How to build a raingarden

Rain water that runs off roofs, driveways and streets is known as stormwater. It washes into kerbside and stormwater drains and is discharged, untreated, directly into rivers and streams and eventually our harbours. Urban stormwater is often highly contaminated with litter, engine oil, and heavy metals which impact on marine life. In the Auckland region stormwater is a significant source of pollutants such as zinc, copper and sediment.

Artist's impression of the rain garden display at the Ellerslie International Flower Show 2007.

A raingarden is a sustainable and economical way of dealing with storm water as nature intended. The soil and plants absorb water and filter out pollutants. The garden slows down and lowers the peak storm water flow before it enters the main storm water system.

Auckland Regional Council
TE RAUHĪTANGA TAIAO

How to build a raingarden - 10 easy steps

It is not difficult to create a raingarden at home, all it takes is some careful planning. Follow these simple guidelines to create your own lush raingarden.

1 Choose the raingarden site.

- Runoff must flow naturally (by gravity) into and out from your garden.
- Avoid areas under large trees, sloping ground and filled ground.

2 Assess the soil.

- Free-draining soils allow shallower raingardens without underdrains.
- Many soils are clay based and will need to be replaced with a more free draining soil.
- Underdrains will need to be installed.

3 Get runoff to and from the raingarden.

- Runoff can enter via a pipe or directly from driveways.
- During large storms the raingarden should flow into a stormwater drain or overland flow path.

4 Decide on depth of garden and ponding depth.

- The typical ponding depth of 100 to 200 mm can include stones or gravel.
- The standard depth of a raingarden is 900 mm , depending on soil type.

5 Size and shape your raingarden.

- The raingarden should be 4 to 8% of the source area.
- It can be any shape as long as water flows evenly across the garden.

6 Select the plants.

- Optimum plants include dense groundcovers at least 200 mm high that tolerate temporary ponding and dry periods.

7 Source the materials.

- See fig1. A free-draining soil will often be 60 to 90% sand.

8 Construct.

- Excavate carefully, avoiding underground services.
- If necessary, line the sides of the raingarden.
- Install underdrain, overflow connection. See fig 1.
- Apply layer of filter sand and saturate to help settle before filling to the planned depth.

9 Plant.

- A fast plant cover needs 4 to 10 plants per square metre, depending on plant size.

10 Look after your raingarden.

- Like other gardens, raingardens need weeding and watering during establishment.
- They also need checks of inflow and overflow areas to ensure free flow is maintained.

For detailed information visit
www.arc.govt.nz

Plants used in this design

Botanical Name	Common Name	Notes
Alocasia gageana 'California Shield'	taro	Exotic, lush green leaves, loves wet or dry conditions
Astelia grandis	swamp astelia	Native, flax like foliage, endangered species that tolerates wet and dry conditions.
Baumea complanata	shiny sedge	A native sedge that is in gradual decline and extremely rare in the wild.
Baumea rubigimosa	orange nut sedge	Native sedge that is great for erosion and as a water purifier.
Baumea teretifolia	pakihi rush	Native sedge that handles both a watery and scrubland situation. Great in low fertility soils.
Calopsis paniculata	restio	Exotic with plume – like foliage. Sterile seed heads.
Lepidosperma australe	square – stemmed sedge	Native sedge, great on poor soils and tolerant of both wet and dry conditions.
Cyperus haspan	miniature papyrus	Exotic with attractive star – like seed heads.
Elegia Capensis	restio	Exotic with feathery foliage. Sterile seed heads.
Gratiola sexdentata	-	Native groundcover that lives happily in the water or stream banks. Uncommon.
Halocarpus bidwillii	bog pine	Native conifer - like shrub. Enjoys both wet and dry situations.
Iris sibirica 'Caesars brother'	iris	Exotic iris with blue/ purple flowers.
Juncus edgariae	wiwi	Native rush that tolerates extreme wet and dry.
Juncus pallidis	giant rush wiwi	Native rush that is found commonly in barren areas and swampy situations.
Juncus sarophorus	wiwi	Native rush commonly found in pasture that is wet or dry.
Leptinella tenella	-	Critically endangered native groundcover that handles wet and dry conditions.
Machaerina sinclairii	tuhara,pepepe	Native sedge with strappy leaves. Good in wet/dry conditions.
Myriophyllum votschii	-	Native groundcover that is rare. Handles wet and dry situations.
Rhopalostylis sapida	nikau	Native palm. Known to colonize in damp to wet areas as well as dry situations.
Rhodocoma gigantea	restio	Exotic, large plume-like Foliage, sterile seedheads.

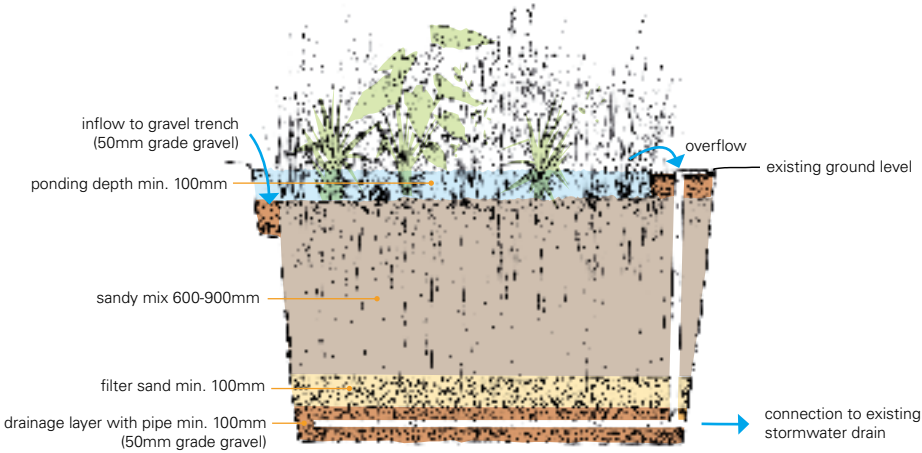

Fig 1 - cross section of a raingarden

Important facts

- In Auckland a rain garden plays a major role in decreasing the amount of zinc and copper in our estuaries and harbours.
- Zinc enters the stormwater mainly from galvanised roofing and car tyres, whilst copper comes from materials such as car brake pads and copper roof cladding.
- Many animals such as cockles and small invertebrates die when the levels of zinc and other contaminants get too high in estuary sediments. These animals are at the bottom of the food chain and if they die other animals higher up the food chain, such as fish, may also be affected.

Contact Details

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PRINCIPAL SPONSOR:

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