



# WSUD maintenance guidelines

Inspection and  
maintenance activities



healthy waterways

 **Melbourne  
Water**



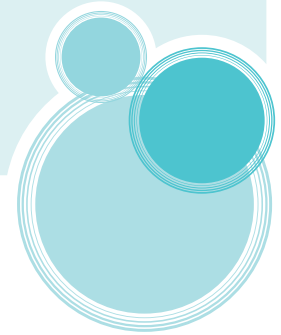
# Introduction

Water Sensitive Urban Design (WSUD) assets require regular scheduled maintenance to ensure they remain healthy and perform as intended. This flip book provides an outline of the key inspection and maintenance activities for:

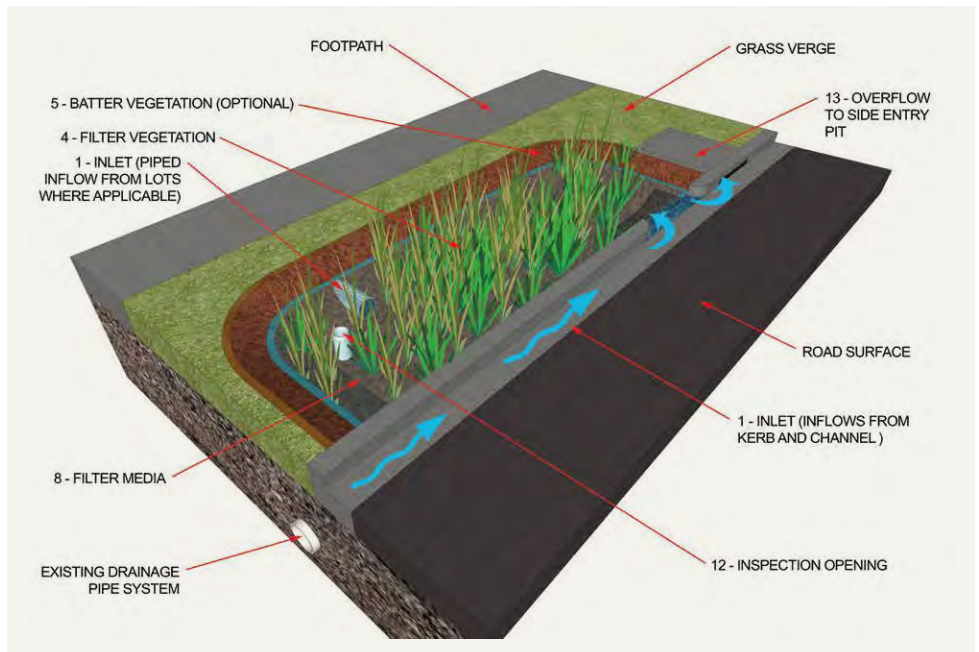


Please refer to the full WSUD Maintenance Guidelines for more detail.

# Raingardens



Raingardens, also known as bioretention systems, biofilters, bio-infiltration systems and bioremediation systems, are vegetated infiltration systems that improve stormwater quality.



# INSPECTION AND MAINTENANCE ACTIVITIES FOR RAINGARDENS

Component	Key activities	Typical frequency
<b>Filter Media</b>	– Remove leaf litter and gross pollutants	3 months & following storm events
	– Check for biofilms (algal biofilms may develop on the surface of the filter media leading to clogging issues)	
	– Monitor ponding of water following rainfall events	
	– Check for permanently boggy/pooled areas	
	– Remove sediment (or scarify filter media surface if required)	Annually
<b>Erosion</b>	– Check for erosion/scouring	3 months
	– Check for evidence of preferential flow paths	
	– Replace filter media in eroded areas	
	– Add rock protection around inlets (if required)	
<b>Mulch</b>	– Check depth and even distribution of mulch	3 months
	– Check mulch is not touching plant stems	
	– Check for sediment/silt accumulation in mulch layer	
	– Replace mulch (if required)	
	– Retain mulch using jute mats or nets (if required)	
<b>Vegetation</b>	– Inspect plant health and cover	3 months
	– Replace dead plants (maintain a consistent vegetation density of 6–10 plants per square metre across the raingarden filter media)	
	– Remove weeds (avoid use of herbicides)	
	– Prune plants (where applicable)	
	– Water plants (if required during establishment phase)	
<b>Civil components</b>	– Check infrastructure for damage and repair as required	3 months & following storm events
	– Ensure inlet and outlet points are clear of sediment, litter and debris	
	– Inspection opening for underdrain (slotted drainage pipe):	Annually
	– Check water level	
	– Check for sediment accumulation	
	– Flush the underdrain system (if required)	

# Tree pits



Tree pits are mini-raingardens that comprise of a tree or large shrub planted within an underground planting module (pit).

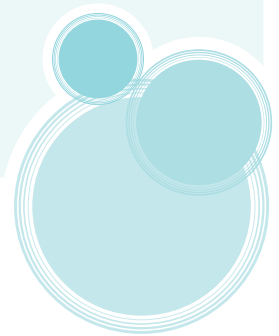


## INSPECTION AND MAINTENANCE ACTIVITIES FOR TREE PITS

Component	Key activities	Typical frequency
Filter Media	<ul style="list-style-type: none"> <li>– Remove leaf litter and gross pollutants</li> <li>– Check for biofilms (algal biofilms may develop on the surface of the filter media leading to clogging issues)</li> <li>– Monitor the ponding of water following rainfall events</li> </ul>	3 months & following storm events
	<ul style="list-style-type: none"> <li>– Remove accumulated sediment (or scarify filter media surface if required)</li> </ul>	Annually
Mulch	<ul style="list-style-type: none"> <li>– Check depth and even distribution of mulch layer</li> </ul>	3 months
	<ul style="list-style-type: none"> <li>– Check mulch is not touching the tree trunk</li> <li>– Replace mulch (if required)</li> <li>– Check for sediment/silt accumulation within mulch layer</li> </ul>	
Vegetation	<ul style="list-style-type: none"> <li>– Inspect plant health (signs of disease, pests, poor growth)</li> </ul>	3 months
	<ul style="list-style-type: none"> <li>– Check plant stability (tree supports)</li> <li>– Remove weeds (avoid use of herbicides)</li> <li>– Prune plants (where applicable)</li> <li>– Water plants (if required during establishment phase)</li> </ul>	
Civil components	<ul style="list-style-type: none"> <li>– Inspect for physical damage, concrete cracking and subsidence (sinking)</li> </ul>	3 months & following storm events
	<ul style="list-style-type: none"> <li>– Ensure inlet and outlet points are clear of sediment, litter and debris</li> </ul>	
	<ul style="list-style-type: none"> <li>– Inspection opening:               <ul style="list-style-type: none"> <li>– Check the underdrain (slotted drainage pipe) system for standing water or sediment accumulation</li> <li>– Flush the underdrain system (if required)</li> </ul> </li> </ul>	Annually

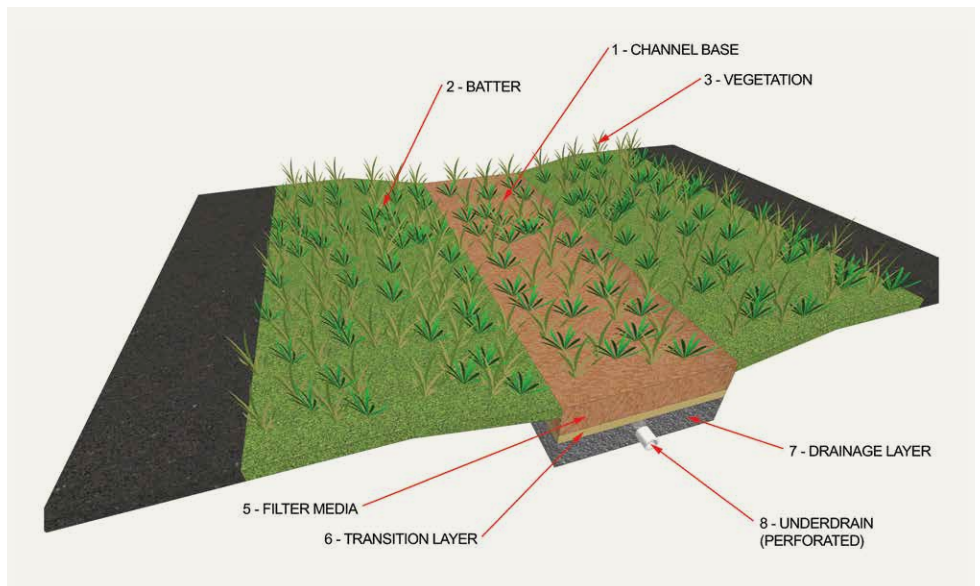


# Swales



Conventional swales are simple vegetated channels that convey stormwater and provide stormwater treatment through filtration and infiltration.

Bioretention swales (bio-swales) comprise of a channel with vegetation, layers of filter media and slotted drainage pipes (underdrain) arranged in a similar layout to a raingarden. Bio-swales facilitate more infiltration than conventional swales and therefore provide a higher level of treatment.



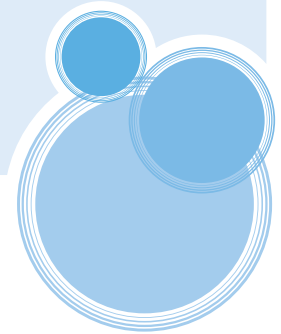


## INSPECTION AND MAINTENANCE ACTIVITIES FOR SWALES

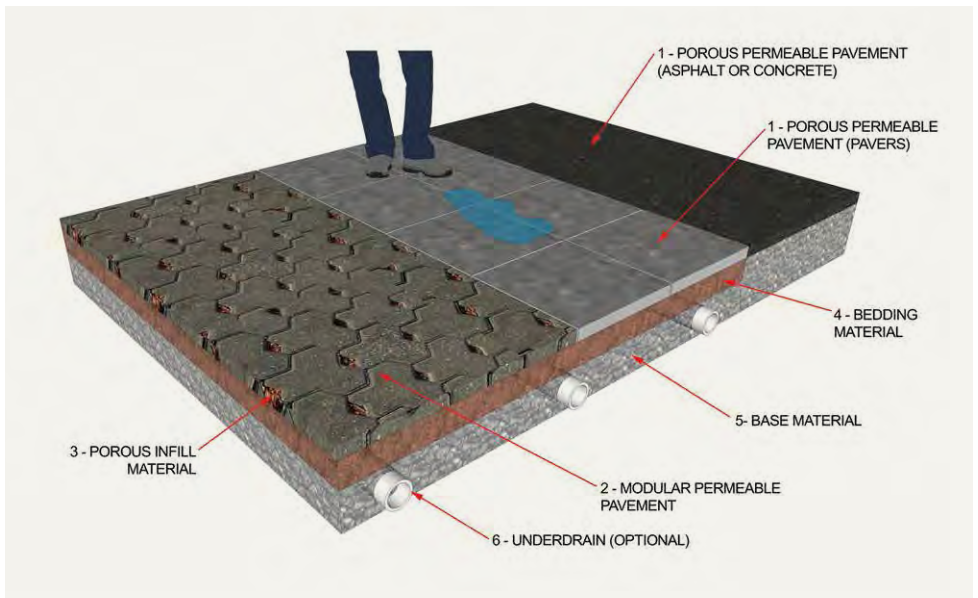
Component	Key activities	Typical frequency
<b>Erosion</b>	<ul style="list-style-type: none"> <li>– Check for erosion/scouring</li> <li>– Check for preferential flow paths</li> <li>– Replace soil/filter media in eroded areas</li> <li>– Replant eroded areas</li> </ul>	3 months
<b>Vegetation</b>	<ul style="list-style-type: none"> <li>– Inspect plant health and cover</li> <li>– Prune plants (where applicable)</li> <li>– Mow</li> <li>– Remove weeds (avoid use of herbicides)</li> <li>– Replace dead plants (maintain a consistent vegetation density of 6–10 plants per square metre for bio-swales)</li> <li>– Water plants (if required during establishment phase)</li> </ul>	3 months
<b>Sediment accumulation*</b>	<ul style="list-style-type: none"> <li>– Check for sediment accumulation</li> <li>– Remove sediment (if required)</li> <li>– Monitor ponding of water following rainfall events</li> <li>– Check for permanently boggy/pooled areas</li> </ul>	Annually

\*Note: Swales are typically designed to accumulate sediment throughout their life cycle, and most swales will not require regular maintenance of accumulated sediment.

# Permeable pavement



Permeable pavements allow stormwater runoff to infiltrate to underlying soils rather than running off hard surfaces and into the stormwater drainage system.



# INSPECTION AND MAINTENANCE ACTIVITIES FOR PERMEABLE PAVEMENTS

Component	Key activities	Typical frequency
<b>Paving surface</b>	<ul style="list-style-type: none"><li>– Check for accumulated sediment</li><li>– Sweep, wet vacuum or pressure hose the surface of the pavers to remove clogging material</li><li>– Check infill material is present between pavers</li><li>– Monitor ponding of water following rainfall events</li></ul>	3 months & following storm events
<b>Bedding material</b>	<ul style="list-style-type: none"><li>– Check level of the pavement surface</li></ul>	Annually
<b>Underdrain</b>	<ul style="list-style-type: none"><li>– Check inspection openings for sediment accumulation</li><li>– Flush underdrain to remove sediment (if required)</li></ul>	Annually

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