

Beachmere Foreshore

Dune and Vegetation Management Guidelines

2022



Beachmere Foreshore Dune and Vegetation Management Guidelines

Moreton Bay Regional Council's Northern Moreton Bay Shoreline Erosion Management Plan (2014) identifies the need to develop foreshore protection for privately owned foreshore properties in Beachmere (Figure 1). Managing dunes and vegetation is one option to achieve this outcome, particularly for the northern and central sections of Beachmere.

These guidelines provide advice to property owners about foreshore dune and vegetation management.

The benefits of well managed foreshore dunes and vegetation for property owners include:

- Reducing the extent of foreshore erosion
- Assisting the beach to recover sand more quickly after an erosion event
- Increased protection for plants and structures behind the dunes from strong winds
- Provides food, habitat or nesting areas to native animals and migratory birds.

Figure 1: Beachmere foreshore A-Line



Role of Foreshore Dunes and Vegetation

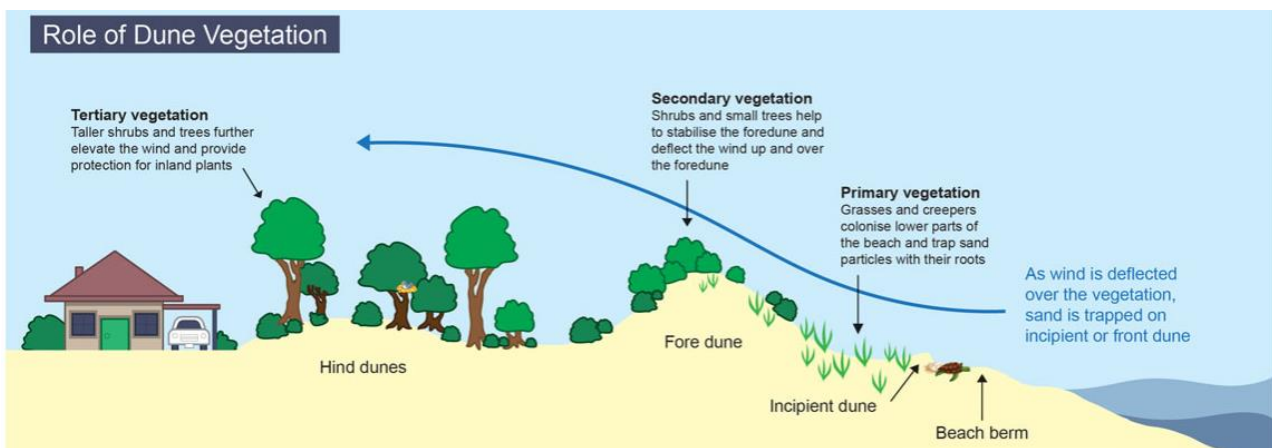
Dunes and native vegetation can play an important role in protecting the foreshore from coastal erosion. Sand that builds up around vegetation can also help replenish the beach after sudden erosion events. Foreshore vegetation also provides food and nesting areas for native fauna.

Beachmere foreshores generally have the profile shown in Figure 2 and may include:

- Primary vegetation, such as grasses and creepers found in the incipient dune (front dune), which can trap sand to help build up dunes and reduce the extent of beach erosion
- Secondary vegetation, such as shrubs and small trees, which help to stabilise the foredune and deflect the wind up and over the foredune
- Tertiary vegetation, such as taller shrubs and trees found in the hind dune, which further elevate the wind and provide protection for inland plants and structures.

Mangroves and seagrass may occur in intertidal areas near the shoreline and also help protect the foreshore from coastal erosion.

Figure 2: General foreshore dune profile



Vegetation Management Options

The best approach to vegetation management on your property depends on the availability of foreshore land.

- **Wide buffers** - at least 15m between the Highest Astronomical Tide (HAT) mark and the nearest structure
These properties have the greatest opportunities for foreshore revegetation. They may already have a variety of vegetation and structures such as fencing or steps.
- **Narrow buffers** - where there is a sandy beach buffer between structures and the normal high tide mark
These properties are likely to benefit from foreshore revegetation. This may improve foreshore resilience and enhance dune function for coastal resilience.
- **No buffers** - where there is no sandy beach remaining during a normal high tide
Vegetation management on these properties may help to restore disturbed shorelines and protect existing foreshore vegetation.

Foreshore vegetation can also be planted alongside existing seawalls within the private property area. You should consult Council before planting any vegetation on the foreshore outside of your property. Appropriate vegetation species can help improve the resilience of seawalls to extreme weather events.

Site Considerations

To determine what role vegetation could play on your property, consider:

- Existing vegetation (native and non-native)
- Natural dune profile
- Coastal hazards, e.g. storm erosion
- Property boundaries
- Built structures
- Beach access.

Also consider:

- Access to water for plantings
- Landscaping that may be required, e.g. weeding, removal of turf, dune re-profiling
- Timeframes for plants to become established and the need for on-going maintenance

Planting Supplies

Consider the materials required to replant your foreshore area:

- Number and type of plants
- Mulch, tree guards, herbicide and fertilisers
- Planting and weeding tools
- Access to water for plantings.

Plants should be planted at the highest density possible to create rapid vegetation cover and to reduce the risk of weed invasion and sand erosion:

- Groundcovers spaced at least 2–5 plants/m²
- Shrubs and trees spaced at 1.5 m centres to create a dense canopy cover.

You might consider collaborating with neighbouring properties to reduce costs by purchasing in bulk.

Local suppliers

The best source of native plants suited to the local area are local nurseries with expertise in dune plant propagation.

Some local suppliers are:

- www.wallumnurseries.com/habitats
- bribieislandcommunitynursery.weebly.com
- www.kumbartcho.org.au

Planting Species

Once the space available for foreshore vegetation has been identified, consider the soil type and the dune profile to select the appropriate species for planting. As a guide, general foreshore profiles and vegetation species native to Beachmere are shown in Figures 3, 4 and 5. In general:

- The incipient dune may be planted with a mix of native grasses and succulent creepers to bind the sand. These species are highly tolerant to salt, wind and smothering, and can grow in unstable sand on exposed bare sites.
- Secondary species, which include shrubs and small trees that are capable of withstanding strong winds and salt spray, may also be planted to the rear. These species are not likely to tolerate regular sand burial and frequent tidal inundation.

In northern Beachmere, where there is a more extensive foreshore, a higher diversity of native tree and shrub species (tertiary vegetation) may be planted in more protected areas to the rear.

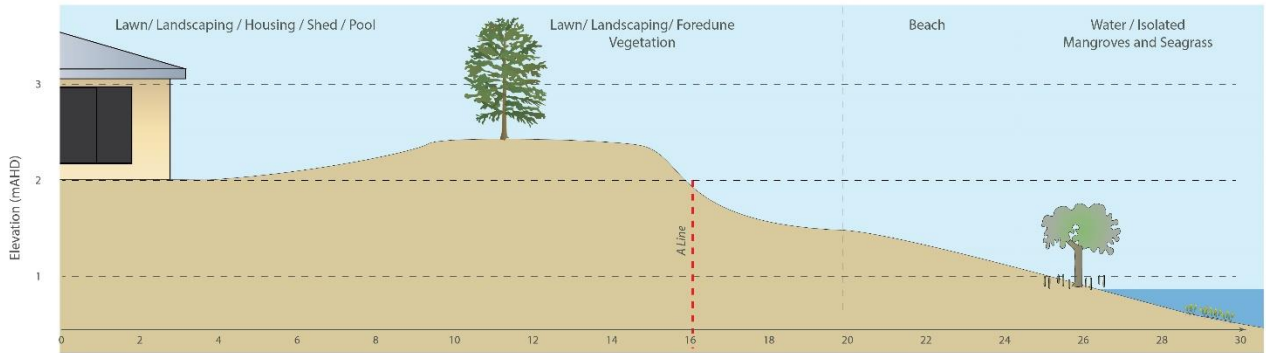
TIP: Take a copy of this list when shopping for plants for your foreshore area. Ask your nursery for the species by the *Latin name*. Consider taking a photo of this page with your phone so you can always have it with you.

	Tertiary Vegetation (Hind Dune)	Secondary Vegetation (Fore Dune)	Primary Vegetation (Incipient Dune)
Trees and shrubs	<p>Banksia (<i>Banksia integrifolia</i> subsp. <i>Integrifolia</i>)</p> <p>Casuarina (<i>Casuarina equisetifolia</i> subsp. <i>Incana</i>)</p> <p>Tamarind (<i>Cupaniopsis anacardioides</i>)</p> <p>Hibiscus (<i>Hibiscus tiliaceus</i>)</p>	<p>Banksia (<i>Banksia integrifolia</i> subsp. <i>Integrifolia</i>)</p> <p>Casuarina (<i>Casuarina equisetifolia</i> subsp. <i>Incana</i>)</p> <p>Hibiscus (<i>Hibiscus tiliaceus</i>)</p> <p>Pandanus (<i>Pandanus tectorius</i>)</p>	Not applicable
Grasses	<p>Couch (<i>Cynodon dactylon</i>)</p> <p>Cogon Grass (<i>Imperata cylindrica</i>)</p>	<p>Couch (<i>Cynodon dactylon</i>)</p> <p>Cogon Grass (<i>Imperata cylindrica</i>)</p> <p>Ischaemum (<i>Ischaemum triticeum</i>)</p>	<p>Couch (<i>Cynodon dactylon</i>)</p> <p>Ischaemum (<i>Ischaemum triticeum</i>)</p> <p>Spinifex (<i>Spinifex sericeus</i> / <i>hirsutus</i>)</p> <p>Marine Couch (<i>Sporobolus virginicus</i>)</p> <p>Prickly Couch (<i>Zoysia macrantha</i>)</p>
Groundcovers and creepers	<p>Jack Bean (<i>Canavalia rosea</i>)</p> <p>Pigface (<i>Carpobrotus glaucescens</i>)</p> <p>Flax Lily (<i>Dianella congesta</i>)</p> <p>Guinea Vine (<i>Hibbertia scandens</i>)</p> <p>Goatsfoot (<i>Ipomoea pes-caprae</i> subsp. <i>Brasilensis</i>)</p> <p>Sea Purslane (<i>Sesuvium portulacastrum</i>)</p> <p>Native Spinach (<i>Tetragonia tetragonioides</i>)</p>	<p>Jack Bean (<i>Canavalia rosea</i>)</p> <p>Pigface (<i>Carpobrotus glaucescens</i>)</p> <p>Flax Lily (<i>Dianella congesta</i>)</p> <p>Goatsfoot (<i>Ipomoea pes-caprae</i> subsp. <i>Brasilensis</i>)</p> <p>Sea Purslane (<i>Sesuvium portulacastrum</i>)</p> <p>Native Spinach (<i>Tetragonia tetragonioides</i>)</p>	<p>Jack Bean (<i>Canavalia rosea</i>)</p> <p>Pigface (<i>Carpobrotus glaucescens</i>)</p> <p>Goatsfoot (<i>Ipomoea pes-caprae</i> subsp. <i>Brasilensis</i>)</p> <p>Sea Purslane (<i>Sesuvium portulacastrum</i>)</p> <p>Native Spinach (<i>Tetragonia tetragonioides</i>)</p>

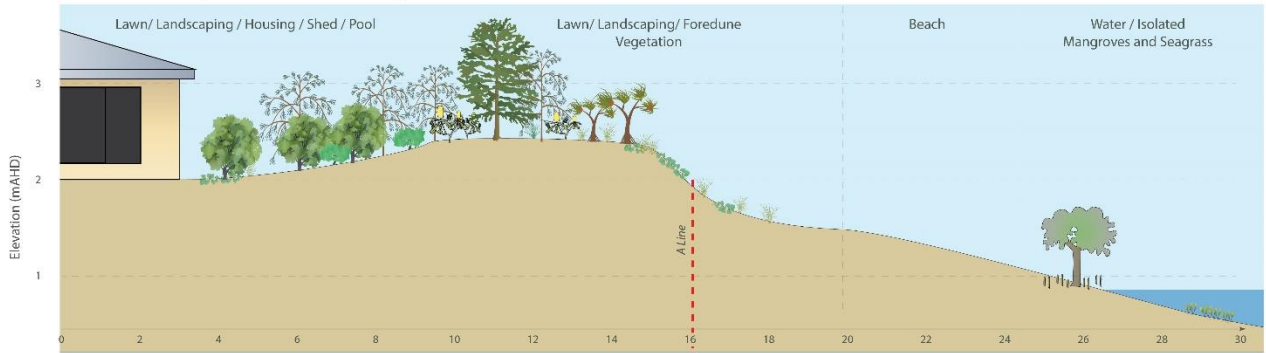
Figure 3: General foreshore profile and revegetation species – Bishop Road

Conceptual Shoreline Profile: Bishop Road

Current Dune Profile:



Potential Foreshore Revegetation and Foreshore Vegetation Protection:



Local Revegetation Species:

Trees and shrubs	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	<i>Casuarina equisetifolia</i> subsp. <i>incana</i>		
	<i>Casuarina equisetifolia</i> subsp. <i>incana</i>	<i>Hibiscus tiliaceus</i>		
	<i>Cupaniopsis anacardioides</i>	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>		
	<i>Hibiscus tiliaceus</i>	<i>Pandanus tectorius</i>		
Grasses	<i>Cynodon dactylon</i>	<i>Cynodon dactylon</i>	<i>Cynodon dactylon</i>	<i>Cynodon dactylon</i>
	<i>Imperata cylindrica</i>	<i>Imperata cylindrica</i>	<i>Ischaemum triticeum</i>	<i>Ischaemum triticeum</i>
		<i>Ischaemum triticeum</i>	<i>Spinifex sericeus/hirsutus</i>	<i>Spinifex sericeus/hirsutus</i>
			<i>Sporobolus virginicus</i>	<i>Sporobolus virginicus</i>
			<i>Zoysia macrantha</i>	<i>Zoysia macrantha</i>
Herbs	<i>Canavalia rosea</i>	<i>Canavalia rosea</i>	<i>Canavalia rosea</i>	<i>Carpobrotus glaucescens</i>
	<i>Carpobrotus glaucescens</i>	<i>Carpobrotus glaucescens</i>	<i>Carpobrotus glaucescens</i>	<i>Ipomoea pes-caprae</i> subsp. <i>brasilienis</i>
	<i>Dianella congesta</i>	<i>Dianella congesta</i>	<i>Ipomoea pes-caprae</i> subsp. <i>brasilienis</i>	<i>Sesuvium portulacastrum</i>
	<i>Hibbertia scandens</i>	<i>Ipomoea pes-caprae</i> subsp. <i>brasilienis</i>	<i>Sesuvium portulacastrum</i>	<i>Tetragonia tetragonoides</i>
	<i>Ipomoea pes-caprae</i> subsp. <i>brasilienis</i>	<i>Sesuvium portulacastrum</i>	<i>Tetragonia tetragonoides</i>	
	<i>Sesuvium portulacastrum</i>	<i>Tetragonia tetragonoides</i>		
	<i>Tetragonia tetragonoides</i>			

Symbols Courtesy of the Integration and Application Network, University of Maryland Center for Environmental Science (on.umces.edu/symbols/)

Vegetation Management Options:

- Revegetation of cleared or disturbed foreshore with suitable native species
- Weed removal taking care to avoid foreshore erosion and damage to native vegetation
- Retaining and protecting native foreshore vegetation
- Minimising disturbance to intact foreshores
- Any vegetation management to be undertaken seaward of the A-Line alignment is to be done in consultation with Council.
- Not disturbing mangroves and seagrass

Vegetation Management Considerations:

- The following issues should be considered to determine if the foreshore on your property is suitable for revegetation:
- Existing vegetation and condition (native and non-native)
 - Natural dune profile
 - Site coastal hazards e.g. storm erosion
 - Property boundaries
 - Adjacent structures
 - Below ground and above ground services e.g. powerlines, pipelines
 - Beach access
 - Access to water for plantings
 - Landscaping that may be required e.g. weeding, removal of turf, dune re-profiling
 - Timeframes for plants to become established and the need for on-going maintenance for watering, weeding and re-planting.

Figure 4: General foreshore profile and revegetation species – South Bayside Drive

Conceptual Shoreline Profile: South Bayside Drive

Current Dune Profile:



Potential Foreshore Revegetation and Foreshore Vegetation Protection:



Local Revegetation Species:

Trees and shrubs	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i> <i>Casuarina equisetifolia</i> subsp. <i>incana</i> <i>Cupaniopsis anacardioides</i> <i>Hibiscus tiliaceus</i>	
Grasses	<i>Cynodon dactylon</i> <i>Imperata cylindrica</i>	<i>Cynodon dactylon</i> <i>Ischaemum triticeum</i> <i>Spinifex sericeus/hirsutus</i> <i>Sporobolus virginicus</i> <i>Zoysia macrantha</i>
Herbs	<i>Canavalia rosea</i> <i>Carpobrotus glaucescens</i> <i>Dianella congesta</i> <i>Hibbertia scandens</i> <i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i> <i>Sesuvium portulacastrum</i> <i>Tetragonia tetragonoides</i>	<i>Carpobrotus glaucescens</i> <i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i> <i>Sesuvium portulacastrum</i> <i>Tetragonia tetragonoides</i>

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- Not disturbing mangroves and seagrass

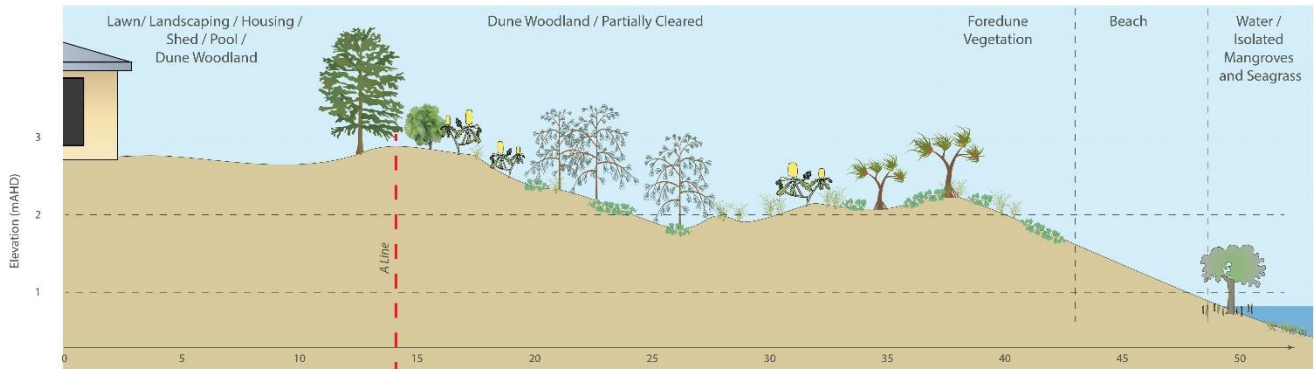
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 - Timeframes for plants to become established and the need for on-going maintenance for watering, weeding and re-planting.

Figure 5: General foreshore profile and revegetation species – North Bayside Drive

Conceptual Shoreline Profile: North Bayside Drive

Current Dune Profile:



Potential Foreshore Revegetation and Foreshore Vegetation Protection:



Local Revegetation Species:

Category	Species 1	Species 2	Species 3
Trees and shrubs	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i> <i>Casuarina equisetifolia</i> subsp. <i>incana</i> <i>Cupaniopsis anacardioides</i> <i>Hibiscus tillaceus</i>	<i>Casuarina equisetifolia</i> subsp. <i>incana</i> <i>Hibiscus tillaceus</i> <i>Banksia integrifolia</i> subsp. <i>integrifolia</i> <i>Pandanus tectorius</i>	
Grasses	<i>Cynodon dactylon</i> <i>Imperata cylindrica</i>	<i>Cynodon dactylon</i> <i>Imperata cylindrica</i> <i>Ischaemum triticeum</i>	<i>Cynodon dactylon</i> <i>Ischaemum triticeum</i> <i>Spinifex sericeus/hirsutus</i> <i>Sporobolus virginicus</i> <i>Zoysia macrantha</i>
Herbs	<i>Canavalia rosea</i> <i>Carpobrotus glaucescens</i> <i>Dianella congesta</i> <i>Hibbertia scandens</i> <i>Ipomoea pes-caprae</i> subsp. <i>brasilienis</i> <i>Sesuvium portulacastrum</i> <i>Tetragonia tetragonoides</i>	<i>Canavalia rosea</i> <i>Carpobrotus glaucescens</i> <i>Dianella congesta</i> <i>Ipomoea pes-caprae</i> subsp. <i>brasilienis</i> <i>Sesuvium portulacastrum</i> <i>Tetragonia tetragonoides</i>	<i>Carpobrotus glaucescens</i> <i>Ipomoea pes-caprae</i> subsp. <i>brasilienis</i> <i>Sesuvium portulacastrum</i> <i>Tetragonia tetragonoides</i>

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 - Property boundaries
 - Adjacent structures
 - Below ground and above ground services e.g. powerlines, pipelines
 - Beach access
 - Access to water for plantings
 - Landscaping that may be required e.g. weeding, removal of turf, dune re-profiling
 - Timeframes for plants to become established and the need for on-going maintenance for watering, weeding and re-planting.

How to plant

Figure 6 shows a step-by-step guide to the best way to plant foreshore plants for maximum success.

Provided there is adequate soil moisture, you should try to do your foreshore planting over the cooler months from April through to September and avoid hot weather and dry periods. Tube stock should also be well-watered prior to planting out.

Follow-up watering needs will depend on the site and weather conditions but as a general guide you should aim to water:

- every day for 1 week following planting
- Then twice per week for 2 weeks
- then weekly for 4 weeks, as a minimum.

Deep soaking is preferred over light watering to promote deep-rooting and should occur in the morning or late in the evening.

Any fertiliser used at planting should be slow-release, low phosphorus and suitable for native plants. As most dune plants are adapted to relatively nutrient poor soils, there will probably be no need to use fertiliser beyond the initial planting.

Weed Control

Weeds can reduce the success of revegetation, degrade native foreshore vegetation and may not stabilise dunes as effectively as native species.

Prior to replanting, weeds should be cleared from the foreshore as much as practicable. Care should be taken when clearing woody weeds to ensure the removal of tree and shrub roots does not cause foreshore erosion. Weeds can be removed via manual removal or by using herbicides. If herbicides are applied in the foreshore, care should be taken when using close to native vegetation, including planted species. All weeds should be disposed of in green waste. As weeds can spread quickly after soil disturbance and can be introduced via nursery stock and mulch, weed management in the foreshore may be an on-going issue.

Online resources and tools to help you identify weeds and the best control measures include:

- MBRC: www.moretonbay.qld.gov.au/Services/Environment/Weeds
- Queensland Government: www.qld.gov.au/environment/plants-animals/plants/herbarium/weeds<https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/health-pests-weeds-diseases/weeds-diseases/invasive-plants/restricted>
- Brisbane City Council weed identification tool: weeds.brisbane.qld.gov.au/

Noosa Shire Council foreshore weeds: www.noosa.qld.gov.au/foreshore-weeds

Figure 6: Foreshore Planting Method (*Coastal Dune Management: A Manual of Coastal Dune Management and Rehabilitation Techniques, Coastal Unit, DLWC, Newcastle NSW Department of Land and Water Conservation 2001*).



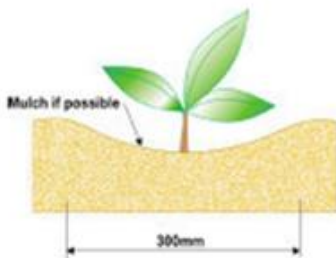
Not to scale

- Holes should be dug slightly deeper than the size of the container and twice as wide.
- Check by placing container into hole.
- Fill hole with water and allow to drain.
- Trim any roots that are protruding from the bottom of the tube. If this is necessary, the plant itself should be tip pruned to reduce stress and dehydration.

- Squeeze the base of the tube firmly.
- Place stem between fingers, turn upside down and firmly but carefully remove the tube.
- If pot bound, gently tease out roots by running a knife down the inside of the tube.
- Place plant in hole so that the surface of the tube soil is level with the original ground surface (dashed line in diagram). If a fertiliser pellet is used, place it in soil 20 - 50mm from the base of the root ball.
- Back fill around the plant, taking care not to damage the roots.
- If water crystals are used, ensure they are mixed thoroughly with the soil. Finger down firmly so there are no air pockets around the plant. Make sure there is no mulch mixed with soil at this stage.
- Do not build the soil level up against the exposed plant stem as this will encourage stem rot.



Not to scale



- Shape the soil surface to produce a shallow depression approximately 300mm around the plant to collect water from rain and hand watering. The depression should be able to hold at least half a bucket of water.
- Water in gently, up to half a bucket per plant depending on soil dampness. Apply water upslope from the plant, not directly onto the root area.

- Check that roots are not exposed after watering. Add more topsoil if necessary.
- Mulch lightly around plant. Avoid heaping mulch against the plant as this leaves it prone to stem rot and insect attack.