

Tree pit design principles

Using street trees to treat stormwater

What is a tree pit?

Tree pits provide a great alternative design for planting street trees. They reduce demand on potable water and provide an opportunity to treat stormwater. Tree pits can sometimes be referred to as bioretention systems as they provide treatment through fine filtration, extended detention and some biological uptake. Careful and considered designs will allow easy access for maintenance - litter and sediment removal and be safe for pedestrians to move around.

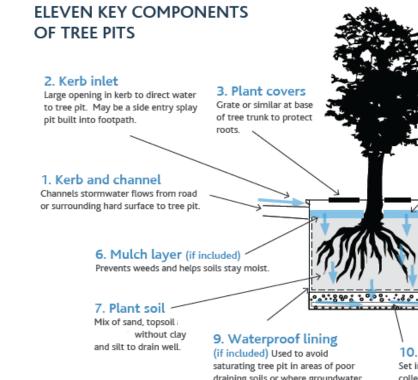
Good design elements



Cover easy to remove for maintenance



Calculated detention depth



draining soils or where groundwater lies close to ground surface.

Source – Auckland Council Tree Pit Operation and Maintenance Guide – November 2009

A few planning tips

- Discuss the design with council maintenance staff to ensure easy access for maintenance and litter removal
- Incorporate early in the streetscape design
- Dial before you dig find out the location of underground services and understand when/if • permits are required
- Chose an appropriate tree species to suit wet and dry conditions •
- Understand that additional watering may be required during plant establishment and/or in • dry summer month

For technical guidance

- FAWBs Guidelines for designing the correct detention area and slope incline http://www.clearwater.asn.au/content/facility-advancing-water-biofiltration-fawb-guidelinesversion-301
- Melbourne Water WSUD Maintenance Guidelines http://clearwater.asn.au/resourcelibrary/policy-and-guidelines/wsud-maintenance-guidelines.php

quick reference guide



4. Plants

Usually one large shrub or tree to help filter runoff, look attractive, and withstand extreme wet and dry periods

5. Ponding area

Area around tree set lower than surrounding ground where stormwater ponds before filtering through soil.

8. Root barrier (if included)



Specially manufactured free-draining geotextile fabric used to line tree pit, preventing roots growing outside area and causing damage to utility services, building foundations and roadways.

11. Overflow and observation well

(if included) is a standpipe or channel grate to divert higher than usual flows from tree pit to piped stormwater network. Observation well, similar to

10. Underdrain Set in base of pit to collect water draining through pit and direct to stormwater network.

capped riser, to monitor water depth and drainage rates in pit. Discharge and overflow pipes may also have clean-out and inspection points, usually capped