

## 8.12 PLANNING SCHEME POLICY 12 – LANDSCAPING

### 8.12.1 INTRODUCTION

Development at the boat harbour will incorporate the establishment and maintenance of a high-quality landscape. Specific policy objectives for landscaping include the:

- Creation of a unified visual environment through the application of consistent design principles on all development sites;
- Reflection of contemporary community expectations regarding the provision of aesthetically pleasing environments within the landscape;
- Incorporation of a design philosophy that is sensitive to the indigenous vegetation patterns, native fauna, and other natural biological systems of the site and associated locale;
- Reduce use of reticulated town water supply by:
  - Compliance with relevant water restrictions imposed by the Qld Water Commission;
  - A garden can be converted into a sustainable environment by using a technique called xeriscape, which means a landscape designed around limited water usage. This should limit the requirement for watering through hard landscaping, use of native drought tolerant species and use of drip irrigation systems;
  - Source water from rainwater harvesting, such as onsite water tanks; and
  - Trigger nozzels on all hoses and use of hydro cells when planting;
- Appropriate massing of species to ensure their continual survival and the minimisation of the potential for exotic pests or weeds to establish in landscaped areas; and
- Inclusion of landscaping establishment irrigation and maintenance obligations.

### 8.12.2 THE LANDSCAPE STAGES

#### **Landscape planning and design**

A Landscape Master Plan shall be produced and submitted as part of a Development Application. This plan shall be considered by the Assessment Manager as part of the development approval process.

#### **Landscape construction**

Landscape construction will conform to the approved Landscape Master Plan, and be implemented by qualified and experienced landscapers.

### Landscape maintenance and irrigation

Landscaped areas are to be maintained at all times. Detailed written maintenance procedures will be required as conditions of development approvals. An irrigation plan is to be supplied in accordance with Qld Water Commission guidelines. Plan is to detail connections with reduced pressure zone devices (rpz) and describe how water for irrigation is to be sourced, such as onsite harvesting and/or use of recycled water.

### 8.12.3 OTHER FUNDAMENTAL ISSUES

#### Compliance with legislation

Relevant State and local government level water restrictions.

Red Imported Fire Ants, or RIFA (*Solenopsis invicta*) are a 'notifiable pest' likely to cause substantial economic, environmental or social damage if left uncontrolled. The Department of Primary Industries and Fisheries (DPI&F) is the lead agency for fire-ant control and management in Queensland.

Under the *Land Protection (Pest and Stock Route Management) Act 2002* the whole of Queensland has been declared a pest quarantine area (PQA) for fire ants. The PQA places restrictions on moving live fire ants and other 'high-risk' items, including:

- Pot plants;
- Soil;
- Mulch;
- Potting mix;
- Baled hay or straw;
- Landscaping and construction material;
- Machinery and equipment; and
- Any materials that have come into contact with fire-ant-infested ground.

Each of the landscape stages must ensure that 'high-risk' items associated with landscaping are managed and moved in accordance with the requirements of the legislation and current DPI&F requirements or guidelines. In particular, all high-risk items must be certified by the supplier to be free of fire ants.

Current restricted movement zones and information on DPI&F requirements can be obtained by contacting the DPI&F Fire Ant Control Centre (13 25 23) or at [www.dpi.qld.gov.au/fireants](http://www.dpi.qld.gov.au/fireants). Contractors engaged in moving high risk materials should obtain an Approved Risk Management Plan from DPI&F.

The Australian Quarantine and Inspection Service (AQIS) is essential to maintain Australia's animal, plant and human health status and access to export markets.

Landscaping can provide a vector for exotic pests and diseases to enter Australia. A buffer must be provided around any AQIS approved wash or inspection bay and consideration must be given to the type of landscaping and the species used.

There are no specific rules in terms of buffers and species. However a 10.0m buffer around any AQIS approved wash or inspection bay where no landscaping (including gravel or bark) is installed, is generally considered acceptable.

Species that should be avoided immediately around an AQIS inspection or wash bay are from the family Myrtaceae spp. and include:

- Eucalyptus spp;
- Syzygium spp;
- Melaleuca spp;
- Callistemon spp; and
- Acmena spp.

These are not set rules and AQIS should be consulted during the design phase of the development to ensure that their requirements are met.

#### **Water Sensitive Urban Design (WSUD) requirements**

The following design issues must be incorporated into all sites:

- Landscaping must include WSUD concepts via the integration with broader stormwater design issues on the development site;
- ALL irrigation proposed must be sub-surface via the use of dripper systems and install soil moisture sensors; and
- Use of hydro cells is highly recommended on all sites in accordance with manufacturer specifications.

### **8.12.4 THE LANDSCAPE MASTER PLAN**

#### **Role of the Landscape Architect**

It is recommended that the applicant commission a qualified Landscape Architect (eligible for Corporate Membership of the Australian Institute of Landscape Architects) to plan the development landscape. Further, it is recommended that the Landscape Architect or equivalent be commissioned as early as possible in the planning process, to ensure that landscape-relevant issues are considered throughout the design development process.

The commissioned Landscape Architect should undertake a site analysis and provide a concept plan for use in the development of the final site layout design. Once the site plan has been finalised, a detailed Landscape Master Plan must be prepared, which includes a planting plan, any necessary landscape construction layouts, and landscape construction details.

#### **Information required**

In order for the Landscape Master Plan to be accurately assessed, it must include a minimum standard of information. Landscape Master Plans submitted for approval will not be approved unless the following information is included:

- The location of existing and proposed buildings and other structures on the site;
- The location of existing or proposed storage areas for containers or any other materials or machinery on the site;
- The manner in which the various parts of the site are intended to be used (with areas planned for future expansion of facilities' being marked as such);
- The location of existing footpaths, trees or other existing landscaped areas on land in the close vicinity of the site;
- The location of all existing and proposed underground services;

- The location of all vehicular and pedestrian entries and exits on the site boundaries, and the nature of surfacing or paving of pathways, driveways and parking areas;
- Full details, including method of construction, quality of workmanship, and quality and types of materials to be used, for any proposed landscape treatment, including:
- Botanical and common names, height and pot size at planting of the species indicated on the plan;
- Indication of existing and proposed contours, changes in elevation (spot levels), and drainage flow associated with mounding, contouring, levelling or shaping of the surface;
- Areas of lawn, paving or other surface treatment, including sub-surface drainage;
- Any walls, screens or fences;
- Location, type and performance of any irrigation system which conserves water use;
- Any other landscaping or recreational features; and
- Full details of the annual maintenance program, to ensure the continuing health and growth of ‘soft’ landscape elements, and continuing function and safety of ‘hard’ landscape elements.

#### **Landscape design elements**

The following design elements must be incorporated into all sites. Other issues may also be relevant for particular sites, and this list should not, therefore, be regarded as exhaustive:

- The planting design should include low-growing groundcovers, medium-growing shrubs, and taller trees. These should be planted at a density sufficient to achieve a 100% foliage cover after two or three growing seasons and to ensure their continuing survival;
- Design layout should incorporate xeriscaping principles;
- The landscape design must take account of, and respond to, the prevailing topographic, soil and drainage conditions on the site. The effects of coastal conditions should also be taken into account for more exposed sites;
- Existing and planned public and private utility services must be allowed for;
- Road verge areas along the entire frontage of the site must be turfed with a minimum of ‘B’ grade turf;
- The areas taken up by displays, signs, refuse bins, gas cylinders and electrical sub-stations must be appropriately screened by landscaping;
- Existing vegetation should be assessed for potential retention and inclusion in the landscape areas; and
- The proposed landscape elements should correspond to, and complement, the scale of the proposed development.

## Street Trees

Street trees are to be planted for all new developments where they do not exist.

The following guidelines should be used to site trees:

Shared property boundary	No closer than 3.0m
Kerb and channelling	No closer than 450mm
Footpath/median	Only plant if at least 2.5m wide
Power pole	No closer than 3.0m
Driveway	No closer than 3.0m
Service Inspection Pit	No closer than 3.0m
Fire hydrant	No closer than 3.0m
Water valve	No closer than 3.0m
Street light/traffic signal	No closer than 7.0m
Receding corner	No closer than 10.0m
Approach to corner	No closer than 15.0m
Approach to pedestrian crossing	No closer than 15.0m
Departure from pedestrian crossing	No closer than 5.0m
Approach to bus stop	No closer than 20.0m
Departure from bus stop	No closer than 6.0m

Street trees should be illustrated on the landscaping plan.

## Species for planting

Proposed plantings must be appropriate to the circumstances of the site, refer to Tables 1 - 3 as a guide, and should promote the image of a modern, sub-tropical coastal facility with endemic drought tolerant plants. Care should be taken not to introduce plant species to the lease areas that may have potential to become environmental weeds.

The species lists that appear in these tables are based on the indigenous vegetation communities found around the mouth of the Brisbane River. Most are generally available from native plant nurseries in the South East Queensland region. Some plants listed may be available in limited quantities only. Lesser-known species have been included to encourage the use of a wider range of indigenous plants found in the Brisbane region.

Plant attributes have been tabulated with the following headings to assist in the selection of plants as design components. With the emphasis on the use of indigenous species, Landscape Architects are encouraged to select arrangements of plants that are modelled on natural associations.

- **Height:** Figures included in the table are to be used as a guide to the mature height of the plants. Substantial variations may be experienced due to exposure to coastal conditions, management regimes and variation in plant provenance;
- **Width:** As for height, spread figures are a guide only. Substantial variation may be experienced due to environmental factors, as mentioned for height, and other factors, such as planting density;
- **Tolerance:** The proximity of sites to Moreton Bay and the tidal sections of the Brisbane River exposes landscape plantings to coastal conditions. Plants on the list have been rated from 1 to 3 according to their perceived tolerance to these conditions:
  1. Generally found on the most exposed positions within coastlines and considered very tolerant;

2. Considered slightly less tolerant, generally found further back from the sea in the vegetation sequence, and may require shelter from direct onshore weather, particularly during establishment; and
  3. Require shelter from coastal conditions.
- Dry: To develop a sustainable landscape species must be drought tolerant. Plants on the list have been rated 1 to 3 according to their tolerance to dry soils.
    1. Tolerant to very dry soils
    2. Tolerant to dry soils
    3. Tolerant to dry to moist soils
  - Roots: Planting should be located so as to not interfere with underground services. Plants on the list can be categorised according to the following abbreviations:

V - Vigorous Invasive 600mm+inground  
I - Invasive 600mm inground and 200mm outground L - Leader/Tap 600mm inground  
F - Fibrous 300mm-400mm inground  
G - Ground dwelling 100mm inground

TABLE 1: TREES

SPECIES	COMMON NAME	HEIGHT (M)	WIDTH (M)	TOLERANCE	DRY	ROOTS
<i>Acacia aulacocarpa</i>	Hickory Wattle	5-10	5	1	2	L
<i>Angophora leiocarpa</i>	Smooth-Barked Apple	15-20	5	1	2	L
<i>Callitris columellaris</i>	Bribie Island Pine	8-20	3-6	2	2	L
<i>Casuarina glauca</i>	Swamp Oak	15-20	5-7	1	2	L
<i>Casuarina equisetifolia</i>	Coast She-Oak	10-12	6-10	1	2	L
<i>Eucalyptus robusta</i>	Swamp Mahogany	25	8-10	2	2	L
<i>Eucalyptus signata</i>	Scribbly Gum	20	8-10	2	2	L
<i>Eucalyptus tessellaris</i>	Moreton Bay Ash	30	7-9	2	2	L
<i>Eucalyptus tereticornis</i>	Forest Redgum	30	8-20	2	2	L
<i>Grevillea banksii</i>	Red flowered Silky Oak	7	4	2	2	L
<i>Grevillea honeygem</i>	Honey Gem	5	4	2	3	L
<i>Hibiscus tiliaceus</i>	Beach Hibiscus	5-7	5-7	1	1	F
<i>Lophostemon suaveolens</i>	Swamp Box	25	5-7	2	2	L
<i>Melaleuca quinquenervia</i>	Coastal Tea Tree	15-20	5-8	1	1	L
<i>Melaleuca bracteata</i>	River Tea Tree	10	6	3	1	I
<i>Melaleuca diosmatifolia</i>	Fine Leaf Paperbark	5	4	2	1	I
<i>Melaleuca stypheloides</i>	Prickly Paperbark	5	4	2	1	I
<i>Melaleuca seeberil</i>	Honey Paperbark	5	4	2	1	I
<i>Pandanus pedunculatus</i>	Screw Palm	5-10	2-5	1	1	F

TABLE 2: SHRUBS

SPECIES	COMMON NAME	HEIGHT (M)	WIDTH (M)	TOLERANCE	DRY	ROOTS
<i>Acacia Fimbriata</i>	Brisbane Wattle	4-6	4-6	2	2	L
<i>Acacia sophorae</i>	Coastal Wattle	0.5-1	0.5-1	1	2	F
<i>Callistemon formosous</i>	Red Tipped Bottlebrush	4	3	1	3	L
<i>Callistemon salignus</i>	Weeping Bottlebrush	5-10	3-6	2	2	L
<i>Callistemon viminalis</i>	Bottlebrush	4	3	1	3	L
<i>Chamelaucium uncinatum</i>	Geraldton Wax/Elite Wax	4	4	1	2	F
<i>Dodonaea triquetra</i>	Hopbush	3-5	2-4	2	2	L
<i>Hibiscus tillaceus rubra</i>	Purple Cotton Tree	5	4	1	1	L
<i>Leptospermum polygalifolium</i>	Wild May	4	3	2	2	L
<i>Metrosideros vtienensis</i> <i>Fiji Fire</i>	New Zealand Christmas Bush	4	4	1	3	F
<i>Melaleuca linariifolia</i>	Snow in Summer	5	4	2	1	L
<i>Westringia fruticosa</i>	Wynyabbi Gem	3	3	1	2	L



TABLE 3: GROUND COVER AND CLUMPING PLANTS

SPECIES	COMMON NAME	HEIGHT (M)	WIDTH (M)	TOLERANCE	DRY	ROOTS
<i>Anigozanthus Pink Surprise</i>	Kangaroo Paw	1	2	1	2	F
<i>Carpobrotus glaucescens</i>	Pigface	0.2	2.0	1	2	G
<i>Crinum pedunculatum</i>	River Lily	1.2	1.2	1	2	F
<i>Dianella caerulea 'Breeze'</i>	Dianella Breeze	1	2	1	3	F
<i>Dianella tasmanica 'Tasred'</i>	Dianella Tasred	1	2	1	3	G
<i>Hardenbergia violacea</i>	Native Sarsaparilla	0.3	1.5	1	2	G
<i>Hibbertia scandens</i>	Snake Vine	0.4	4.0	1	4	G
<i>Lomandra hystrix</i>	Green Matrush	1.3	1.3	2	2	G
<i>Lomandra longifolia</i>	Creek Matrush	1.3	1.3	2	2	G
<i>Myoporum acuminatum</i>	Mangrove Boobialla	0.5	4.0	2	2	F
<i>Myoporum ellipticum</i>	Creeping Boobialla	1	3	2	2	F
<i>Poa labillardierii</i>	Tussock Grass	1	2	1	3	F
<i>Pennisetum alopecuroides Nafray</i>	Swamp Foxtail	2	2	1	2	F
<i>Scaevola calendulacea</i>	Purple Fanflower	0.2	0.8	1	2	G
<i>Spinifex sericeus</i>	Beach Spinifex	0.5	4.0	1	2	G
<i>Themeda australis 'Mingo'</i>	Dwarf Blue Kangaroo Grass	1	3	1	2	F

**Unsuitable plants**

Recognised environmental weeds or plants or those species that have invasive potential must not be used.

### 8.12.5 LANDSCAPE MAINTENANCE

This section refers to the landscape maintenance requirements for all development at the boat harbour.

#### **Weeding and rubbish removal**

Garden beds are to be maintained free of weeds. All rubbish, including that which has blown onto the site, is to be removed.

#### **Replacement plants**

Dead or unhealthy plants are to be removed and replaced with stock of the species and size specified in the Landscape Plan.

#### **Stakes and ties**

Stakes and ties are to be maintained in functional condition during the development of the plant, and removed when the support and protection they offer is no longer needed by the plant (This applies to trees only).

#### **Pruning**

Pruning is to be carried out at the appropriate time of year for each species, to encourage and maintain desirable plant form. Particular attention is to be paid to the maintenance of unobstructed passage along pathways and roadways.

#### **Mulch**

Mulch must meet (AS 4454.2003: Composts, soil conditioners and mulches) and is to be maintained to a minimum depth of approximately 80mm on all beds with a mulch specification on the Landscape Master Plan. Mulch should be replaced once per year in winter. It is an important means to reduce water consumption and prevent weeds from infesting the garden.

#### **Fertiliser**

Fertilising is to be carried out as required to maintain vigorous and healthy plant growth.

#### ***Maintaining lawn areas***

##### **Watering**

Is to comply with relevant State and Local Government water restrictions. Use of xeriscaping should limit requirement for watering by maximizing hard landscaping, use endemic drought tolerant species, regular mulching and use drip irrigation systems. Trigger nozzels should be fitted to all hoses.

##### **Weeding**

Lawn areas are to be kept in a weed-free condition.

**Fertilising and top dressing**

The health and vigour of lawn areas are to be encouraged with applications of fertiliser and top dressing as required. Two applications per annum are recommended. Once in autumn, the other in spring.

**Mowing**

Lawn areas are to be maintained at an even height of approximately 60mm.

**Dry grassed areas**

All non-irrigated grassed areas are to be maintained at an even height of approximately 60mm.

**Hard landscaping**

Should be maximised to minimize watering, such as paths, retaining walls, lighting, outdoor furniture, rock features, fences, and vehicle barriers. All items are to be maintained in a safe and effective working condition.

**8.12.6 LANDSCAPING PROCEDURES**

In order to assist developers in their preparation of Landscape Master Plans and specifications for the implementation of landscape works, the following sample specification is provided. This specification covers some of the more common types of landscape construction and installation procedures. These do not need to be adopted literally or in total for all developments, but are offered as an indication of what may be approved.

***Earthworks*****General Site Works - Site Preparation**

- Plan and carry out all earthworks to avoid erosion, contamination, and sedimentation of the site, surrounding areas, and drainage system;
- Keep earthworks free of surface water. Provide and maintain slopes, crowns and drains on excavations and embankments to ensure satisfactory drainage; and
- Remove excavated material not useable as topsoil, filling, mulch, or the like, and debris resulting from site clearing. All unwanted material is to be removed from the site and disposed of in accordance with any regulatory requirements.

**Decompaction**

- Prior to commencing decompaction in each landscaped area, ascertain the alignment of services and ensure that the machine operator is aware of this information; and
- Decompile the top 150mm of soil by ripping or cultivating with a suitable machine attachment. Do not machine cultivate within three metres of any existing vegetation, but if necessary cultivate these areas by hand. During cultivation, thoroughly mix in any materials specified to be incorporated into the topsoil.

### Topsoiling

- Mounds and other areas specified on the drawings shall be topsoiled with 100mm consolidated depth of imported topsoil;
- Topsoil shall be a sandy loam with a pH of 5.5 - 7.0 and not less than 5% organic matter. The topsoil shall be free from unwanted matter, such as stones over 25 mm diameter, clay lumps, weeds, tree roots, sticks, rubbish, materials toxic to plant growth and the like, and comply with AS 4419-2003: Soils for landscaping and garden use; and
- A certificate shall be supplied with the sample of soil to the construction manager, warranting that the soil to be delivered to the site and used in this contract meets the above criteria.

### 8.12.7 SEEDING WORKS

The objective of this section is to describe a generalised approach to the establishment of grass cover for erosion-control purposes on areas of bare ground that have resulted from development activity. In some of these areas, a mixture of grass seed and the seed of indigenous shrubs and trees may be specified to encourage regeneration of a natural vegetation cover. The grass in these latter areas should not be mown or slashed during the establishment period.

#### Type 'A' Mix - Grasses only

Type 'A' mix is to contain the following grass-only constituents:

GRASS SPECIES	OCTOBER – MARCH	APRIL – SEPTEMBER
Japanese Millet	15 kg/ha	5 kg/ha
Annual Rye Grass	5 kg/ha	15 kg/ha
Green Couch	35 kg/ha	45/ha

#### Type 'B' Mix - Grasses and Indigenous Shrubs and Trees

Type 'B' mix is to contain the same grass species mix as Type 'A' mix and, in addition, the following indigenous shrub and tree constituents:

SPECIES*	AMOUNT
<i>Acacia aulacocarpa</i>	500 g/ha
<i>Acacia concurrens</i>	500 g/ha
<i>Acacia concurrens</i>	500 g/ha
<i>Acacia fimbriata</i>	500 g/ha
<i>Allocasuarina littoralis</i>	1000 g/ha

\*Note that Acacia seed is to be soaked in boiling water and allowed to cool and dry prior to broadcasting in the mix. A greater range of species than this may be available, especially of the hard-coated type.

### Application and Establishment of Seeding

The application of the seed mix for both Type 'A' and Type 'B' shall be by the method of hydromulching, using a binder, mulch and fertiliser at the following rates:

COMPONENT	TYPE OR BRAND	APPLICATION RATE
Fertiliser	Strike Force 301	500 kg/ha
Mulch	Paper pulp or approved equivalent	1200 kg/ha
Binder	Polymer or approved equivalent	150 l/ha

Areas to be hydromulched shall be watered immediately prior to seeding at a rate of 5l/m<sup>2</sup>. The method used for watering shall not cause any erosion or other damage to the surface and must comply with relevant level water restriction requirements.

The areas seeded shall then be watered on the day immediately following the hydromulching, and then as follows, at the equivalent of 5l/m<sup>2</sup> of rainfall, including natural rainfall:

PERIOD AFTER HYDROMULCHING	WATERINGS
Week 1	Three times
Weeks 2 to 4	Twice a week
Weeks 5 to 12	Once a week

This is a guide only and must comply with current level water restrictions.

### Acceptance and Completion of Seeding

An average 85% foliage projective cover over the areas to be seeded shall be the criterion for acceptance of the works as complete, less than or equal to twelve weeks after hydromulching has been practically completed. Measurement of vegetative cover shall be carried out over a sample of at least ten per cent of the site. If any areas have not established to this standard, these should be re-seeded and re-established to obtain acceptance.

## 8.12.8 PLANTING WORKS

### Plant Schedule

A complete Plant Schedule should be provided to summarise the intended planting. If appropriate, this should be broken into relevant planting stages or zones. This schedule should contain at least the following information:

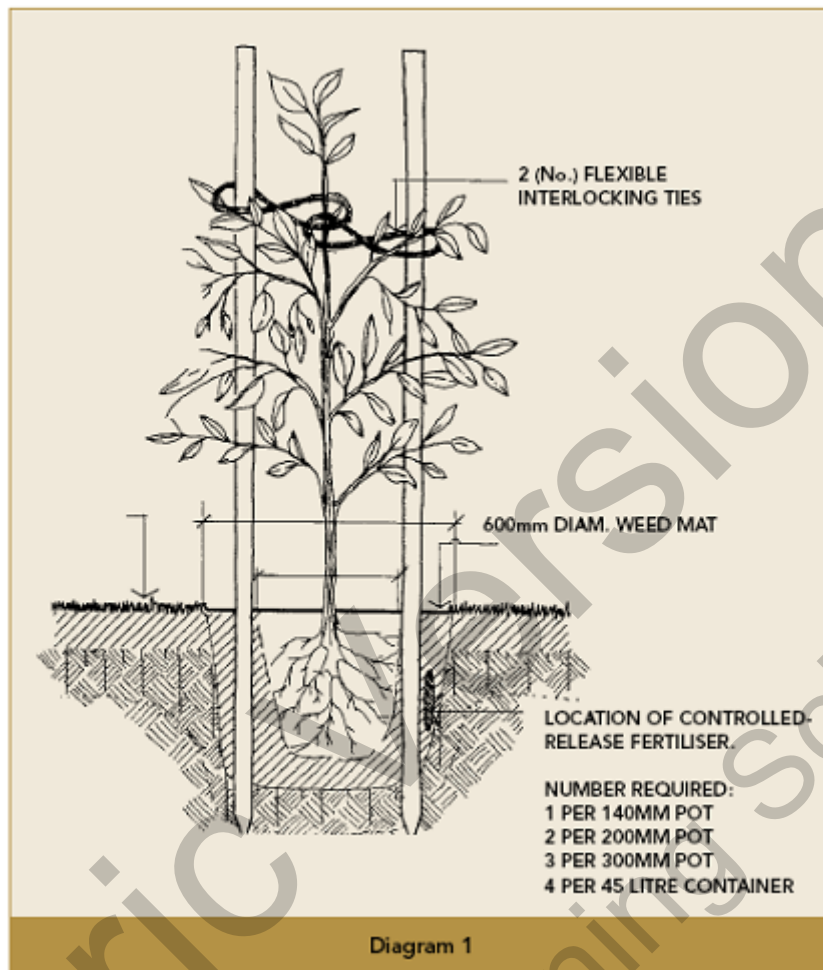
- Genus;
- Species;
- Common name;
- Plan symbol;
- Pot size (mm or l);
- Height (mm);
- Spread (mm); and
- Stake.

The Landscaping Contractor shall arrange for the plants as specified in the schedule to be delivered to the site of the lease area from an approved nursery, which has been contracted to supply them in accordance with the specification. The nursery should supply and deliver all plants detailed in the Plant Schedule in a vigorous and healthy state, free of disease, pests, weeds or any other impediment to growth, and adequately hardened off.

All landscaping materials brought onto boat harbour land must be moved in accordance with the *Land Protection Pest and Stock Route Management Act 2002* and current DPI+P requirements or guidelines. In particular, all high-risk materials must be certified by the supplier, in writing, to be free of fire ants.

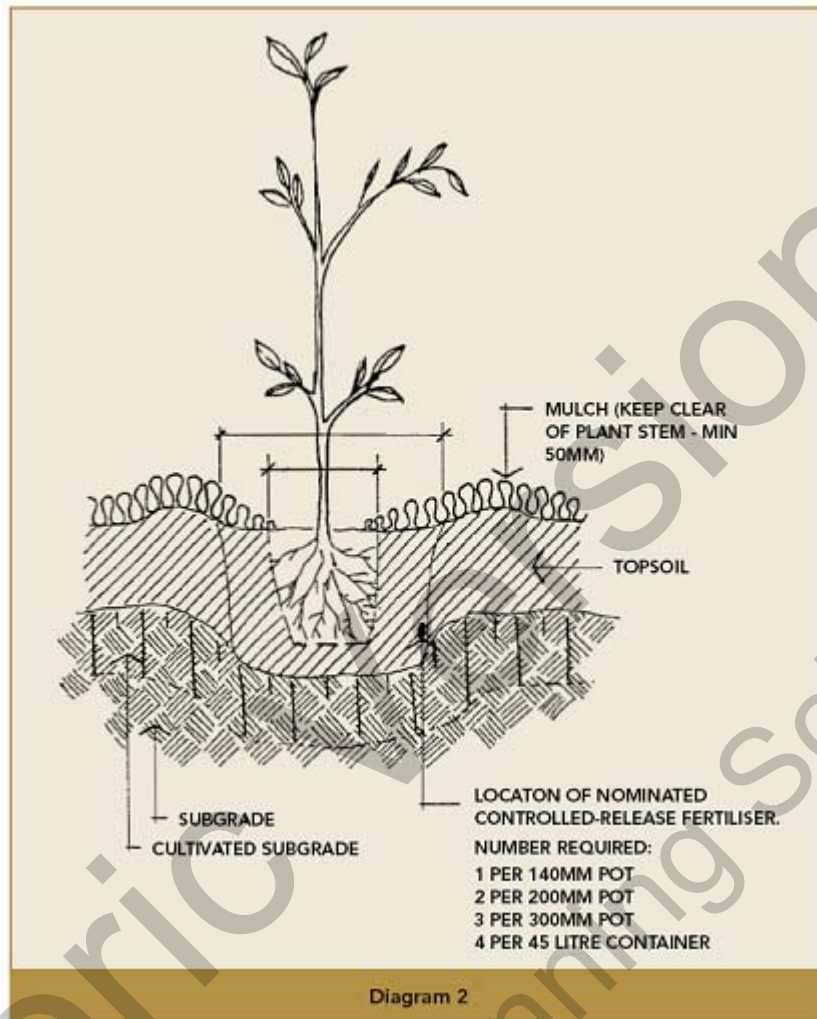
#### **Planting Method**

- Set out the plants according to the Landscape Master Plan at the specified centres, and plant according to the relevant planting detail as specified. Example details are shown in Diagrams 1 – 3;
- Excavate planting holes to a size that allows a minimum of 100mm topsoil backfill beneath, and a minimum of 200mm around, the root system of the plant. Loosen the soil at the sides and bottom of the hole. Thoroughly water plants before planting begins, immediately after planting, and as required to maintain growth rates free of stress; and
- Remove plants from containers carefully to ensure minimum soil loss and root disturbance. Add fertiliser and moisture-retention compound to backfill, soil as specified in the relevant planting detail, and backfill such that the ground around the plant is firm and without air pockets. Place weed control mats or mulch around plants where specified, and install stakes and ties.



### PLANTING IN TURF

- 600mm Diameter. Weed Mat;
- Mat joint – minimum. 2(NO). 150 x 50 x 5mm M.S. “U” shaped fixing pins 75mm away from perimeter at maximum 300mm centres;
- Mat size may vary refer to specifications;
- Mat to be fully biodegradable material – thickness between 17 – 20mm;
- When staking, cut opening through mat with sharp implement, just large enough to accommodate stake;
- Thoroughly soak plants prior to removal from container;
- Do not mix soil from hole with mulch;
- Roughly square sides of hole;
- Decompact top 100mm of sides and bottom of hole;
- Fill hole with water and allow to drain before planting;
- Topsoil to be mixed evenly (to manufacturer’s specification) with water-retention gel (approximately 1 teaspoon per hole); and
- Fertiliser must be placed clear of rootball.



### GARDEN BED PLANTING

- Thoroughly soak plants prior to removal from container;
- Do not mix soil from hole with mulch;
- Roughly square sides of hole;
- Decompact top 100mm of sides and bottom of hole;
- Fill hole with water and allow to drain before planting;
- Topsoil to be mixed evenly (to manufacturer's specification) with water-retention gel (approximately 1 teaspoon per hole); and
- Where required, use one 600mm x 25 x 25mm HW stake with white painted tips. Larger plants may require a larger stake (maximum 2000mm). Tie plant to stake with flexible interlocking tie.





### STREET TREE PLANTING

- If staking, use 2Cno 2000mm x 50 x 50mm HW stakes. Use flexible interlocking ties (2 No.) to top third of plant stem;
- If guying, use galvanised wire cable to guy tree. Peg wire to ground pegs to be flush with ground. Attach bunting to guying wire for visibility;
- 600mm diameter weed mat;
- Mat joint – minimum (2 No.) 150 x 50 x 5mm M.S. “U” shaped fixing pins 75mm away from perimeter at maximum inch 300mm centres;
- Mat size may vary (refer to specifications);
- Mat to be fully biodegradable material – thickness between 17 – 20mm; and
- When staking, cut opening through mat with sharp implement, just large enough to accommodate stake.

### **Mulching**

All general garden areas shall be mulched with an organic mulch such as 25mm 'Forest Blend' slash pinebark or equivalent, to a minimum depth of 80mm. The mulch shall be free of deleterious and extraneous matter, including soil, weeds and rock. Mulch should not be placed in direct contact with stems of plants, to avoid possible fungal disease problems.

Trees or other plants located within lawn or grass-seeded areas should be mulched with a weed mat or equivalent mulch to suppress grass and weed growth from around their base. This will assist greatly in successful establishment of the plants.

### **The Establishment Period**

The initial planting establishment period is to be at least twelve weeks, to begin from the date of Practical Completion (landscape construction). During this period, the Contractor shall maintain the plants in a healthy condition, free of pests, diseases, and stress, and ensure that adequate watering is carried out in those areas where an automatic irrigation system has not been installed. Plants that are damaged or die by natural causes, or through the Landscape Contractor's negligence, must be replaced prior to the final acceptance of the works. Practical Completion (landscape construction) and the Establishment Period may be subject to compliance inspections.

### **Paving and Edging**

It is desirable that small areas of car park or driveway for light vehicular traffic, and pedestrian walkways, be paved with unit pavers, to provide a variety of surfaces in the lease areas. The following specification applies to these types of pavement. The specifications for pavement base and for heavy-duty pavement shall remain a part of the civil engineering works.

### **Subgrade Preparation**

The subgrade should be prepared and trimmed to receive the base course materials as specified in the Landscape Plan. This preparation should extend 200mm past the external edge of all edge restraints. If suitable compaction cannot be achieved, unsuitable material must be removed and replaced with finely crushed rock. Service areas or filled areas under paving are to be compacted in layers of 150mm to equal compaction of surrounding ground level.

### **Base-course**

A regulating base-course of fine-grade crushed rock or similar approved material should be laid over the compacted subgrade to a nominal depth of 100mm compacted thickness. This material should be compacted to a density equal to that of the surrounding natural ground by overlapping passes of a vibrating plate compactor. Level tolerances of this layer should be within 10mm plus or minus, as measured by a two-metre rule.

### **Sand Bedding**

Bedding sand should be of a uniform grading less than 2.36mm, be free of deleterious soluble salts and other contaminants likely to cause efflorescence, have a uniform moisture content, and be protected from rain when stockpiled on site prior to spreading. The sand bed should be laid in a uniform layer of 25mm compacted thickness, with an allowable tolerance of plus or minus 5mm over a two-metre distance. The sand bed is to extend to the external edge of all edge restraints.

### **Laying of Paver Units**

The surface of paving should finish generally at levels as shown in the Landscape Master Plan, flush with surrounding finishes. All paving surfaces should be graded with even falls, not less than 2%, such that ponding of water cannot occur. Tolerances should be within plus or minus 3mm over a three-metre length of surface.

### **Compaction**

After completion of paver unit laying, the sand bedding should be fully compacted and the unit brought to final design levels by at least two passes of a vibrating plate compactor. Compaction should occur as soon as possible after completion of laying, before accepting any traffic. Joints should then be filled with appropriate sand, by lightly brooming into joints, prior to a final pass with a vibrating plate compactor. Edge restraints should then be constructed from mass concrete according to the detail, as shown in the Landscape Plan.