

# Engineering Construction Specification C29 Landscape – road reserve and street trees

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This document is a modified version of AUS-SPEC 0257 Landscape – road reserve and street trees October 2018 version

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# 1 General

## 1.1 Responsibilities

### 1.1.1 General

Requirement: Provide road reserve landscaping and street trees, as documented.

## 1.2 Cross references

### 1.2.1 General

Requirement: This worksection is not a self-contained specification. In addition to the requirements of this worksection, conform to the following:

- *C01 General requirements (Construction)*
- *C02 Quality management (Construction)*
- *C03 Control of traffic*
- *C04 Control of erosion and sedimentation (Construction)*
- *Wingecarribee Shire Council Street Tree Master Plan 2016*
- *Wingecarribee Shire Council Street Tree Implementation Plan 2016*

## 1.3 Standards

### 1.3.1 General

Storage and handling of pesticides: To AS 2507.

Tree stock: To AS 2303.

## 1.4 Interpretation

### 1.4.1 Abbreviations

General: For the purposes of this worksection the following abbreviations apply:

- N:P:K: Nitrogen: Phosphorous: Potassium ratio.

### 1.4.2 Definitions

General: For the purposes of this worksection the definitions given in AS 2303 and the following apply:

- Ameliorant material: Additives used to make or improve soil.
- Anionic bitumen: A type of bituminous emulsion where dispersed particles comprise a bituminous binder and are negatively charged.
- Size index: Numerical expression of the size or physical bulk of a tree stock above ground.

## 1.5 Submissions

### 1.5.1 Execution details

Soil amelioration recommendations: If required, the source of ameliorant material, rates and methods of incorporation.

Plant material: Submit details of proposed fertiliser to be used.

Soil conditioning: If other than gypsum is proposed, submit details.

Transplanting trees: Submit a program for regular fertiliser applications during the plant establishment and maintenance period.

## 1.5.2 Products and materials

Imported topsoil: Submit evidence verifying the following:

- Suitability of each soil type for its documented use.
- Similarity to naturally occurring local soil.
- Suitability for establishment and on-going viability of the site vegetation.
- Absence of any weed propagules or contaminants.

Plant provenance: Submit documentation that all plant material has been grown from locally provenanced stock. If this is not achievable give notice.

Plant source: Submit documentation that all plant material has been grown from locally sourced stock (or local endemic species). If this is not achievable give notice.

- Species: Submit written certification that all plant material is true to the required species and type.

Trees: Submit evidence of conformance to AS 2303.

Seed supply: Submit the name(s) of the proposed seed supplier(s).

## 1.5.3 Samples

General: Submit representative samples of each material, packed to prevent contamination and labelled to indicate source and content.

Bulk materials: Submit a 5 kg sample, of documented materials with required test results.

## 1.5.4 Tests

Results: Submit results of testing to **ANNEXURE – MAXIMUM LOT SIZE AND MINIMUM TEST FREQUENCIES**.

## 1.6 Inspections

### 1.6.1 Notice

General: Give notice so that inspection may be made of the following:

- Slopes and drains: Prepared surface for cultivation and conditioning.
- Plants on arrival at site.
- Landscape planting: Set out of plants, soil conditioner and fertiliser.
- Transplanting street trees:

Final orientation of the tree.

Watering, fertilising and root cutting: In existing location.

Watering, fertilising and root cutting: In relocated location.

## 2 Materials

### 2.1 General

#### 2.1.1 Specimen plants

Plant source: Conform to the following:

- Obtain plants from nursery stock located in an area with similar climate to the site of the Works.

Non-containerised stock: Program the preparation of specimen plants so that they are ready for transplanting to site when required.

Refer to Council's Street Tree Master Plan

### **2.1.2 Transportation**

Requirement: Transport plants to the site without physical damage or drying out.

### **2.1.3 Optimal plant condition**

General: Maximum initial impact at the time of project opening.

## **2.2 Topsoil**

### **2.2.1 General**

Topsoil: To AS 4419 and as follows:

- Free of weed propagules and contaminants and suitable for the establishment and ongoing viability of the selected vegetation.
- Maximum soluble salt content: 0.06% by mass.

Health warning: To AS 4419, on packaging or invoice for bulk supply.

### **2.2.2 Management of stockpiles and batters**

Requirement: To **Management of stockpiles and batters** in *C04 Control of erosion and sedimentation (Construction)* worksection.

## **2.3 Fertiliser and mulches**

### **2.3.1 Fertiliser**

Type: Organic.

N:P:K ratio:

- Slopes and open drains: 80:36:20.
- Mass planting: 63:18:28.

### **2.3.2 General mulch types**

Organic landscape mulch: To AS 4454.

Composition:

- Fines (by volume): < 5%.
- Woodchip (maximum size): < 50 mm.
- Leaf mulch (by volume): < 25%.

Quality: Free of deleterious and extraneous matter including weeds, soil, sticks and stones.

Synthetic weed blocking fabric: To AS 4843.

### **2.3.3 Hydromulch**

Material: Straw, chaff, wood fibre paper pulp finely shredded to a maximum dimension of 10 mm.

Prohibited material: Meadow hay and weeds. If using paper pulp, do not exceed 50% by mass of total mulch.

Binder: Grade ASS, slow setting anionic bitumen to AS 1160.

### **2.3.4 Straw mulch**

Material: Straw matrix.

Prohibited material: Meadow hay and weeds.

Binder: Grade ASS slow setting anionic bitumen to AS 1160.

Straw mat finished thickness: > 20 mm.

### 2.3.5 Hardwood stakes

General: Pointed at one end, as follows:

- Marker stakes (for tube stock): 15 x 15 x 800 mm.
- Stakes (for advanced stock): 2 stakes, 25 x 25 x 2000 mm.
- Stakes (for super advanced stock): 3 stakes, 50 x 50 x 3000 mm.

## 2.4 Plant material

### 2.4.1 Seed

Requirement: Conform to the following:

- Grass and clover: Pre-packed commercially with an accompanying certificate of germination.
- Native seed: Deliver to the site in separate lots for each species and variety, clearly labelled to show species, variety and weight.

Storage: Do not take possession of the seed more than seven days before sowing is to occur. Store seed in clean, airtight containers and keep away from direct sunlight. Do not expose seed to the elements at any stage during storage.

Replacement: Replace if seed batch is not true to type.

### 2.4.2 Turf

Description: 25 mm depth of dense, well rooted, vigorous grass growth with 25 mm depth of topsoil and free of weeds, soil pests and diseases.

Prohibited material: Kikuyu grass.

Supply: As rolls in long lengths of uniform widths, in sound unbroken condition.

Width of rolls: > 300 mm.

### 2.4.3 Seed and turf table

Material	Species	Minimum application rate (kg/ha)
Seed		
• Grass	Rye Corn (April-August) or	60
	Japanese Millet (September-March)	60
	Hulled Couch	5
	Red Clover (Inoculated)	5
	White Clover (Inoculated)	5
	'Elka' Perennial Rye	5
• Native	Acacia dealbata	
	Acacia buxifolia	1
	Acacia decurrens	1
	Acacia pravissima	1
	Leptospermum lanigerum	1
	Hardenbergia violacea	0.5
	Kennedia prostrata	0.5
	Acacia implexa	0.2

Material	Species	Minimum application rate (kg/ha)
	Banksia marginata	0.2
	Bursaria spinosa	0.2
	Callistemon pallidus	0.2
	Dodonaea viscosa	0.2
Turf grass		
<ul style="list-style-type: none"> <li>• Medians</li> <li>• Verges/Footpaths</li> <li>• Other Areas</li> </ul>	Couch Buffalo Couch	Refer to Drawings

#### 2.4.4 Plant supply

Requirement: Conform to the following:

- Healthy, of good form and not soft or forced.
- Large robust root systems.
- Not root bound.
- Free from disease and insect pests.
- Hardening off: Deliver all plants to a site within the locality of the works at least four weeks before planting out.
- Plant root systems: Maintain root moisture at all times with particular attention to watering during the on-site period before and during planting.
- Planting hole depths: Equal to the depth of container soil.
- Trees: Single leading shoot.

### 2.5 Street trees - above ground assessment

#### 2.5.1 General

Labelling: Clearly label individual plants and batches.

- Label type: To withstand transit without erasure or misplacement.
- Indication of north: Label the northerly aspect during growth in the nursery for trees in containers greater than 100 L or of Size Index greater than 140 and maintain during transit.

#### 2.5.2 Supply

Requirement: Supply tree stock conforming to AS 2303, **Small container grown trees table** and the following:

- Site environment: Grown and hardened off to suit anticipated site conditions at time of delivery.
- Root development: Grown in their final containers for more than 12 weeks.  
Plants less than 25 L size: over more than 6 weeks.  
Plants greater than 25 L size: over more than 12 weeks.
- Native species susceptible to attack by native pests: Maximum 15% of a trees foliage showing evidence of previous attack and no actively feeding insects.
- Pruning wounds: Restrict fresh (i.e. recent, non-calloused) pruning wounds) to less than 20% of total tree height.

Balance assessment criteria: To AS 2303 Appendix E.

### 2.5.3 Small container grown trees height ranges table

Minimum root ball diameter or container size	Height range (m)	
	Thin-stemmed species	Thick-stemmed species
150 mm (1.8 L)	0.4 – 0.6	0.3 – 0.5
170 mm (2.6 L)	0.5 – 0.7	0.4 – 0.6
200 mm pot (4 L)	0.7 – 0.9	0.6 – 0.8
200 mm bag (5 L)	0.8 – 1.0	0.7 – 0.9
250 mm (8 L)	1.0 – 1.2	0.8 – 1.0
300 mm (15 L)	1.2 – 1.5	1.0 – 1.2

## 2.6 Street trees- Below-ground assessment

### 2.6.1 Supply

Requirement: Supply tree stock conforming to AS 2303 and the following:

- Trees with a calliper at ground level less than 40 mm: Make sure the diameter of any non-conforming roots at the extremity of the rootball is less than 25% of the calliper.
- Trees with a calliper at ground level greater than or equal to 40 mm: Make sure diameter of any non-conforming roots at the extremity of the rootball is less than 10 mm.
- Root ball depth: Not greater than maximum depth documented.

### 2.6.2 Testing

### 2.6.3 Quality

Requirement: Test for all characteristics in conformance with **ANNEXURE - MAXIMUM LOT SIZES AND MINIMUM TEST FREQUENCIES**.

Quality verification: If material/product quality verification can be obtained from the supplier, documented tests need not be repeated.

## 3 Execution

### 3.1 General

#### 3.1.1 Transport and storage

Requirement: Inspect all plants at the time of delivery and reject non-conforming plants.

#### 3.1.2 Program

Requirement: Conform to the following:

- Between September and May: Plant exposed surfaces before the area exceeds 1 ha.
- Between June and August: Do not carry out planting to exposed surfaces without approval.
- In accordance with Council's Street Tree Implementation Plan, all street tree planning in the local government area should be undertaken in autumn or winter.



### 3.1.3 Preparation

Herbicide treatment: Spray herbicide as follows:

- Type: Glyphosphate.
- Rate: 9 litres/200 litres water/ha.
- Program: Maintain sprayed areas undisturbed for 2 weeks.

Pesticide treatment: In the following form, as documented:

- Liquid:

Application rate: 5 litres/hydromulch/ha.

Powder: 10 kg/ha.

Herbicides and pesticides: To the Australian Pesticides and Veterinary Medicines Authority (APVMA) register.

Soil conditioning: Provide as follows:

- Gypsum application rate: 400 g/m<sup>2</sup>.
- Application: Conform to the following:  
Spread evenly over the subsoil by a mechanical spreader and topsoil on the same day.  
Thoroughly mix into the topsoil whilst the topsoil is being removed from stockpiles.  
Apply conditioners other than gypsum to the supplier's recommendations.

Fertiliser treatment: Provide as follows:

- Application rate: 1000 kg/ha.

Seed mixing: Provide as follows:

- Mix, pre-treat and place seed in the sowing equipment for each operation on site.
- Sow seed on the day of mixing with pesticide.

### 3.1.4 Watering

General: Conform to the following:

- Potable or sourced from areas without toxins, pollutants or any substance which may adversely affect plant growth.
- Initial watering: To a uniform moisture condition without run-off.
- After turfing: Re-water to a uniform moisture condition without run-off.
- After sowing: If required, re-water to a uniform moisture condition without causing rills in the surface, daily for 15 days.
- Excessive rilling: If watered areas result in excessive rilling, rehabilitate by re-preparing and re-sowing the affected area.

## 3.2 Slopes flatter than 3H to 1V

### 3.2.1 Preparation of the surface

Cultivation: Before applying topsoil, tine to a depth of 200 mm to produce a loose surface and remove all large stones, rubbish and other materials that may delay germination.

Cultivation depth: 50 mm for a roughened surface with soil lumps not exceeding 50 mm.

### 3.2.2 Topsoil

Application: Apply uniformly to an average compacted thickness of 50 mm with a minimum compacted thickness of 30 mm at any location.

### 3.2.3 Application of pesticide

Timing: Immediately before sowing.

Pesticide type: Powder form.

Application: Mix thoroughly with the seed, in conformance with **EXECUTION, GENERAL**, to the equivalent mass of seed to be spread on 1 hectare of the surface.

### 3.2.4 Grassing

Seeding:

- Application: Distribute evenly, by a mechanical seeder following the finished contours wherever possible.
- Depth: 5 mm as sown, or 5 mm cover by raking or harrowing.
- Fertiliser: Apply concurrently with seeding, as documented.

Turfing:

- Laying: On the prepared topsoiled surface and perpendicular to the direction of water flow.
- Joints: Butt runs of turf hard against each other and topdress with topsoil.
- Slopes 5:1 to 3:1: Peg turf and remove pegs when established.

Topdressing:

- Timing: 4 to 6 weeks after laying turf.
- Requirement: Correct any undulations or unevenness in the established turf.

Maximum slope for areas to be maintained by a ride-on mower with a 2 m wide deck: 4:1.

## 3.3 Slopes steeper than 3H to 1V

### 3.3.1 Methods

General: Vegetate slopes by one of the following methods, as documented:

- Apply topsoil and hydromulch.
- Apply topsoil, hydroseed and straw mulch.
- Hydroseed.

### 3.3.2 Preparation of the surface

General: Remove all loose material from fill batters and cut batters.

Timing: No more than seven days before seeding.

Cultivation: Lightly tine or roughen the surface parallel to the contours.

### 3.3.3 Topsoil

Application: Conform to the following:

- General: Apply uniformly to an average thickness of 50 mm, with a minimum compacted thickness of 30 mm at any location.
- Stepped batters: Loosely fill with topsoil.

### 3.3.4 Hydromulching or hydroseeding

Watering: Water dry surfaces with a fine spray before applying the hydromulch.

Pesticide:

- Timing: Apply during preparation of the hydromulch or hydroseed slurry.
- Pesticide type: Liquid.

Equipment: Clean and free of contamination from previous operations.

Mix: Add materials as documented to the slurry storage tank and agitated to maintain a uniform consistency during application.

Application: Uniformly over the whole surface.

Weather conditions: Do not apply hydromulch or hydroseed under the following weather conditions at the site:

- Temperature: > 35°C.
- Winds exceed: 15 km/hr.
- During rain periods or when rain appears imminent or if the surface is saturated.

Wetting agent:

- Application rate: 1 litre/1000 litres of mix water.

### 3.3.5 Hydromulching or hydroseeding table

Material	Application rate per hectare of surface	
	Hydromulching	Hydroseeding
Vegetable mulch (kg)	1500	Nil
Water (L)	35,000	20,000
Binder (L)	1200	Nil
Wetting agent (L)	35	20

## 3.4 Open drains

### 3.4.1 Preparation of the surface

Topsoil: Spread to an average compacted thickness of 50 mm, with a minimum compacted thickness of 30 mm at any location.

Timing: Complete vegetation within 7 days of the completion of open drain excavation.

### 3.4.2 Grass seeding

Application: Apply uniformly by one of the following methods and conform to the **Seed and turf table**:

- Mechanical sowing.
- Hydromulching or hydroseeding.
- By hand.

### 3.4.3 Surface protection

Requirement: Protect all or part of the sown surface by one of the following methods, as documented:

- Bitumen emulsion: Spray the surface with an anionic slow setting bitumen emulsion to Grade ASS of AS 1160 at a rate of 1 litre of bitumen emulsion per square metre of surface.
- Organic fibre mat: Line the channel with an organic fibre mat.

Lay runs of matting along the direction of water flow loosely on the soil surface and not stretched.

Slot upstream end of matting into a trench 150 mm wide by 150 mm deep and pinned to the base of the trench at 200 mm centres.

Backfill the trench with soil and compact by foot.

Overlap adjacent runs of matting 100 mm with the higher run lapped over the lower run and pinned matting along the sides of each run at 500 mm centres and along the middle of each run at 1000 mm centres.

Overlap ends 150 mm wide with the higher run end lapped over the start of the lower run and pinned at 200 mm centres.

- Pins: U shaped pins of 4 mm gauge wire, 50 mm wide and 150 mm long legs.
- Turfing: Butt runs of turf hard against each other and place perpendicular to the direction of water flow in the drain. Pin into position at 500 mm centres. Topdress seams of turf with topsoil.

## **3.5 Landscape planting**

### **3.5.1 Conditions**

General: Do not carry out landscape planting when temperature is above 35°C or below 10°C.

Timing: Carry out planting within 7 days of site seeding operations.

### **3.5.2 Preparation**

Weed management: Conform to the following:

- Herbicide spray: Conform to **EXECUTION, GENERAL** and the following:  
Program: Maintain sprayed areas undisturbed for 2 weeks.  
Spray drift: Make sure there is no contact with planted material.
- Weed management by synthetic weed blocking fabric:  
Extent: 800 mm surrounding each proposed planting.

Fertilising (N:P:K): Conform to the following:

- Ratio: 63:18:28.
- Application rate: 5 kg/m<sup>2</sup>.

### **3.5.3 Mass planting in mulched bed**

Surface preparation: Rip the surface at 500 mm centres to a depth of 300 mm and break up the top 200 mm of the planting bed by cultivation to a maximum size of 50 mm.

Mulch: Spread 75 mm thick.

### **3.5.4 Individual planting**

Preparation: Loosen a planting area 600 mm diameter to a depth of 400 mm.

Mulch: Spread 75 mm thick to 600 mm radius around the plant.

### **3.5.5 Planting**

Method: Remove the localised mulch. If required, root prune to make sure all circling roots have been either severed or aligned radially into the surrounding soil. Place the plant, backfill the planting hole with topsoil and compact lightly so as to minimise subsidence without compacting the backfill. Avoid mixing mulch with topsoil.

Stakes and ties: Advanced and super advanced stock:

- Drive stakes 300 mm deep and 200 mm clear of the plant.
- Ties: 50 mm wide hessian webbing strips, attached loosely.

Watering: 10 litres of water per hole before the mulch is respread over the disturbed area.

Mulching: Replace, and leave the plant stem clear.

### 3.5.6 Care of landscape planting

Watering: Water all plants, from the time of planting, every second day for the first twelve weeks at the following rates, per plant:

- Tube stock: 5 L.
- Advanced trees: 10 L.
- Super advanced (25 L): 30 L.
- Semi-mature (75 to 100 L): 50 L.

Replacement: Replace missing plants, dead plants and unhealthy plants with plants of similar size and quality and of identical species and variety to the plant being replaced.

Weed and grass growth in mulched areas: Control with herbicide, in conformance with the manufacturer's recommendations at monthly intervals during the construction period and contract maintenance period. Replace plants damaged by herbicide application.

Ensure compliance with Council's Street Tree Implementation Plan

## 3.6 Street trees

### 3.6.1 Unpaved areas

Excavation:

- Containers < 75 litre: Twice the diameter of the root ball.
- Containers ≥ 75 litre: Three times the diameter of the root ball.
- Depth: Root ball plus 100 mm. Loosen the compacted sides, and the bottom a further 100 mm.

Soil conditioning: If clay is present, add 1 kg of agricultural gypsum soil conditioning.

Accessories and drainage: Fit trunk collar guard, root barrier and subsoil drainage measures before backfilling.

Backfill: Topsoil.

Mulch: 75 mm thick and 50 mm clear of plant stem.

Initial watering: 50 litres per tree applied in stages during backfilling.

Watering basin: Construct around the base of each individual plant, consisting of a raised ring of soil capable of holding at least 10 L.

### 3.6.2 Paved areas

Excavation:

Containers < 75 litre: Twice the diameter of the rootball.

Containers ≥ 75 litre: Three times the diameter of the rootball.

Depth: Rootball plus 100 mm. Loosen the compacted sides, and the bottom a further 100 mm.

Accessories and drainage: Fit trunk collar guard, root barrier and subsoil drainage measures before backfilling.

Mulch: 10 mm screenings 75 mm thick.

Initial watering: 50 litres per tree applied gradually.

### 3.6.3 Structural soil table

Type	Description	Fertiliser	Depth	Location
Structural soil 20 mm	75% 20 mm crushed river gravel 25% filler soil of 1 part screeded dolomite to 1 part screeded sandy loam	Trace element mix: 300 g/m <sup>3</sup> Potassium nitrate: 500 g/m <sup>3</sup> Ammonium nitrate: 500 g/m <sup>3</sup> Superphosphate: 500 g/m <sup>3</sup> Ion sulfate: 1.5 kg/m <sup>3</sup> 8/9 month Controlled release: 2 kg/m <sup>3</sup> Gypsum: 500 g/m <sup>3</sup> Magnesium sulfate: 400 g/m <sup>3</sup> Magrilime: 600 g/m <sup>3</sup>	100 mm	If pavements are installed around existing trees, replace 20 mm roadbase when the total soil depth available is 100 mm or less.
Structural soil 40 mm	80% 40 mm basalt aggregate 20% filler soil of 1 part screeded dolomite to 1 part screeded sandy loam	Trace element mix: 300 g/m <sup>3</sup> Potassium nitrate: 500 g/m <sup>3</sup> Ammonium nitrate: 500 g/m <sup>3</sup> Superphosphate: 500 g/m <sup>3</sup> Ion sulphate: 1.5 kg/m <sup>3</sup> 8/9 month Controlled Release: 2 kg/m <sup>3</sup> Gypsum: 500 g/m <sup>3</sup> Magnesium sulphate: 400 g/m <sup>3</sup> Magrilime: 600 g/m <sup>3</sup>	Varies	Tree plantings in pavements, courtyards, carparks and kerbsides.

### 3.6.4 Porous bonded gravel

Backfill: Allow for base aggregate and gravel.

Filter fabric: Lay over growing medium and pre-cut to size.

Base aggregate: 5 to 7 mm crushed blue metal, laid 70 mm deep and hand consolidated.

Porous paving: Mix and place to the manufacturer's recommendations.

## 3.7 Transplanting street trees

### 3.7.1 General

Requirement: Conform to the **Transplanting schedule**.

Conditions: Select a time for transplanting with regard to the appropriate season, time of operation, rootball diameter and depth, lifting methods and weather conditions.

### **3.7.2 Preparation**

Watering: Establish a temporary trickle irrigation system, or manually water the intended trees for a period of two weeks before ball excavation work.

Fertilising: Apply one application of liquid fertiliser mix to the foliage and roots as appropriate to the species. Apply sufficient liquid fertiliser mix to allow the spray to drip from foliage and soak into the rootball. Do not spray the fertiliser mix on excessively hot, dry or windy days.

### **3.7.3 Rootball**

General: Minimise the cutting of roots. Use only sharp tools, water blasting or water cutting. Trees whose root balls have been excavated by backhoe or excavator are not acceptable.

Initial cut: Conform to the following:

- Manually or by chain trenching machine.
- 250 mm beyond the required finished root ball dimensions to allow any damaged roots to be trimmed back to final dimensions and sealed.

Hand trimming: Conform to the following:

- To 100 mm less than the required finished rootball dimension. Cut back and seal with an approved horticultural sealer all roots greater than 25 mm diameter.

Outcome: Conform to the following:

- A symmetrical root ball in balance with the overall size of the tree except where the limitations of individual tree planter openings requires specific tailoring of the root ball dimension.
- A root ball size in the best interests of each specimen.

Backfilling: Backfill and lightly compact with clean sand, free of any foreign matter, pathogens or any substances likely to be deleterious to future root growth. Apply sufficient root inducing formulation, at the manufacturer's recommended concentration, to effectively saturate the backfill in the trench.

### **3.7.4 Maintenance of on-site plant material**

Watering: Maintain a trickle irrigation system around each tree, located within the trenched rootball perimeter. Program the system to supply water at an optimum rate to encourage healthy growth and avoid desiccation through excessive transpiration following the pruning of the roots. Monitor the system until the tree is lifted and transplanted.

Pruning requirements and qualifications: To AS 4373.

Requirement: Take precautions to safeguard the health and well-being of all on-site plant material before lifting and transplanting.

### **3.7.5 Lifting and transplanting**

Lifting: Thoroughly irrigate to the full depth of the root ball two days before transplanting each specimen. Do not fracture the ball of soil around the root system. Maintain ball in firm condition during transplanting by wrapping in hessian or other appropriate open weave material, securely tied.

Storage: Transport transplanted trees to a designated nursery site. Store and maintain until ready for planting.

Planting: Avoid disturbance to the rootball during moving and planting. After placement, remove the rootball wrapping and ties by cutting.

Backfill level: Replant trees at the same level or slightly higher than their original grade.

Watering: At the completion of transplanting, water the rootball thoroughly and continue to water until established.

## **3.8 Location of planting**

### **3.8.1 General**

Requirement: Do not obstruct access to services or sightlines to signage. Do not obstruct pedestrian or vehicular traffic.

### **3.8.2 Street trees**

Ground clearance:

- Clearance height at maturity: 2.4 m.
- Clearance height at time of planting: 1.5 m.

Setbacks: Locate trees to achieve mature canopy clearances from the following:

- Electricity or telecommunications poles or pillars: > 4 m.
- Streetlights: > 7.5 m.
- High voltage transmission lines: > 4 m radius.
- Stormwater drainage pits: > 2 m.
- Kerbs measured to the back of the kerb: 750 mm to 1000 mm.
- Driveways: > 3 m.
- Intersections measured from the face of the kerb of the adjoining street: > 10 m.
- Existing trees: The combined mature canopy width.

### **3.8.3 Roundabouts**

Setback: From the inside edge of the kerb as follows:

- 0 to 1 m: Pavement material.
- 1 to 3 m: Shrubs/groundcovers, as documented with a maximum mature unpruned height of 600 mm above the road pavement.
- 3 m and over: Trees and shrubs/groundcovers, as documented.

### **3.8.4 Median islands**

Setback: From the inside edge of the kerb as follows:

- 0 m to 0.3 m: Pavement material.
- 0 m to 1 m: Groundcovers, as documented, 200 mm high with minimal pruning requirements.



## 4 Annexures

### 4.1 Annexure - Summary of hold and witness points

Reference No:	Clause and description	Type*	Submission/Inspection details	Submission/Notice times	Process held
C29-WP01	INSPECTIONS, Notice  Slopes and drains	W	Preparation of surface for cultivation and conditioning.	2 days after preparing surface	
C29-WP02	INSPECTIONS, Notice  Plants on arrival at site	W	Physical damage or drying out	3 days before planting	Planting
C29-HP03	INSPECTIONS, Notice  Landscape planting	H	Set out of plants, soil conditioner and fertiliser	2 days before backfilling	Backfilling. For development inspections book through "MyInspect".
C29-HP04	INSPECTIONS, Notice  Transplanting street trees	H	Final orientation of the tree	2 days before rootball pruning	Rootball pruning. For development inspections book through "MyInspect".
C29-WP05	INSPECTIONS, Notice  Transplanting street trees	W	Watering, fertilising and root cutting in existing location	2 days before transplanting	-
C29-WP06	INSPECTIONS, Notice  Transplanting street trees	W	Watering, fertilising and root cutting in relocated location	2 days before transplanting	-
*H = Hold Point, W = Witness Point					

## 4.2 Annexure - Maximum lot sizes and minimum test frequencies

### 4.2.1 Seed, imported soil and mulch supply

Activity	Key quality verification requirements	Maximum lot size	Minimum test frequency	Test method
Trees	Dispatch tree stock inspection form	1 contract	1 Contract	AS 2303 Appendix C
Imported topsoil	Material quality:			
	• pH	10,000 m <sup>2</sup>	1 per 500 m <sup>3</sup> *	AS 4419
	• Organic content	10,000 m <sup>2</sup>	1 per 500 m <sup>3</sup> *	AS 4419
	• Soluble salt content	10,000 m <sup>2</sup>	1 per 500 m <sup>3</sup> *	AS 4419
Mulch for planting	Material quality	1 contract	1 Contract	AS 4454
* Note: or part thereof, per lot.				

### 4.3 Annexure - Referenced documents

The following documents are incorporated into this worksection by reference:

AS 1160	1996	Bitumen emulsions for construction and maintenance of pavements
AS 2303	2015	Tree stock for landscape use
AS 2507	1998	The storage and handling of agricultural and veterinary chemicals
AS 4373	2007	Pruning of amenity trees
AS 4419	2003	Soils for landscaping and garden use
AS 4454	2012	Composts, soil conditioners and mulches
AS 4843	2001	Synthetic weed blocking fabric
Council's Standard Drawings		