed Bituminous Surfacing	

Where part of the works to be constructed are not covered by the above specifications, they are to be constructed in accordance with appropriate specifications issued by an Australian state or federal statutory authority or the relevant standard of the Standards Association of Australia.

A5.B.2 Certification of Tweed Shire Council, Development Design Specifications

A development construction specification version is certified if it has on the inside cover page, the signature of the Director of Engineering Services (or the person carrying out these functions in any restructured Council organisation) and the date the version of the specification came into force.

A5.B.3 Use Current Version

Subdivisions shall be constructed in accordance with the current version of the construction design specifications.

A5.B.4 Amendments to Versions

The Tweed Shire Council Director of Engineering Services may at any time, amend the Development Construction Specifications, by certifying a new version that amends and replaces the previous version.

When amendments are made, the latest version shall be posted on Council's internet web site on the date it comes into force. The internet web site shall also contain a log of amendments and versions for all the specifications, to enable easy checking of the currency of versions.

The internet web site will contain information bulletins advising of proposed changes to construction specifications, current issues, draft amendments for comment etc.

A5.B.5 Alternative Construction Specifications

As an interim measure, for a period of one year from the date of approval of this plan, other construction specifications (such as standard construction specifications used by consulting engineering firms) may be used as a part substitute for the C Series specifications designated in B1 subject to the following conditions:

- Prior to the submission of a construction certificate application that proposes use of other construction specifications, the applicant must obtain the prior written approval of the Director of Engineering Services for these specifications.
- Notwithstanding such approval the following parts of the C Series constructions specifications must be retained:
 - o All of C101 – General;
 - o C201 – Control of Traffic;
 - o C211 - Control of Erosion and Sedimentation;
 - o C213 – Earthworks;
 - o C401 – Water Reticulation;
 - o C402 – Sewerage System;
 - o C501 – Bushfire Protection, Perimeter Tracks; and
 - o The tolerances section of all other C Series construction specifications.

APPENDIX C - SUBDIVISION WORKS, COMPLIANCE CERTIFICATION

A5.C.1 Scope

For subdivisions involving subdivision work, the Principal Certifying Authority (PCA) shall be the (development) consent authority (Council or Minister for Planning for State significant development, and applications called up by SEPP71).

Prior to issue of a subdivision certificate the Principal Certifying Authority must be satisfied (S109J(2)):

- (a) that the work has been completed, or
- (b) that agreement has been reached between the applicant for the certificate and the consent authority:
 - (i) as to the payment by the applicant to the consent authority of the cost of carrying out the work, and
 - (ii) as to when the work will be completed by the consent authority, or
- (c) that agreement has been reached between the applicant for the certificate and the consent authority:
 - (i) as to the security to be given by the applicant to the consent authority with respect to the work to be completed, and
 - (ii) as to when the work will be completed by the applicant.

This appendix applies to (a) above. Arrangements referred to in (b) or (c) above must be by special agreements negotiated with the Principal Certifying Authority. However, such agreements must (where applicable) be in accordance with relevant provisions of this appendix.

This appendix does apply in the case where a subdivision certificate is sought for part only of the land to be subdivided (in accordance with a development consent) provided all the subdivision works for that part of the land (including necessary off site works) have been completed.

Clause 157 of the Regulations requires the applicant for a subdivision certificate to provide “evidence that the work has been completed”. *Section 109J of the Act* requires the Principal Certifying Authority to be satisfied that the work has been completed prior to issuing a subdivision certificate. In this regard evidence that will be satisfactory to the Principal Certifying Authority (Council or Minister) is production of a “*Subdivision Works Compliance Certificate*” issued by a subdivision works accredited certifier (SWAC) in accordance with this manual.

A5.C.2 Subdivision Works - Certification Arrangements

Definitions

“Subdivision work(s)” means:-

any physical activity authorised or required to be carried out under the conditions of development consent for the subdivision.

“Completion of subdivision works” means:-

the SWAC has issued a “Subdivision Works Compliance Certificate”, and the “date of completion” is the date on the compliance certificate.

Appointment of Subdivision Works Accredited Certifier (SWAC)

1. A Subdivision Works Accredited Certifier (SWAC) must be appointed by the subdivider to ensure that subdivision works are completed in accordance with the conditions of development consent and to subsequently issue a “subdivision works compliance certificate”.
2. An accredited certifier must not be appointed as the SWAC for a subdivision if he or she has a conflict of interest in accordance with section 66 of the Building Professionals Act 2005.
3. A SWAC shall be accredited by the Building Professionals Board Accreditation Scheme in the following categories:
 C4: Accredited certifier - stormwater management facilities construction compliance.
 C6: Accredited certifier - subdivision road and drainage construction compliance.
 A SWAC shall be required to provide documentary evidence to Council demonstrating current accreditation with the Building Professional Board.
4. The subdivider must notify the Principal Certifying Authority and Council of the name, address and contact phone number of the SWAC, prior to the issue of any Construction Certificate.
5. If the proposed subdivision creates 5 new allotments or less, or the value of the new public infrastructure is less than \$30,000, then the SWAC may be substituted for an Institute of Engineers Australia Chartered Professional Engineer (Civil College) with NPER registration.

Powers and Duties of the SWAC

The primary functions of the SWAC are to:

- ensure that the subdivision works are constructed in accordance with the *Approved Design Plans*, conditions of development consent and the Development Construction Specifications C101 - C501; and
- on satisfactory completion of these works, in accordance with the requirements of this manual issue a *Subdivision Works Compliance Certificate* as evidence to the Principal Certifying Authority that *the subdivision work is completed*;
- If the subdivider does not construct the subdivision works in accordance with the *approved design plans*, conditions of development consent and the Development Construction Specifications, refuse the issue of a *Subdivision Works Compliance Certificate* (or refuse it until all non compliant works have been remedied to become fully compliant).

Subdivider’s Responsibilities

Subdivider’s responsibilities for completion of subdivision works

To receive a *Subdivision Works Compliance Certificate*, the subdivider must construct subdivision works in accordance with the *Approved Design Plans* and the conditions of development consent. This includes the subdivider constructing all subdivision works in

accordance with the Development Construction Specifications C101 - C501 and in this regard to:

- enable subdivision works site access at all times to the SWAC and the Principal Certifying Authority (Council) or their representatives;
- where works fail inspections and/or tests, respond as required by the Development Construction Specifications or associated SAA or other relevant standards or SWAC's directions. If this requires removal of defective work, then remove the defective work as directed by the SWAC;
- comply with all statutory requirements with regard to subdivision works;
- respond as required and appropriate to orders/directions/notices requests etc from Council representatives and representatives of statutory authorities;
- when appropriate apply to the SWAC for a *Subdivision Works Compliance Certificate* and *Off Defects Liability Compliance Certificate*.

If the subdivider fails to construct the subdivision works in accordance with the above requirements, this will result in the SWAC refusing to issue a *Subdivision Works Compliance Certificate*.

Certification of Subdivision Works

In order to meet the requirements of a Subdivision Certificate application relating to subdivision works, when the subdivision works have been completed, the subdivider must:

- in accordance with *Development Design Specification D13*, arrange for production of *Work as Executed Plans (WAX)*;
- apply to the consent authority and obtain a "*Subdivision Work as Executed Plans Compliance Certificate*";
- submit a copy of the "*Subdivision Work as Executed Plans Compliance Certificate*" to the SWAC;
- apply to the SWAC for a "*Subdivision Works Compliance Certificate*".

Subdivision Work as Executed Plans Compliance Certificate

When the subdivider considers that the works are completed, *Work as Executed Plans* may be prepared and an application for a "*Subdivision Work as Executed Plans Compliance Certificate*" submitted to the consent authority (see *Development Design Specification D13*).

A "*Subdivision Work as Executed Plans Compliance Certificate*" is a prerequisite for the issue of a "*Subdivision Works Compliance Certificate*".

Subdivision Infrastructure Inspection Clearance

Inspections by Infrastructure Authority (Council)

The Council of the area, being the authority that will receive and take over responsibility for infrastructure created by the subdivision works, will make a number of inspections during the progress of the works. These inspections may be scheduled inspections or unscheduled inspections.

Right of Access

The subdivider must enable access to the subdivision works site at all times to the infrastructure authority or its authorised representatives. This includes access to all plans, specifications, survey data, test results etc related to the works.

Scheduled Inspections

- Scheduled inspections are detailed in Appendix D and are nominated as Hold Points.
- Works must not proceed beyond any of these Hold Points until the Council has issued an *Infrastructure Release Notice*.
- A *Subdivision Works Compliance Certificate* must not be issued by the SWAC, until there is an *Infrastructure Release Notice* issued by the infrastructure authority for all hold points and witness points nominated in Appendix D.
- The PCA shall not advise that the subdivision works are “off defects liability” (see p94) unless it has received an *Infrastructure Release Notice* from Council for the *Off Defects Liability Inspection*, Scheduled Inspection (Appendix D).

Unscheduled Inspections

- *Unscheduled Inspections* by the infrastructure authority may take place at any time.
- It is the responsibility of the SWAC to ensure the subdivision works are constructed in accordance with the conditions of consent, approved design plans and requirements of the development construction specifications. *Unscheduled Inspections* by the Infrastructure Authority are a means of auditing this process.
- *Unscheduled inspections* may take the form of:
 - o Visual inspections;
 - o Sampling and testing (of a type referred to in the development construction specifications);
 - o Survey or level check.
- *If the Unscheduled Inspection reveals non-conformance with the conditions of consent, approved design plans and requirements of the development construction specifications, the infrastructure authority may issue a Non Compliant Infrastructure Notice to the PCA.*
- *The PCA shall forward the Non Compliant Infrastructure Notice to the SWAC.*
- *The SWAC must respond to the Non Compliant Infrastructure Notice by presenting to the PCA within 7days an Infrastructure Remediation Plan detailing how non conforming works can be remediated to conform with the conditions of consent, approved design plans and requirements of the development construction specifications. The PCA shall forward a copy of the Infrastructure Remediation Plan to the infrastructure authority.*
- *The infrastructure authority may audit the progress of the Infrastructure Remediation Plan with further Unscheduled Inspection(s). If remediation is not satisfactory the infrastructure authority may issue further Non Compliant Infrastructure Notice (s).*
- *When the remediation works are completed to the satisfaction of the infrastructure authority, it shall issue an Infrastructure Release Notice to cancel the previously issued Non Compliant Infrastructure Notice(s).*

- A *Subdivision Works Compliance Certificate* must not be issued by the SWAC, until there is an *Infrastructure Release Notice* issued by the infrastructure authority to cancel all previously issued *Non Compliant Infrastructure Notice(s)*.

Subdivision Works Compliance Certificate

Prior to the issue of a “*Subdivision Works Compliance Certificate*” the SWAC must:

1. Be satisfied that the subdivision works have been completed in accordance with *Approved Design Plans*, conditions of development consent and the Development Construction Specifications.
2. Be in receipt of all *Infrastructure Release Notices* required by Appendix D.
3. Receive a “*Subdivision Work as Executed Plans Compliance Certificate*” issued by the consent authority.
4. Complete the “*Subdivision Work Compliance Certificate*” in the form of Attachment C1.
5. Attach to the certificate all the information and supporting documentation required in *Schedule A* of Attachment C1 being:-

SCHEDULE A

1. Date Subdivision Works commenced on site
2. Date Subdivision Works completed
3. Copies of all tests and results required by the Development Construction Specifications, and Closed Circuit Television (CCTV) pipeline reports.
4. Copies of WAX plans as required by Development Design Specification D13.
5. *Subdivision Work as Executed Plans Compliance Certificate* (must be issued by the Consent Authority).
6. Copies of all *Infrastructure Release Notices* for *Scheduled Inspections* issued by the infrastructure authority as required by C2.63.
7. Copies of all *Non Compliant Infrastructure Notice(s)* issued by the infrastructure authority arising from *Unscheduled Inspections* and for each such notice an accompanying *Infrastructure Release Notice* releasing the non-compliance as required by C2.64.

ATTACHMENT C1

TWEED SHIRE COUNCIL

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

SUBDIVISION WORKS, COMPLIANCE CERTIFICATE

Accredited Certifier**Description of Development** Subdivision**Development Consent No.****Date of Determination****Construction Certificate No.****Date of Determination****Address of land on which development is being carried out**.....
.....**Description of work inspected**

Subdivision Works authorised and/or required by the above development consent.

or in the case where a subdivision certificate is sought for part only of the land to be subdivided (in accordance with the development consent)

the subdivision works applicable to the part of the land (including necessary off site works) defined as

.....

(delete inapplicable sections and if necessary insert details of the part of land applicable to this certificate)

How has work been inspected?

Inspections, sampling and testing as required by the conditions of consent, approved construction certificate design plans and attachments, and Development Construction Specifications (Section A5, Appendix B).

Date and time inspected

As required by Specifications

Certification

I certify that based the inspections as detailed in Schedule A, the subdivision works have been completed in accordance with the Conditions of Consent, Plans Approved by the Construction Certificate and the applicable Development Construction Specifications.

Signature on behalf of Subdivision Works Accredited Certifier

.....

Date

SUBDIVISION WORKS, COMPLIANCE CERTIFICATE

SCHEDULE A

1. Date Subdivision works commenced on site
2. Date Subdivision works completed
3. Copies of all tests, inspection reports, CCTV pipeline reports and the like
4. Copies of WAX plans as required by Development Design Specification D13
5. *Subdivision Work as Executed Plans Compliance Certificate* (must be issued by the Consent Authority)
6. Copies of all *Infrastructure Release Notices* for *Scheduled Inspections* issued by the infrastructure authority as required by C2.63.
7. Copies of all *Non Compliant Infrastructure Notice(s)* issued by the infrastructure authority arising from *Unscheduled Inspections* and for each such notice an accompanying *Infrastructure Release Notice* releasing the non compliance as required by C2.64.

APPENDIX D - Subdivision Infrastructure Inspections

A5.D.1 Definitions

Scheduled Inspection Inspections scheduled in this appendix, which constitute Hold Points for the subdivision works.

Hold Point A point beyond which an activity (being part of the subdivision works) which may not proceed without the approval of the infrastructure authority.

Infrastructure Authority The local government Council of the area which will receive and take over responsibility for infrastructure created by the subdivision works.

A5.D.2 Scheduled Inspections by Infrastructure Authority

Subdivision works must not proceed beyond the scheduled inspection Hold Points nominated in this Clause until an *Infrastructure Release Notice* has been issued by the infrastructure authority.

Table D2 nominates the scheduled inspections to be made by the infrastructure authority and criteria for acceptance.

For staged subdivisions, these Hold Points are applicable to each stage.

If the subdivider chooses to do the works in sections or sub stages, an inspection and release will be required for each section covered by the Hold Point.

TABLE D2 - SCHEDULED INSPECTIONS

Hold point	Description	When	Acceptance criteria	Comments
1.	Inspection of sedimentation and erosion control measures.	Prior to stripping of vegetation or and/or topsoil from the site.	Erosion and sediment control measures are installed in accordance with the approved erosion and sediment control plan.	
2.	Inspection of site.	After stripping of topsoil, prior to earthworks. Not a required hold point if a geotechnical consultant has been engaged in accordance with AS 3798- 1996 and a certificate verifying this has been submitted to Council.	Insitu material is deemed to be suitable for earthworks.	If insitu material not deemed suitable, the subdivider must submit alternative proposal to remove unsuitable material and import satisfactory replacement material.
3.	Inspection of completed earthworks.	When earthworks completed and prior to placement of pavement materials.	Finished earthworks and sub grade levels are in accordance with approved design	

TABLE D2 - SCHEDULED INSPECTIONS

Hold point	Description	When	Acceptance criteria	Comments
			plans, Sediment and erosion control measures (including dust control) are installed and operating in accordance with the approved erosion and sediment control plan.	
4.	Road sub grade levels and proof rolling.	Sub grade completed, prior to placement of pavement.	Levels within specified tolerance. Proof rolling with truck dual wheels with minimum loaded axel weight of 8 tonnes per axle) does not reveal visible deflection.	Areas deflecting are to be removed and replaced with compacted approved material for full extent of affected area and subjected to retest.
5	Road sub base levels and proof rolling.	Sub base completed, prior to placement of pavement.	As above.	As above.
6.	Pavement under kerb & gutter.	Immediately prior to pouring kerb and gutter and stringline for kerb machine is in place.	As above.	As above.
7.	Finished road Pavement.	Pavement completed, trimmed and compacted (prior to sealing).	Levels within specified tolerance and with sufficient depth still available to accommodate AC (if applicable). Proof rolling with truck dual wheels with minimum axel weight of 8 tonnes) does not reveal visible deflection.	As above.
8	Concrete structures including footpaths.	After placement of steel reinforcing and formwork and prior to concrete pour.	Formwork structurally sound and dimensionally correct. Reinforcing in accordance with approved drawings.	
9.	Kerb and gutter where grades are less than 1%.	Kerb & gutter completed.	Water from water truck is to be run down kerb and reveal no ponding.	
10.	Stormwater pollution control structures.	Unit installed and fitted out.	Unit constructed and installed in accordance with approved plans and	

TABLE D2 - SCHEDULED INSPECTIONS

Hold point	Description	When	Acceptance criteria	Comments
			specifications.	
11.	Sewerage pumping and stations civil works.	Prior to pouring concrete.	Excavation, formwork and reinforcing is in accordance with approved plans and specifications.	
12.	Sewerage pumping and lift stations mechanical and electrical.	Mechanical and electrical works installed.	Mechanical and electrical works installed in accordance with approved plans and specifications.	
13.	Sewerage pumping and lift stations commissioning.	Pumping station completed.	Pumping station performs in accordance with approved plans and specifications. All necessary operation and parts manuals handed to infrastructure authority.	
14	Final practical inspection.	Subdivision works completed.	No defects or non-compliance found.	
15.	Off defects liability inspection.	Expiry of defects liability period.	Satisfactory outcome of inspections detailed in A5.7.4).	

APPENDIX E – RECOMMENDED BUFFERS

A5.E.1 Application of this Appendix

Except for buffers also contained in other statutory instruments or legislation, the buffers recommended in this Appendix are advisory only.

In applying these buffers:

- A proposed subdivision is considered to be “encroaching development”, see definition below.
- Subdivision design and lot layout should endeavour to ensure that the nominated building envelopes, in lots created by the subdivision, comply with the recommended buffers.

A5.E.2 Definitions

"Buffer area" means an area of prescribed width and treatment created between two or more landuses (including environmentally sensitive areas) for the purpose of mitigating the impacts of one or more of those landuses.

"Encroaching Development" means any development, including subdivision, the erection of a building or the carrying out of an activity on land to which this Section applies, which is proposed on land adjacent to an existing development or land use, or to land previously zoned for a specific purpose under the Tweed LEP 2000.

"Biological buffers" mean a buffer that assists the capture of airborne pesticide droplets through the creation of a vegetation filter. Vegetation screens can prove effective barriers to spray drift where they meet the following criteria:

- are of a minimum width of 30 metres;
- contain random plantings of a variety of tree and shrub species of differing growth habits, at spacings of 4 to 5 metres;
- include species which have long, thin and rough foliage which facilitate the more efficient capture of spray droplets (see Clause A5 Appendix 1 for suitable species);
- provide a permeable barrier which allows air to pass through the buffer (at least 50% of the screen should be open space).

A5.E.3 Agriculture

Increased human habitation of rural areas increases the potential for landuse and lifestyle conflict resulting from rural practices such as agriculture, or from human habitation encroaching on incompatible rural activities. Examples include pesticide use, noise, dust, odours, pollution and weed invasion.

A5.E.4 Pesticides

The *Pesticides Act 1978* prescribes ways of controlling the application of pesticides from aircraft. The Act requires that the property owner (or person authorising the spraying of the chemicals) obtain the prior written consent of all landowners of dwellings or public premises whose boundaries are located within 150 metres of the spray area.

Recommended Buffer:

- (a) 150 metre habitable building setback from the spray area or likely future spray area, including a 'biological buffer' of minimum width of 30 metres established prior to development along the boundaries adjoining intensive cropping and horticultural landuse, and established in accordance with the figure below. Clause A5 Appendix A contains suggested buffer plantings.
- (b) Where the spray application is not applied by aircraft, the setback can be reduced to 80 metres, which will include a 'biological buffer'.
- (c) Applications for development, where biological buffer areas are proposed, shall include a detailed landscaping plan indicating the extent of the buffer area, the location and spacing of trees and shrubs and a list of tree and shrub species. The application shall also contain details concerning the proposed ownership of the buffer area and the means by which the buffer is to be maintained.
- (d) Proponents are advised to consult with adjoining landowners prior to determining buffer widths and treatment.

Noise, Dust and Odours**RECOMMENDED BUFFER:**

Activity	Primary Buffer	Secondary Buffer
Large piggeries		
(<u>> 500 pigs</u>)	<u>500 metres</u>	<u>1,000 metres</u>
Small piggeries		
(<u>< 500 pigs</u>)	<u>300 metres</u>	<u>600 metres</u>
Large cattle feedlots		
(<u>> 500 head</u>)	<u>500 metres</u>	<u>1,000 metres</u>
Small cattle feedlots		
(<u>< 500 head</u>)	<u>300 metres</u>	<u>600 metres</u>
<u>Dairies</u>	<u>300 metres</u>	<u>600 metres</u>
<u>Poultry Farms</u>	<u>300 metres</u>	<u>400 metres</u>
<u>Abattoirs</u>	<u>800 metres</u>	<u>1,000 metres</u>
Other intensive		
<u>Livestock operations</u>	<u>300 metres</u>	<u>600 metres</u>
<u>Grazing</u>	<u>30 metres</u>	

Urban/village and rural residential development and other habitable buildings are excluded (unless ancillary to the activity) from both the primary and secondary buffer areas. Single dwellings on agricultural holdings may be permitted in secondary buffer (but generally not in the primary buffer) if no alternative suitable location is available. Where visual screening is desirable, buffers should include a minimum tree/shrub planted area of at least 10 metres width.

Where noise is the only issue that needs to be addressed in determining a buffer width, the following compliance noise levels should be used to protect habitable buildings, particularly urban and rural residential development. The compliance noise limits can be applied to developments encroaching on sources of excessive noise or where the proposed development will be the source of excessive noise.

COMPLIANCE NOISE LIMITS
(BASED ON BACKGROUND SOUND LEVELS)

Time Period	Dwelling or other noise sensitive place	Commercial place
Daytime (7am to 6pm)	Background + 5 dB(A)	Background + 10dB(A)
Evening (6pm to 10pm)	Background + 5dB(A)	Background + 10dB(A)
Night-time (10pm to 7am)	Background + 5dB(A)	Background + 10dB(A)

Compliance limit levels are measured as the average of the maximum A-weighted sound levels adjusted for noise character measured over a 15 minute time interval (Source: Environmental Protection Authority, December, 1995).

Cattle Dip Sites

In the North Coast of New South Wales, Local Government is required to consider the possible impact of cattle dip sites (old and new) on Development Applications, Building Applications, Subdivisions and Part V activities which require Council approval.

The Cattle Tick Dip Site Management Committee (DIPMAC) recommends a 200 metre radius assessment zone around all cattle dip sites. While the 200 metre zone does not exclude all development within this area, the following matters must be addressed in any application for development within 200 metres of an identified dip site:

- (a) Whether the dip site is in active use, and if so, whether current dip practices are likely to result in exposure of tickicides to the proposed development by any means.
- (b) Whether contaminants are likely to move off the site through spray drift, erosion of contaminated soil, stormwater run-off or windblown dust.
- (c) Whether the proposed development site is located "upstream" or "downstream" of the dip site.
- (d) Whether the dip site is securely fenced, particularly with respect to preventing children from entering the dip area. Most fencing around dip sites is designed for stock control and would not normally be of a standard that would exclude humans.
- (e) Whether warning signs have been erected around the perimeter of the contaminated area.
- (f) The lateral extent of chemical contamination in the soil around the dip site, as determined by soil sampling techniques undertaken in accordance with *EPA/DIPMAC guidelines*.
- (g) Whether the proposed development could result in the use of contaminated land for purposes such as the growing of vegetables, fruit trees or raising of poultry, livestock etc.
- (h) Whether any rehabilitation measures are proposed for the dipsite (such as the relocation of contaminated soils off the site to a secure storage area).

Applications for development within the 200 metre assessment zone will be assessed on their merits taking into account the above factors, and any advice received from the Environment Protection Authority.

Extractive Industries

Extractive industries involve the use of an extensive range of plant and equipment which creates noise and dust as material is won from the quarry face and then crushed and screened for loading and transport. In some cases, blasting is necessary to extract the material. Quarrying activities are incompatible with many land uses, particularly those of a residential nature. It is therefore desirable to provide a buffer area around quarries to minimise land use conflicts and safeguard quarry resources which could be sterilised as a result of encroachment by residential land uses.

The extent of the buffer requirement depends on the size of the quarry, whether blasting is utilised, the nature of production methods, the extent of crushing and screening operations, topography and site conditions and the intensity of surrounding development and land uses. A two level buffer standard is recommended with the primary and secondary buffer as follows:

Type of Quarry	Buffers	
	Primary Buffer	Secondary Buffer
Large quarries ($> 10,000\text{m}^3$ pa)	500 metres	800 metres
Medium quarries ($5,000\text{m}^3$ - $10,000\text{m}^3$ pa)	400 metres	600 metres
Minor quarries ($< 5,000\text{m}^3$ pa)	300 metres	400 metres

Urban/village residential, rural residential development and tourist development are excluded from both the primary and secondary buffer areas. Single dwellings on agricultural holdings may be permitted in the secondary buffer (but generally not in the primary buffer) if no alternative suitable location is available.

A5.E.5 Forestry

RECOMMENDED BUFFER:

A 200 metre setback between current or likely forestry activities (eg, State/National Forest, plantation forest) and any adjacent or adjoining habitable building.

A5.E.6 Environmentally Sensitive Areas, Bushfire Risk

See Clause A5.4.2.1 and A5.4.2.

A5.E.7 Rivers, Streams and Watercourses

See Clause A5.2.3 and A5.4.3.

A5.E.8 Sewerage Treatment Works

RECOMMENDED BUFFER:

400 metres between any current or proposed primary and secondary process units of any Sewerage Treatment Plant and the nearest boundary of any allotment created for tourism, rural housing, urban housing (including caravan parks) and community facilities (eg, halls, schools etc).

No development is permitted within 200 metres from any current or proposed primary and secondary process units of any sewerage treatment plant, except for uses of an open air nature (eg, car parking, storage) or those uses not requiring permanent or prolonged work station occupation.

Between 200 and 400 metres from any current or proposed primary and secondary process units of any sewerage treatment plant, buildings associated with industrial, commerce or trade must be designed with ventilation emanating from the side facing away from the sewerage treatment plant, and any office/retail components of the industrial building are to be air conditioned. A suitable vegetated area of 10 metres within the buffer is recommended to screen the Sewerage Treatment Plant from public view.

To ensure compliance with the Sewerage Treatment Plant Buffers, any subdivision development will contain a condition requiring registration of a restriction as to use under *Section 88B of the Conveyancing Act* stipulating the above requirements if not already implemented as part of land use zoning provisions.

A5.E.9 Garbage Tips

RECOMMENDED BUFFER:

300 metres from the perimeter of any garbage tip.

A5.E.10 On Site Sewerage Management Systems & Disposal/Irrigation Areas

System	Recommended buffer distances
All land application systems.	100m to permanent surface waters (e.g. river, stream, lake). 250m to domestic groundwater well or bore. 40m to other waters (e.g. farm dams, intermittent streams, drainage channels etc).
Surface spray irrigation.	6m uphill 3m downhill of driveways and property boundaries. 15m to dwellings. 3m to paths and walkways. 6m to swimming pools.
Surface drip and trickle irrigation; sub-surface irrigation.	6m uphill, and 3m downhill of swimming pools, property boundaries and buildings.
Septic tank absorption trench area.	12m uphill and 6m downhill of property boundary. 6m uphill and 3m downhill of swimming pools, driveways and buildings.

	3m to paths and walkways.
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A5.E.11 Residential and Non Residential Subdivisions (Industrial, Business, Trade & Commerce etc)

Non residential subdivisions should provide sufficient buffer between future non residential uses and existing (or zoned) residential land to ensure the future amenity of the residential land (or individual residences) is not adversely impacted by noise, lighting, dust and emissions.

Residential subdivisions should provide sufficient buffer between residential allotments and any existing non residential uses or land zoned for non residential use, to ensure the future amenity of the residential land (or individual residences) is not adversely impacted by noise, lighting, dust and emissions.