

Stormwater harvesting

Guidelines for stormwater harvesting

Introduction

Once rain touches the ground, it is called stormwater. Stormwater can be collected (harvested) and reused for many purposes. Each year about 500 billion litres of stormwater containing litter and other harmful pollutants such as heavy metals, oil, organic matter and excess nutrients enter our rivers, creeks and bays via stormwater drains.

Stormwater pollution becomes a bigger challenge the more Melbourne grows. More urban areas mean that when it rains the amount of water that soaks into the ground is reduced, as it runs into stormwater drains. This means that there is a faster build-up and greater volume of stormwater going into the rivers and creeks when it rains.

Stormwater harvesting can help by reducing the volume and speed of flow of water in the drainage system and by reducing the amount of pollution reaching our waterways. Stormwater can be used instead of our precious drinking water for applications like watering parks and golf courses. However, because of pollution harvested stormwater will often need to be treated before it can be used.

This guide will help you understand the process of being able to harvest and use stormwater.

Background

Under the Water Act 1989, the State Government retains the overall right to the use, flow and control of all surface water and groundwater on behalf of all Victorians. The Act is the legislation that governs the way water entitlements are issued and allocated in Victoria. It defines water entitlements and establishes the mechanisms for managing Victoria's water resources.

Stormwater has been identified as a relatively untapped water resource that could substitute existing demands on drinking (potable) water supplies and to meet the some of the water needs of new developments.

Stormwater harvesting can deliver good outcomes for waterways, potable water savings and cost-efficient watering but requires detailed planning to ensure the projects are delivered.

This document is designed to provide guidance and general information relating to stormwater harvesting and relevant approvals. A stormwater harvesting licence will be required from Melbourne Water to:

- connect to any new or modified stormwater drain, watercourse or open channel controlled by Melbourne Water
- harvest any quantity of stormwater from a waterway controlled by Melbourne Water or any Melbourne Water asset

Not all drains are owned by Melbourne Water, for example if the source of your stormwater is a council drain you will have to contact the council for the relevant permissions.

What are the potential benefits of stormwater harvesting?

Urban development can increase the volume, frequency and quality of run-off, and has associated ecosystem impacts. For example, it can:

- double annual run-off volumes
- reduce infiltration
- increase peak flows by up to ten-fold
- significantly increase the frequency of run-off.

Urbanisation commonly results in a significant increase of pollution in stormwater flowing into local waterways and is considered to be the biggest threat to our urban rivers and creeks. Harvesting and reusing stormwater can help reduce these loads by:

- extracting a proportion of the polluted stormwater within a drain or waterway for reuse
- trapping pollutants in on-line storages, where the treated stormwater flows back to the waterway rather than being reused
- returning surplus treated stormwater to receiving waters e.g. waterways, further reducing pollutant loadings

In addition, drinking water is used across Melbourne for garden watering, irrigation of recreational areas and public open space and for industrial and

commercial activities. Stormwater provides for a potential alternative water supply to meet these needs to enable significant water savings.

What are the general requirements under legislation?

The Government's "[Our Water our Future](#)" action plan for the management of Victoria's water resources placed a moratorium on the taking of additional water from most river basins in the Port Phillip and Westernport area, effectively halting additional water allocations. Although caps were put in place, it was also recognised in this plan that urban stormwater was a potential resource to be utilised in favour of potable supply for fit-for-use purposes such as irrigation of race courses, golf course, sporting ovals and public parks and gardens. This recognition was reinforced in the [Central Region Sustainable Water Strategy](#).

The Government has adopted the following allocation rules for stormwater in urban areas as referred to in the Central Region Sustainable Water Strategy 2006:

- If stormwater is flowing to the sea via a drain, all of the stormwater may be harvested;
- If stormwater is flowing to a stream from an existing development, assume up to 50 per cent of existing stormwater can be harvested for consumptive use and 50 per cent is reserved for the environment. If there is a scheme to harvest more than 50 per cent of the resource a study is required to assess the implications for the environment;
- If stormwater is generated from a new development, all of it is available for consumption with the aim of the development having no impact on catchment run-off
- All diversions from waterways will continue to require a Section 51 licence under the *Water Act 1989*.

The EPA is responsible for guidelines on appropriate water quality standards and management controls for the use of stormwater on individual sites.

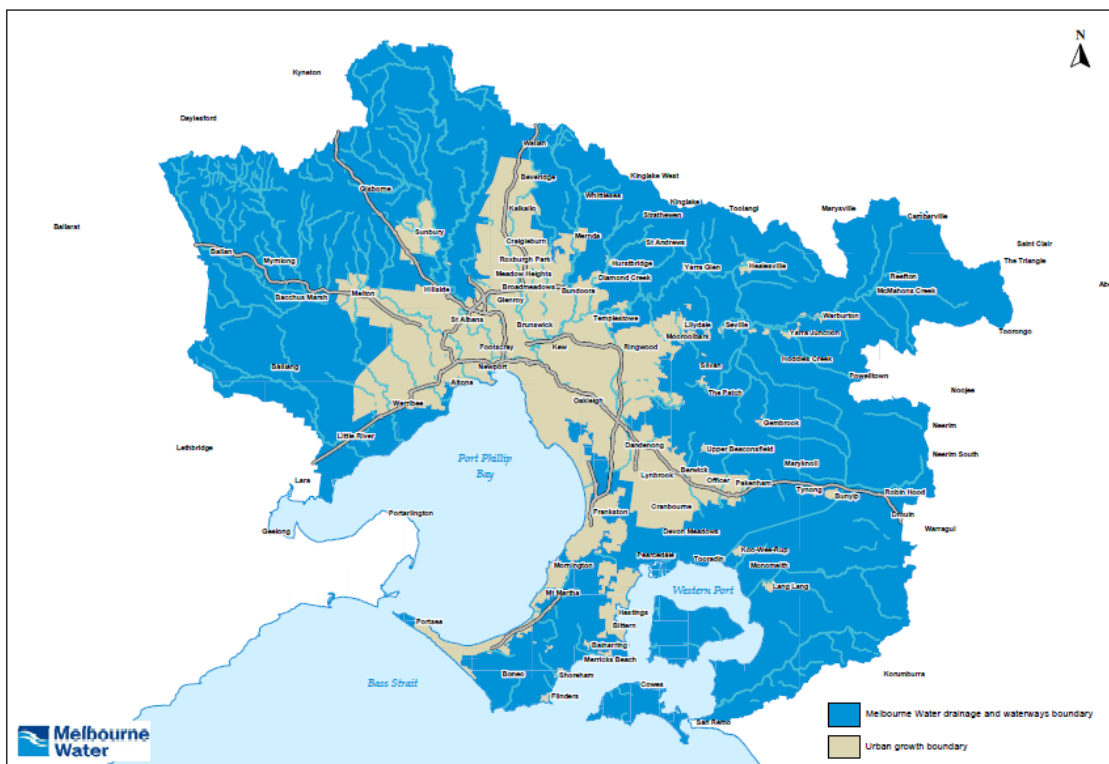
There are no specific laws that dictate what stormwater can be used for, or what quality standards stormwater must meet. However, individuals and organisations responsible for stormwater schemes have a duty of care to make sure their scheme does not put people or the environment at risk. The quality of stormwater and the associated management controls need to be proportional to the level of risk - the more likely it is that stormwater will place people or the environment at risk, the stricter the water quality and management controls need to be.

[The Australian Guidelines for Stormwater Harvesting and Reuse](#) establish the standards and best practice for protecting public health and environment and managing risks that may be associated with stormwater use. These guidelines should be the basis for developing and managing a stormwater use scheme.

Where is stormwater available?

Stormwater can only be harvested within urban areas where significant development has occurred resulting in increased water run off into drains and waterways above what would naturally occur in the catchment if still undeveloped.

To meet the criteria for harvesting, proposals need to be within the Urban Growth Boundary (Port Phillip & Western Port) as defined in the Melbourne 2030 strategic document (see map below) and contained in council planning provisions. For a more detailed view, including which planning zone a property is in, go to the [Department of Planning and Community Development website](#).



It is recognised that outside this boundary there is some development that leads to increased runoff. However, this runoff usually flows into waterways in rural and other non-urban areas where a water licensing and allocation regime is already in place under the Water Act 1989. These flows may also contribute toward environmental requirements, particularly in the summer period, and are therefore not available for stormwater harvesting.

Stormwater proposals must be considered in the context of the entire catchment, recognising the intrinsic value of rainfall in replenishing surface

water flows and groundwater. They must also give consideration to the environmental and social / visual values of urban waterways.

Availability of water will vary from catchment to catchment depending on a range of issues including:

- Catchment characteristics (Level of urbanisation, environmental significance of waterways within the catchment)
- Receiving environment (Bay, Estuary, Freshwater system)
- Existing demands (Urban and rural).

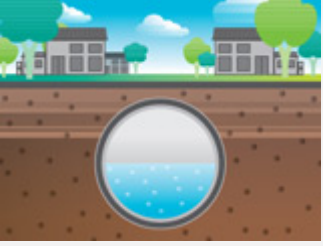


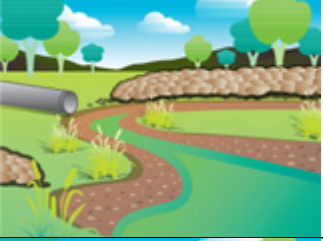
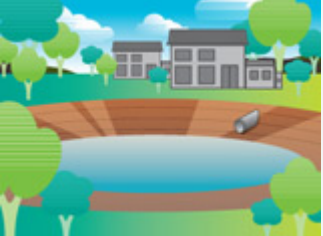
The sub-catchments of a particular type of drainage system vary substantially in the level of urbanisation and environmental significance. The degree of urbanisation influences the volume of water that may occur; while environmental significance influences the volume of water that may be allocated in order to ensure harvesting will not impact significantly on localised and downstream waterway environs. The likelihood of stormwater harvesting approval therefore varies for different sub-catchments depending on its individual characteristics.

Some catchments are considered to be under a degree of stress already through water extraction in the upper reaches and therefore may not have available stormwater. Consideration must be given to any Stream Flow Management Plan or other local management rules in place for a catchment.

Applications for stormwater in flow stressed catchments are less likely to be supported unless it can be demonstrated that the timing of harvesting will be restricted to periods where excess water is available within the catchment.

For all catchments, the impact of stormwater harvesting will be assessed against the regional river health target condition for the receiving waterways.

The table over-leaf gives you an idea if Melbourne Water's is likely to support potential schemes. We suggest that you contact us to get an in principle supporting letter prior to undertaking your formal design.

| | Source | In principle support |
|---|--|--|
|  | Drain – Council | |
| | All council drains | N/A council decision |
| | Drain – Melbourne Water | |
| | Underground pipe drain | Yes |
| | Constructed channel drain | Further information required for case by case assessment |
|  | Waterways | |
| | Natural waterways | No |
| | Modified waterway | Further information required for case by case assessment |
|  | Wetlands | |
| | Constructed wetland – on waterway | No |
| | Constructed wetland – on drain | Further information required for case by case assessment |
| | Constructed wetland – off line | Further information required for case by case assessment |
| | Natural wetland | No |
| | Constructed wetland within retarding basin | Further information required for case by case assessment |
|  | Retarding basin | |
| | Retarding basin – on waterway | Further information required for case by case assessment |
| | Retarding basin – on drain | Yes |
|  | Dams/lakes | |
| | Aesthetic dam or lake – on waterway | Further information required for case by case assessment |
| | Aesthetic dam or lake – off waterway or on drain | Yes |

Decision criteria – sources of stormwater

Questions to consider.

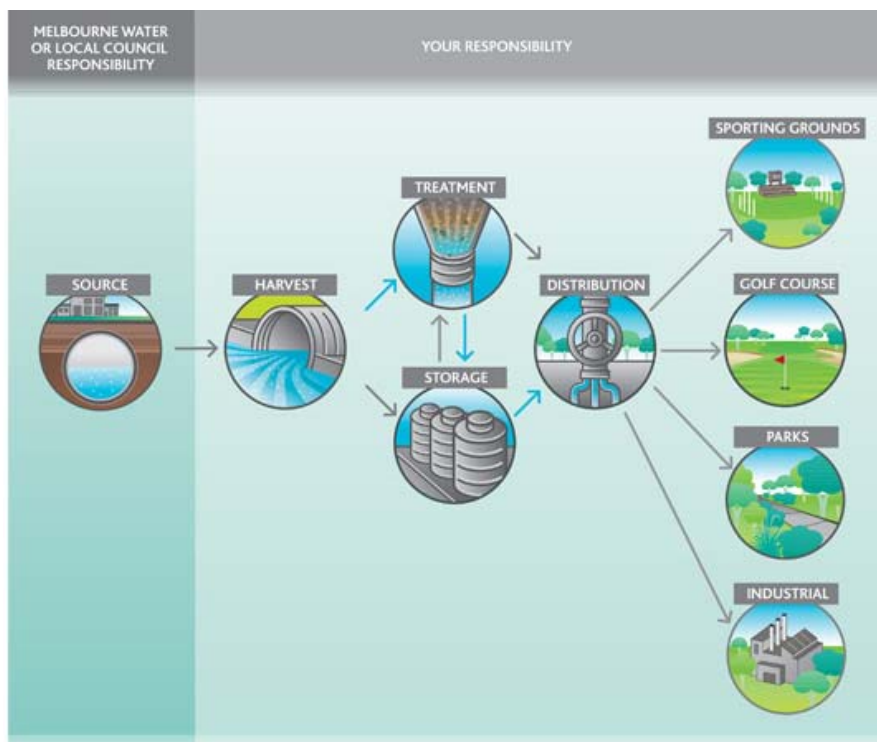
When designing/proposing a stormwater harvesting scheme it is important to keep in mind the following questions as they are the core of our decision making process:

Will my project impact on any downstream environmental values?

To assess this you will need to consider both the site where extraction is occurring and any receiving waterways downstream that may rely on flow from that source to sustain river health. If your project negatively impacts downstream environmental values then there is a good chance the project will not be supported by Melbourne Water. To determine this you may need to undertake a detailed environmental impact assessment and submit this with any application.

Will my project impact the functionality of any assets downstream?

This may relate to maintaining flushing flows in pipe systems or ensuring water quality features of a wetland are not compromised through harvesting. If your project impacts the functionality of assets then there is a good chance that it may not be supported by Melbourne Water.



Stages in a stormwater harvesting scheme:

How do I get the permissions to take the stormwater?

You will require certain permissions from Melbourne Water to undertake your project. In order for us to assist you with your project we have developed a method to help you. You may also require other permissions from other organisations e.g. EPA.

| Status of scheme | Process | Outcome |
|------------------|--|---|
| Concept | Pre-application – use our online system to tell us about your project. We will review the information and respond with an ‘in principle letter’ at no cost to you. | ‘In principle letter’ of support or further advice if the concept is unsuitable. This letter then enables you to make a formal application. |
| Detailed design | Formal application – use our online system to apply for a stormwater harvesting licence and stormwater connection. We will review the application and respond accordingly. Fees apply to a formal application. | You will be granted stormwater harvesting licence approval and stormwater connection approval. You will require these approvals for your project. Or we may consider your proposal inappropriate and refuse the application. If this situation arises we will discuss the decision with you. |

Melbourne Water does not guarantee the quantity or quality of the stormwater available at any location. Risks associated with security of supply and whether water is fit for purpose are to be borne by the applicant.

How much will it cost to obtain the permissions?

The pre-application process is free but there are fees in the formal application process including annual fees going forward once a licence is issued. An applicant will need to meet the cost of a Melbourne Water meter as well as pay for connection fees associated with the works undertaken on Melbourne Water assets. Information on these charges can be found on our web page.

How Do I Make An Application?

To make application for a stormwater licence Melbourne Water will require the following:

- A stormwater application form completed in full and signed by the party who will hold the licence. Application forms are available from Melbourne Water or on the website at www.melbournewater.com.au/stormwaterharvesting.
- A cheque made out to Melbourne Water Corporation for the relevant application fee and stormwater connection fee. Check our website or contact Melbourne Water for the correct amount.
- Hydrologic analysis and modelling of the proposal. The modelling should be undertaken for the off-take location, as well as for the overall total catchment. It will need to show current flows along with expected change in flow condition as a result of the harvesting proposal. The modelling needs to take account of an average and a dry year and be conducted to a weekly time scale.
- Works Plans for proposed works including proposed operation and maintenance. These should be properly engineered drawings detailing the works and include locality plan, detail plans and suitable cross sections.
- Copy of title(s) for the property where water will be used.
- Irrigation and Drainage Plan detailing the irrigation requirements and scheduling of application as well as drainage and runoff controls to be put in place on the site.
- Details of existing or proposed storages.
- Digital Photos of proposed pump / works locations.
- Demonstrated evidence that the applicant has obtained permission or consent from the owner of any land on which the works are, or will be, situated.

Upon receipt of the above Melbourne Water will assess the application and advise the applicant further. All licences issued will be required to be metered using a Melbourne Water supplied meter. Further advice is available by contacting Melbourne Water's Diversions team.

Quick tip:

For information on underground assets, please call Dial Before You Dig on 1100