

# CAPRICORN MUNICIPAL DEVELOPMENT GUIDELINES

## LANDSCAPING

C273

## CONSTRUCTION SPECIFICATION

# Contents

<b>GENERAL</b>	4
<b>C273.01 SCOPE</b>	4
<b>C273.02 REFERENCE DOCUMENTS</b>	4
<b>VEGETATION OF SLOPES AND DRAINS</b>	4
<b>C273.03 EXECUTION AND TIMING OF WORK</b>	4
<b>C273.04 MATERIALS</b>	4
<b>C273.05 VEGETATION OF SLOPES 3 TO 1 OR FLATTER</b>	6
<b>C273.06 VEGETATION OF SLOPES STEEPER THAN 3 TO 1</b>	7
<b>C273.07 VEGETATION OF OPEN DRAINS</b>	8
<b>LANDSCAPE PLANTING</b>	9
<b>C273.08 EXECUTION AND TIMING OF WORK</b>	9
<b>C273.09 MATERIALS</b>	9
<b>C273.10 PLANTING</b>	11
<b>C273.11 CARE OF LANDSCAPE PLANTING</b>	12
<b>LIMITS AND TOLERANCES</b>	13
<b>C273.12 SUMMARY OF LIMITS AND TOLERANCES</b>	13
<b>ANNEXURE</b>	14
<b>C273A LANDSCAPING MATERIALS</b>	14
<b>C273B QUALILTY CONTROL AND TESTING</b>	15
<b>C273C GLADSTONE REGIONAL COUNCIL PLANT LISTS</b>	16

**Keeping the Capricorn Municipal Development Guidelines up-to-date**

The Capricorn Municipal Development Guidelines are living documents which reflect progress of municipal works in the Capricorn Region. To maintain a high level of currency that reflects the current municipal environment, all guidelines are periodically reviewed with new editions published and the possibility of some editions to be removed. Between the publishing of these editions, amendments may be issued. It is important that readers assure themselves they are using current guideline, which should include any amendments which may have been published since the guideline was printed. A guideline will be deemed current at the date of development approval for construction works.

## GENERAL

### C273.01 SCOPE

- C273.01.01 The work to be executed under this Specification consists of:
- (a) The vegetation of cut and fill batters, median areas, footpaths, verges, open drains and other areas within the site. Vegetation includes the initial surface preparation, topsoiling, fertilising, sowing of seed and may include surface protection works, hydroseeding, hydromulching and straw mulching.
  - (b) The supply of plants, planting at locations as shown on the Drawings, fertilising, mulching, staking, watering and maintenance of plants.

### C273.02 REFERENCE DOCUMENTS

- C273.02.01 Documents referenced in this Specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.
- (a) CMDG Specifications
    - C211 - Control of Erosion and Sedimentation
    - C213 – Earthworks
  - (b) Australian Standards
    - AS 1160 – Bitumen emulsion for construction and maintenance of pavements
    - AS 2507 – The storage and handling of pesticides
    - AS 4419 – Soils for landscaping and garden use
    - AS 4454 – Composts, soil conditioners and mulches

***Documents  
Standards Test  
Methods***

## VEGETATION OF SLOPES AND DRAINS

### C273.03 EXECUTION AND TIMING OF WORK

- C273.03.01 In association with the work to be executed under this Specification, effective erosion and sedimentation control measures in accordance with the Specification for CONTROL OF EROSION AND SEDIMENTATION C211 shall be implemented. ***Contractor's Responsibility***
- C273.03.02 The work to be executed under this Vegetation of Slopes and Drains includes the vegetation of cut and fill batters, footpaths, median areas, open drains and other areas within the site. Vegetation includes the initial surface preparation, topsoiling, fertilising and either sowing of seed or turfing as shown on the Drawings. ***Vegetation***
- C273.03.03 Exposed ground shall be vegetated before the area exceeds one hectare or lesser area in compliance with Local Government Authority requirements. ***Exposed Ground***

### C273.04 MATERIALS

- C273.04.01 Topsoil ***Quality***
- (a) Existing topsoil stockpiled on site under the Specification for EARTHWORKS C213 shall be used and where imported topsoil is required it shall comply with AS 4419 and shall:-
    - be of a friable, porous nature;

	<ul style="list-style-type: none"> <li>- be free of weeds and weed seeds, bulbs, corms and vegetable propagules;</li> <li>- contain no refuse or materials toxic to plant growth;</li> <li>- contain no stumps, roots, clay lumps or stones larger than 50mm in size;</li> <li>- have an organic content of at least 3 per cent by mass;</li> <li>- have a pH neither less than 5.5 nor more than 7.5;</li> <li>- have a soluble salt content not exceeding 0.06 per cent by mass.</li> </ul>	
C273.04.02	Herbicide <ul style="list-style-type: none"> <li>(a) Herbicide used shall be a glyphosate-based herbicide listed in Annexure C273A.</li> </ul>	
C273.04.03	Seed <ul style="list-style-type: none"> <li>(a) All seed used shall be of the species and varieties listed in Annexure C273A and shall be sown at the application rates specified therein.</li> <li>(b) The native seed shall be delivered to the site in separate lots for each species and variety, clearly labelled to show species, variety and weight.</li> <li>(c) All seed must be accompanied by a "Certificate of Authenticity" which shall be furnished upon request at any stage of the work. Grass and clover seed shall be pre packed commercially with an accompanying certificate of germination.</li> <li>(d) Seed shall not be delivered to site more than seven days before sowing is to occur. The seed shall be stored in clean, air tight containers and kept away from direct sunlight. It shall not be exposed to the elements at any stage during storage.</li> </ul>	<b>Seed Type and Supplier</b>  <b>Lead Time for Native Seed</b>  <b>Certification</b>  <b>Storage</b>
C273.04.04	Turf <ul style="list-style-type: none"> <li>(a) Turf shall consist of 25mm depth of dense, well rooted, vigorous grass growth with 25mm depth of topsoil. The type of grass turf to be used shall be selected from Annexure C273A and in accordance with the Drawings. Unless specified, Kikuyu grass shall not be used (permitted for MRC). Turf shall be free of weeds, soil pests and diseases. The turf shall be supplied as rolls in long lengths of uniform width, not less than 300mm, and shall be in sound unbroken condition.</li> </ul>	
C273.04.05	Fertiliser <ul style="list-style-type: none"> <li>(a) Fertiliser shall be an organic type listed in Annexure C273A with Nitrogen: Phosphorus: Potassium (N:P:K) ratios of 8 : 3.6 : 2.</li> </ul>	<b>Type</b>
C273.04.06	Vegetable Mulch <ul style="list-style-type: none"> <li>(a) Vegetable mulch used in hydromulching shall consist of straw, chaff, wood fibre, paper pulp or similar material all finely shredded to a maximum dimension of 10 mm. Meadow hay or weeds shall not be used and paper pulp if used shall not exceed 50 per cent by mass of the total mulch.</li> </ul>	<b>Composition</b>
C273.04.07	Water <ul style="list-style-type: none"> <li>(a) Water used shall be potable.</li> </ul>	<b>Quality</b>
C273.04.08	Binder <ul style="list-style-type: none"> <li>(a) The binder used in hydromulching and strawmulching shall be Grade ASS, slow setting anionic bitumen emulsion, complying with AS 1160.</li> </ul>	
C273.04.09	Wetting Agent	

- (a) The soil wetting agent added in hydromulching or hydroseeding shall be listed in Annexure C273A and applied at the application rate specified therein.

C273.04.10 Pesticide

- (a) Pesticide used shall be a liquid or powder listed in Annexure C273A. The storage and handling of pesticides shall be in accordance with AS 2507.

## C273.05 VEGETATION OF SLOPES 3 TO 1 OR FLATTER

C273.05.01 Preparation of Surface

**Herbicide Treatment**

- (a) Slopes shall be sprayed with herbicide applied at the rate specified in Annexure C273A to kill weed infestation. Sprayed areas shall remain undisturbed for two weeks.

- (b) The surface shall then be tined to a depth of 200 mm to produce a loose surface and all large stones, rubbish and other materials that may hinder germination shall be removed before topsoiling.

**Preparation**

C273.05.02 Topsoiling

**Application**

- (a) Topsoil shall be uniformly applied to provide an average compacted thickness of 50mm with a minimum compacted thickness of 30mm at any location. The topsoiled area shall be cultivated to a depth of 50mm to provide a roughened surface with soil lumps not exceeding 50mm dimension.

C273.05.03 Incorporation of Pesticide

**Mixing**

- (a) Immediately before sowing, all grass and native seed shall be treated with pesticide. The pesticide shall be thoroughly mixed as a dry powder with the seed at the rate specified in Annexure C273A to the equivalent mass of seed to be spread on 1 hectare of the surface in accordance with Annexure C273A.

C273.06.03 Sowing

**Seeder**

- (a) Sowing shall be carried out with an appropriate mechanical seeder. Where practicable, passes shall follow finished surface contours. Seed shall be sown at a depth of 5mm or shall be raked or harrowed to provide 5mm cover.

- (b) Seed and fertiliser shall be evenly distributed over the areas to be sown at the rates specified in Annexure C273A. Fertiliser shall be applied concurrently with the seeding operation.

**Sowing Rate**

C273.07.03 Turfing

**Placing**

- (a) Turf shall be placed on the prepared topsoiled surface. Runs of turf shall butt hard against each other and be placed perpendicular to the direction of water flow. Turf seams shall then be top dressed with topsoil.

- (b) Four to six weeks after placement, the turf shall be lightly top dressed with topsoil to correct any undulations or unevenness in the established turf.

**Topdressing**

C273.08.03 Watering

- (a) The Contractor shall water areas to be sown to a moist condition and shall rewater areas to a moist condition without surface runoff on a daily basis for a minimum of 15 days after sowing, or as otherwise directed by the Superintendent, to promote and maintain growth.

**C273.06 VEGETATION OF SLOPES STEEPER THAN 3 TO 1**

C273.06.01	General	<b>Method</b>
	(a) Where shown on the Drawings slopes shall be vegetated by one of the following methods:	
	(a) Topsoiling and hydromulching;	
	(b) Topsoiling, hydroseeding and straw mulching;	
	(c) Hydroseeding.	
C273.06.02	Preparation of Surface	<b>Herbicide Treatment</b>
	(a) Weeds shall be killed by spraying with herbicides applied at a rate specified in Annexure C237A to kill weed infestations. Sprayed areas shall remain undisturbed for two (2) weeks.	
	(b) No more than seven days before seeding all loose material shall be removed from fill batters and cut batters, which are not stepped, by dragging a heavy steel chain of minimum weight of 30 kilograms per metre of length or by other approved methods.	<b>Preparation</b>
C273.06.03	Topsoiling	<b>Application</b>
	(a) Where batters have been stepped, the steps shall be loosely filled with topsoil. Elsewhere, topsoil shall be uniformly applied to provide an average thickness of 50mm with a minimum compacted thickness of 30mm at any location.	
C273.06.04	Hydromulching or Hydroseeding	<b>Application Rate</b>
	i) The hydromulch or hydroseed shall comprise the materials shown in Table C273.06.1. The materials shall be applied at the application rates shown in Table C273.06.1.	
	ii) Dry surfaces shall be watered by a fine spray before the application of the hydromulch.	<b>Watering</b>
	iii) During preparation of the hydromulch or hydroseed slurry, liquid form pesticide shall be added to the storage tank, to facilitate surface application, at a rate of 5 litres of pesticide to the equivalent volume of hydromulch or hydroseed slurry to be spread on 1 hectare of surface in accordance with Table C273.06.1.	<b>Pesticide</b>
	iv) Storage tanks, containers and equipment to be used in hydromulching or hydroseeding of slopes shall be clean and free of contamination from previous operations.	<b>Equipment</b>
	v) A slurry mixture shall be produced by addition of the specified materials in the tank and agitated to maintain a uniform consistency during application. It shall be applied uniformly over the whole surface.	<b>Uniform Mix</b>
	vi) Hydromulch or hydroseed shall not be applied under the following weather conditions at the site:	<b>Weather Conditions</b>
	- when temperature is higher than 35oC	
	- when winds exceed 15 km/hr;	
	- where the surface is too wet or	
	- during rain periods or when rain appears imminent.	

- vii) Application rates shall be in accordance with Table C273.06.1

**Table C273.06.1 - Materials and Application Rates**

Material	Application Rate per Hectare	
	Hydromulching	Hydroseeding
i) Vegetable Mulch (kg)	2,500	Nil
ii) Water (l)	35,000	20,000
iii) Binder (l)	700	Nil
iv) Fertiliser	See Annexure C273A	
v) Seed	See Annexure C273A	
vi) Wetting Agent (l)	35	20
vii) Pesticide (l)	5	5

C273.06.05

#### Straw Mulching

#### Method

- (a) The mulch to be applied after hydroseeding shall comprise a matrix of straw and an anionic slow setting bitumen emulsion binder. Meadow hay shall not be used. The straw mulch shall be uniformly applied by a suitable blower unit at a rate of 250 bales (each of 20 kilograms) of straw per hectare of surface. The bitumen emulsion shall be incorporated as a spray into the air stream of the mulch blower at a rate of not less than 2,500 litres of bitumen emulsion per hectare of surface. The finished straw mat shall have a minimum thickness of 20 mm at any location.

### C273.07

### VEGETATION OF OPEN DRAINS

C273.07.01

#### Preparation of Surface

#### Profile and Topsoil

- (a) Following excavation of open drains to the profile specified vegetation of the surface shall be carried out. Topsoil shall be spread to provide an average compacted thickness of 50 mm with a minimum compacted thickness of 30 mm at any location.

C273.07.02

#### Sowing

#### Procedure

- (a) Before sowing, the surface shall be watered. Seed and fertiliser shall then be applied uniformly at the rates specified in Annexure C273A by one of the following procedures:
- Mechanical sowing
  - Hydromulching or hydroseeding.
  - By hand.

C273.07.03

#### Surface Protection

#### Methods

- (a) Where shown on the Drawings one of the following protective treatments shall be applied immediately to all or part of the sown surface.

- (a) Spraying with Bitumen Emulsion

An anionic slow setting bitumen emulsion, conforming with Grade ASS of AS 1160, shall be sprayed over the surface at a rate of 1 litre of bitumen emulsion per square metre of surface.

#### Application Rate

- (b) Lining with Organic Fibre Mat

#### Laying



The channel surface shall be lined with an organic fibre mat listed in Annexure C273A. The runs of matting shall be laid along the direction of water flow. The matting shall be laid loosely on the soil surface and not stretched.

The upstream end of the matting shall be slotted into a trench 150mm wide by 150mm deep and pinned to the base of the trench at 200mm centres. The trench shall be backfilled with soil and compacted by foot.

**Anchorage**

The pins shall be 'U' shaped, 4mm gauge wire, 50mm wide and 150mm long legs

**Pins**

Adjacent runs of matting shall be overlapped 100mm with the higher run lapped over the lower run. The matting shall be pinned along the sides of each run at 500mm centres and along the middle of each run at 1 m centres. End overlaps shall be 150mm wide with the higher run end lapped over the start of the lower run and pinned at 200mm centres.

**Lapping**

(c) Turfing

Turf shall be as specified under Clause C273.04 (d).

**Quality**

Runs of turf shall butt hard against each other and be placed perpendicular to the direction of water flow in the drain, and pinned into position at 500mm centres.

**Placing**

Seams of turf shall be top dressed with topsoil.

**Topdressing**

C273.07.04

Watering

- The Contractor shall water areas to be sown to a moist condition and shall rewater areas to a moist condition without surface runoff on a daily basis for a minimum of 15 days after sowing, or as otherwise directed by the Superintendent, to promote and maintain growth.

## LANDSCAPE PLANTING

### C273.08 EXECUTION AND TIMING OF WORK

C273.08.01

The work to be executed includes the ground preparation, the supply of plants, planting as shown on the Drawings, fertilising, mulching, staking, watering and maintenance of plants.

**Extent of Work**

### C273.09 MATERIALS

C273.09.01

Topsoil

- Topsoil shall comply with the requirements of Clause C273.04 (a).

C273.09.02

Herbicide

- Herbicide shall comply with the requirements of Clause C273.04 (b).

C273.09.03

Fertiliser

- Fertiliser shall be a slow release type in pellet form, listed in Annexure C273A, with a nine months' release period and having Nitrogen: Phosphorus: Potassium (N:P:K) ratios of 6.3 : 1.8 : 2.8.

**Quality**

C273.09.04

Mulch

**Quality**

- 1. All mulches used for landscape planting shall comply with AS 4454 and the following requirements:
  - 1. the material shall comprise hardwood chips,
  - 2. fines shall not exceed 5 per cent by volume;
  - 3. the average size of the woodchip shall be approximately 20 mm wide by 5 mm thick by 30 mm long and the maximum length of chip shall not exceed 50 mm; and
  - 4. the material shall be free of soil, weeds, stones and other foreign material.
- 5. Composted organic mulch approved by Local Government Authority may be used in lieu of woodchip mulch.

C273.09.04

Plant Material

Source

- 1. All plants shall be obtained from a nursery located in an area having a similar climate to the site of the Works.

Table C273.09.1 Plant List

	Applicable Plant List
Banana Shire	Refer to ANNEXURE C273.A
Central Highlands Regional Council	
Gladstone Regional Council	Refer to ANNEXURE C273.C
Isaac Regional Council	ANNEXURE C273.A and ANNEXURE C273.C
Livingstone Shire Council	Refer to ANNEXURE C273.A
Maranoa Regional Council	
Rockhampton Regional Council	

- 2. There shall be no substitution of any species without Local Government Authority approval. All plant material shall be true to species and sizes. Plants shall be healthy, of good form, not soft or forced and with large robust root systems. They shall not be root bound and shall be free from disease and insect pests. All container soil mix shall contain between 20 per cent and 25 per cent clay by volume. Trees shall have a single leading shoot. For hardening off purposes, all plants shall be delivered to a site within the locality of the Subdivision at least four weeks before planting out. Plant root systems shall be maintained moist at all times with particular attention being paid to watering during the on site period before and during planting. Plant stock shall be classified as indicated in Table C273.09.1, and planted in accordance with the Drawings.

Quality

Table C273.09.01 – Plant Stock

		Type or Stock				
		50mm Tube	Gro-Tube	Semi Advanced	Advanced Stock	Super Advanced
<b>Type or Stock</b>	dia (mm)	50	75	150	200	300
	depth (mm)	75	100	150	200	300
<b>Plant Height</b>	(mm)	200 min	300 min	300 min	300 min	500 min
	(leaf & stem)	300 max	400 max	400 max	500 max	750 max
<b>Planting Holes</b>	side dia (mm)	200	200	300	400	600
	depth (mm)	200	200	300	400	600
<b>No. of Fertiliser Pellets</b>		2	3	5	5	7

C273.09.05

Stakes

**Size**

1. All stakes shall be 25mm square by 1,500mm long hardwood and sharpened at one end.

**C273.10 PLANTING**

C273.10.01

Mass Planting in Mulched Bed

**Herbicide Treatment**

1. The area to be planted shall be sprayed with herbicide, at the rate specified in Annexure C273A to kill weed infestations. Sprayed areas shall remain undisturbed for two weeks.
2. The surface shall be ripped at 500mm centres to a depth of 300mm and the top 200mm of the planting bed broken up by cultivation to a maximum size of 50mm. Mulch, 100mm thick, shall be spread over the planting bed. After removal of the localised mulch, planting holes shall be excavated to the dimensions and depths as shown in Table C273.09.1 and the material removed.
3. The specified number of fertilizer pellets as shown in Table C273.09.1 shall be placed beside the root ball of each plant.
4. The planting hole shall be backfilled with topsoil complying with Clause C273.04 (a) and compacted by foot up to surface level, care being taken to avoid mixing mulch with topsoil. A stake shall be driven 300mm deep and 200mm clear of each 'Advanced' and 'Super Advanced' size stock and the stock tied to it by a strip of 50mm wide hessian webbing.
5. Each backfilled hole shall receive 10 litres of water before the mulch is respread over the disturbed area. The mulch shall be left just clear of the plant stem.

**Surface Preparation****Fertilizer Pellets****Backfill and Staking****Watering and Mulching**

C273.10.02

Individual Planting

**Planting Holes**

1. A planting area 600mm dia. or square shall be loosened to a depth of 400mm. Planting holes shall be excavated to dimensions and depths as shown in Table C273.09.1 and the material spread evenly around each hole
2. The specified number of fertiliser pellets, as shown in Table C273.09.1, shall be placed beside the root ball of each plant.

**Fertilizer Pellets**

- |    |   |                                    |
|----|---|------------------------------------|
| 3. | The planting hole shall be backfilled with topsoil complying with Clause C273.04 (a) and compacted by foot up to surface level. A stake shall be driven 300mm deep and 200mm clear of each 'Advanced' and 'Super Advanced' size stock and the stock tied to it by a strip of 50mm wide hessian webbing. | <b><i>Backfill and Staking</i></b> |
| 4. | Each backfilled hole shall receive 10 litres of water.  | <b><i>Watering</i></b>             |
| 5. | Weed infestation for a distance of 800 mm surrounding each proposed planting shall be killed by spraying with a herbicide as specified in Clause C273.05 (a). All due care shall be taken to avoid damage caused by contact between herbicide and the plant by means of spray drift etc.                | <b><i>Herbicide Spray</i></b>      |
| 6. | Immediately after planting, mulch 100 mm thick, starting just clear of the plant stem, shall be spread over an area of 600 mm radius surrounding the plant.   | <b><i>Mulch</i></b>                |

## C273.11 CARE OF LANDSCAPE PLANTING

- |    |  |                                  |
|----|--|----------------------------------|
| 1. | All plants shall be watered, from the time of planting, at the rate of 10 litres per plant every third day for the first twelve weeks.   | <b><i>Watering</i></b>           |
| 2. | Missing plants, dead plants and unhealthy plants shall be replaced by the Contractor. Replacement plants shall be of similar size and quality and of identical species and variety to the plant being replaced.  | <b><i>Replacement Plants</i></b> |
| 3. | Weed and grass growth in mulched areas shall be killed by treatment with herbicide in accordance with the manufacturer's instructions at monthly intervals during the construction period and contract maintenance period. Contact of the herbicide with the new plants shall be avoided and any damage repaired or damaged plant material replaced. | <b><i>Weed Control</i></b>       |

## LIMITS AND TOLERANCES

### C273.12 SUMMARY OF LIMITS AND TOLERANCES

C273.12.01 The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C273.12.01 below.

**Table C273.12.1 - Summary of Limits and Tolerances**

Item	Activity	Limits/Tolerances	Spec Clause
1.	<b>Topsoil</b>		
	a) Organic Content	>3% by mass	C273.04a
	b) pH	>5.5 <7.5	C273.04a
	c) Soluble Salt	<0.06% by mass	C273.04a
2.	<b>Turf</b>	Widths >300mm.	C273.04d
3.	<b>Vegetable Mulch</b>		
	a) Material	maximum size <10mm	C273.04f
	b) Paper Pulp	<50% by mass of total mulch	C273.04f
4.	<b>Topsoiling</b>	Minimum compacted thickness at any location of 30mm	C273.05b C273.06c C273.07a
5.	<b>Straw Mulching</b>		
	a) Straw Mat	Finished thickness >20mm.	C273.06e
6.	<b>Landscape Planting</b>		
	a) Temperature	Planting not to be undertaken when temperatures >35°C or <10°C.	C273.08
7.	<b>Mulch</b>		
	a) Fines	Shall not exceed 5% by volume.	C273.09d
	b) Woodchip	Maximum size <50mm.	C273.09d
8.	<b>Plant Material</b>		
	a) Container Soil Mix	Contain >20% <25% by volume of clay.	C273.09e

## ANNEXURE

### C273A LANDSCAPING MATERIALS

The following specification is to be used as a guide and the contractor is to confirm, and submit to the Local Government Authority, seed mix designs based on availability and the local climate.

MATERIAL	TYPE	MINIMUM APPLICATION RATE
1. HERBICIDE *	'Roundup'	9 litres/200 litres water/ha
2. SEED		
a) Grass	Sirohie Millet / Rye Grass (cover crop) Green Couch Reclaimer Rhodes Grass Carpet Grass Buffel Grasses **Mix would consist of one cover crop, three perennial species.	In accordance with MRTS16
(b) Native	Sirhoie Millet / Rye Grass (cover crop) Green Couch Kangaroo Grass Black Speargrass Qld Bluegrass	In accordance with MRTS16
3. TURF GRASS		
(a) Medians	Couch (or Kikuyu – MRC Only)	Refer to Drawings
(b) Verges/Footpaths	Buffalo (or Kikuyu – MRC Only)	"
(c) Other Areas	Couch (or Kikuyu – MRC Only)	"
4. FERTILISER *		
(a) Vegetation of Slopes/Drains	Dynamic Lifter 'Nitro'	1000 kg/ha
(b) Landscape Planting	'Kokei' pellets	Refer Table C273.09.1
5. WETTING AGENT *	'Aquasoil'	1 litre/1000 litres of mix water
6. PESTICIDE *		
(a) Liquid	Approved Pesticide	5 litres
(b) Powder	Approved Pesticide	10 kg
7. ORGANIC FIBRE MAT *	'Sta-firma' (light grade)	-

\* Material shall be as listed or equivalent as approved by Local Government Authority.

**C273B QUALITY CONTROL AND TESTING**

(Specifications C220, C221, C222, C223, C224)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
<b>MANDATORY TESTING</b>				
Nil				
<b>AUDIT TESTING – IF ORDERED BY LOCAL GOVERNMENT AUTHORITY</b>				
Seed	Certification of Authenticity for the prescribed Mix	1 contract	Certification for each production batch delivered	
Imported Topsoil	Material Quality			AS4419
	- pH	10,000m <sup>2</sup>	1 per 500m <sup>3</sup>	
	- Organic Content	10,000m <sup>2</sup>	1 per 500m <sup>3</sup>	
	- Soluble Salt Content	10,000m <sup>2</sup>	1 per 500m <sup>3</sup>	
Mulch for Planting	Material Quality	1 contract	1 contract	AS4454

**C273C GLADSTONE REGIONAL COUNCIL PLANT LISTS****Application**

The planting species in this list are for use in public open spaces and streetscapes under the control of Gladstone Regional Council. The purpose of the list is to recommend to encourage the use of Australian Native Plants, known to perform well in the Gladstone region and are suitable for use.

Plants recommended in the following lists are;

1. suited to the climate and environmental conditions in the Gladstone region
2. proven performance in terms of growth habit, health, vigour when planted in the Gladstone region
3. at minimal risk of becoming a environmental weed

Street trees requirements;

1. leaf and fruit drop will not create excessive level of nuisance or require corrective maintenance
2. perform in highly modified soil conditions
3. grow with a single clear trunk



**PLANT LIST**

PLANT NAME	COMMON NAME	HABIT	Garden Beds	Screening	Parks / Open Spaces	Feature Trees	Street Trees	Group Planting	Coastal**	Notes
Anigozanthos sp.	Kangaroo paw	Ground cover	●					●		
Baumea articulata	Jointed twig-rush	Ground cover	●					●		
Canavalia rosea	Coastal jack bean	Ground cover							●	
Carex appressa	Tall sedge	Ground cover	●					●		Waterway
Carpobrotus glaucescens	Pigface	Ground cover	●					●	●	
Casuarina glauca 'Cousin it'	Cousin it	Ground cover	●					●		
Chrysocephalum apiculatum	Yellow buttons	Ground cover	●					●		
Chrysopogon filipes	Australian vetiver grass	Ground cover	●					●		
Crinum pedunculatum	River Lily	Ground cover	●							
Cymbopogon ambiguus	Native lemon grass	Ground cover	●					●		
Cymbopogon refractus	Barbed wire grass	Ground cover	●					●		
Dianella caerulea	Blue flax lily	Ground cover	●					●		
Dianella rara	Flax lily	Ground cover	●					●		
Dianella sp. Woodgate	Flax lily	Ground cover	●					●		
Enneapogon lindleyanus	Native grass	Ground cover	●							
Enneapogon sp.	Native grass	Ground cover	●							
Eragrostis interrupta	Coastal lovegrass	Ground cover	●					●	●	
Eriachne triodioides	Wanderrie grass	Ground cover	●					●		
Ficinia nodosa	Knobby club-sedge	Ground cover	●					●		Waterway
Fimbristylis dichotoma	Common fringe sedge	Ground cover	●					●		
Fimbristylis ferruginea	Rusty fringe sedge	Ground cover	●					●		
Fimbristylis tristachya	Groundcover sedge	Ground cover	●					●		
Fuirena umbellata	Groundcover sedge	Ground cover	●					●		
Gahnia aspera	Saw sedge	Ground cover	●					●		
Gahnia seiberiana	Red fruit saw sedge	Ground cover	●					●		
Gardenia psidioides 'Glennie River'	Glennie River	Ground cover	●							
Hardenbergia violacea	Native sarsparilla	Ground cover	●					●		

Hypoestes floribunda	Musk-scented plant	Ground cover	●					●		
Hypoxis pratensis	Golden weather grass	Ground cover	●					●		
Imperata cylindrica	Blady grass	Ground cover	●					●	●	
Ipomea littoralis	Coastal morning glory	Ground cover	●							
Ipomoea pes-caprae	Beach morning glory	Ground cover							●	
Juncus polyanthemus	Striated rush	Ground cover	●					●		
Juncus usitatus	Common rush	Ground cover	●					●		
Lepidosperma laterale	Variable sword-sedge	Ground cover	●					●		Waterway
Lepironia articulata	Grey rush	Ground cover	●					●		Waterway
Liriope sp.	Lily turf	Ground cover	●					●		
Lobelia membranecea	Native lobelia	Ground cover	●					●		
Lobelia purpurescens	Whiteroot	Ground cover	●					●		
Lomandra hystrix	Mat rush	Ground cover	●					●		
Lomandra longifolia	Spiny headed mat rush	Ground cover	●					●		
Myoporum boninense	Coastal boobialla	Ground cover	●							
Myoporum ellipticum	Creeping boobialla	Ground cover	●							
Orthosiphon aristatis	Cats whiskers	Ground cover	●					●		
Plumbago zeylanica	Native plumbago	Ground cover	●					●		
Poa labillardieri	Common tussock grass	Ground cover	●					●		
Pseuderanthemum tenellum		Ground cover	●							
Ranunculus inundatus	River buttercup	Ground cover	●							Waterway
Rhynchospora corymbosa	Matamat	Ground cover	●					●		
Rostellularia adscendens	Pink tongues	Ground cover	●							
Scaevola aemula 'Mauve Clusters'	Fair fan-Flower	Ground cover	●							
Scaevola calendulacea	Dune fan flower	Ground cover	●							
Scleria polycarpa	Many fruited sedge grass	Ground cover	●					●		
Themeda triandra	Kangaroo grass	Ground cover	●					●		
Trachelospermum jasminoides*	Tricolour Jasmine	Ground cover	●	●						
Tulbaghia violacea *	Society garlic	Ground cover	●					●		
Vigna marina	Yellow Beach Pea	Ground cover							●	
Viola hederacea	Native violet	Ground cover	●							

Vitex rotundifolia	Beach vitex	Ground cover	●					●	●	
Zoysia micrantha	Zoysia	Ground cover	●					●		
Zoysia tenuifolia	No mow grass	Ground cover	●					●		
Cissus antarctica	Kangaroo vine	Vine	●							
Embelia australiana	Embelia	Vine	●	●						
Eustrephus latifolius	Wombat berry	Vine	●							
Hoya australis	Hoya	Vine	●							
Jasminum didymium	Three leafed jasmine	Vine	●	●	●					
Jasminum simplicifolium	Native Jasmine	Vine	●	●						
Pandorea jasminoides Southern Belle	Pandorea southern belle	Vine	●	●	●					
Pandorea pandorana	Wonga vine	Vine	●	●	●					
Parsonsia larcomensis	Mt larcorn silk pod	Vine	●		●					
Abelmoschus moschatus	Creeping hibiscus	Low shrub	●					●		
Abutilon oxycarpum	Flannel weed	Low shrub	●							
Barleria obtusa*	Purple dazzler	Low shrub	●					●		
Dracaena tricolor*	Dragon tree	Low shrub	●		●			●		
Gardenia radicans*	Cape jasmine	Low shrub	●	●				●		
Ixora spp. and cultivars*	Ixora (yellow and red)	Low shrub	●					●		
Melaleuca viminalis 'Little John'	Little John	Low shrub	●					●		
Phyllanthus microladus	Brush sauropus	Low shrub	●							
Phyllanthus multiflorus	Waterfall plant	Low shrub	●							
Phyllanthus sauropodoides		Low shrub	●							
Phyllanthus sp. Bulburin		Low shrub	●							
Phyllanthus subcrenulatus		Low shrub	●							ANZAC Memorial Parks
Salvia rosmarinus*	Rosemary	Low shrub	●					●		
Hibbertia scandens	Climbing guinea flower	Low shrub	●						●	
Murraya ovatifoliolata	Native murraya	Low shrub	●					●		
Westringia fruticosa	Coastal rosemary	Low shrub	●	●				●		
Acacia aulacocarpa	Golden flowered salwood	Shrub			●					
Acacia holosericea	Soap bush acacia	Shrub			●					

Acacia simsii	Sims wattle	Shrub	●					●		
Acalypha sp Dan Dan	Dan Dan acalypha	Shrub	●		●			●		
Alchornea ilicifolia	Native holly	Shrub	●		●					
Alectryon thozetiana	Thozet holly	Shrub	●		●					
Alyxia ruscifolia	Chain fruit	Shrub	●		●			●		
Archidnedropsis thozetiana	Southern siris	Shrub			●	●				
Austromyrtus dulcis	Midgen berry	Shrub	●	●						
Babingtonia virgata	Heath myrtle	Shrub	●							
Banksia oblongifolia	Banksia	Shrub	●					●		
Breynia oblongifolia	Native coffee bush	Shrub	●	●	●			●		
Carissa ovata	Currant bush	Shrub	●					●		
Clerodendrum floribundum	Lolly bush	Shrub	●		●					
Coelus graveolens	Sticky cockspur	Shrub	●							
Cordyline manners suttoniae	Seventeen Seventy palm lily	Shrub	●							
Cordyline murchisoniae	Small palm lily	Shrub	●					●		
Cordyline sp: Cordyline stricta	Narrow leaved palm lily	Shrub	●							
Dodonaea lanceolata	Hop bush	Shrub			●					
Dodonaea viscosa	Sticky hops bush	Shrub			●					
Gardenia augusta*	Gardenia	Shrub	●	●				●		
Gardenia species and cultivars	Gardenia	Shrub	●	●						
Graptophyllum excelsum	Scarlet fuchsia	Shrub	●	●				●		
Graptophyllum ilicifolium	Holly fuchsia	Shrub	●	●				●		
Graptophyllum thorogoodii	Native fuchsia	Shrub	●	●				●		
Grevillea banksii	Banks's grevillea	Shrub		●	●					
Grevillea species & cultivars	Spider flowers	Shrub	●	●	●			●		
Hibiscus diversifolius	Swamp hibiscus	Shrub	●		●					
Hibiscus heterophyllum	Native rosella	Shrub		●	●					
Hibiscus insularis	Philip Island hibiscus	Shrub	●	●						
Hibiscus rosa-sinensis*	Hibiscus	Shrub								
Hovea longipes	Bush hovea	Shrub	●							
Ixora queenslandica	Coastal ixora	Shrub		●	●					
Ixora species and cultivars*	Ixora	Shrub	●	●						

Leptospermum flavescens Cardwell	Tea trees	Shrub			●					
Leptospermum polygalifolium	Tea trees	Shrub	●		●					
Leptospermum species and cultivars	Tea trees	Shrub	●							
Ligustrum australium	Native privet	Shrub	●		●					
Mackinlaya macrosciadia	Mackinlaya	Shrub	●					●		
Melaleuca hemisticta	Bottlebrush	Shrub			●					
Melaleuca linariifolia Snowstorm	Snowstorm	Shrub	●		●					
Melaleuca polandii	Gold tipped bottlebrush	Shrub			●					
Melaleuca species and cultivars	Bottlebrush	Shrub	●		●					
Melaleuca thymifolia	Thyme honey myrtle	Shrub	●		●					
Melastoma malabathricum	Blue tounge	Shrub		●						
Metrosideros thomasi*	New Zealand christmas tree	Shrub	●		●					
Michelia champaca*	Golden champaca	Shrub	●							
Micromelum minutum	Cluster berry	Shrub			●					
Murraya ovatifoliolata	Native murraya	Shrub	●	●	●					
Pavetta australiensia	Snow cloud	Shrub			●					
Psychotria daphnoides	Smooth psychotria	Shrub	●							
Psychotria loniceroides	Hairy psychotria	Shrub	●		●					
Radermachera kunming Summerscent*	Summerscent	Shrub	●							
Ricinocarpus ledifolius	Scrub wedding bush	Shrub	●		●					
Scaevola taccada	Cardwell cabbage	Shrub	●					●		
Senna acclinis	Rainforest senna	Shrub	●					●		
Senna sophora var sophora		Shrub	●		●					
Sophora tomentosa subsp. Australis	Silver bush	Shrub			●					
Syzygium australe	Tiny trev	Shrub	●	●						
Syzygium australe Aussie Gem	Aussie gem	Shrub		●	●					
Syzygium australe Southern form	Southern lilly pilly	Shrub	●	●	●					
Syzygium Cascade	Cascade lilly pilly	Shrub	●	●	●	●				
Syzygium Compact	Aussie compact lilly pilly	Shrub	●	●	●					

Syzygium Elegance	Elegance lilly pilly	Shrub	●	●	●					
Syzygium Weeping Gem	Weeping gem	Shrub		●	●	●				
Xanthorrhoea sp.	Grass Tree	Shrub	●		●	●		●		
Alchornia thozetiana	Native holly	Small tree	●		●					
Alectryon subdentatus	Hard alectryon	Small tree			●					
Alectryon tomentosus	Hairy alectryon	Small tree			●					
Backhousia citridoria	Lemon myrtle	Small tree			●	●	●			
Baeckea sp. Tozer Range		Small tree			●					
Banksia robur	Swamp banksia	Small tree	●		●			●		
Barklya syringifolia	Crown of gold (Gladstone Regional Council floral emblem)	Small tree			●	●	●	●		
Brachychiton australis	Broad leaved bottle tree	Small tree		●	●	●	●			
Citrus australis	Australian lime	Small tree	●		●					
Clausena brevistyla	Native wampee	Small tree	●		●					
Lepiderema punctulata	fine leaved tuckeroo	Small tree			●					
Medicosma elliptica	Bulburin medicosma	Small tree			●					
Melaleuca decora	Fine leaf paperbark	Small tree			●					
Melaleuca nodosa	Prickly leaved paperbark	Small tree			●					
Myrsine variabilis	Variable muttonwood	Small tree			●					
Syzygium fibrosum	Fibrous satinash	Small tree	●	●	●					
Aidia racemosa	Archer cherry	Small tree	●	●	●	●		●		
Banksia intergrifolia	Coast banksia	Small tree			●					
Brachychiton acerifolius	Illawarra flame tree	Small tree			●	●	●			
Brachychiton bidwillii	Little kurrajong	Small tree	●		●			●		
Brachychiton populneus	Kurrajong	Small tree			●	●	●			
Handroanthus impetiginosus*	Pink trumpet tree	Small tree					●			
Lagerstroemia speciosa*	Crepe myrtle	Small tree	●	●				●		
Leptospermum madidum	Weeping tea ree	Small tree			●					
Phyllanthus cuscutiflorus	Pink phyllanthus	Small tree	●							
Planchonia careya	Cocky apple	Small tree			●					
Acmena hemilampra	Broad-leaved lilly pilly	Tree					●			
Acronychia imperforata	Fraser Island apple	Tree			●	●	●			

Alectryon connatus	Hairy alectryon	Tree			●	●	●			
Allocasuarina littoralis	Black she oak	Tree		●	●					
Allocasuarina torulosa	Forest she oak	Tree		●	●					
Alphitonia excelsa	Red ash	Tree			●					
Apananthe philippinensis	Native elm	Tree			●					
Araucaia heterophylla	Norfolk Island pine	Tree				●				
Araucaria bidwillii	Bunya pine	Tree				●				
Araucaria columnaris*	Cook pine	Tree				●				
Araucaria cunninghamii	Hoop pine	Tree			●	●	●			
Arytera divaricata	Rose tamarind	Tree			●					
Atalaya calcicola	Rock whitewood	Tree			●					
Atractocarpus fitzalanii	Brown gardenia	Tree				●	●			
Auranticarpa rhombifolia	Holly Wood	Tree	●				●			
Brachychiton discolor	Lacebark tree	Tree					●			
Brachychiton rupestris	Bottle yree	Tree			●	●	●			
Buckinghamia celsissima	Ivory curl	Tree			●	●	●			
Callistemon comboynensis	Cliff bottle brush	Tree	●		●					
Callistemon Species	Bottle brush	Tree	●		●					
Cassia brewsterii	Leichhardt bean	Tree	●				●			
Cassia tomentella	Velvet bean tree	Tree	●		●		●			
Casuarina cunninghamiana	River she-oak	Tree				●				
Casuarina equisetifolia	Coastal she-oak	Tree							●	
Casuarina glauca	Swamp oak	Tree			●					
Celtis paniculata	Native celtis	Tree			●	●	●			
Cinnamomum oliveri	Olivers sassfras	Tree			●	●	●			
Corymbia citriodora	Lemon scented gum	Tree				●				
Corymbia clarksoniana	Clarks gum	Tree				●				
Corymbia intermedia	Pink bloodwood	Tree				●				
Corymbia ptychocarpa	Large fruited bloodwood	Tree			●	●	●			
Corymbia tessellaris	Morteton bay ash	Tree				●				
Cryptocarya hyposodia	Northern laurel	Tree			●					

Cryptocarya triplinervis	Three veined cryptocarya	Tree			●					
Cupaniopsis anacardioides	Tuckeroo	Tree			●		●			
Cupaniopsis wadsworthii	Ducks foot tuckeroo	Tree			●					
Delonix regia*	Poinciana	Tree				●	●			Replacement plantings
Dansiea elliptica	Dansiea	Tree			●	●				
Denhamia celastroides	Orange boxwood	Tree				●	●			
Denhamia disperma	Orange boxwood	Tree			●					
Diospyrus geminata	Norfolk Island pine	Tree			●					
Drypetes deplanchei	Yellow tulipwood	Tree			●					
Elaeocarpus obovatus	Hard quandong	Tree			●	●	●			
Elaeodendron melanocarpum	Black olive plum	Tree			●					
Elattostachys xylocarpa	White tamarind	Tree		●	●	●	●			
Euroschinus falcata	Ribbon wood	Tree			●		●			
Evodiella muelleri	Little evodia	Tree			●					
Ficus coronata	Sandpaper fig	Tree			●					
Glycosmis trifoliata	Glycosmis	Tree	●		●					
Gossia bidwillii	Python tree	Tree			●	●	●			
Guioa semiglaucula	Native quince	Tree	●		●					
Harpulia pendula	Tulipwood	Tree			●	●	●			
Hernandia bivalvis	Grease nut tree	Tree			●					
Hymenospermum flavum	Native frangipani	Tree				●	●			
Jagera pseudorhus	Foambark	Tree			●					
Macropteranthes leiocaulis		Tree			●					
Magnolia grandiflora 'little gem'*	Magnolia little gem	Tree		●		●				
Mallotus claoxyloides	Smell of the bush	Tree			●					
Mallotus discolor	Yellow or white kamala	Tree			●	●	●			
Mallotus philippensis	Red kamala	Tree			●					
Manikara kauki	Wongai plum	Tree			●					
Melaleuca viridifolia	Broad-leaved paperbark	Tree			●					
Melia azedarach	White cedar	Tree			●					
Mimusops elengi	Red coondoo	Tree			●	●				



Neolitsea dealbata	White bolly gum	Tree			●					
Olea europaea*	Olive tree	Tree				●				
Pittosporum revolutum	Rough fruited pittosporum	Tree			●					
Pleiogynium timorense	Burdekin plum	Tree			●	●				
Plumeria rubra*	Frangi pani	Tree				●				
Podocarpus elatus	Brown pine	Tree			●	●	●			
Polyathia nitidissima	Canary beech	Tree				●				
Rhysotoechia bifoliata subsp. bifoliata	Two leaved tuckeroo	Tree			●					
Sersalisia sericea	Wild prune	Tree			●	●				
Sterculia quadrifida	Peanut tree	Tree			●	●	●			
Streblus brunoanianus	Whalebone tree	Tree			●					
Syzygium wilsonii	Powder puff	Tree			●	●				
Tamarindus indica*	Tamarind tree	Tree				●				Replace existing Tamarind heritage trees only
Toona ciliata	Red cedar	Tree			●					
Tristanopsis laurina	Water Gum	Tree				●	●			
Waterhousia floribunda	Weeping lilly pilli	Tree			●		●			
Xanthostemon chrysanthus	Golden penda	Tree			●		●			
Xylosma ovata	Xylosma	Tree			●					
Alstonia constricta	Quinine bush	Tree			●					
Bolusanthus speciosus*	Tree wisteria	Tree					●			
Calophyllum inophyllum	Beauty leaf	Tree					●			
Elaeocarpus eumundi	Eumundi quandong	Tree			●	●				
Elaeocarpus reticulatus	Blueberry ash	Tree			●	●	●			
Eucalyptus crebra	Ironbark	Tree			●					
Eucalyptus derpanophylla	Narrow-leaved Ironbark	Tree			●					
Eucalyptus exserta	Queensland peppermint	Tree			●					
Eucalyptus fibrosa	Broad-leaved red ironbark	Tree			●					
Eucalyptus moluccana	Gum-topped box	Tree			●					

Eucalyptus tereticornis	Blue gum	Tree			●					
Ficus benamina	Weeping fig	Tree				●				
Ficus macrophylla	Moreton bay fig	Tree				●				
Ficus microcarpa hillii	Hills weeping fig	Tree				●				
Ficus platypoda	Rock fig	Tree				●				
Ficus religiosa	Scared fig	Tree				●				
Ficus rubiginosa	Port Jackson fig	Tree				●				
Libidibia ferrea*	Leopard tree	Tree				●	●			
Lophostemon grandiflorus	Northern swamp mahogany	Tree			●					
Lophostemon suaveolens	Swamp mahogany	Tree			●					
Lophostemon confertus	Queensland brush box	Tree			●	●				
Maniltoa lenticellata	Silk Handkerchief tree	Tree				●				
Melaleuca dealbata	Blue paperbark	Tree			●	●				
Melaleuca fluviatilis	Weeping paperbark	Tree			●	●				
Melaleuca leucadendra	Paperbark	Tree			●	●				
Melaleuca quinquenervia	Broad-leaved paperbark	Tree			●					
Melicope elleryana	Pink evodia	Tree		●						
Nauclea orientalis	Leichhardt tree	Tree			●					
Plumeria obtusa*	Evergreen frangipani	Tree				●				
Stenocarpus sinuatus	Fire wheel tree	Tree				●				
Terminalia catappa	Beach almond	Tree				●				
Terminalia muelleri	Australian almond	Tree				●				
Terminalia sericocarpa	Damson plum	Tree				●				
Agathis robusta	Queensland kauri pine	Tall tree				●				
Castanopermum australe	Black bean	Tall tree			●					
Flindersia australis	Crows ash	Tall tree				●				
Flindersia bennettii	Bennetts ash	Tall tree					●			
Flindersia schottiana	Bumpy ash	Tall tree			●	●				
Melaleuca quinquenervia	Broad-leaved paperbark	Tall tree					●			
Nymphoides exaliflora	Floatingheart	Water plant								Water plant
Adonidia merrillii*	Christmas palm	Palm			●					

Archontophoenix alexandrae	Alexander palm	Palm			●	●				
Archontophoenix cunninhamiana	Bangalow	Palm			●	●				
Arenga australasica	Australian arenga palm	Palm		●				●		
Bismarckia nobilis*	Bismarck palm	Palm				●				Replacement plantings
Carpentaria acuminata	Carpentaria palm	Palm	●		●	●				
Livistonia decipiens	Weeping cabbage palm	Palm			●					
Livistonia species	Fan palm	Palm			●					
Phoenix canariensis*	Canary island date palm	Palm				●				Replacement plantings
Ptychosperma elegans	Solitaire palm	Palm			●	●				
Ptychosperma macarthurii	MacArthur palm	Palm			●	●				
Roystonea regia*	Royal palm	Palm								Replacement plantings
Wodyetia bifurcata	Foxtail palm	Palm			●	●				

Note: \* - Exotic plants

\*\* - Coastal refers to the area seaward of the building line

**TURF LIST**

BOTANICAL NAME	COMMON NAME	HABIT	Full Sun	Semi Shade	Shade	Park, Nature Strip / Median	High Profile Area	Low Maintenance	Medium Maintenance	High Maintenance
Cynodon dactylon	Couch, Wintergreen, Nullabor	Turf	●			●			●	
Stenotaphrum secundatum	Buffalo, Sir Walter	Turf	●	●			●		●	●
Zoysia japonica	Zoysia, Empire	Turf	●		●	●	●	●		
Zoysia matrella	Zoysia Zeon, Sir Grange	Turf	●	●		●	●	●		