Tips for undertaking maintenance

Things to look for and how to fix them.

Scour or erosion	**Weeds**
Erosion and scour reduce the overall area of treatment by directing flows to certain areas only. Erosion or scour can be re-profiled with hand tools, limiting the damage to adjacent vegetation. If fill material is required to create a flat surface, use an appropriate raingarden planting media mix. If erosion / scour keeps happening at the inlet, place some small rocks where erosion occurs.	Weeds can take over the plants which are needed in the raingarden for treatment. Hand pull weeds and dispose of appropriately. Plant bare patches if needed. Weeding should take place before the plants flower to reduce the likelihood of seed dispersal and further regeneration.
Rubbish, leaf litter or sediment	**Moss or clay on surface**
A lot of rubbish or leaf litter at the inlet or on the surface of the raingarden can affect how well water can enter and filter through the raingarden. This material can be removed easily by hand or with tongs / rakes. Collected litter should be placed into bags or similar for disposal.	Moss or clay on the surface of the raingarden can result in a crust forming which prevents water from filtering and being treated. Use hand tools to scrape off the clay or moss and dispose of appropriately. Check raingarden drains.
Uneven surface	**Raingarden outlets not draining**
An uneven surface may result in some areas not getting wet during rain events, reducing the area of treatment. Depressions or mounds can be flattened with hand tools, limiting the damage to vegetation.	Blockages of outlet pits and pipes can cause a flooding risk for the property as water is unable to leave the raingarden. Blockages are typically caused by sediment, leaf litter and rubbish. Blockages should be removed manually, by hand or with hand tools such as tongs and shovels. Large blockages in pits may require vacuuming or other appropriate machinery.
Elevated surface level / lots of excess sediment on surface	**Impermeable liner**
If sediment has entered the system and has raised the level of the surface, this reduces the amount of water which can be filtered. Use hand tools to remove/scrape sediment from around the plants. Remove sediment from the raingarden and dispose of appropriately.	An impermeable liner (e.g. geotextile or flexible membrane) is sometimes used to ensure water does not move into the surrounding soils. This may be required if the surrounding soils are very sensitive to any added moisture (e.g. sodic soils, shallow groundwater or close proximity to significant structures such as building foundations).
Unhealthy or dying plants / bare patches	**Raingarden holding water on the surface because of blocked planting media**
Good plant cover is critical for raingardens so if plants are looking stressed in dry periods, irrigation may be required. Remove (prune) any areas affected by disease or pests. If the plants are dying and have created bare patches, the plants need to be replaced. If the plants keep struggling, replace with a plant type which is growing well in the raingarden.	Generally raingardens should be able to filter water at a rate of ~100mm per hour. If the surface of the raingarden is clogged (by clay or moss etc.) or the underlying filter media is not appropriate then water will not be able to drain through the system to be treated. If the surface is clogged use hand tools to scrape off the clay or moss. If this doesn't fix the drainage issue remove an area of planting media to expose the filter media. Check that water can pass through the filter media by pouring water on its exposed surface. If the water can drain then replace the top planting media and check for blockages elsewhere. If the water does not drain the filter media will need to be replaced.

For more information please visit **www.portphillip.vic.gov.au**
or contact the Sustainability team via:

Phone: 03 9209 6777
email: sustainabledesign@portphillip.vic.gov.au

Maintenance manual

Raingardens

Site address: _____

Planning permit number: _____

Raingarden maintenance

This manual lists the key tasks required to maintain a domestic raingarden and the recommended frequency of each task. This manual can be submitted with planning permit applications for developments that include the installation of a domestic raingarden. Once endorsed, the property owner is responsible for continuous implementation of raingarden maintenance, in accordance with the guidance in this manual.

A raingarden is a specially designed garden that uses plants and soil to remove the pollutants from stormwater runoff that is generated from roofs, driveways and paths following rainfall events. These natural treatment systems help protect the environment by reducing the amount of stormwater runoff and pollutants that enter the Bay.

Maintenance of raingardens is essential in order to ensure that they:

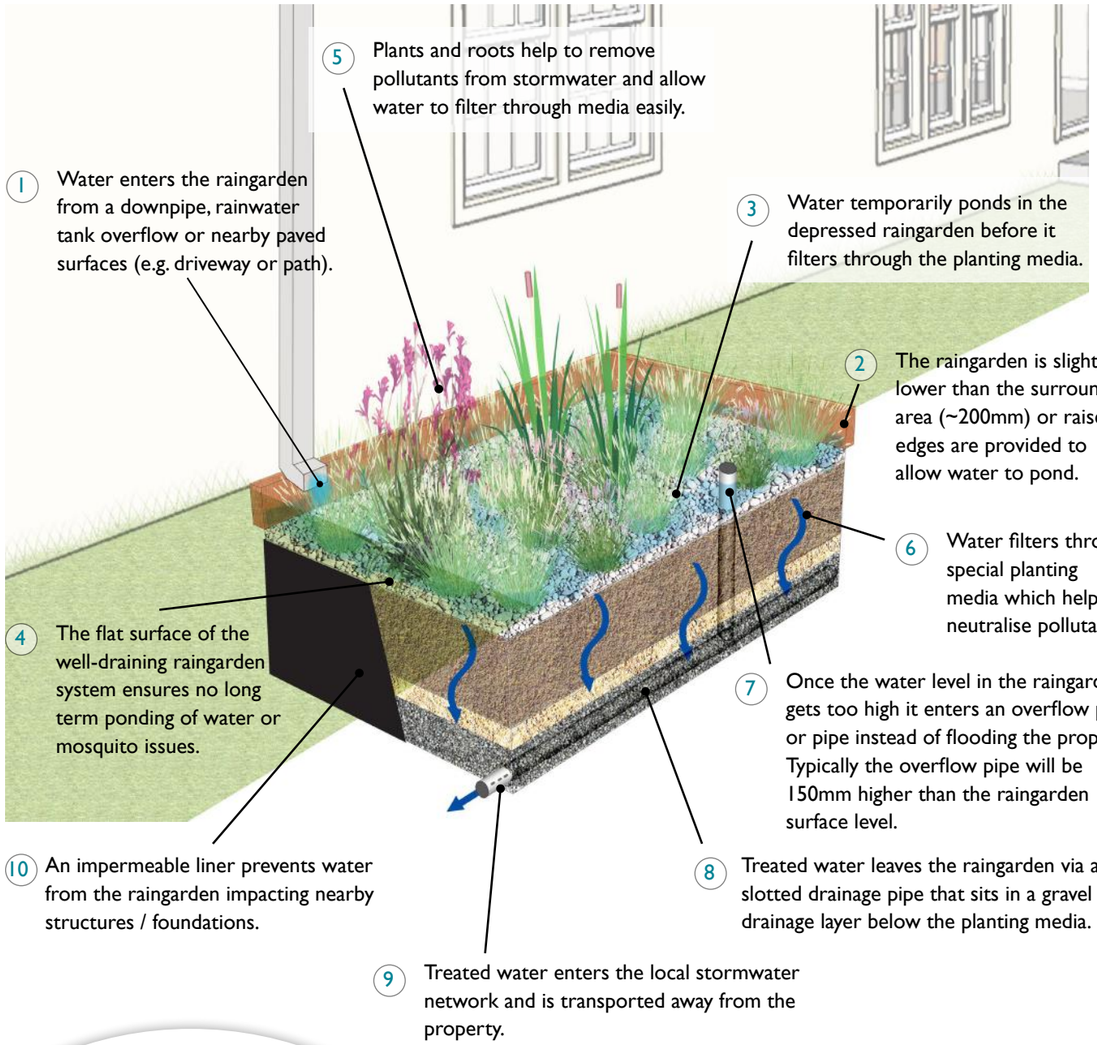
- effectively treat stormwater,
- continue to look good, and
- don't cause local flooding.

Raingarden location	
Planning drawing number showing raingarden location	
Raingarden construction date	
Date of final building inspection	
Area of raingarden (m^2)	
Area of catchment (m^2) (e.g. roof and/ or paving) directed to the raingarden	

Maintenance Overview

Raingarden Maintenance

This diagram depicts an in-ground raingarden. Raised bed raingardens are also common (refer to photograph).



Note: It is important not to add fertiliser, compost or floatable mulch to a raingarden as the nutrients will pass through the raingarden and pollute the Bay. The plants best suited to raingardens will grow well in the planting media and take nutrients for their growth from the water entering the raingarden.

Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the raingarden.

Item	Raingarden element	Inspection item	Y/N	Likely maintenance task
1	Raingarden inlet	Is there scour or erosion where water enters the raingarden?		Re-profile with hand tools, place gravel or stones at the inlet.
		Is there rubbish, leaf littter or sediment blocking the inlet?		Remove by hand and dispose responsibly.
2	Raingarden surface level	Is the level of the raingarden surface sitting less than 5 cm below the raingarden edges/borders?		Remove sediment from the surface so it is sitting about 10-20 cm below surrounding areas.
3	Raingarden temporary detention	Is there moss or clay on the surface of the raingarden which seem to be slowing the filtration of flows?		Remove the crust from the top of the raingarden and check water will filter through exposed media.
4	Raingarden surface	Are there areas which appear to be higher and are not getting wet during rain events?		Smooth out surface so it is flat with hand tools.
		Are there areas which have been eroded away or scoured?		
5	Plants	Are the plants looking unhealthy or dying?		Prune diseased sections, irrigate and/ or replace dead plants. If plants keep dying, replace with a different type which is doing well. Do not use fertilizer to improve plant health as this will pollute the raingarden.
		Are there bare patches forming between plants?		
		Are there weeds present?		Remove weeds by hand and dispose responsibly.
6	Planting media	Is the raingarden holding water for more than a couple of hours after the rain has stopped?		Remove and replace the top 100 mm of planting material (loamy sand).
7	Overflow pit / pipe	Is there anything blocking the top of the overflow pit / pipe preventing water from entering?		Remove blockages and dispose responsibly.
8	Underdrainage	Is there rain draining to the bottom of the raingarden following heavy rain?		Flush the underdrain or uncover it to check for blockages.
9	Stormwater network connection	Is there water ponding in the overflow pit or pipe and not entering the stormwater network?		Remove blockages and dispose responsibly.

Maintenance frequency

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			x						x		

\+ after heavy rainfall

Maintenance Log

Maintenance date	Maintenance undertaken