Raingarden Planter Box

What is a Raingarden?

Raingardens capture stormwater runoff directly from your roof or veranda through your guttering and downpipes. Once captured, stormwater is filtered through the garden bed, peak flows are reduced because stormwater is retained which diminishes erosion and pollution issues related to the 'first flush' of stormwater into our waterways.

Source: www.nola.com

Raingardens filter stormwater, slow peak flows, improve water quality, increase biodiversity as well as look great in your garden.

How does a Raingarden work?

Beneath the surface of a Raingarden are a series of different sand and soil layers which capture pollutants. In a planter box Raingarden, a length of slotted pipe or 'Ag Pipe' runs along the bottom and captures filtered water and distributes it back into the stormwater system or directs it to be used elsewhere on your property. Plants which live and grow in the Raingarden also absorb and further filter out pollutants captured in stormwater flows.

Raingarden Planter Box

Why build a Raingarden?

Raingardens are a simple way everyone can help the environment and improve the health of our local waterways while adding value and increasing the aesthetics and biodiversity of your garden. By constructing a Raingarden in your backyard, you are creating a bioretention cell which cleans stormwater, reduces peak flows and provides habitat for birds and butterflies.

Source: www.edstream.melbournewater.com.au

Raingardens help the environment by cleaning stormwater, reducing peak flows and providing habitat for birds and butterflies.

How to build a Raingarden?

Step 1 - Planning

Location – Finding the best location for your Raingarden planter box is important. The Raingarden should be as close as possible to a downpipe or rainwater tank overflow, which will minimise the cost of plumbing, keeping in mind that the box should be at least 300 mm distance from the side of your house.

Connection – All connections or modifications of existing stormwater pipes need to be done by a licensed plumber. Be aware of underground services such as: sewer, water and electricity when digging new holes for stormwater.

Materials – Purchase all materials needed before starting to build your raingarden, a full list of materials can be found in the 'Materials List' (Table 2).

Raingarden Planter Box

How to build a Raingarden?

Step 1 (continued) - Planning

Size – Your Raingarden needs to be large enough to cope with the amount of stormwater it will receive. Measure the area of your roof or veranda which flows into the selected downpipe then use the 'Raingarden sizing chart' (Table 1) to help you work out the size required for your runoff.

Source: http://www.baag.com.au/raingardens/

Table 1. Raingarden sizing chat

Area of Run-off (m^2)	Raingarden Size (m^3)
50	1
100	2
150	3
200	4
250	5
300	6
350	7
400	8

Step 2 – Building

Planter box– Your Raingarden planter box could be constructed out of any material as long as it is strong enough to hold soil that will be filled with water. Common materials include: corrugated iron, wood sleepers, an old wine barrel or rainwater tank, etc.

Lining – If your planter box isn't already water tight, a PVC liner should be installed with 200 mm overlaps and sealed with PVC tape.

Base – Before the pipe work is installed, a 50 mm base of 7mm washed gravel needs to be added to the planter box covering the bottom,

Pipe – Along the bottom of the planter, lay 90 mm slotted pipe on top of the gravel base. Connect a 90 mm T-piece to the slotted pipe with a vertical 90 mm overflow pipe which should sit 100 mm from the top of your planter box. On the other side of the t- piece a qualified plumber should connect the planter box back into the existing stormwater system using more 90 mm PVC pipe.

Raingarden Planter Box

How to build a Raingarden?

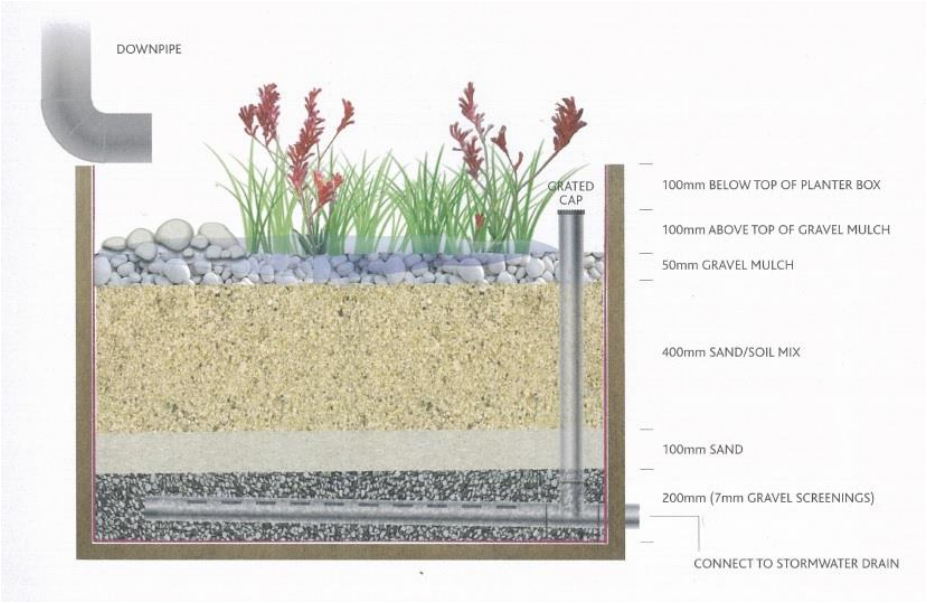
Step 3 – Soil Layers (based on 950 mm height)

Screening – Add a further 150 mm of washed 7 mm gravel over the slotted drainage pipe which will bring the overall layer to 200 mm.

Sand – Place 100 mm of washed sand over the gravel screening layer.

Soil – Next, use an organic soil mixed 1:4 with washed sand to a depth of 400 mm.

Hint: before adding soil layers, cover the top of the overflow pipe with tape. Also, pat down each layer as you go to reduce layers from sinking.



Source: www.melbournewater.com.au

Step 4 - Planting

Plant Selection – There is a wide selection of plants that are suitable for your Raingarden, which your local nursery can help you with. There is also a list of suitable plants in the 'Plant List' (Table 3) located at the end of this guide.

Plant Recommendation – We suggest that 50% of the plants in your Raingarden are made up of: *Carex appressa, Lomandra longfolia, Juncus pauciflorus and Melaleuca gibbosa.* These plants are very good at removing pollutants from stormwater.

Sun/ Shade – Make sure that you consider how much sun and shade your new Raingarden will receive when choosing plants.

Density – Put your plants in at roughly 6 plants per m^2.

Mulch – To reduce erosion, retain moisture and reduce weeds add a 50 mm layer of gravel mulch.

Raingarden Planter Box

How to build a Raingarden?

Step 5 – Finishing and Maintenance

Inlet – Before the plumber leaves, make sure they have directed the down pipe into your new raingarden using 2 x 45° bends (preferred) or a 90° elbow.

Erosion Control - Place a few larger rocks or more gravel mulch where the stormwater enters the planter box to avoid the soil from being eroded away during high flow events.

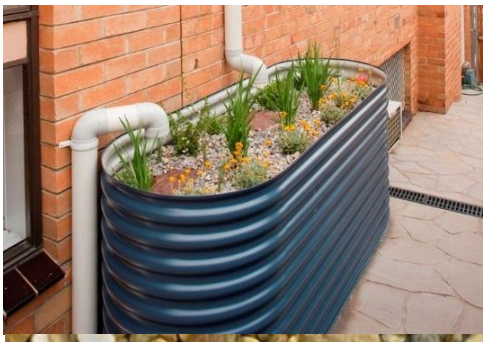
Watering – Once all of the plants are in the planter box, water them in until established.

Overflow – Remove the tape from the overflow drain and install a grating to prevent it from becoming blocked.

Weeding – Some weed removal may be required from time to time until the plants mature.

Table 2. Material required to make a 2m^3 raingarden planter box.

Quantity	Material
2 l/ m	90 mm diameter slotted pipe (Ag Pipe)
2 l/m *	90 mm diameter uPVC pipe
0.4 m3	7 mm Gravel (screening)
0.85 m3	Washed sand
0.15 m3	Organic soil
12	Plants (150 mm pots)
0.1 m3	Gravel mulch
2	90 mm diameter uPVC 45° bends or 1x 90° elbow
1	90 mm diameter uPVC grate
1	90 mm diameter PVC 't-piece'
1	90 mm diameter PVC joiner
10 m2	PVC liner and tape
1	Planter box 2m^2



l/m = lineal metres, m2 = meters squared, m3 = metres cubed, mm = millimetres * Could be more depending how far planter box is from existing downpipe. Source: (Top) www.inhabitat.com (Bottom) www.thecobbleshop.co.uk

Raingarden Planter Box

Table 3. Native plants for your Raingarden provided by Habitat Plants.

Botanical Name	Common Name	Approx. Size (H x W, cm)
Shrubs (for large raingardens)		
Beyeria viscosa	Pinkwood	400 x 200
Callistemon pallidus	Yellow Bottlebrush	400 x 200
Micrantheum hexandrum	Box Micrantheum	300 x 300
Pittosporum bicolor	Cheesewood	500 x 150
Callistemon viridiflorus	Green Bottlebrush	300 x 200
Correa lawrenceana	Mountain Correa	200 x 150
Grevillea australis	Honey Grevillea	200 x 100
Melaleuca gibbosa	Small Leaf Melaleuca	200 x 150
Melaleuca pustulata	Yellow Paperbark	300 x 200
Phebalium daviesii	Davies' Wax Flower	150 x 100
Small Plants, Groundcovers, Spreading shrubs…		
Leptospermum rupestre	Spreading Mountain Tea-Tree	50 x 150
Leptospermum scoparium 'Spreading'	Spreading Manuka	50 x 150
Melaleuca squamea 'Hurricane'	Melaleuca 'Hurricane'	30 x 150
Melaleuca squarrosa 'Coastal Carpet	Melaleuca 'Coastal Carpet	50 x 150
Grevillea australis	Spreading Alpine Grevillea	30 x 100
Hibbertia procumbens	Spreading Guineaflower	10 x 100
Pratia pedunculata	Matted Pratia	10 x 100
Scleranthus biflorus	Cushion Plant	10 x 50
Trachymene humilis	Alpine Trachymene	10 x 30
Viola hederacea	Wild Violet	10 x 60

Botanical Name	Common Name	Approx. Size (H x W, cm)
Sedges, Grasses, Wildflowers		
Bulbine glauca	Rock Lily	50 x 20
Dianella brevicaulis	Arching Flax Lily	60 x 60
Dianella tasmanica	Tasman Flax Lily	60 x 200
Diplarrena moraea	White Flag Iris	50 x 50
Lomandra longifolia	Sagg	80 x 100
Patersonia occidentalis	Long-stalked Purple Iris	50 x 30
Poa labillardierei	Tussock Grass	80 x 80
Themeda triandra	Kangaroo Grass	100 x 30
Ferns (for shady spots)		
Blechnum nudum	Fishbone Water Fern	100 x 100
Blechnum penna-marina	Alpine Water Fern	20 x 100
Blechnum wattsii	Hard Water Fern	100 x 100
Polystichum proliferum	Mother Shield Fern	100 x 100
Bog Plants (for wet raingardens)		
Baloskion australe	Mountain Cord Rush	50 x 80
Carex appressa	Tall Sedge	100 x 80
Carex tasmanica	Curly Top Sedge	60 x 60
Cyperus lucidus	Leafy Flatsedge	100 x 60
Gahnia grandis	Cutting Grass	200 x 150
Gunnera cordifolia	Heart Leaved Gunnera	10 x 100
Gymnoschoenus sphaerocephalus	Button Grass	100 x 80
Ficinia nodosa	Knobby Clubsedge	100 x 100
Juncus pauciflorus	Loose Flower Rush	50 x 50
Juncus pallidus	Pale Rush	100 x 50
Mazus pumilio	Swamp Mazus	10 x 100
Ranunculus prasinus	Tunbridge Buttercup	10 x 20

Level 2 McKenzie Building,

63-65 Cameron Street,

Launceston, Tasmania

www.habitatplants.com.au

www.nrmnorth.org.au