

**Gold Coast City
Landscape Strategy**

PART 2

**Landscape Works
Documentation
Manual**

INTRODUCTION

A whole of city Landscape Strategy has been developed to promote an integrated design approach to ensure that layout and design of soft and hardscape elements, plant selection and construction is based on clear philosophy, city image, environmental principles and character, with consistent technical requirements, and:

- providing a comprehensive and flexible planning and design document;
- ensuring that landscape and character issues are addressed as integral and positive component of the process of planning and design of new developments;
- providing clear and consistent guidelines and procedures for landscape works requiring approval from Council;
- amalgamating and supplement existing relevant Council Policies;
- emphasising the desirability of engaging landscape design professionals early in the design and planning of new developments as well as the implementation phases of the project.

The Landscape Strategy is made up of three Component parts:

- PART 1 - LANDSCAPE CHARACTER - GUIDING THE IMAGE OF THE CITY
- PART 2 - LANDSCAPE WORKS DOCUMENTATION MANUAL
- PART 3 - INFORMATION SHEETS

The diagram on the following page explains the framework for the Landscape Strategy.

Landscape Works Documentation Manual

The Landscape Works Documentation Manual is Part 2 of the Landscape Strategy and focuses on the detailed issues of landscape design and construction.

The Manual will:

- assist in streamlining the current process for approval of landscape plans;
- identify the type and detail of documentation that is required and when it is required;
- set minimum standards appropriate to achieving high quality landscapes.

For example the Manual includes:

- A Guide to submitting Landscape Plans;
- Details of requirements of Landscape Plans, eg Site Analysis, Statement of Landscape Intent, and Detailed Landscape Plans;
- Submission Checklist for Detailed Landscape Plans;
- Design and Construction Issues - Minimum technical standards and requirements. This is not intended to be a 'Standard Specification';
- Undesirable Plant List.

Note:

There are several information bases that can be used to assist and give direction to broad character issues and environmental principles and intent in addition to Part 1 - Landscape Character - Guiding the Image of the City. These include:

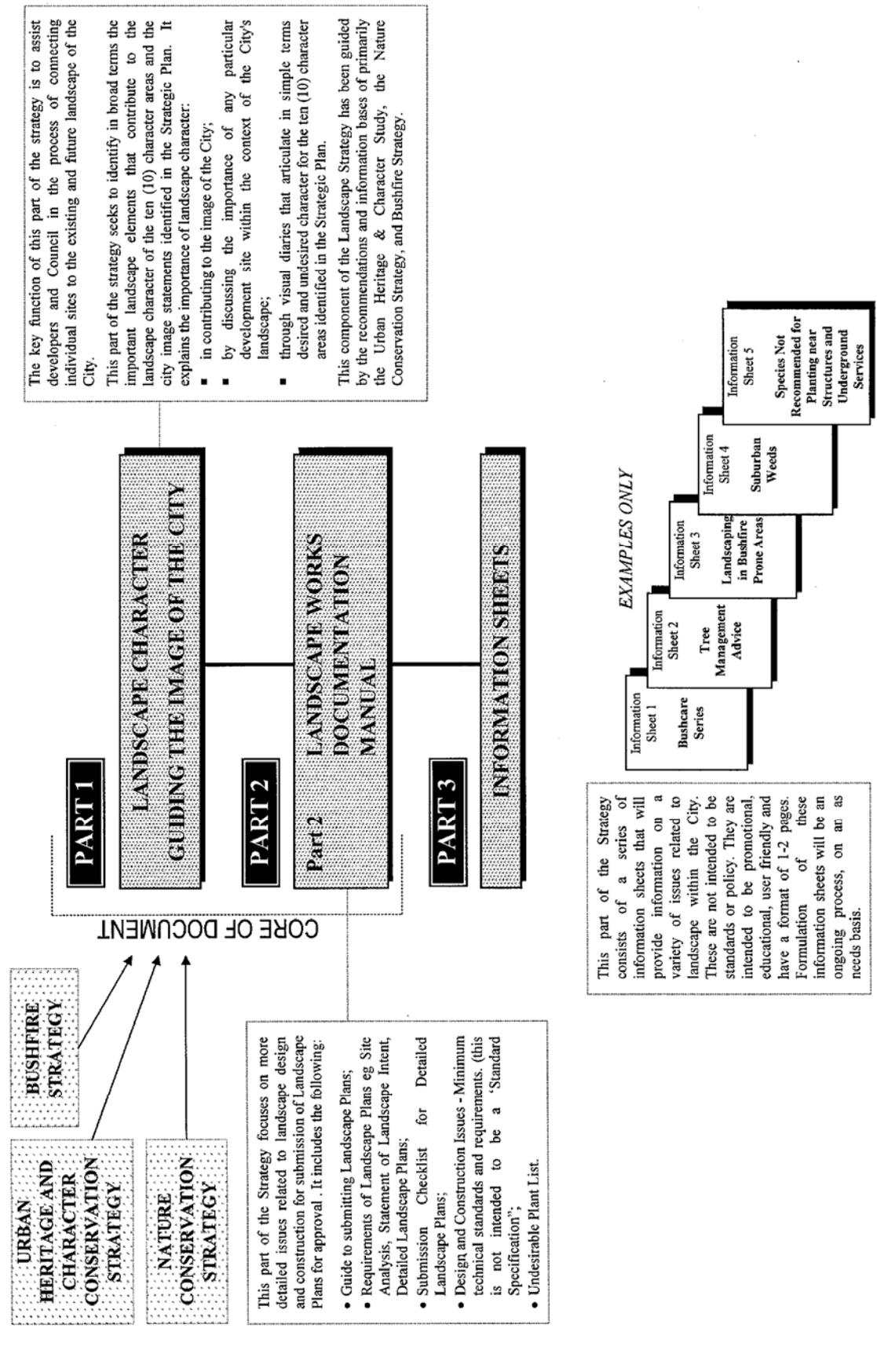
- Nature Conservation Strategy;
- Gold Coast Urban Heritage and Character Study;
- Bushfire Strategy; and, most importantly
- The Gold Coast City Planning Strategies objectives and other components of the Gold Coast City Planning Scheme.

Also refer to Appendix 2 for other relevant Council Policy and some reference material.

CITY OF GOLD COAST - LANDSCAPE STRATEGY FRAMEWORK

Landscape Works Documentation Manual

CITY OF GOLD COAST - LANDSCAPE STRATEGY FRAMEWORK



The key function of this part of the strategy is to assist developers and Council in the process of connecting individual sites to the existing and future landscape of the City.

This part of the strategy seeks to identify in broad terms the important landscape elements that contribute to the landscape character of the ten (10) character areas and the city image statements identified in the Strategic Plan. It explains the importance of landscape character:

- in contributing to the image of the City;
- by discussing the importance of any particular development site within the context of the City's landscape;
- through visual diaries that articulate in simple terms desired and undesired character for the ten (10) character areas identified in the Strategic Plan.

This component of the Landscape Strategy has been guided by the recommendations and information bases of primarily the Urban Heritage & Character Study, the Nature Conservation Strategy, and Bushfire Strategy.

CORE OF DOCUMENT

This part of the Strategy focuses on more detailed issues related to landscape design and construction for submission of Landscape Plans for approval. It includes the following:

- Guide to submitting Landscape Plans;
- Requirements of Landscape Plans eg Site Analysis, Statement of Landscape Intent, Detailed Landscape Plans;
- Submission Checklist for Detailed Landscape Plans;
- Design and Construction Issues - Minimum technical standards and requirements. (this is not intended to be a 'Standard Specification';
- Undesirable Plant List.

This part of the Strategy consists of a series of information sheets that will provide information on a variety of issues related to landscape within the City. These are not intended to be standards or policy. They are intended to be promotional, educational, user friendly and have a format of 1-2 pages. Formulation of these information sheets will be an ongoing process, on an as needs basis.

EXAMPLES ONLY

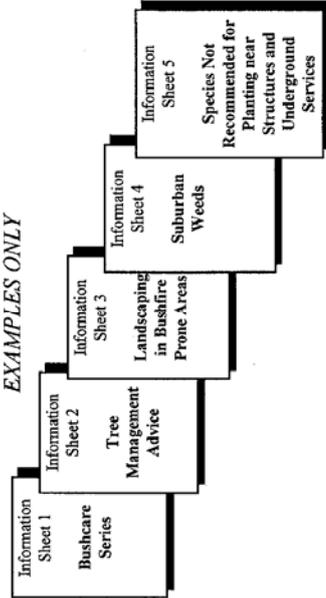


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APPENDIX 1

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SECTION A - OVERVIEW

1.0 Introduction

This document is a Planning Scheme Policy attached to the Gold Coast City Planning Scheme and forms part of the Landscape Strategy for the City of Gold Coast. It is to be used in conjunction with other parts of the Landscape Strategy, Planning Strategies and Planning Scheme provisions in preparation of any Landscape Plans.

2.0 Purpose

The purpose of this Landscape Works Documentation Manual is to provide information, and to set a minimum standard requirement/guidelines for all landscape works on public and private land that:

- *satisfies the aims and objectives of the Planning Scheme especially those relating to city image and character;*
- *ensures landscape design considerations are addressed early in the planning and design of proposed development works;*
- *provides a means of minimising any negative visual impact of development on it's surroundings and to promote environmentally sensitive design practices;*
- *minimises maintenance and risk hazards of both public and private development.*

3.0 Application

It is intended that the provisions in this document will apply to:

- The preparation and submission of the appropriate landscape plans where landscape works associated with proposed developments are required by Council on public and private land;

- Council officer assessment of development applications where landscape works are required to be undertaken and approved by Council.

4.0 Landscape Plan Documentation

4.1 What is required?

The submission of Landscape Plans may be required at either:

- a Material Change of Use, Reconfiguration of a Lot or Operational Works application stages;
- as a Condition of an Approval granted under the Planning Scheme; and/or
- as a provision of the Planning Scheme.

The types of plans that may be required include:

- *Landscape Site Analysis*
(Refer Section B, 2.0).
- *Statement of Landscape Intent*
(Refer Section B, 3.0).
- *Detailed Landscape Plans*
(Refer Section B, 4.0).

4.2 Submission of Landscape Plans

Refer to Figure 1 for guidance on the process for submission of landscape plans.

▪ MATERIAL CHANGE OF USE AND/OR RECONFIGURATION OF A LOT APPLICATION STAGE

The submission of a Landscape Plan may be required to accompany a Material Change of Use or a Reconfiguration of a Lot Application with the associated Plan of Development or Layout Plan.

With the above kinds of applications, Council may require a Landscape Site Analysis and a Statement of Landscape Intent to be submitted with the application, in order to identify the broad landscape

rationale of the proposed development. Submission of these plans will ensure that important landscape issues associated with these kinds of applications are dealt with prior to the submission of Detailed Landscape Plans at Operational Works application stage. The Statement of Landscape Intent may in some cases be approved (if acceptable) as a Preliminary Approval for Operational Works – Landscape.

The Statement of Landscape Intent identifies the design philosophy that is to be incorporated in the detailed landscape design works through the submission of a Detailed Landscape Plan at Operational Works approval stage.

Lodgement :

Customer Service Counter at the City of Gold Coast Council Administration Centres.

■ **OPERATIONAL WORKS APPLICATION STAGE**

The carrying out of landscape works is defined under the Integrated Planning Act, 1997 as Operational Works requiring a development permit. This means that where the Gold Coast Planning Scheme or a Condition of Development Approval requires that landscape works be undertaken in association with other development works, a development permit must be issued prior to development works commencing.

Submission of Detailed Landscape Plans is most often required at Operational Works application stage as:

- a Condition of a Material Change of Use/Reconfiguration of a Lot approval;
- or a provision of the Planning Scheme.

In cases where a Statement of Landscape Intent (particularly associated with a large development project or subdivision) has not been submitted previously to Council, it is recommended that an applicant submit a Statement of Landscape Intent for discussion with Council Officers prior to submission of any Detailed Landscape Plans. This

will ensure that there will be minimal delays in approval of Detailed Landscape Plans.

■ **Submission of Detailed Landscape Plans**

As part of an application for Operational Works – Landscape, three (3) copies of the Detailed Landscape Plans and any accompanying Landscape Site Analysis and Statement of Landscape Intent (not already submitted) are to be submitted to Council.

The following information is to accompany the submission:

- a letter of submission/application form
- relevant File Information; and
- a Submission Checklist (refer Section B, 6.0).

An application fee will be charged on lodgement, which will include two (2) final inspections of the landscape works.

An application fee will also be charged for inspection of any associated irrigation and site certification of Backflow Prevention Devices.

■ **Categories of Approval for Detailed Landscape Plans**

Approved Plans :

Detailed Landscape Plans that comply with all requirements will be approved, and a stamped copy will be forwarded to the applicant.

Well resolved and documented plans are more easily assessed and therefore approved.

Conditionally Approved Plans :

In some cases, a Detailed Landscape Plan is approved with minor conditions attached. These plans do not need to be resubmitted. The conditions are noted on the plan and will be checked by Council Officers when Final Landscape Approval is sought.

Non-Approved Plans :

In some cases, when a Detailed Landscape Plan fails to meet Council requirements, amendment may be requested and/or preparation of new

plans may be required and plans are to be resubmitted.

Resubmitted plans must include:

- a cover sheet with the relevant file information;
- a Submission Checklist; and
- a copy of Council correspondence regarding amendments required.

An additional fee may be required on amended Detailed Landscape Plans.

Landscape Works must not commence prior to the approval of the Detailed Landscape Plans.

Note:

A copy of all approved Landscape Plans including any Landscape Site Analysis, and Statement of Landscape Intent will be retained by Council for future reference.

Lodgement:

Customer Service Counter at the City of Gold Coast Council Administration Centres.

4.3 On-Site Supervision

During the construction phase of the landscape works and the nominated maintenance period, it is critical to ensure that the design intent is satisfactorily transferred into the site works.

To ensure that the completed landscape works are satisfactory and comply with the approved plans, it is recommended that a suitably qualified person such as a Landscape Architect/Designer be engaged in a site supervisory role during the landscape works construction and maintenance period.

4.4 Inspections

Upon the completion of the landscape works, a Council Officer will undertake a formal landscape

inspection of the development and a Final Landscape Approval may be granted.

The Inspection can be booked and arranged by telephoning Council's Building and Technical Services Department. A copy of the stamped Detailed Landscape Plan (supplied by the Applicant) is required on site and will be used to assess the constructed landscape.

The proposed use must not commence prior to final inspection and Final Landscape Approval being granted.

Inspections will only be undertaken on totally completed landscape works including irrigation, hardscape, structures and lighting etc.

A Final Landscape Approval will be issued upon satisfactory completion of all works to the satisfaction of Council requirements.

Appointments:

Phone: Building & Technical Services, Gold Coast City Council.

4.5 Professional Assistance

It is recommended that Landscape Plans be prepared by a qualified Landscape Architect, or professional with proven experience and knowledge of landscape design and construction, with recognised Quality Assured Codes of Practice and/or procedures in place.

Professionally prepared plans will ensure a minimum delay with approvals.

Contacts:

Australian Institute of Landscape Architects - Qld. Group (A.I.L.A.)

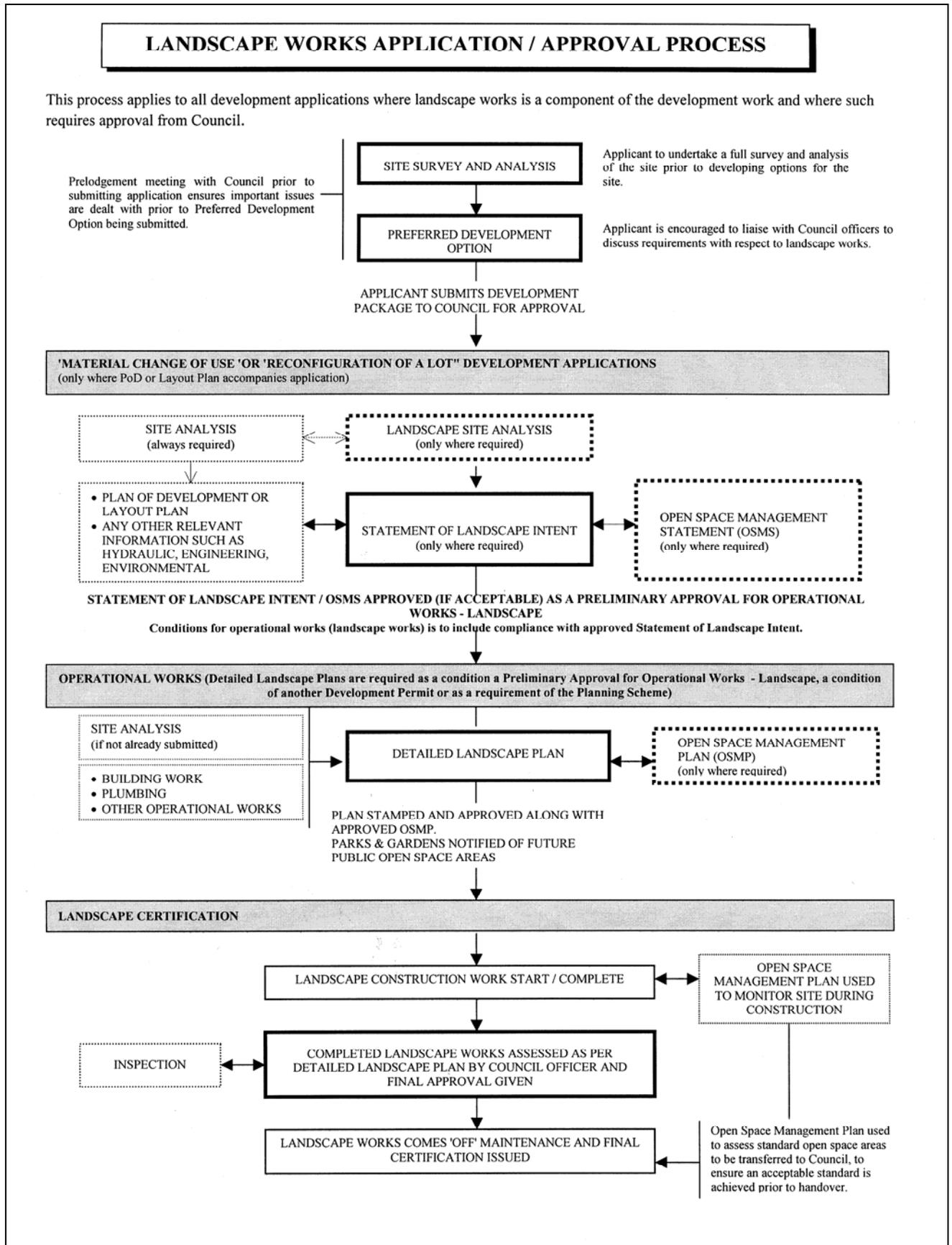
Queensland Association of Landscape Industries (Q.A.L.I.)

Australian Institute of Horticulture, Qld. Branch, Sub Branch Gold Coast (A.I.H.)

Queensland Nursery Industry Association (Q.N.I.A.)

FIGURE 1

LANDSCAPE WORKS APPLICATION / APPROVAL PROCESS



SECTION B - LANDSCAPE PLAN REQUIREMENTS

The following information is provided to assist in the submission and approval process of all Landscape Plans for proposed developments associated with a Material Change of Use, Reconfiguration of a Lot and Operational Works development applications. The following requirements address a number of stages in the landscape design process, but are not intended to cover all aspects of the landscape design process.

Submission of a landscape plan is required where indicated by the Gold Coast City Planning Scheme or where required as a Condition of a Development Permit.

Council promotes a standard process for submission of landscape plans in association with development applications. This process applies to all development applications that have a landscape works component. It is acknowledged that the amount of information to be included in the submitted landscape plans may vary, according to the particular circumstance of the proposed development, but, should a plan not include information considered applicable to the development, it will be returned to the applicant for amendment/additions prior to resubmission. (*Refer Figure 1 for guidance on the application/approval process for Landscape Plans.*)

There are three types of Landscape Plans that may be required as part of a development application. These are:

- **A Landscape Site Analysis**
- **A Statement of Landscape Intent** (*Council may also require an Open Space Management Statement to be submitted with the Statement of Landscape Intent. Refer Part 5.1 of this Section*)
- **A Detailed Landscape Plan** (*Council may also require an Open Space Management Plan to be submitted with the Detailed Landscape Plan Refer Part 5.2 of this Section*)

The resolution of landscape issues is critical both at the broad conceptual planning stage of a particular development and at the detailed design stage of a development. Each type of Landscape Plan is

described in more detail in this Section in Parts 2.0, 3.0 and 4.0.

Observance must be made to Council's Local Laws, Codes and Planning Scheme Policies.

1.0 General Documentation Standard

1.1 Quality

- Drawing line work is to be legible and able to be photocopied in black and white.
- Text is to be easily read when hand written, typed or stencilled. Minimum size 0.25mm in height/A1 sheet.
- Shading or colouring with markers does not reproduce successfully. Line work or "Letraset" type patterns and toning should be used.

1.2 Sheet Sizes

- A0, B series - acceptable depending on type and size of development;
- A1 - preferred size for Statement of Landscape Intent, and Detailed Landscape Plans;
- A3 - is acceptable for Site Analysis and the Statement of Landscape Intent depending on size and type of development; and
 - acceptable for minor works and construction details;
- A4 - acceptable for specifications and construction details.

1.3 Scale

- 1:1000 Landscape Site Analysis/
Statement of Landscape Intent
- 1:100/1:200 General Detailed Landscape
Plans
- 1:500 Streetscape Plans
- 1:50, 1:20 Construction Details

1.4 Dimensioning

- Linear dimensions are to be indicated in metres or millimetres.
- Levels to given measurements in relation to AHD (Australian Height Datum).
- Slopes to be indicated in ratio or percentage format.

2.0 Landscape Site Analysis

2.1 Why It Is Required?

A Site Analysis is required as part of any submission for a development application involving building works, operational works or reconfiguring a lot. It may also be required to accompany an application for a material change of use or Reconfiguration of a Lot. (Refer Councils "Site Analysis" policy.)

Site Analysis is integral to the design of landscape works, and in most cases, the basic Site Analysis submitted with a standard development application may be sufficient to allow the landscape works to be assessed. In those cases where particular local matters pose a challenge to the effective design of landscape works, a detailed landscape site analysis may be necessary. In such cases, Council may

require a "Landscape Site Analysis" to be submitted with the development application.

2.2 When It Is Required?

If required by the Gold Coast City Planning Scheme, the Council or its delegate, the submission of a Landscape Site Analysis it is to accompany the Statement of Landscape Intent associated with the development application.

2.3 What Is Required?

A Landscape Site Analysis identifies (but is not limited to) the following:

- rare and threatened flora as defined by the Nature Conservation Act, or as identified by the Planning Scheme (LAP) as being of ecological significance or containing protected vegetation as identified in Planning Scheme Chapter 36 "Vegetation Management Code". Assessment undertaken as part of Council's Guidelines for Policy No 8 "Ecological Site Assessment Guidelines" may be sufficient to achieve this requirement.
- identification and description of the location and extent of views, and a description of existing local character and visual quality.
- description and location of existing pedestrian and vehicular access routes into and around the site.
- description of constraints (soil type, rock, location of existing roads and infrastructure such as water, sewer and stormwater drainage) that may impact on any landscape works associated with future development.
- description of topographical features including slope analysis and location of any outstanding landscape features (including landmarks and built form).

- description and direction of prevailing winds and any other climatic conditions that may impact on the landscape works associated with development of the site.

A pre-lodgement meeting is recommended with Council officers to determine the extent of information required.

3.0 Statement of Landscape Intent

3.1 Why It Is Required ?

A Statement of Landscape Intent indicates the broad scale resolution of landscape design issues and assists in designing and assessing future detailed landscape works associated with a development. It is required where a proposed development may impact on the character, function, environment and amenity of a site and/or its surrounds. Submitting a Statement of Landscape Intent is particularly relevant to large development projects and subdivisions.

The purpose of submitting a Statement of Landscape Intent, prior to submission of Detailed Landscape Plans, is to prevent unnecessary amendments, delays and costs incurred in relation to approvals at Operational Works stage, often resulting from inappropriate solutions to broad issues such as character, function and amenity.

3.2 When It Is Required?

If required by the Gold Coast City Planning Scheme, Council or its delegate, the Statement of Landscape Intent is required to accompany the Plan of Development or Layout Plan associated with a Material Change of Use or Reconfiguring a Lot application. In some cases, the Statement of Landscape Intent may be approved (if acceptable) as a Preliminary Approval for Operational Works – Landscape. The Statement of Landscape Intent identifies the design philosophy that is to be

incorporated into the Detailed Landscape Plans submitted for Operational Works approval. A Statement of Landscape Intent when required is to be submitted and approved prior to the submission and approval of any Detailed Landscape Plans.

3.3 What Is Required?

A typical Statement of Landscape Intent should explain how the design responds to the Site Analysis/Landscape Site Analysis, and identifies the rationale and intent for the external spaces and landscape areas of the proposed development.

The Statement of Landscape Intent should focus broadly on issues of character, function and amenity and identify framework species for open space areas and road reserves.

For example, a smaller development such as a factory or small unit development, the Statement of Landscape Intent may be a simple freehand sketch with notes identifying the intent of the landscape areas associated with the development. For a larger development such as subdivision, the Statement of Landscape Intent may be a more detailed written statement supported by graphical explanations or a graphical layout supported by explanatory notes (similar to a Landscape Concept Plan).

A typical Statement of Landscape Intent identifies, but is not limited to, the following:

- Address and name and Job/File No of project;
- Client's name and address;
- Designer's name and address;
- North Point;
- RP Description;
- Scale;
- Legend;
- Existing features on the site to be retained or removed eg vegetation, built form;
- Notations of design intent for any landscape works, including desired character themes and proposed function;

- Proposed location and function of public and private open space areas;
- Approx. location of softscape areas including buffers, screens, rehabilitation areas, any large garden bed areas and delineation of principle hardscape areas;
- Notation of species types for all areas to be replanted (eg. Native, exotic, feature planting, form and colour);
- Approx location of any building, structure/site furniture and an indication of their form and character (including entry statements);
- Any overland drainage paths;
- Open space design concepts, visual and pedestrian links.

Other issues that need to be addressed before commencement of any Detailed Landscape Plans include:

- Open Space Management Statement for any proposed public open space (if required Refer Part 5.1 of this Section);
- Plant Procurement;
- Irrigation Strategy.

The type of graphical communication will depend on the size and type of development.

A pre-lodgement meeting with Council officers is recommended to determine the extent of information required.

4.0 Detailed Landscape Plans

4.1 Why It Is Required?

A Detailed Landscape Plan provides the detailed design drawings for all landscape works associated with a development application. These plans also provide the information for pricing the works by the Landscape Contractor.

Detailed Landscape Plans must contain sufficient information for construction works, associated maintenance activities and for checking by Council officers. These plans are to be technically drafted.

4.2 When It Is Required?

A Detailed Landscape Plan is to be submitted and approved for Operational Works prior to the issue of an approval for building work, or where building works approval is not required, prior to the commencement of the development. (This requirement only applies to landscape works where a development approval is necessary, under the provisions of the Planning Scheme and/or as a condition of approval of a Development Permit.)

All landscape works must be completed in accordance with the approved Detailed Landscape Plan prior to the proposed use commencing. All landscape works must be maintained and managed in accordance with the Detailed Landscape Plan at all times, to the satisfaction of the Council or its delegate.

4.3 What Is Required?

General information required for a Detailed Landscape Plan is identified in Section B, 6.0 - Submission Checklist.

4.3.1 SPECIFIC PLANTING PLAN REQUIREMENTS

- All planting plans are to have a Plant Schedule. A Plant Schedule is to be divided up into Trees, Palms, Shrubs, Ground Covers, Climbers, Ferns etc.
- Botanical names are to be in alphabetical order and used in conjunction with Common Names on the Plant Schedule.
- Quantity and pot size of each individual species used in the planting design must be included on the Plant Schedule.
- Approximate calliper size at planting for trees only in pot size > 300mm to be included on the Plant Schedule.
- Height and Spread at planting for trees only in pot size > 300mm is to be included on the Plant Schedule. Indication of height and spread of other species is optional.

- Spacing of all species and staking (if necessary) is to be included on the Plant Schedule.
- Plant Coding

All species used are to be notated on the drawing by either it's full Botanical Name or by code which will be referred to on the Plant Schedule eg:

BUCKINGHAMIA celsissima:
(Genus) (Species)

Code:
BUC cel

MELALEUCA leucadendron FINE LEAFED
FORM:
(Genus) (Species) (Descriptor)

Code:
MEL leu FL

CALLISTEMON viminalis CAPTAIN COOK:
(Genus) (Species) (Cultivar)

Code:
CAL v CC

CALLISTEMON EUREKA:
(Genus) (Cultivar)

Code:
CAL EUR

4.3.2 MAINTENANCE REQUIREMENTS

The maintenance program is directly related to landscape and plant establishment works, and is usually included in the accompanying specification.

If there is no accompanying specification a maintenance program is to be notated and included as part of the Detailed Landscape Plan documentation.

The maintenance program addressing softscape and hardscape, is to reinforce the overall philosophy and objectives of the landscape design, and is to include accepted horticultural practices and codes/best practices necessary to establish the proposed landscape works in the noted maintenance period. Such information is useful in assisting in the assessment of the proposal and to direct any future management programs

STANDARD MAINTENANCE PERIODS

- **Major Development Works**
(including, but not limited to, residential subdivisions, resorts, large commercial or industrial, and major roadworks)

Maintenance period for landscape works associated with major building and engineering works is 6 - 12 months, or as deemed appropriate by Council, commencing at Practical Completion including:

- ? 12 weeks Establishment Period for softscape;
- ? 12 months Defects Liability Period for Hardscape (including irrigation works);
- ? 6 months general Softscape maintenance after initial establishment.

All Landscape Works are to be completed and a Final Landscape approval granted at the time of practical completion of the Development Works.

- **Minor Development Works**

Maintenance period for landscape works associated with Minor Development Works is limited to 12 weeks, including the 12 week establishment period for softscape and hardscape.

- **Major Rehabilitation Works**

Maintenance period for landscape works associated with major rehabilitation works is 12 months, or as deemed appropriate by Council. This longer establishment period is necessary due to the common occurrence of plant losses related to native species, and to replacement plantings and weed removal which generally occurs after the 12 week standard maintenance period expires.

- **Off Maintenance**
(handover maintenance responsibility to Applicant /Council)

Commences on acceptance of Final Inspection at the end of the specified/approved Maintenance period.

5.0 Management of Public Open Space

See *Figure 1* for guidance on the application/approval process for Open Space Management Plans.

Public open space areas are areas of land that will be transferred to Council as part of an open space contribution associated with a development. Management of public open space areas is critical during the construction phase of the development and for their future ongoing sustainability. The following deals with management of public open space areas only.

5.1 Open Space Management Statement

5.1.1 WHY IS IT REQUIRED?

When planning and designing public open space areas as part of the design development of the whole of the site, it may become apparent there are particular environmentally sensitive elements associated with open space development. An Open Space Management Statement may be required to accompany a Statement of Landscape Intent. An Open Space Management Statement is a broad outline of the proposed methods and strategies for managing environmentally sensitive areas of open space during the construction phase.

5.1.2 WHEN IS IT REQUIRED?

If required by the Gold Coast City Planning Scheme, Council or its delegate, an Open Space Management Statement is to be submitted in conjunction with the Statement of Landscape Intent, and in some cases if acceptable, may be approved as a preliminary approval with the Statement of Landscape Intent. An Open Space Management Statement always precedes a submission of an Open Space Management Plan at Operational Works approval stage.

5.1.3 WHAT IS REQUIRED?

A typical Open Space Management Statement is a written and/or graphically presented broad outline for managing proposed open space areas during the construction phase of the development for elements such as:

- proposed area to be dedicated open space, contours and other topographical information pertaining to the site;
- sensitive vegetation and fauna including habitats and corridors;
- water quality management, including lake management;
- erosion and sediment control management;
- bushfire hazard management;
- proposed level and length of maintenance periods; and
- other issues, such as access and linkages that may have been identified during the design stage or in the site analysis.

5.2 Open Space Management Plan

5.2.1 WHY IS IT REQUIRED?

The detailed design of any public open space areas may initiate a requirement for an Open Space Management Plan to be prepared and submitted to Council for approval.

An Open Space Management Plan is the detailed identification of the management issues related to the public open space areas during the construction phase, the quality of the open space area at "on" and "off" maintenance and the future ongoing maintenance and management requirements of the open space.

5.2.2 WHEN IS IT REQUIRED?

An Open Space Management Plan is required by the Planning Scheme, as a condition of approval of a Material Change of Use, Reconfiguring a Lot development permit or a preliminary Operational Work – Landscape approval or where Council, or its delegate, considers the nature of the open space requires detailed management.

5.2.3 WHAT IS REQUIRED?

A typical Open Space Management Plan is to include but not limited to:

(a) Management of Open Space Areas during the Construction Phase:

- delineation of proposed public open space areas;
- protection measures for vegetation to be retained or relocated;
- location and details of all proposed on site sediment and erosion control methods;
- methods and details of disposal of vegetation approved for removal;
- details for protection or translocation of any fauna on site (where appropriate);
- temporary fire hazard mitigation measures eg. fire trails, water storage facilities (only where appropriate – information can be drawn from any Bushfire Management Plan undertaken for the whole site);
- details of methods for maintaining appropriate water quality (if appropriate);
- location and details of storage of materials and storage compound for machinery on site;
- location and details of temporary access for vehicles and site construction personnel;
- access/protection to any infrastructure services by others;
- location and details of any enclosures including boundaries;
- methods of control of declared plants and recognised environmental weeds;
- maintenance periods; and
- other issues as previously identified in the site analysis and design process.

(b) Quality of Open Space Areas at 'On' and 'Off' Maintenance

Council requires that all open space areas at 'on' and 'off' maintenance, are of a standard that can be easily maintained and will not require additional work to be undertaken to bring these areas up to an acceptable standard by Council at 'off' maintenance. Elements that need to be addressed are the:

- standard and quality of grassed areas;

- cleaning of any silt deposition;
- standard of any planting areas including retained vegetation areas, rehabilitation areas and garden areas;
- condition of any permanent infrastructure such as irrigation, onsite sediment and erosion control devices, hard surfacing;
- condition of any park facilities or play equipment;
- rubbish and site debris removal;
- standard to be achieved with regard to declared plants and recognised environmental weeds;
- standard of fire hazard mitigation measures (fire trails and water storage facilities).

(c) Ongoing Management/Maintenance Regimes for Open Space Areas

In some cases, it is necessary to provide Council with ongoing maintenance and management regimes to give a clear indication of possible future management issues, in order to provide appropriate resources to maintain the areas to the required standard. This part of the Open Space Management Plan should be developed as a standalone document, or summary of undertakings, to assist Council in determining maintenance programs and costs. This is required to cover the following matters:

- identification of the purpose of the open space area including objectives for future use;
- details of actions for each proposed open space area;
- future management and maintenance regimes for protection of significant vegetation areas, ecological systems, waterways and fauna;
- future management of bush fire hazard (only where appropriate);
- management of domestic farm/feral animals (if appropriate);
- tree management procedures;
- future management and maintenance regimes for sediment and erosion control devices, and irrigation;
- proposed future need for infrastructure including public facilities;
- maintenance of built form and hard surfacing;
- management and control of declared plants and recognised environmental weeds; and
- management of rubbish.

6.0 Submission Checklist for Detailed Landscape Plans

The following checklist should be used to aid in the production of Detailed Landscape Plans for submission at Operational Works stage and for a final design check prior to submission to Council.

It is the responsibility of the applicant to ensure that the submitted Detailed Landscape Plans are not deficient in information. **Reference should be made to any information relevant to Landscape Works that has been undertaken by another Consultant.** The Checklist is to be attached to Detailed Landscape Plans when submitted. Where an item is not applicable to works, the item is to be marked N/A. **Information may be graphical, including plan views, sections, elevations and/or written notation** (including specifications).

Plans to be submitted on A1 or B1 size sheets. Any Specifications accompanying Detailed Landscape Plans shall to be submitted in A4 format.

General Information

Yes N/A

- Date, North Point, Scale.
- Project description and location, RP Description.
- Applicants' Project Job/File No./
Relevant Council File Nos
- Client's, Name, Address and Phone Number.
- Address of Landscape Architect/Designer.
- Locality Plan.
- Specification attached.

External Works Details (Landscape Works Construction Plans)

Work Undertaken by Others	Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>		Construction set out and dimensions.
<input type="checkbox"/>	<input type="checkbox"/>		Relative levels (including existing and finished surface levels) contours (AHD).
<input type="checkbox"/>	<input type="checkbox"/>		Gradients, direction.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location and identification of existing vegetation to be retained and details of procedures intended for protection and preservation.
<input type="checkbox"/>	<input type="checkbox"/>		Surface, subsurface drainage details associated with landscape works.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Subgrade compaction density.
<input type="checkbox"/>	<input type="checkbox"/>		Location of above ground and below ground infrastructure, particularly in road reserves and existing or proposed public land.
<input type="checkbox"/>	<input type="checkbox"/>		Surface Treatment Plan including planting areas, turf, hard scape.

External Works Details (Landscape Works Construction Plans) (Continued)

Work Undertaken by Others	Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>		Edge treatments.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paving type including subgrade treatment and construction of paved areas.
<input type="checkbox"/>	<input type="checkbox"/>		Stockpile areas for materials and site construction area identified.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mounding.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On site sediment and erosion controls associated with landscape works including those on banks steeper than 1:3.
<input type="checkbox"/>	<input type="checkbox"/>		Building Footprints.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location and details of fencing, footpaths, retaining walls, architectural screens/walls/gates.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Entry Statements.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location and details of external elements eg seats, bollards, bins, lights, water features, pools, signage.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Irrigation systems to be specified (if applicable). Water take off points to be shown including location of the testable backflow prevention device and isolation valve (if applicable).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reference any relevant Engineering or Architectural Drawings or details.

Planting Plans

Yes	N/A	
<input type="checkbox"/>		Building Footprints showing window, door locations, roof lines and awning lines.
<input type="checkbox"/>		Location of proposed species to be shown graphically indicating centre and estimated mature spread.
<input type="checkbox"/>		Location of above ground and below ground infrastructure such as sewer, electricity, water and telecommunications including that which is in road reserves and existing or proposed public land.
<input type="checkbox"/>		Plant notation and quantity eg 3 x MEL qui.
<input type="checkbox"/>		Plant schedule must include: Code, Botanical Name, Common Name, Pot size, Height and Spread (at planting for trees >300mm), approx calliper size (at planting for trees >300mm), Spacing, Staking, Quantity.
<input type="checkbox"/>		Planting bed preparation details, including topsoil depths, mulch type and depth and subgrade preparation.
<input type="checkbox"/>	<input type="checkbox"/>	Details of planter boxes and podiums including drainage.
<input type="checkbox"/>		Maintenance period for landscape works.
<input type="checkbox"/>	<input type="checkbox"/>	Maintenance Program for Landscape Works
<input type="checkbox"/>	<input type="checkbox"/>	Typical details including root barrier, staking etc.
<input type="checkbox"/>	<input type="checkbox"/>	Fertiliser type and application at time of planting.

SECTION C - DETAILED DESIGN AND CONSTRUCTION ISSUES

The purpose of this section is to identify pertinent landscape design and construction issues and requirements that are relevant to detailed landscape works associated with development proposals. The information provided is to establish an acceptable minimum standard for these landscape works. Innovative and alternative solutions are also encouraged to deal with the following issues. Where applicable to a particular type of development, these issues can be identified on the Detailed Landscape Plans graphically and/or in written notation.

Each issue identified has an intent statement, a set of performance criteria and acceptable solutions.

- The **intent** may be described as the desired outcome to be achieved by the performance criteria.
- The **performance criteria** may be described as aspects or considerations that must be achieved.
- The **acceptable solutions** are relevant and appropriate ways of achieving the performance criteria. Some Acceptable Solutions are notated with an *. Council will not vary these Acceptable Solutions.

1.0 General Clearing and Earthworks Associated with Landscape Works

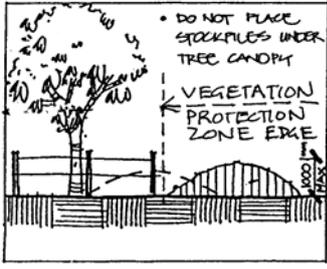
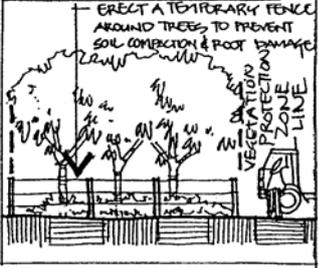
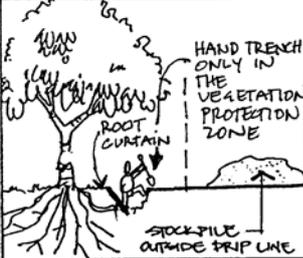
The following intent, set of performance criteria and acceptable solutions applies to any landscape works that involves removal, retention, relocation and protection of existing vegetation, clearing or storage of materials associated with landscape works on site. This information may either be noted on the Detailed Landscape Plans or on the Open Space Management Plan (where required by Council).

1.1 Intent:

- *To limit disturbance to areas where site works will occur including protection of existing vegetation management of impact of machinery and pesticides.*
- *To retain and preserve as much natural vegetation and as many associated growing conditions as possible.*
- *To minimise any potential negative impact on downstream and adjacent land uses.*

1.2 Development Requirements:

Performance Criteria	Acceptable Solutions
<p>PC1 Best Management practices must be utilised for any felling or clearing and/or other pre and post works treatment associated with landscape works including any tree or vegetation to be retained, relocated, removed or protected.</p> <p>Observance must be made of Council's Planning Scheme Chapter 36 "Vegetation Management".</p>	<p>Retaining Vegetation</p> <p>AS1.1 Conserving significant trees and vegetation areas benefits the environment and proposed development. In site planning and designing a proposed development, significant vegetation may be used to provide:</p> <ul style="list-style-type: none"> • open space and parkland; • landmarks and landscape features; • assist in managing micro climate; • wildlife habitat, corridors and enhance bio diversity; • visual amenity to property owners; • generous road reserve widths creating variety in road alignments and streetscape; • savings in rehabilitation costs. <p>These design issues are to be addressed early in the planning process in consultation with relevant design professionals, to encourage alternative approaches to design with regard to retention of significant vegetation.</p>

Performance Criteria	Acceptable Solutions
 <p>Stockpiles are not to be located under appropriate protection zone of vegetation to be retained</p>  <p>Erect protective fencing around trees to be retained</p>  <p>Excavation is not to occur within the appropriate protection zone of trees to be retained.</p>	<p>Vegetation Protection</p> <p>AS1.2* Site sheds, buildings, or parking areas are not to be located within the appropriate protection zone of vegetation to be retained.</p> <p>AS1.3* Storage or mixing of materials, machinery repairs, refuelling, filling, discharging pesticides and herbicides is not to occur within the appropriate protection zone of vegetation to be retained.</p> <p>AS1.4* Protective fencing is to be erected around appropriate protection zones of stands of vegetation or individual trees to be retained prior to any work beginning on the site.</p> <p>AS1.5* Excavation for services or footings is not to occur within the appropriate protection zone of a tree or vegetation to be retained.</p> <p>If installation of services or footings cannot be avoided within/or through the appropriate protection zone of a tree, arboriculturally sound practices are to be used, eg coring or tunnel boring. Methods and practices are to be approved by Council prior to works commencing.</p> <p>AS1.6* If excavation or a trench exposed roots within the appropriate protection zone of vegetation to be retained an appropriate root curtain is to be constructed immediately on the exposure of roots.</p> <p>AS1.7* Trees identified for retention are only to be selectively pruned where necessary to avoid limb damage caused during construction activity. Pruning is to be in accordance with AS 4373 - 1996 "Pruning of Amenity Trees".</p> <p>Clearing</p> <p>AS1.8* Prior to excavation or filling, the site is to be cleared of rubbish, ignitable materials, declared and recognised environmental weeds. Trees and vegetation nominated for retention are to be clearly identified on site and protected from construction activity. Soil level is not to be altered within the protected area. Where such changes are unavoidable any work operations must be approved by Council.</p> <p>AS1.9 During clearing for earthworks related to landscape construction in areas where the topsoil layer may contain a valuable seed bank resource for local native species, strategic removal of that topsoil layer is to be undertaken and stockpiled. Reuse of that layer in landscape rehabilitation works can allow for retention of local native species specific to the site.</p> <p>Stockpiles of materials</p> <p>AS1.10 Stockpiles of topsoil, subsoil and mulch are to be stored separately on site and not located under the appropriate protection zone of vegetation to be retained. Location of stockpiles of other landscape materials is to be determined on site prior to commencement of works as part of best practice site management procedures.</p> <p>AS1.11 Stockpiles are not to exceed 1000mm in height.</p> <p>AS1.12* Topsoil is to be free of all deleterious materials and guaranteed weed free prior to spreading. Stockpiles that are not reused within four (4) weeks are to be treated appropriately to prevent wind and water borne erosion and weed infestation.</p> <p>Note: Acceptable Solutions notated with an * will not be varied by Council.</p>

2.0 Landform

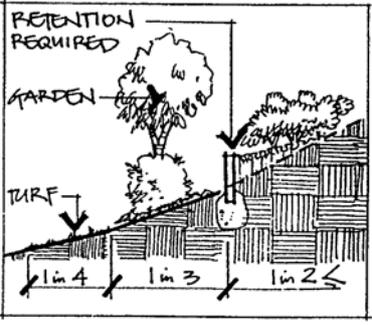
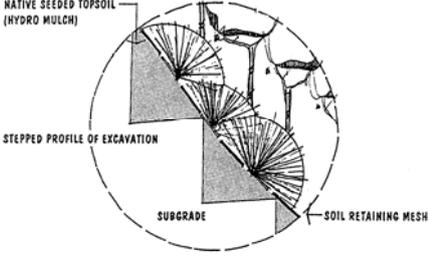
The following intent, set of performance criteria and acceptable solutions applies to any landscape works that involves reconfiguration of the surface of the land after engineering bulk earthworks have been completed.

2.1 Intent:

- To provide functional and desirable landforms that reflect sensitive design practices and reduce landscape maintenance and soil erosion;
- To provide a high standard of visual quality and bank stabilisation.

2.2 Development Requirements:

Performance Criteria	Acceptable Solutions
<p>Mounding</p> <p>PC1 Mounding must be sensitively designed as an integral part of the site works by being appropriate to their function, enhancing aesthetic appeal, and having regard for maintenance issues including future costs.</p> <div data-bbox="217 1043 604 1373"> </div> <div data-bbox="217 1408 604 1738"> </div> <p><i>Mounding is not to impede drainage and is to vary in slope and width</i></p>	<p>AS1.1 Mounding and contouring may be used to create a varied and informal setting by providing:</p> <ul style="list-style-type: none"> • visual amenity by reinforcing landscape structure; • screening for privacy or landscape transition; • direction for movement of people and wildlife; • assistance in noise abatement in conjunction with appropriate fencing; • assistance with stormwater runoff control. <p>AS1.2* Mounding is not to impede drainage over the site or adversely impact on downstream properties.</p> <p>AS1.3 Mounding is to vary in slope and width to provide a natural appearance. Maximum slope for mounding is as follows:</p> <ul style="list-style-type: none"> • turfed areas in general -1:4; • Council park areas generally - 1:6; • garden areas - 1:3.

Performance Criteria	Acceptable Solutions
<p>Batters</p> <p>PC2 Batters must be sensitively designed as an integral part of the site works being appropriate to their function, whilst maintaining bank stabilisation, minimising soil erosion and enhancing visual amenity.</p>   <p><i>Batters are to be appropriately retained</i></p>	<p>Batters</p> <p>AS2.1* Slopes greater than 1:3 are to be stabilised.</p> <p>Stabilisation may be achieved through the use of hydro mulching, stabilisation netting/erosion protection or engineering approved retention eg benching, the use of retaining walls and terracing with planting.</p> <p>AS2.2* The toe of any batters and associated drainage are to be contained within the permitted site 's boundaries and not to extend onto neighbouring lands or into adjoining vegetation protection zones.</p> <p>AS2.3 Batters that are planted or grassed are to be deep ripped on horizontal grades to a depth of a 100 mm - 200 mm and dressed with a high organic mix topsoil and planted, turfed, hydro mulched or seeded.</p> <p>AS2.4 Grassed batters or embankments in Crown Land, that fall below the level of a formed road are to be profiled to enable access to the bottom of the bank for ride on mowing equipment. The access strip at the toe of the mown bank is to be a minimum width of 2.0 m.</p> <ul style="list-style-type: none"> ▪ For Preferred Batter Treatments see Appendix 1 - Preferred Batter Treatments; ▪ For planting, turfing, hydromulching and seeding refer Section C3.0 of this document. <p>Note: Acceptable Solutions notated with an * will not be varied by Council.</p>

3.0 General Plant Selection and Planting

The following intent, set of performance criteria and acceptable solutions applies to any landscape works that involves new planting and/or preparation of growing media or planting beds.

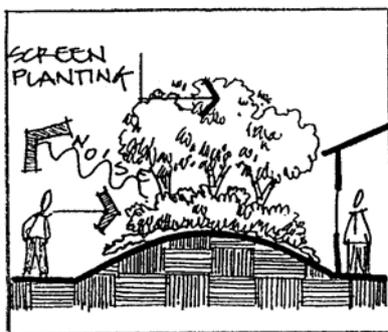
3.1 Intent:

- To establish fundamental design practices related to planting design;
- To establish correct planting techniques and planting sizes to ensure landscaping has the best advantage for establishment.

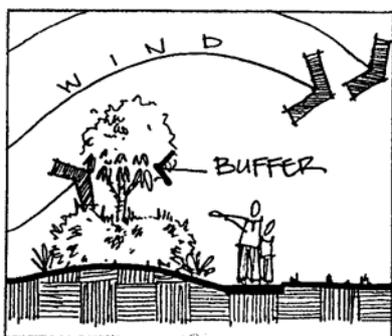
3.2 Development Requirements:

Performance Criteria	Acceptable Solutions
<p>Plant Selection</p> <p>PC1 Species selection must be those which respect the landscape character of the site and surrounds, the city image and which are best suited to the use, function, environment and climatic conditions.</p>	<p>Plant Selection</p> <p>AS1.1 When selecting species for a particular site there are some important aspects of landscape design that need to be considered such as:</p> <ul style="list-style-type: none"> • provision of shade; • enframing and filtering views;

Performance Criteria



Planting can assist in screening for privacy



Planting can assist in reducing the effects of wind

Pot Sizes

PC2 At the time of planting, minimum pot sizes are to be selected according to the function and location for which the planting is proposed.

Acceptable Solutions

- the need for a windbreak;
- providing screening;
- unifying the built and rural form;
- softening scale and size of built form;
- providing wildlife habitat.

AS1.2* Species selection and location is to respect the landscape character of the local area and its surrounds particularly the uses, types and forms of adjacent development and associated landscapes, and existing natural features; and have regard to the following:

- level of impact the proposed planting will have on visual amenity, uses and activities;
- future maintenance requirements of the planting;
- irrigation requirements (*mesic plants require permanent irrigation. Xeric plants only require irrigation for successful establishment – See Glossary in Section D, 2.0*);
- whether the species is a known environmental weed, nuisance plant, and/or has disease problems or invasive roots;
- climatic and growth habit of the plant match the sites' requirements (includes provision for shade etc);
- location of any underground or above ground infrastructure;
- species morphology matches the sites spatial restrictions;
- soil/sub-soil type and conditions.

Note: Preference is to be given to local native species in areas where Council is promoting the 'green behind the gold' (eg River Valleys, Bay Islands and Broadwater Character Areas as identified in the Planning Scheme) dunal areas, coastal estuaries and watercourses, open space areas, open space links, open space corridors, hilltops and ridgelines. Refer to Part 1 of the Landscape Strategy – "Landscape Character: Guiding the Image of the City" for more detailed information.

AS1.3 Species used are to be well established disease free container or field grown stock that have been propagated for the specific site conditions, ie sun hardened, shade tolerant and salt tolerant.

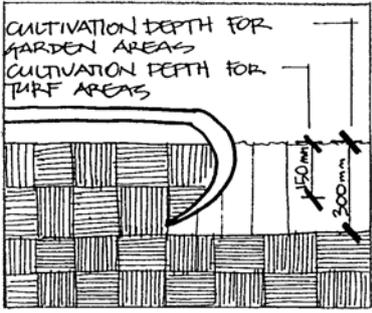
Pot Sizes

AS2.1 In areas of high impact through use and activity, larger and more advanced stock is to be provided, whereas if an area is of low impact through use and activity, smaller stock may well be more appropriate (for instance, if buffer planting is not required to achieve an instant screening function).

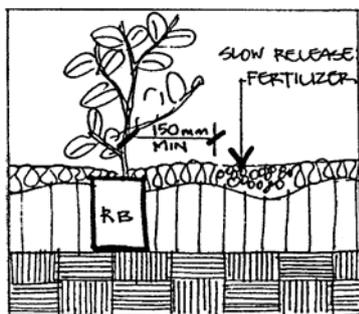
It is recommended that the applicant discuss species sizes with Council Officers prior to any submittal of Detailed Landscape Plans. Recommended pot sizes for planting is as follows:

(i) GARDEN PLANTING - *Residential, Tourist, Industrial, Commercial, Streetscape uses:*

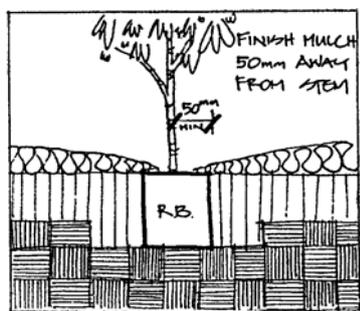
- Ground Covers** - 140mm;
- Shrubs** - 200mm;
- Trees** - 45 litre;
- Palms** - single trunked species are to have a minimum 3m trunk height. Size of other species of palms will be assessed on a site specific basis depending on their function and location.

Performance Criteria	Acceptable Solutions																																
<p>Planting in General</p> <p>PC3 All planting bed areas must be constructed and prepared using recognised best management practices enabling an adequate growing environment for plant establishment and longevity</p>  <p><i>Soil in planting bed areas is to be cultivated appropriately</i></p>	<p>(ii) STREET TREES</p> <p>45L with preference to 100L depending on species (Refer Section C, 7.0 for further information on planting in road reserves).</p> <p>(iii) BUFFER PLANTING</p> <p>Where buffer planting is required to provide an instant screening function, plant sizes are to be determined as per Garden Bed planting sizes (i). (Refer Section C9.0 for further information on landscaped buffer strips.)</p> <p>AS2.2* Container sizes are to be expressed in a diameter for rigid polypropylene pots and as a litre capacity for stock in polypropylene bags.</p> <table border="1" data-bbox="850 797 1404 1173"> <thead> <tr> <th>NURSERY INDUSTRY NOMINATED SIZES</th> <th>HEIGHT</th> <th>DIAMETER</th> <th>VOLUME POTTING MEDIA (DRY)</th> </tr> </thead> <tbody> <tr> <td>140mm</td> <td>140mm</td> <td>140mm</td> <td>1.5L</td> </tr> <tr> <td>200 mm</td> <td>195 mm</td> <td>200 mm</td> <td>4.0L</td> </tr> <tr> <td>300 mm</td> <td>290 mm</td> <td>300 mm</td> <td>13.0L</td> </tr> <tr> <td>25 L</td> <td>300 mm</td> <td>300 mm</td> <td>18.0L</td> </tr> <tr> <td>45 L</td> <td>400 mm</td> <td>400 mm</td> <td>46.0L</td> </tr> <tr> <td>75L</td> <td>450 mm</td> <td>400 mm</td> <td>76.0L</td> </tr> <tr> <td>100 L</td> <td>500 mm</td> <td>500 mm</td> <td>104.0L</td> </tr> </tbody> </table> <p>Planting Bed Preparation</p> <p>AS3.1* All planting bed areas are to be cultivated, including sub soil cultivation and decompaction measures.</p> <p>In larger areas where machinery can be used, planting bed areas are to be cultivated to a minimum depth of 300 mm. In smaller areas where the need for large machinery is not required, planting bed areas are to be cultivated to a minimum depth of 150mm.</p> <p>A minimum 200 mm finished depth of topsoil (from on-site or parent topsoil stockpile or approved equivalent imported soil) is to be provided.</p> <p>Garden bed areas are to be mounded to achieve adequate drainage, facilitate root growth and restrict access where necessary.</p> <p>All imported topsoil will aim to achieve the requirements of AS 4419 "Soils for Landscaping and Garden Use".</p> <p>AS3.2 Generally planting holes for trees (except for ex-ground stock) are to be a minimum 1.5 times the diameter of the rootball and twice the depth of the rootball to encourage deep rooting of trees, to enhance tree stability and to minimise watering demands.</p> <p>AS3.3 All planting is to have associated fertiliser regimes incorporated as an integral part of the growing and planting works programs.</p>	NURSERY INDUSTRY NOMINATED SIZES	HEIGHT	DIAMETER	VOLUME POTTING MEDIA (DRY)	140mm	140mm	140mm	1.5L	200 mm	195 mm	200 mm	4.0L	300 mm	290 mm	300 mm	13.0L	25 L	300 mm	300 mm	18.0L	45 L	400 mm	400 mm	46.0L	75L	450 mm	400 mm	76.0L	100 L	500 mm	500 mm	104.0L
NURSERY INDUSTRY NOMINATED SIZES	HEIGHT	DIAMETER	VOLUME POTTING MEDIA (DRY)																														
140mm	140mm	140mm	1.5L																														
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45 L	400 mm	400 mm	46.0L																														
75L	450 mm	400 mm	76.0L																														
100 L	500 mm	500 mm	104.0L																														

Performance Criteria



All planting is to be appropriately fertilised



Mulch is to be placed in all planting bed areas

Staking

PC4 All tree planting must aim for successful establishment without the need for staking. In high wind prone areas, areas of high pedestrian/vehicle use and in exposed areas trees are to be secured and protected where necessary.

Acceptable Solutions

Mulch

AS3.4 All planting bed areas are to have 75 mm - 100 mm organic mulch. All mulch is to be free of deleterious materials such as rock soil, weeds and sticks. The type of mulch that can be used will be determined by the particular situation. Acceptable types of mulches include:

- Forest Litter
- Pine Bark Mulch
- Hoop Pine Bark Mulch
- Organic matting

Bagasse and Hardwood mulches are not suitable. Flammable materials ie. Sugar cane trash is not suitable unless an appropriate depth of inflammable top dressing is applied, eg. 50mm of acceptable material.

Turfing

AS3.5 All turfed/grassed areas are to be cultivated (including subgrade formed or existing) to a depth of 150mm prior to placement of minimum 75 - 100mm depth of approved topsoil lightly compacted and to finished ground level. All turfed/grassed areas are to be finished to appropriate falls and finish flush with adjacent surface treatments.

Hydromulching and seeding

AS3.6 Grass seeding is to be carried out using local native grasses where possible or Green Couch where appropriate. Additives of local native tree, shrub and ground cover species are to be used in seed mixes on steep gradients to assist in preventing erosion (Refer Section C, 2.0 - Batters).

Staking

AS4.1 If staking is considered appropriate the following is recommended:

POT SIZE	STAKING
140-300mm	2x12mm hardwood stakes secured 600mm above ground. Secure the stem of the tree firmly with 2 x hessian ties fitted to the stem separately in opposite directions.
300mm-100L	2x25x25x1800mm hardwood stakes driven 600mm into the ground. Secure the stem of the tree firmly with 2 x hessian ties fitted to the stem separately in opposite directions.
<100L-ex-ground	Special securing methods may be required to ensure successful anchorage. Some of these methods include guying with: <ul style="list-style-type: none"> - wire with protective coating; - stainless steel; - galvanised fittings as required; - Special anchorage supports for podium planting.

Note:

Acceptable Solutions notated with an * will not be varied by Council.

4.0 Irrigation

The following intent, set of performance criteria and acceptable solutions applies to any landscape works where irrigation is to be installed.

4.1 Intent:

- To assist with Council's water conservation objectives for the City.
- To provide minimum standards for irrigation systems to assist in establishing new plant growth.

4.2 Development Requirements:

Performance Criteria	Acceptable Solutions
<p>PC1 All planting must aim to be maintained without the use of potable water from the City's water reticulation system for irrigation purposes.</p>	<p>AS1.1 The selection of species, particularly those proposed in Crown Land are to be those which do not rely on irrigation for ongoing survival and longevity. (See Glossary for explanation of Xeric and Mesic species).</p> <p>AS1.2 Water sensitive design practices are to be incorporated into the design of the particular site wherever possible, such as retention basins, rainwater tanks and wetlands, to allow for water harvesting for irrigation purposes.</p>
<p>Irrigation Generally</p> <p>PC2 Where irrigation is to be incorporated as part of landscape works within private and/or Crown Land, it must be installed using best management practices and techniques.</p>	<p>Irrigation Generally</p> <p>AS2.1 The type of irrigation system used may vary depending upon the design of the site and individual requirements of the proposed planting. It is recommended that the Landscape Architect/Designer seek advice from a professional irrigation specialist to ensure Council objectives are met.</p> <p>AS2.2* All irrigation systems using potable water from the City's water reticulation system will be connected to a metered water supply. (Application is to be made to Gold Coast Water prior to the commencement of any landscape works).</p> <p>AS2.3* All irrigation systems using potable water from the City's water reticulation system will require the installation of a testable backflow prevention device and compliance with AS 3500 Part 1 Section 4, unless directed otherwise, in writing, by Council. All backflow prevention devices are to be installed by a licensed plumbing contractor. Council requires completion of a Starter Card and payment of Inspection Fees before commencement of work. Application is to be made to the Gold Coast City Council - Building and Technical Services Section.</p> <p>AS2.4* Irrigation plans and specifications are to be submitted to Council as part of the Detailed Landscape Plan documentation. Irrigation plans will include the location of water meter, backflow prevention device and isolation valve (where appropriate).</p>
<p>Crown Land managed by Council</p> <p>PC3 Irrigation systems proposed as part of landscape works in Crown Land must consider future maintenance costs to Council and public safety.</p>	<p>Crown Land managed by Council</p> <p>AS3.1* Where a private resident and /or developer desires to install an irrigation system for landscape works (including an entry statement proposal) in the road reserve or any other Crown Land managed/or to be managed by Council, the system are to comply with the previous section 'Irrigation Generally' and the following:</p>

Performance Criteria	Acceptable Solutions
	<p>(i) On the irrigation main from the backflow prevention device, provide an isolation valve at the property boundary, where part of that irrigation system services the road reserve area or other Crown Land.</p> <p>(ii) All irrigation systems proposed in Crown Land are to be approved by Council prior to installation.</p> <p>(iii) Maintenance and operation of irrigation systems and cost of the water supply will be the responsibility of the private developer until the issuing of the "off maintenance" certificate (where such is related to a development adjacent). (Refer Section B, 4.3.2 for Maintenance Periods).</p> <p>(iv) Where irrigation is approved in public road reserve areas the following will apply:</p> <ul style="list-style-type: none"> • Hours of operation are to be limited to the hours between 11.00 pm and 5.00 am; • the spraying patterns for sprinklers are to be designed and installed to leave public paved footpath areas dry. <p>(v) The Council may opt to disconnect any water supply or privately constructed irrigation systems located in Crown Land at the issuing of the "off maintenance" certificate.</p> <p>Site specific assessment shall have regard to:</p> <ul style="list-style-type: none"> • purpose and function of the area being serviced by irrigation; • maintenance requirements of planting; • cost of continued maintenance and operation of irrigation system and associated infrastructure; • continued costs of potable water supply. <p>AS3.2* If a private resident/private developer wishes to continue responsibility for maintenance of landscape works and associated irrigation systems after the 'off ' maintenance period, a written agreement from Council will be required which details:</p> <ul style="list-style-type: none"> • responsibilities for water costs; • responsibilities for management of planting and associated irrigation, hard surfacing and other built elements; • extent of time of the agreement; • spraying times and spraying patterns for irrigation; • a public risk insurance policy is to be entered into by the private resident/managing body/developer of the development or residence adjacent to cover the landscaped area and irrigation system within the road reserve area for the specified period of time. <p>Note:</p> <p>Acceptable Solutions notated with an * will not be varied by Council.</p>

5.0 Hard Surfacing

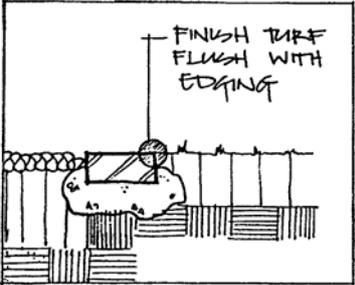
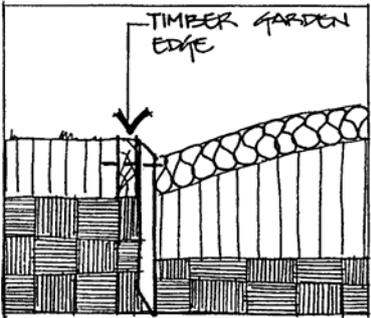
The following intent, set of performance criteria and acceptable solutions applies to any landscape works that includes the use of hard surfacing. For the purpose of these performance criteria and acceptable solutions, hard surfacing relates to all pavement treatments that are used in landscape works such as unit paving, bitumen, gravel and decomposed granite, concrete, slate and tiles in general.

5.1 Intent:

- To establish minimum requirements for the provision of hard surfacing that minimises maintenance and public risk whilst fulfilling it's functional requirements.
- To enhance the visual quality of developments.

5.2 Development Requirements:

Performance Criteria	Acceptable Solutions														
<p>PC1 All hard surfacing in open space areas and areas external to building envelopes must be designed to provide for safety, be functionally appropriate, enhance visual amenity, and have regard for ongoing maintenance requirements.</p>	<p>AS1.1* All hard surfacing is to comply with Australian Standards for surface treatments, Council's "Land Development Guidelines" and Building Regulations.</p> <p>AS1.2 The following criteria are to be considered in selection and design of new hard surfacing:</p> <ul style="list-style-type: none"> ▪ Loading – the hard surfacing is to be able to bear the volume of weight of traffic anticipated; ▪ Durability - consider the type of detailing, rate of wear and susceptibility to discolouration; ▪ Maintenance costs - low costs should not be the only consideration. Aesthetic appeal, function, safety aspects, laying cost, availability for replacement and long term maintenance need to be addressed; ▪ Ease of movement - pedestrians require a surface that is comfortable to walk on. In areas where traffic is to be discouraged, hard surfacing materials can be uncomfortable or noisy to traverse. ▪ Vegetation Protection – when it is necessary to put hard surfacing around mature trees, use bricks or pavers. In busy pedestrian areas, tree guards may be required. <p>AS1.3 The following identifies preferred gradient/slope ranges of typical areas that require hard surfacing:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-left: 20px;">Pathways/Bikeways</td> <td style="text-align: right;">1% - 8%</td> </tr> <tr> <td style="padding-left: 20px;">Entrance walks</td> <td style="text-align: right;">1% - 4%</td> </tr> <tr> <td style="padding-left: 20px;">Pedestrian Ramps</td> <td style="text-align: right;">up to 8%</td> </tr> <tr> <td style="padding-left: 20px;">Stairs</td> <td style="text-align: right;">33% to 50%</td> </tr> <tr> <td style="padding-left: 20px;">Ball play areas</td> <td style="text-align: right;">1% - 3%</td> </tr> <tr> <td style="padding-left: 20px;">Adventure Playground Pad</td> <td style="text-align: right;">1% - 3%</td> </tr> <tr> <td style="padding-left: 20px;">Terrace and sitting areas</td> <td style="text-align: right;">1% - 2%</td> </tr> </table>	Pathways/Bikeways	1% - 8%	Entrance walks	1% - 4%	Pedestrian Ramps	up to 8%	Stairs	33% to 50%	Ball play areas	1% - 3%	Adventure Playground Pad	1% - 3%	Terrace and sitting areas	1% - 2%
Pathways/Bikeways	1% - 8%														
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Stairs	33% to 50%														
Ball play areas	1% - 3%														
Adventure Playground Pad	1% - 3%														
Terrace and sitting areas	1% - 2%														

Performance Criteria	Acceptable Solutions
<p>Edging</p> <p>PC2 All garden/mass planting areas, signposts, bollards and the like associated with development, are to be contained with a fixed durable edge.</p>  <p><i>All garden edging is to finish flush with turfed areas</i></p>  <p><i>Timber garden edge</i></p>	<p>AS1.4* Hard surfaced areas which are subject to wetting are to comply with Australian Standard AS 1141.2.</p> <p>AS1.5 In hard surface areas a minimum cross fall of 1:50 is to be provided away from built structures to a suitable collection point.</p> <p>AS1.6 In areas with adequate sub-surface percolation and moderate run off conditions, the use of porous hard surfacing is preferred.</p> <p>AS1.7 All unit paving areas are to be restrained by a hard edge, preferably concrete and laid on an appropriate base.</p> <p>AS1.8 Street and park furniture including bike racks are to be installed on paved, concrete or other hard surfaced pads.</p> <p>Edging</p> <p>AS2.1 All edging, especially that associated with landscape works in Crown Land, is to be designed with smooth navigable lines and be able to sustain the movement of tractor mowers and maintenance vehicles where necessary.</p> <p>AS2.2 At garden and turf interfaces the edging is to finish flush so that mowing obstacles and trip hazards are not created.</p> <p>AS2.3 Some desirable edging that may be used includes but is not limited to:</p> <ul style="list-style-type: none"> • Brick - laid in either header or stretcher course, ideal for curved situations; • Concrete edge - machine installed, small flowing curves and straight runs difficult to achieve; • Timber edge - Class 1 Hardwood and CCA treated softwood, 50 mm x 100 mm at 1500 mm intervals fixed to the ground using timber or aluminium pegs. (<i>Timber edging is not acceptable for Council managed land</i>). <p>Note:</p> <p>Acceptable Solutions notated with an * will not be varied by Council.</p>

6.0 Open Space Areas

For the purpose of these performance criteria and acceptable solutions, open space can be described as a general term referring to dedicated parkland, local links, greenways, drainage reserves/swales and associated bikeways, parks facilities and structures.

The following intent, set of performance criteria and acceptable solutions applies to open space areas where design and construction of landscape works is to be undertaken. The following are the minimum conditions and acceptable quality (and not limited to) to be met for design, construction and “on” and “off maintenance.” The requirements for open space may include some, or all of these requirements depending on the intended use and proposed maintenance methods.

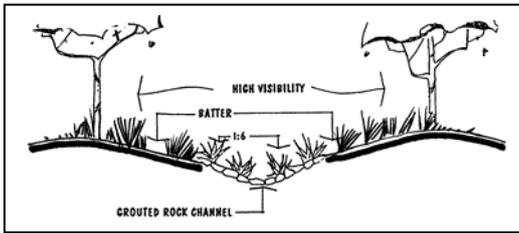
6.1 Intent:

- *To ensure the landscape design and construction of public open space areas provides for a high quality of active/passive recreational opportunities for the community and appropriate wildlife habitat areas where possible.*

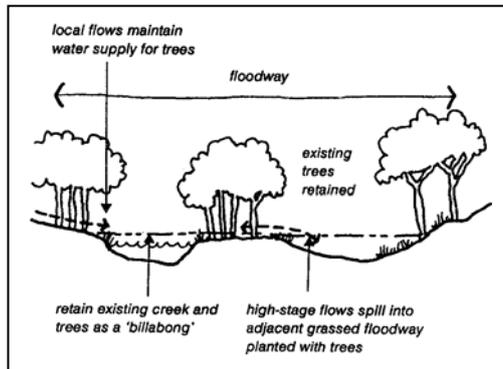
6.2 Development Requirements:

Performance Criteria	Acceptable Solutions
<p>Design of Open Space Areas in General</p> <p>PC1 Landscape works in open space areas are to be designed appropriate to their function by:</p> <ul style="list-style-type: none"> • utilising useable land for its intended purpose; • incorporating where possible existing vegetation and ecological systems; • enhancing visual amenity of local area; • providing a sustainable community resource; • be consistent with hydraulic or drainage regimes on the site and within the adjacent surrounding areas. 	<p>Note: <i>Before the commencement of planning or design of any open space areas, developers of such areas are to co-ordinate with Council to determine possible future use and maintenance of these areas. This will prevent significant delays and inconvenience with processing of approvals of proposed development.</i></p> <p>Design</p> <p>AS1.1 Dedication, design and construction of open space areas is to comply with Council’s policy for parkland dedication and design such as:</p> <ul style="list-style-type: none"> • Planning Scheme Policy No 16 - Park and Open Space Contribution Requirements; • Sections C, 1.0 – 5.0 inclusive of this document. <p>Design of open space areas is to incorporate the use of water sensitive design solutions incorporating the principles related to multiple use drainage systems and reducing requirements for use of potable water for irrigation.</p> <p>AS1.2 Species selection is to have regard for Section C3.0 of this document. Generally in public open space areas grass type is to be local native grasses or Green Couch in areas where appropriate. Grass type in drainage reserves and drainage swales is to be predominantly local native species.</p>

Performance Criteria



Low flow drainage channels can utilise cobble or river stone materials to provide a more natural appearance



Incorporate existing vegetation and water sensitive design practices in designing landscape works in drainage flow paths

During Construction of Open Space Areas

PC2 Best management practices are to be used during the construction phase associated with any landscape works in open space areas including those associated with vegetation protection and removal, protection of existing water quality, fire hazard management and storage of material and machinery.

Acceptable Solutions

- AS1.3 When designing landscape works in drainage reserves, reinforce and enhance any existing riparian vegetation with additional planting areas, and where possible, increase the width of the riparian zone. Landscape works undertaken in drainage flow paths are to be undertaken in conjunction with appropriate hydraulic/stormwater drainage management practices and plans
- AS1.4 For areas that have a relatively consistent base flow of water, natural stream design principles are to be applied. Grassed drainage swales are not appropriate in these situations without low flow pipes or subsurface ground water drainage.
- AS1.5 All design and construction associated with landscape works is to account for ongoing maintenance regimes.
- AS1.6 Single tree planting proposed in grassed/turfed areas within public open space is to be spaced so that self-propelled mowing equipment can manoeuvre freely around trees (minimum 3000 mm between). Newly established groups of trees in grassed/turfed areas are to be placed in a mulched planting bed.
- AS1.7 Where open space areas are proposed as public park areas in urban and suburban areas, the road reserve area between the kerb and the park boundary is to be established turf.

Construction

- AS2.1* Vegetation protection measures are to be undertaken as identified in Section C1.0 of this document.
- AS2.2 Significant restoration planting of local native species is to be required if existing trees are damaged or removed without prior written approval from Council. *Note: Species with a trunk girth in excess of 40cm and height of 4 metres may be classified as protected under Planning Scheme Chapter 36 "Vegetation Management". Removal or relocation is to comply with these requirements.*
- AS2.3 Spoil or overburden is not to be deposited into treed areas or under the appropriate vegetation protection zone of vegetation to be retained.
- AS2.4 Erosion and sediment control devices are to be installed in areas where construction activity will adversely affect the water quality of adjacent waterways.
- AS2.5 Where open space areas have been identified as having a bushfire hazard rating, temporary mitigation measures are to be undertaken during construction such as fire trails and water storage facilities.
- AS2.6 Areas are to be allocated on site during the construction phase for storage of materials and machinery. Temporary site access is to be identified and measures undertaken to ensure that access into and out of the site has minimal impact on areas of any vegetation to be retained, drainage systems through the site and the environment directly surrounding the development site.

Performance Criteria	Acceptable Solutions
<p>PC3 Best Management Practices must be used prior to and during construction and prior to the “on” maintenance period and the issuing of the “off “ maintenance certificate for removal of all State Declared Plants and if appropriate, recognised environmental weeds.</p>	<p>AS3.1 Section D of this document - “Guidelines for Undesirable Plants ”, identifies species that are prohibited or restricted as new plantings in Landscape Works requiring approval from Council. This list identifies species Council considers to be potential environmental weeds and plants that are unsafe in certain situations. <i>Note: Recognised environmental weeds with a trunk girth in excess of 40cm and height of 4 metres may be classified as protected under Planning Scheme Chapter 36 “Vegetation Management”. Removal or relocation is to comply with these requirements.</i></p>
<p>Condition of Open Space areas (to be transferred to Council) at “On” and “Off” Maintenance</p> <p>PC4 At the “on” maintenance and at the issuing of the “off maintenance” certificate, public open space areas must be of a quality which can be easily maintained without the need for Council to undertake additional works to establish these areas to an acceptable standard.</p>	<p>Condition at “On” and “Off” Maintenance</p> <p>AS4.1 All large open and grassed open space areas are to have established grass cover of 90% and be left in a mowable condition, with the exception being where such vegetation performs an environmental or visual function.</p> <p>AS4.2 Open space areas utilised for park uses is to attain a constant grade and be left in a mowable condition with slopes not exceeding 10%.</p> <p>AS4.3 All surface rock over 25 mm is to be removed from open space areas where mowing is intended.</p> <p>AS4.4 All construction debris and rubbish/litter is to be removed including that deposited in any sediment and erosion control devices.</p> <p>AS4.5 All sediment and erosion control devices, irrigation, hard surfacing and fire-fighting infrastructure are to be left in good repair to the satisfaction of Council.</p> <p>AS4.6 Areas with silt deposition are to be cleaned and levelled.</p>
<p>Bikeways</p> <p>PC5 Bikeways are to be designed to provide connectivity, permeability, amenity and personal safety to cyclists.</p> <div data-bbox="151 1482 654 1825" data-label="Image"> </div> <p><i>Bikeways provide safe and functional routes</i></p>	<p>Bikeways</p> <p>AS5.1 The design and construction of any proposed bikeways within public open space areas is to be co-ordinated with Council’s Bikeways Strategy for the City. Bikeway specifications and requirements are to comply with Planning Scheme Policy No 11 “Land Development Guidelines”.</p> <p>AS5.2 Where a bikeway exits parkland onto busy streets, an approved physical barrier is to be constructed to restrict accidental movements onto the road pavement.</p> <p>AS5.3 Where applicable, a stable and safe pedestrian/ bikeway access through drainage reserves to any adjacent recreation areas is to be provided.</p>

Performance Criteria	Acceptable Solutions
<p>Park Structures and Facilities <i>(applies to playground equipment, shelters, pergolas, gazebos retaining walls and decorative walls)</i></p> <p>PC6 Where Park Structures and Facilities are considered appropriate for specific public open space areas they are to be designed to:</p> <ul style="list-style-type: none"> • provide safety to users; • minimise vandalism; • be of an appropriate scale; • be low maintenance and high durability; • have aesthetic appeal and complement the character of the local area; • provide shade where appropriate. 	<p>Park Structures and Facilities</p> <p>AS6.1 The appropriate provision of park structures is to be considered with regard to the following:</p> <ul style="list-style-type: none"> • Role of the particular park/open space area within the broader context of open space requirements, eg linkages, requirements of the surrounding areas, status of existing surrounding facilities, future community needs; • Specific site evaluation to determine the best type of equipment that will be suitable for that particular site regarding, park category, character of the area, present and projected future community needs. <p>AS6.2 Where Council considers the installation of playground equipment is appropriate in public open space areas, the design and construction is to comply with the requirements of the relevant Australian Standards both in supply and installation.</p> <p>Note:</p> <p>Acceptable Solutions notated with an * will not be varied by Council.</p>

7.0 Road Reserves

The following intent, set of performance criteria and acceptable solutions apply to any landscape works associated with development and or capital works programs undertaken in road reserve areas. This includes provision for planting, hardsurfacing, irrigation, and signage.

Note: Any private landscape works/other works undertaken in road reserve areas under the day-to-day management of Council require approval from Council including:

- *A private resident undertaking landscaping in road reserve areas in front of their residence is to obtain approval from Council's Roads Asset Manager.*
- *Developers desiring to landscape road reserve areas as part of a new development must obtain approval in conjunction with their development application through Council's development approval process.*

7.1 Intent:

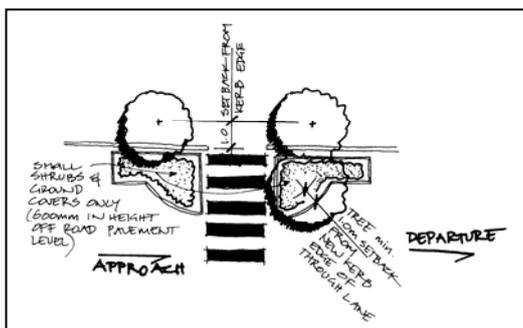
- *To set standards for landscape works in road reserves by providing for safe, functional and visually pleasing streetscapes.*

7.2 Development Requirements:

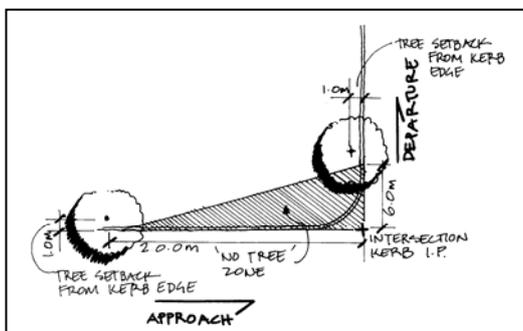
Performance Criteria	Acceptable Solutions
<p>PC1 Landscape works undertaken in road reserve areas must be designed to provide:</p> <ul style="list-style-type: none"> • for safe movement of vehicular traffic and pedestrians including visibility and lighting; 	<p>Road Reserves Generally</p> <p>AS1.1* Traffic visibility, safety, street lighting, and service infrastructure allocations are to comply with the requirements in Council's Planning Scheme Policy No 11 "Land Development Guidelines".</p> <p>AS1.2 Landscape works are to be in accordance with the requirements of Section C, 1.0 - 5.0 inclusive.</p>

Performance Criteria	Acceptable Solutions
<ul style="list-style-type: none"> • appropriate species selection and sizes; • adequate growing medium for planting, irrigation and subsoil drainage; • aesthetically pleasing streetscapes including amenity lighting, hardsurfacing and signage; • shade where appropriate; • for functional operation of underground and above ground service infrastructure. <p><i>A useful reference for landscape works (design and management) in State controlled roads (principles may be used for other major road reserve areas) is "Road Landscape Manual" – Qld. Department of Main Roads June 1998</i></p>	<p>AS1.3* Provide appropriate clear zones in areas that have potential runoff road accident zones or areas with an established accident history. The following applies to the above areas:</p> <ul style="list-style-type: none"> • clear zones: minimum 1.0m, 3.0m desirable for low speed environments of less than 70km/h; • clear zone widths for substandard curves refer DMR "Road Landscape Manual"; • frangible tree species are to be used. <p>AS1.4* The only built structures that are to be located in road reserves are those associated with public transport, traffic engineering requirements and community benefit.</p> <p>Any other built structures require prior approval from the appropriate authority with which jurisdiction lies eg. State Controlled roads – Department of Natural Resources or Department of Main Roads and Council for all Council managed road reserve areas. This includes:</p> <ul style="list-style-type: none"> • private feature walls, gatehouses, garden walls/raised garden beds and private signage; • permanent umbrella structures and extensions to buildings requiring structural support from the ground, that are located in the road reserve; <p>AS1.5* Any irrigation works proposed in road reserve areas are to comply with Section C, 4.0 of this document.</p> <p>AS1.6* Species selection and location is to respect the landscape character of the local area and its surrounds particularly the uses, types and form of adjacent development and associated landscapes, and existing natural features; and have regard to the following:</p> <ul style="list-style-type: none"> • impact of the use and activity in the location to which species is proposed; • underground and above ground service infrastructure; • ongoing maintenance requirements of the plant; • irrigation requirements (<i>mesic plants require permanent irrigation. Xeric plants only require irrigation for successful establishment – See Glossary</i>); • whether the species is a known environmental weed, nuisance plant, has disease problems or invasive roots; • climatic and growth habit of the plant match the site's requirements; • species morphology matches the site's spatial restrictions; • the natural tendency for the species to develop a single trunk (multiple stemmed species are to be avoided); • the type and classification of the road; • safety requirements for pedestrians and vehicles including issues of visibility, hazards, lighting and surveillance; • stereoscope devices and traffic controls within the roads; • species with minimal potential to create slippery pathway surfaces;

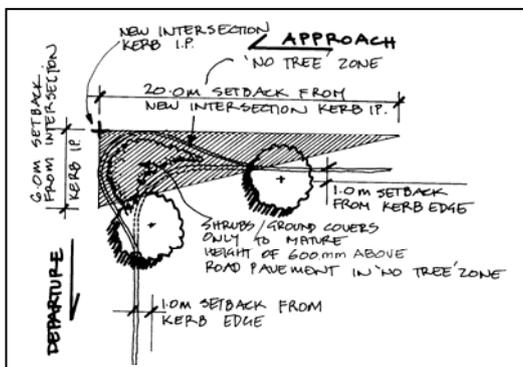
Performance Criteria



Pedestrian Crossings in low speed environment of 50km/h or less with a street build out adjacent



Unsignalised intersections - 'no tree' zone where no build out occurs



Unsignalised intersections - 'no tree' zone where a build out exists.

Acceptable Solutions

- species that do not reduce the effectiveness of the cone of light from street lighting;
- scale of the streetscape;
- soil and sub soil conditions.

Note: Preference is to be given to local native species in areas where Council is promoting the 'green behind the gold' (eg River Valleys, Bay Islands and Broadwater Character Areas as identified in the Planning Scheme) dunal areas, coastal estuaries and watercourses, open space areas, open space links, open space corridors, hilltops and ridgelines. Refer to Part 1 of the Landscape Strategy – "Landscape Character: guiding the image of the City" for more detailed information.

AS1.7* Street planting in road reserve areas is to comply with the following:

- Trees are not to be located
 - under any insulated power lines except where such has a mature height of 5.0m and is appropriate to the character of the local area;
 - over any significant underground electricity infrastructure.
- Trees are not to be located within 3.0m of a residential vehicular access or 4.5 metres of all other vehicular access crossings, and not within 3.0m of a fire hydrant
- Pedestrian Crossings*

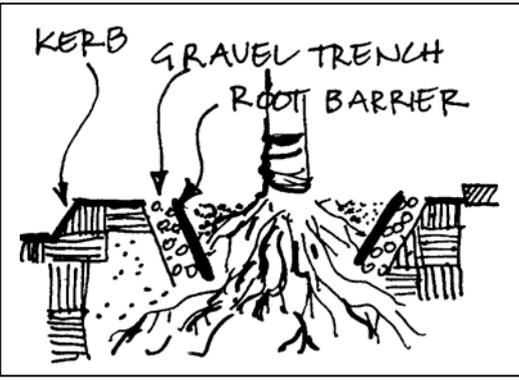
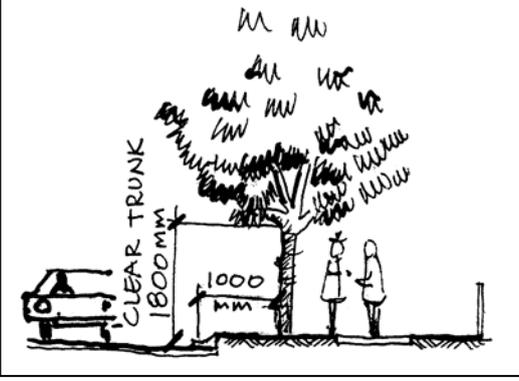
Trees are not to be located within 15.0 m of the approach side and 6.0 m of the departure side of a pedestrian crossing or bus stop. These distances apply where there is no street build out adjacent.

If a build out occurs adjacent to a pedestrian crossing, planting within that build out island is to be shrubs/ground covers only, with a maximum mature height of 600mm above the road pavement. In these cases a street tree may be located in the 1.0m setback zone as identified in C7.0 A1.16 from the original kerb edge.

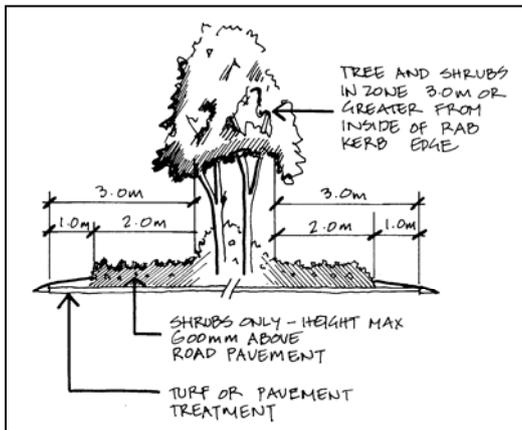
In cases where a build out island occurs adjacent to a pedestrian crossing in a low speed zone of 50km/h or less, a single street tree may be located in the build out island on the departure side of the pedestrian crossing. The tree to be setback 1.0m from the face of the new kerb edge of the through lane.
- Un-signalised Intersections*

Trees are not to be located in the triangular zone defined by the following distances: 20.0m and 6.0m from the intersection of the inner edge of the traffic lanes (parking lane is not classed as a traffic lane) on the approach side and the intersection road respectively.
- Signalised Intersections*

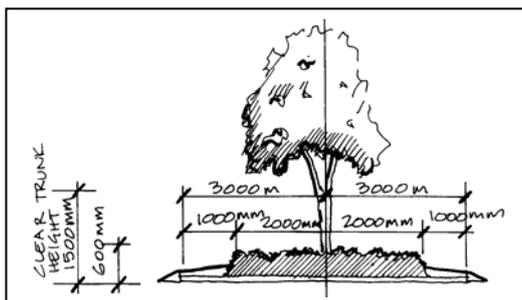
Signalised intersections have specific traffic management requirements. All planting is to be considered at a site-specific level in consultation with Council and be undertaken in accordance with traffic engineering visibility and safety requirements.

Performance Criteria	Acceptable Solutions
 <p>Root barriers are to be installed where necessary to protect structures or underground services</p>	<p>AS1.8 Where trees are planted singularly, the planting pit is to:</p> <ul style="list-style-type: none"> • have roughened sides and a decompacted base; • be at least twice the width and depth of the root ball. <p>AS1.9 Combine erosion control treatments with plantings (where necessary) to stabilise road verges.</p> <p>AS1.10 Appropriate root barriers are to be installed where necessary in areas where structures are highly likely to be root damaged by trees planted nearby. It is important to note that ongoing maintenance is necessary to monitor the effectiveness of the root barrier. This is to be included in any maintenance program.</p> <p>AS1.11 In cases where drainage provisions are required to planting areas, (eg to prevent sumping) drainage is to be appropriately connected to an approved stormwater system.</p> <p>AS1.12 All existing road remnants or associated compacted sub-grades are to be broken up and ground decompacted to a minimum depth of 500mm and removed where necessary.</p> <p>AS1.13 Where the road is under the jurisdiction of the Queensland Department of Main Roads, approval to undertake landscape works is to be obtained from that Department in consultation with Council.</p> <p>Planting in Road Verges</p> <p>AS1.14* Street trees are to have a minimum clear trunk height of 900 mm for a 2.0 m high tree on planting and be able to attain a clear trunk height of 1800 mm on maturity. <i>(The exception being where tree planting is for buffer or screening purposes, where the form and size will be determined in consultation with Council.</i></p> <p>AS1.15* Minimum sizes for street tree planting is to be as follows:</p> <ul style="list-style-type: none"> • Single street tree plantings - minimum Semi Mature Species (see Glossary) • Grouped plantings (three or more) - minimum Advanced Plants (see Glossary)
 <p>Planting in road verges is to allow for adequate visibility for vehicles and pedestrians and consider maintenance and maintenance access</p>	<p>AS1.16* Road verges vary in width, but are typically 3.5m, 4.5m and 6.0m wide. Council Standard Engineering road reserve cross sections provide for an allocation of verge space for street planting. Tree planting is to be setback a minimum 1.0m from nominal kerbline. If a greater planting area is required to the back of kerb, location and arrangement of any footpath areas is to be determined in consultation with Council prior to submitting Detailed Landscape Plans.</p> <ul style="list-style-type: none"> • All planting (including shrubs and ground covers) is to comply with minimum traffic engineering design provisions for 'line of sight' restrictions and traffic safety requirements. • Single tree planting is to have regard to the spatial requirements of the species and the impact on effectiveness of street lighting and flexibility for driveways and accesses especially in residential areas.

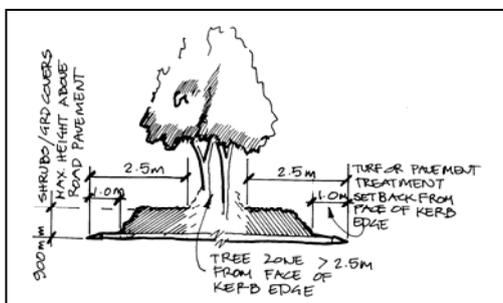
Performance Criteria



Roundabouts generally



Roundabouts of 6.0m dia in low speed zones of 50km/h or less



Median strips generally

Acceptable Solutions

Planting Roundabouts and Median Strips

AS1.17* Trees are to be a minimum Semi Mature nursery stock. (See Glossary)

AS1.18* All planting in roundabouts and median strips is to be undertaken in accordance with traffic engineering visibility and safety requirements.

Roundabouts

Planting in roundabouts is to be setback from the inside of the roundabout kerb edge and consist of as follows:

- **0.0m - 1.0m setback** – appropriate turf or pavement material
- **1.0m - 3.0m setback** – shrubs/groundcovers only with a maximum mature height of 600mm (without extensive pruning) above the road pavement (not top of kerb)
- **3.0m - >3.0m setback** – trees and shrubs/ground covers. Roundabouts of 6.0m in diameter in low speed zones of 50km/h or less, a small single trunked tree with a mature dia. of 100mm may be located in the centre of the roundabout, providing such achieves a clear trunk height at planting of 1.5m above the road pavement level

In roundabouts, projections such as boulders and driftwood are not to exceed 400 mm above the constructed road pavement and have a minimum setback of 3000mm from the inside of the roundabout kerb edge.

Median strips

Planting in median strips is to be setback from the face of the median strip kerb edge and consist of as follows:

- **0.0m - 1.0m setback** – appropriate turf or pavement treatment
- **1.0m - 2.5m setback** – shrubs/ground covers only. Shrubs and ground covers to have a maximum maintained mature height of 900mm above the road pavement (not top of kerb)
- **2.5m - >2.5m setback** – Trees and shrubs/ground covers. Trees are to be primarily single trunked species. Tree spacing will be determined depending on the species spatial requirements and clearance from service elements and light poles.

In Median Strips of 3.5m – 5.0m width located in a low speed zone of 50km/h or less, small trees with a mature trunk diameter of 100mm may be located centrally in the median strip provided such accords with traffic engineering visibility and safety requirements.

Ends of median strips require special consideration and discussion with Council with regards to clear zones and safety requirements.

AS1.19 Trees planted in roundabouts and median strips are not to be planted in individual pits, but in a continuous or circular trench to allow maximum rootzone area.

Performance Criteria	Acceptable Solutions												
	<p>The minimum width for a vertical sided trench prior to backfilling with growth media is to be 2.0 metres for trees. For single tree planting, planting pit is to be 2.0m diameter with a minimum 450mm depth of growing media.</p> <p>In situations where exposed soil surface is less than 2.0 metres wide, the following minimum growth media depths are required.</p> <table border="1" data-bbox="810 595 1426 880"> <thead> <tr> <th>VEGETATION TYPE</th> <th>MATURE CULTIVATED HEIGHT</th> <th>SOIL DEPTH</th> </tr> </thead> <tbody> <tr> <td>TREES</td> <td>> 5.0 metres</td> <td>800 mm</td> </tr> <tr> <td>SHRUBS</td> <td>0.5 - 5.0 metres</td> <td>600 mm</td> </tr> <tr> <td>G/COVERS</td> <td>less than 0.5 metres</td> <td>400 mm</td> </tr> </tbody> </table> <p>Note: Acceptable solutions notated with * will not be varied by Council.</p>	VEGETATION TYPE	MATURE CULTIVATED HEIGHT	SOIL DEPTH	TREES	> 5.0 metres	800 mm	SHRUBS	0.5 - 5.0 metres	600 mm	G/COVERS	less than 0.5 metres	400 mm
VEGETATION TYPE	MATURE CULTIVATED HEIGHT	SOIL DEPTH											
TREES	> 5.0 metres	800 mm											
SHRUBS	0.5 - 5.0 metres	600 mm											
G/COVERS	less than 0.5 metres	400 mm											

8.0 Car Parks

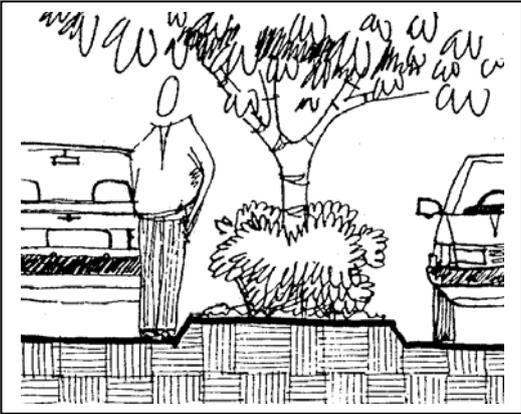
The following intent, set of performance criteria and acceptable solutions applies to any landscape works undertaken in car park areas. This includes provision for planting, hardsurfacing, irrigation and other landscape features.

8.1 Intent:

- To ensure that landscape works are incorporated as an integral part of car park design that unifies the streetscape environment and provides physical and visual amenity to its users.

8.2 Development Requirements:

Performance Criteria	Acceptable Solutions
<p>PC1 Landscape works associated with car park areas are to:</p> <ul style="list-style-type: none"> • be sited appropriately; • provide adequate space for planting above and below the ground level; • utilise appropriate species, hardsurfacing and associated hardscape with relation to the function, use and character of the locality; 	<p>Siting and Location</p> <p>To achieve the best results for siting of landscape areas liaison between the Landscape Professional and Site Planner/Civil Engineer is essential early in the design process.</p> <p>AS1.1 Concentrate carparks to rear of buildings and/or separate large carpark areas with buildings, covered walkways and open space. Landscaped areas are to be located between parking bays and/or along the top edge of the carparking bay.</p>

Performance Criteria	Acceptable Solutions
<ul style="list-style-type: none"> • reduce visual impact of carpark from the surrounding areas; • provide shade and screening where appropriate.  <p data-bbox="205 1608 584 1635"><i>Planting is to ensure clear lines of sight</i></p>	<p>AS1.2 Carparks proposed on sloping land are to incorporate the use of terraced levels with the use of landscape works to complement the level changes.</p> <p>Species Selection and Planting</p> <p>AS1.3 Landscape works are to be in accordance with Sections C, 1.0 - 5.0. Planting is not to restrict circulation, public safety and visual access to signage and associated business.</p> <p>AS1.4* Species selection and location is to respect the landscape character of the local area and its surrounds particularly the uses, types and form of adjacent development and associated landscapes, and existing natural features; and have regard to the following:</p> <ul style="list-style-type: none"> • level of impact of the proposed planting on visual amenity, uses and activity; • maintenance requirements of the plant; • irrigation requirements (<i>mesic plants require permanent irrigation. Xeric plants only require irrigation for successful establishment – See Glossary</i>); • whether the species is a known environmental weed or nuisance plant, has disease problems or invasive roots; • climatic and growth habit of the plant to match the sites' requirements; • species morphology matches the sites spatial restrictions; • the natural tendency for the tree species to develop a single trunk (avoid species with multiple stems); • soil and sub soil conditions; • traffic engineering requirements. <p>AS1.5 Planting bed areas are to be identified, marked out, sub soil decompacted and excavated to the required depth with adequate subsoil drainage and conduit pipework for the irrigation system (if required).</p> <p>All excavations are to remain open for inspection by a Council officer, prior to backfilling with approved soil, lightly compacted to the required finished surface levels.</p> <p>The irrigation system is to be installed and tested prior to planting and mulching.</p> <p>AS1.6* All trees are to be a minimum Semi Mature nursery stock. (See Glossary).</p> <p>AS1.7* Trees within carpark areas (excluding landscaped buffer strips) are to have a min. 900mm clear trunk height for a 2.0m high tree at planting and be able to attain a clear trunk height of 1800 mm on maturity. All shrub planting is to be a max. maintained height of 900mm from the road pavement (not top of kerb).</p> <p>All trees and shrubs are to be located so as to maintain adequate sight distance in accordance with traffic visibility and engineering safety requirements especially at planting bed ends within the carpark area proper.</p> <p>AS1.8 Where trees are planted singularly, the planting pit is to have roughened sides and a decompacted base.</p> <p>AS1.9 Planting is to be contained and maintained within planting bed areas. Planting bed areas are to be a minimum of 4.0 square metres and planted in a natural soil profile.</p>

Performance Criteria	Acceptable Solutions
<div data-bbox="113 362 655 813" data-label="Image"> </div> <p data-bbox="129 824 587 875"><i>Maximising shade the use of a north/south aisle orientation is desirable</i></p> <div data-bbox="137 929 632 1263" data-label="Image"> </div> <p data-bbox="129 1285 619 1337"><i>Trees planted every five to eight carparking spaces can provide good shade volume</i></p> <p data-bbox="108 1832 671 1973">PC2 Trees, shrubs and other landscape features are to be chosen, located and maintained in a way that does not block surveillance, create concealment spots, reduce sightlines.</p>	<p data-bbox="694 333 944 362">Shade and Screening</p> <p data-bbox="694 392 1508 528">AS1.10 In order to maximise the shade provided by trees planted within carpark areas, a north/south aisle orientation is desirable. This will increase shadow coverage over individual car parking spaces. (An east west orientation of the parking aisles will provide shade only to the southern aisles.)</p> <p data-bbox="694 557 1508 721">AS1.11 To provide a good shade volume, shade trees can be planted every five to eight car parking bays minimum. Whole parking bays can be provided as garden beds to support these trees. Application may be made to Council in the early design stages to seek a relaxation on parking space provisions to increase the area of unsealed planting areas.</p> <p data-bbox="694 750 1508 938">AS1.12 Where an open ground level area of carpark exceeds 300sq.m or accommodates in excess of 12 cars, at least five percent (5%) of the carparking area including access aisles should be designed to include adequate landscaped areas so as to provide space for the deep planting of shade trees and shrubs. Any landscaped setbacks to the perimeter of the carpark are not to be included in this calculation</p> <p data-bbox="694 967 1508 1050">AS1.13 Where sufficient space is available and in a location where public safety will not be compromised, grass mounds with tree planting can form an effective and low maintenance screen.</p> <p data-bbox="790 1079 1508 1162">If screening is required in a carpark area and space is limited, the three tiered planting approach utilising a combination of trees, shrubs and ground covers can be used.</p> <p data-bbox="694 1361 1040 1391">Hardsurfacing and Hardscape</p> <p data-bbox="694 1420 1508 1556">AS1.14 A temporary pedestrian barrier is to be used to all landscaped screens/buffers within car park areas, until plants have established. Height and materials to be used for temporary pedestrian barriers are to be determined by site specific assessment and identified on the Detailed Landscape Plan.</p> <p data-bbox="694 1585 1508 1693">AS1.15 In areas with adequate sub-surface percolation and moderate run off conditions, the use of porous pavement treatment is preferred. Porous surface treatments are to be designed in accordance with traffic loading standards.</p> <p data-bbox="694 1722 1508 1805">AS1.16 Open area carparking for Commercial, Industrial, Tourist, Resort and Retail uses is to have irrigation provided to comply with Section C, 4.0.</p> <p data-bbox="694 1834 1508 1998">AS2.1 Visibility through vegetation is to achieve a clear line of sight to 1.5m in height. Planting of trees and shrubs in carpark areas (except where such forms a buffer strip) is not to create a large mass of vegetation, with shrubbery setback from edge of kerb and footways (See AS1.7).</p>

Performance Criteria	Acceptable Solutions
	<p>AS2.2 In cases where there is potential for desire lines through car park areas, to and from areas adjacent to the site and the destination point, landscaped footways can be provided to ensure that conflict between pedestrians and vehicles is minimised and the shortest route between car park, adjacent areas and destination is achieved.</p> <p>Note:</p> <p>Acceptable solutions notated with *will not be varied by Council.</p>

9.0 Landscaped Buffer Strips

The following intent, set of performance criteria and acceptable solutions applies to any landscape works that are associated with landscaped buffer strips.

9.1 Intent:

- To reduce the impact of incompatible land uses by creating buffer areas that provide for visual amenity and ameliorate the effects of noise /air pollution and wind.

9.2 Development Requirements:

Performance Criteria	Acceptable Solutions
<p>PC1 Landscaped buffer strips are to be sensitively designed as an integral part of the site works being appropriate to their function, whilst enhancing visual amenity and having regard to future maintenance regimes.</p>  <p><i>Landscape Buffer strips create privacy and assist in ameliorating noise and pollution</i></p>	<p>AS1.1 Landscape works are to comply with Sections C, 1.0 - 5.0 of this document. Design of landscape works is to maximise opportunities to effectively integrate the proposed development into the surrounding area.</p> <p>AS1.2 Specify and detail plant species, sizes and spacing that will provide the required screening function with relation to the specified objective for the required screening. (Refer Section C, 3.0).</p> <p>Widths of landscaped buffer strips have a direct effect on the amount of screening that can be achieved. For example:</p> <ul style="list-style-type: none"> A 3.0m min landscaped buffer strip has an effective screening of approximately 4 - 5m high on flat land; A 6.0m landscaped buffer strip has an effective screening of approximately 5 - 8m high on flat land. <p>AS1.3 A landscaped buffer strip may comprise of planting only, or be a combination sensitively designed earth mounding, planting and fencing. Planting is to consist of primarily shrubs and trees complemented by use of appropriate ground covers.</p> <p>AS1.4 Plant material is not to create potential to cause damage, create a nuisance or major loss of sunlight, to adjacent properties.</p>

Performance Criteria	Acceptable Solutions
<div data-bbox="220 465 609 797" data-label="Image"> </div> <p data-bbox="225 853 612 954"><i>Landscaped buffer strips are to be a combination of shrubs and trees complemented by the use of appropriate ground covers.</i></p>	<p data-bbox="695 336 1508 421">AS1.5 Planting is not to be used in isolation for noise abatement, but in combination with appropriate earth mounding and noise abatement fencing or screening.</p> <p data-bbox="695 448 1508 555">AS1.6 Construct concrete or approved equivalent dwarf walls, carstops and/or bollards to landscaped buffer strips that abut road frontages, carparking aisles and bays, driveways and any other buffer areas that can be accessed by vehicles.</p> <p data-bbox="695 582 1508 667">AS1.7 Specify any inground irrigation systems, subsurface drainage and swale drainage systems where appropriate. Irrigation is to be in accordance with Section C, 4.0 of this document.</p> <p data-bbox="695 694 1508 779">AS1.8 The landscaped buffer strip is to be maintained at all times to the satisfaction of Council, by the current owners/proprietors of the land on which the buffer strip is located.</p> <p data-bbox="695 806 1508 891">AS1.9 If the purpose of the buffer strip is solely for the use as a shelterbelt for reducing wind effects, the maintenance and planting required are considered as a specialist design issue.</p> <p data-bbox="695 913 762 940">Note:</p> <p data-bbox="695 967 1444 994">Acceptable solutions notated with * will not be varied by Council.</p>

SECTION D - GENERAL INFORMATION

1.0 Gold Coast City - Guidelines for Undesirable Plants

1.1 Intent

- To reduce the risk to the natural environment and endemic vegetation by minimising the occurrence of invasive species or recognised environmental weeds.
- To minimise the risk to the community by discouraging the use of toxic species in certain situations.
- To minimise maintenance problems and damage to infrastructure and built structures.

1.2 Declared Plants

The following plants are prohibited from use within the City of Gold Coast.

- All 'Declared Plants of Queensland' as set down by the Queensland Rural Lands Protection Board. A declared plant is a plant considered a

serious enough pest to warrant its control being enforced under legislation.

This legislation is the Rural Lands Protection Act (1985 - 1990). Note : In early August 2003 it is anticipated that this act will be superseded by a new act called "Land Protection (Pest and Stock Management) Act Qld 2002. This has implications with regards to species lists. For more information contact the Department of Natural Resources - Qld.

- Have regard for all the plants identified as "Declared Plants of N.S.W".

1.3 Plants not to be used in any new Landscape Works requiring Approval from Council

LANDSCAPE PLANS SUBMITTED TO COUNCIL FOR APPROVAL ARE NOT TO INCLUDE NEW PLANTINGS OF THE FOLLOWING SPECIES:

Note: The following species lists are based on current availability/commonly used species and are therefore not exhaustive. These species lists will be subject to change from time to time.

1.3.1 PROHIBITED FROM USE

The following species are prohibited from use in any new planting associated with any landscape works requiring approval from the Gold Coast City Council for one or a combination of the following reasons:

I = INVASIVE

These species have proved to be highly invasive, particularly in bushland areas, by out-competing and smothering native flora. Weed invasion mechanisms include:

- r** = regrown from stems, leaves, rhizomes, tubers or bulbs;
- w** = seeds are dispersed and spread widely by wind and/or water;
- b** = seeds are dispersed widely by birds and other animals;
- s** = heavy seed drop.

M = MAINTENANCE

Species that have significant maintenance problems due to root damage to structures and drainage systems.

T = TOXIC

Species that are dangerous to humans and animals.

<i>Species</i>	<i>Common Name</i>	<i>Reason for Exclusion</i>
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TREES/PALMS

BRUGMANSIA candida (syn. DATURA arborea)	Angel's Trumpet	T - Seeds, Flowers, Stem, Leaves, Nectar are toxic
CELTIS sinensis	Chinese Elm	I w b s - Invasive in waterways and rural areas
CINNAMOMUM camphora	Camphor Laurel	I b - Invasive in rural areas and waterways. Can cause problems to underground infrastructure in urban areas
COFFEE arabica	Coffee Tree	Precautionary measure
EUCALYPTUS torelliana	Cadagi Gum	I s, M - Weed outside North Queensland., problems with roots and footpaths, mould on leaves, bad for asthma and allergies, seed exzudes a resin that kills native bees
FICUS elastica	Rubber Tree	r , damages underground and built structures
KOELREUTERIA paniculata/elegans	Golden Rain Tree	I,w,b Seed is spread widely by wind, invasive in fringe areas of bushland
LIGUSTRUM spp	Privet	I r b - Highly invasive in bushland areas
PINUS elliotti, radiata	Pine Trees	I,w,b,s , Invasive in bushland and urban bushland
SCHEFFLERA actinophylla	Qld. Umbrella Tree	I,b,s M Invasive in bushland, seed is spread widely by birds and bats
SCHINUS terebinthifolia	Broad Leafed Pepper Tree	I b - Highly invasive in bushland areas, sap can cause allergies
SENNA bicapsularis	Cassia	I w
SENNA floribunda	Cassia	I w
SENNA pendula	Easter Cassia	I wr
SPATHODEA campanulata	African Tulip Tree	I w
SYAGRUS romanzoffia	Cocos Palm	I b, M - Maintenance problem in public areas, prolific seed drop
ULMUS chinensis	Chinese Elm	I w - Highly invasive in bushland

SHRUBS AND GROUNDCOVERS

COPROSMA spp	Mirror Plant	r,b
LANTANA spp	Lantana	I b
LONICERA japonica	Japanese Honeysuckle	I,r Spread most commonly through garden waste, maintenance problem
OCHNA serrulata	Mickey Mouse Plant	I r b
TECOMARIA capensis	Cape Honeysuckle	r
THEVETIA peruviana	Peruvian Oleander	T - Sap and leaves are toxic, a single seed can kill a child

ANNUALS, BIENNIALS, PERENNIALS & VINES

ANREDERA cordifolia	Madeira Vine	I r - Vigorous twinning vine
ARISTOLOCHIA elegans	Dutchman's Pipe	I r - Highly invasive, leaves kill larvae of the Birdwing Butterfly
BRYOPHYLLUM sp	Mother of Millions	I r s - Highly invasive in dunes and open space areas, spread through garden waste
CALLISIA fragrans	Purple Succulent	I r
CORTADERIA selloana	Pampass Grass	I w, M - Hard eradicate as it has vigorous regrowth characteristics, spread through garden waste
CARDIOSPERMUM grandiflorum	Balloon Vine	I w

Species	Common Name	Reason for Exclusion
CATHARANTHUS roseus	Pink Periwinkle	I r
IPOMOEA cairica/indica purpurea	Morning Glory	I r - Vine smothers native vegetation, vigorous growth habit, spread through garden waste, also a problem in dunal areas
MACFADYENA unguis- cati	Cat's Claw Creeper	I r w
NEPHROLEPIS cordifolia	Fishbone Fern	I r - Highly invasive, spread through garden waste
NEONOTONIA wightii		I,r , becoming a major problem, potential to become worse than Lantana
PENNISETUM sp	Fountain Grass, Swamp foxtail	I , Fire hazard in open space areas, vigorous grower in open space areas. The species is being discouraged in the Gold Coast City due to its weed potential. <i>The variety Pennisetum alopecuroides is often referred to as a "native". This is currently being disputed in the botanical world. Other species of Pennisetum are often sold as the 'native' variety, therefore Council is prohibiting the use of any Pennisetum sp. in landscape works requiring approval in the short term, as a precaution.</i>
PROTOASPARAGUS sp	Asparagus Fern	I b r - Highly invasive in bushland and natural areas, spread through garden waste
SANSEVIERIA trifasciata	Mother In-law Tongue	I r - Highly invasive, vegetative parts spread through garden waste
SOLANUM seaforthiana		I , appearing in rainforest areas and becoming highly invasive
PASSIFLORA subpeltata	Corky Passion Vine	I r
THUNBERGIA grandiflora	Blue Thunbergia	I r - Declared plant in Nth Qld., highly invasive and detrimental to native vegetation
TITHONIA diversifolia	Japanese Sunflower	I r - Invasive in bushland
TRADESCANTIA spp	Wandering Jew	I r - Spread through garden waste
WEDELIA trilobata	Singapore Daisy	I r - Highly invasive and spread mostly through garden waste
ZEBRINA spp	Variegated Wandering Jew	I r - Spread through garden waste

1.3.2 RESTRICTED USE - TOXICITY AND SAFETY REASONS

The following species have toxicity or safety problems and are restricted from use in any new planting in any new landscape works requiring approval in the following areas:

- child care centres and nurseries;
- any type of children's playgrounds;
- primary schools;
- respite and aged care centres

Species	Common Name	Reason for Restriction
TREES/PALMS		
JAGERA pseudorhus	Foam Bark Tree	Seed pod coat has irritant hairs
LAGUNARIA patersonii	Norfolk Island Hibiscus	Irritant seeds "Cow itch tree"
MELIA azedarach	White Cedar	Seed poisonous (<i>child care centres and nurseries only</i>)
PHOENIX spp	Date Palm	Spiky petiole and fronds are dangerous in the juvenile state (<i>child care centres and nurseries only</i>)
PINUS sp	Pine Trees	Cones and pine needles dangerous
PLUMERIA sp	Frangipani	Sap irritant (<i>child care centres and nurseries only</i>)
TAXUS sp	Yew	Foliage, seeds

<i>Species</i>	<i>Common Name</i>	<i>Reason for Restriction</i>
MELALEUCA quinquineria	Paperbark	Flowers can cause upper respiratory problems in young children (<i>Restricted in child care centres and nurseries only</i>)
MELALEUCA leucadendra	Paperbark	Flowers can cause upper respiratory problems in young children (<i>Restricted in child care centres and nurseries only</i>)

SHRUBS

ALLAMANDA spp	Allamanda	Sap and leaves toxic
ALOCASIA brisbanensis (macrorrhiza)	Cunjevoi	All Parts are toxic
BOUGAINVILLEA sp		Thorns are dangerous (<i>child care centres and nurseries only</i>)
DURANTA sp	Golden Dew Drop	Berries are toxic (<i>child care centres and nurseries only</i>)
ERVATAMIA coronaria	Crepe Jasmine	All Parts
EUPHORBIA spp	Poinsettia	Sap irritant/poisonous
LOMANDRA longifolia	Matt Rush	Spiky flowers heads dangerous for young children (<i>child care centres and nurseries only</i>)
NERIUM oleander	Oleander	All Parts (<i>restricted in child care centres, nurseries and playgrounds only</i>)
TRIUNIA youngiana	Spice Bush	Very poisonous native rainforest plant
ZANTHEDESCHIA aethiopica	White Arum Lily	All Parts

NOTE: Some species of Grevillea can cause allergies in children. Advice can be obtained from Council on which species cause problems.

1.3.3 RESTRICTED USE - ENVIRONMENTAL OR MAINTENANCE REASONS

The following species have environmental or maintenance problems and are restricted from use in any new planting in any new landscape works in the following areas:

- Council managed road reserve areas;
- waterbodies and waterways, drainage reserves, artificial and natural wetland areas;
- public parks;
- within or adjacent to significant areas of native bushland, environmental reserves, conservation areas, dunal areas (as identified in the Gold Coast City Planning Scheme, Nature Conservation Strategy or any relevant Council Management Strategies)

<i>Species</i>	<i>Common Name</i>	<i>Reason for Restriction</i>
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TREES

BAUHINIA variegata/galpini	BAUHINIA	Invades fringe areas of bushland, maintenance problem in road reserves
ERYTHRINA indica/cristi- galli	Coral Tree (encourage the use of the native species	Regenerates vigorously from vegetative parts, maintenance problem in open space areas, invades fringe areas of bushland
PAULOWNIA spp	ERYTHRINA vespertilio Chinese Empress Tree	r, the species has been used in forestry trials in Australia – opinion differs on its potential as a weed, but it may have some potential as a weed in highly disturbed tropical habitats such as edges of rainforests. Therefore Council is restricting it's use in any landscape works requiring approval in environmental areas in the short term as a

<i>Species</i>	<i>Common Name</i>	<i>Reason for Restriction</i>
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		<i>precaution</i>
SALIX sp	Willow Tree	Problem along waterways
TIPUANA tipu	Rosewood	Potentially invasive. May be acceptable in certain urbanised road reserve areas or in situations where such does not appear to have a significant impact on the local environmental conditions. This requires consultation with Council to determine if use is appropriate in any particular situation.

SHRUBS AND GROUNDCOVERS

AGAVE sp	Century Plant	Invasive and environmental nuisance
ARDISIA indica/crenata	Ardisia (exotic species)	Becoming a problem in rainforest areas
PHYLLOSTACHYS sp (All monopodial (running) sp. Prohibited)	Bamboo	Spread by vegetative parts, maintenance problem near structures and drains. Sympodial (Clumping) species of bamboo are generally acceptable. Contact Council for further advice.
BOUGAINVILLEA sp (except dwarf varieties)	-	Vigorous growth characteristics, can be unsafe in public areas
BUDDLEIA spp	-	Invasive in fringe areas of bushland
CANNA indica	Canna	Vigorous grower, invasive
CESTRUM spp	Jessamine	Environmental weed, poisonous
COTONEASTER spp	-	Seeds spread by birds
IMPATIENS spp (except for non invasive contemporary hybrids)	dizzy lizzie, balsam	Invasive in bushland and open space areas reproduced by runners and bits of stems and leaves
PYRACANTHA	Firehorn	Invasive in reclaimed and rural areas, spread by birds
RHAPHIOLEPIS indica	Indian Hawthorne	Invasive in fringe areas, spread by birds
SYNADENIUM grantii	African Milk Bush	
TECOMA stans	Yellow Bignonia	
TAMARIX sp	Tamarisk	Invasive and environmental nuisance
YUCCA sp	Yucca	Invasive and environmental nuisance

NOTE: The following other species should not be utilised in road reserves within urban residential areas because of safety or maintenance reasons:

ARAUCARIA bidwillii	BUNYA PINE	A large tree that can often outgrow its spatial restrictions especially in urban backyards and road reserves. On maturity the tree bears large pine cones that can pose potential safety problems in well utilised public areas
FICUS sp	FIG	FIGS (not recommended for use near buildings or underground services because of highly invasive root systems, unless extensive root barrier treatment is undertaken)

2.0 Glossary

ADVANCED PLANTS	Plant species containerised and established in 300 mm containers but less than 45L containers.
CALLIPER SIZE	Diameter of the trunk measured approx. 200 mm above the top of the rootball.
CULTIVAR	A variety of plant that has been produced under cultivation.
ENDEMIC SPECIES	Plant species peculiar to a particular area or locality.
EXOTIC SPECIES	Plant species that are not native to Australia.
EXTERNAL WORKS	All works within a development site and works directly associated with a development outside the property boundary of the development site that are external to the building construction.
GENUS	Subdivision of a plant family name - consisting of more than one species.
GROWTH MEDIA	Topsoil or organic soil mix to enable the establishment and sustained growth of new planting.
HARDSCAPE	For the purpose of landscape works requirements, hardscape includes all built elements related to the external areas around the building envelope including hardsurfacing (pedestrian and cycleways), built form such as water features, shelters, park and street furniture and public facilities, walls, fences, signage, amenity lighting, subsoil drainage and irrigation.
INDIGENOUS SPECIES	Native species occurring naturally in a general area and/or region.
LANDSCAPE WORKS	Planning, design and implementation of all hardscape and softscape treatment of the surface of the land in all areas external to the building envelope. This may include both public and private open space areas and road reserve areas for the purposes of amenity and function.
MATURE SPECIES	Species that have been grown in natural ground for a minimum period of three (3) growing seasons. Size generally 200L or larger.
MESIC PLANTS	Mesic plants (Mesophytes) are plants have adapted to environments that receive regular rainfall ie. rainforest species. These species are typified by large leaves and luxuriant canopies. They will not usually achieve acceptable growth in Xeric landscapes (see Xeric Plants) without permanent irrigation to supplement natural rainfall
NATIVE SPECIES	Plant species that are peculiar to the Australian Continent.
OPEN SPACE AREAS	Public or private land that is external to the building envelope used for open air passive recreation, conservation/environmental purpose or private outdoor uses. Public open space areas includes areas dedicated to the Crown such as park areas, opens sports grounds, environmental/conservation areas, drainage reserves/channels or other waterbodies.

ROOT CURTAIN	A semi permanent or permanent protective measure to help prevent roots drying out where excavation is temporary. It is a fence like structure consisting of steel reinforcing mesh, hessian or geotextile fabric held together with star pickets. 1:1 sand and native soil mix can be used as backfill.
ROOTBALL	Root mass of individual species.
SEMI MATURE SPECIES	Species that have been containerised and established in 45L containers or larger that have been grown for a minimum period of one (1) growing season in the same container or media.
SOFTSCAPE	For the purpose of landscape works requirements, softscape includes all areas where topsoil is disturbed and resurfaced with growing media such as topsoil, grass, mulching, hydromulching, seeding, all new planting and rehabilitation works including incorporation of existing vegetation.
SPECIES	A group of plants that have common characteristics or qualities.
SPREAD	Mean Diameter of the horizontal measurements of the natural foliage projection in any three directions.
SUN GROWN	Species continually grown in the sun from a juvenile stage.
SUN HARDENED	Species has grown in a shaded environment for more than two (2) growing seasons and has then been acclimatised in the sun for a given period of time to enable transplanting into sunlight
TOPSOIL	Native parent soil or a soil type that is married to the parent soil type.
VEGETATION PROTECTION ZONE	<ul style="list-style-type: none"> A) A radius from a tree trunk equivalent to one (1) times the natural crown height where the height exceeds the widest canopy diameter; or B) A radius from a tree trunk equal to one (1) times the widest canopy spread where that canopy width exceeds the crown height; or C) A radius from the stems or trunks of Palms or vegetation other than trees equal to two (2) times the drip zone diameter or not less than five (5) metres away, whichever is the greatest distance.
XERIC PLANTS	Xeric plants are plants that have adapted to landscapes characterised by low soil moisture or experience long periods of dryness between rainfall events (Soils with poor water holding capacity eg. sands and shale, will contribute to the formation of 'Xeric Landscapes'). Xeric plants include Eucalypts, Acacia, Casuarina, and some exotic plants species. Xeric plants only require temporary irrigation to ensure successful establishment. Once established these plants require minimal watering to maintain an attractive appearance.

APPENDIX 1

Preferred Batter Treatments (Refer Section C, 2.0 - Batters)

The following information is a guide only to preferred batter treatments relevant to slope, location, treatment and maintenance.

Note:

It is important to provide cut off drainage at the top of the batter to reduce impact of stormwater runoff and erosion, to ensure successful establishment of planting areas and stabilisation of bank

BATTER SLOPE steeper than.....	LOCATION	TREATMENT	MAINTENANCE
1:2			
	watercourses and channels	boulder retaining walls gabions and natural rock work with screen planting of local native species to adjacent areas where appropriate	Low Rubbish removal Plant establishment
	roads	retaining wall may be used when gradient is greater than 1:2. Details of materials including sub-soil drainage should be addressed as part of Architectural or Engineering documentation. Some typical treatments include: <ul style="list-style-type: none"> brick, concrete, boulder, natural rock stone and timber Any associated planting and seed mixes to be local native species.	Low
	parkland	as per road cuttings + 'adventure play walls'	Risk management
	landscaped areas	as per road cuttings Private development areas may incorporate the use of exotic species where appropriate	Low
1:3			
	watercourses and channels	approved temporary stabilisation measures combined with natural rock features and revegetation with local native species. revegetation using an approved combination of erosion matting ,turf, grass. (See Section C.6.0 - Grass Swales) Where appropriate natural rock features in combination with planting of local native species	Plant establishment Mowing/slashing Plant establishment
	roads	hydro mulching with local native seed mix comprising of tree, shrub, and ground covers (as detailed in Section C2.0 - Batters) Where Council deems appropriate seed mix is to be supplemented by min. 200 mm diameter local native plant stock at max. 3000 mm centres throughout the entire batter. Semi Mature species are to be positioned at the top of the batter along the catch bank and at the toe of the batter	Plant establishment only Plant establishment

APPENDIX 1 (Continued)

BATTER SLOPE steeper than.....	LOCATION	TREATMENT	MAINTENANCE
1:3 (continued)			
	landscaped areas	as per parkland + terraced gardens Private development areas may incorporate the use of approved exotic species where appropriate.	Plant establishment and "on going" maintenance
1:4			
	watercourses	temporary stabilisation and revegetation with local native species	Plant establishment
	channels	revegetation using an approved combination of erosion matting, turf, grass. See Section C.6.0 - Grass Swales Where appropriate natural rock features in combination with planting of local native species	Mowing/slashing Plant establishment
	road	hydro mulching with endemic/native seed mix comprising of tree, shrub, and ground covers (as detailed in Section C2.0 - Batters) Where Council deems appropriate, Seed mix is to be supplemented by min. 200 mm diameter local native plant stock at max. 3000 mm centres throughout the entire batter. Semi Mature species are to be positioned at the top of the batter along the catch bank and at the toe of the batter. Grass seeding to be predominantly local native grasses or turfing where appropriate	Plant establishment only Mowing, slashing 'on going' maintenance
	parkland/open space	as per road cuttings + mass planting of local native species including tree, shrub and ground covers/matting mulch combination Temporary protection from pedestrian access during establishment period irrigated turf	Plant establishment and "on going" maintenance Mowing fertilising "on going" maintenance
	landscaped areas	as per parkland + Private development areas may incorporate the use of approved exotic species where appropriate	Plant establishment and "on going" maintenance

RELEVANT REFERENCES

RELEVANT COUNCIL POLICY ASSOCIATED WITH LANDSCAPE

WHOLE OF CITY STRATEGIES

- Gold Coast Urban Heritage and Character Study
- Nature Conservation Strategy
- Bushfire Management Strategy

GOLD COAST PLANNING SCHEME

- Key Planning Strategies
- Planning Scheme Provisions
- Local Area Plans
- Planning Scheme Policies

GUIDELINES AND GENERAL POLICY

- Guiding Principles for Good Urban Design
- Tree Management Strategy for Coolangatta Airport – Parks Gold Coast

HERITAGE STUDIES

- Southport Urban Heritage and Character Strategy
- Coolangatta Urban Heritage & Character Study
- Springbrook – A Heritage & Character Study

USEFUL REFERENCES

- A useful reference for specifying (calliper sizes and height and spread at planting) and purchasing Landscape Trees is “**Purchasing Landscape Trees - a guide to assessing tree quality**”, Ross Clarke, 1996 Published by Construction Information Systems Aust. Ltd.
- Suburban Weeds:
3rd Edition available from Greening Australia
- Indigenous Gardening - Growing Local Native Plants:
Rosalie Eustrace, available from Greening Australia
- Native Plants - Qld:
Keith A W Williams ISBN 0 959 55700 8
- Weeds:
An Illustrated Botanical Guide to the Weeds of Australia;
BA Auld RW Medd, Inkata Press ISBN 0 959 5570 08
- Dinkum Gardening:
Creating a Bushland Garden in Brisbane by Tim Low;
Available through Greening Australia-Qld (Inc)
ISBN 0 646 15724 8
- Trees and Shrubs in the Urban Environment:
John Tadman, Landcare Support Unit,
Department of Natural Resources, Queensland
1996
ISSN 0727-6273
- Road Landscape Manual: Department of Main Roads, June 1998