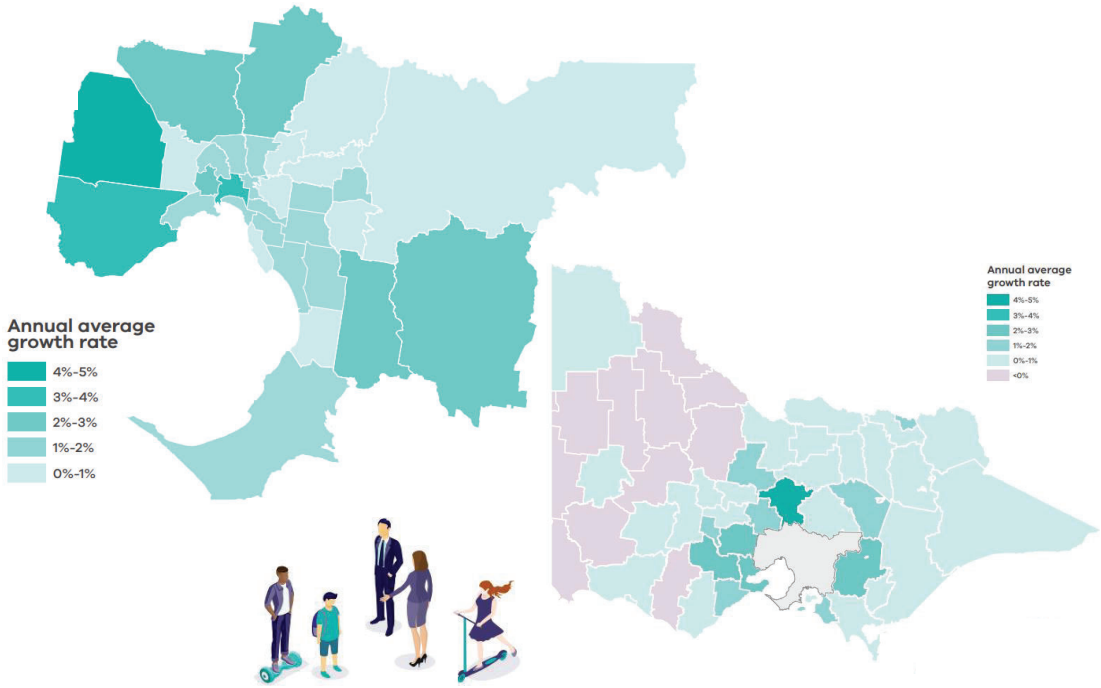
Stormwater planning for cooler, greener environments and healthier waterways – Why & policy context

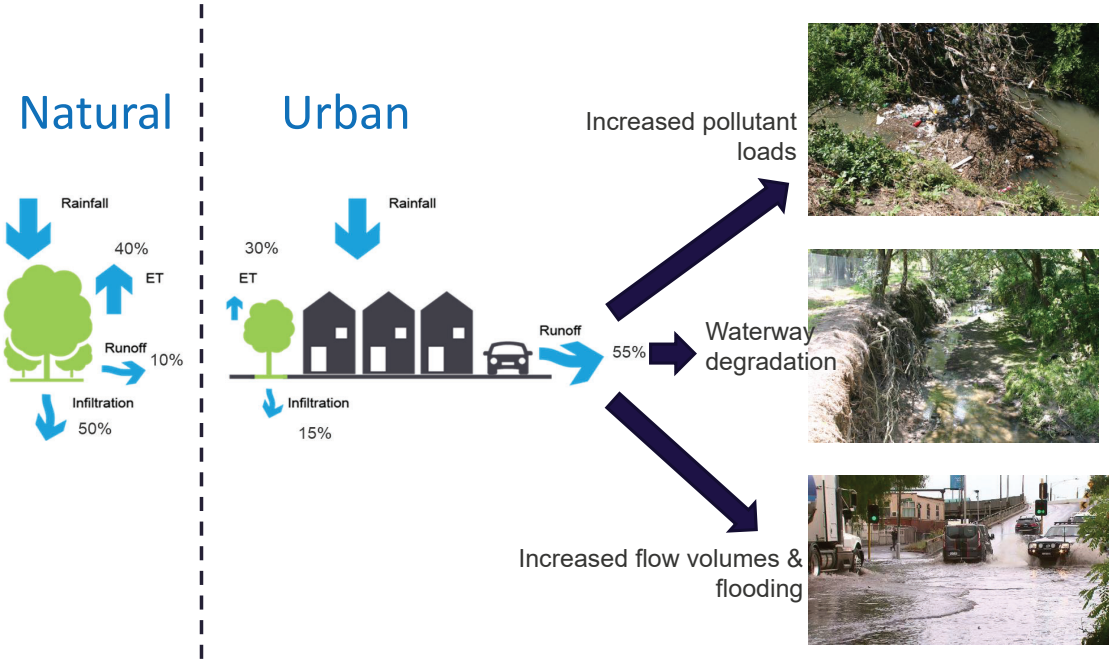
Mandy Bolton

VICTORIA State Government | Energy, Environment and Climate Action

Why? Impacts of population growth and climate change



Impacts of stormwater on receiving waters



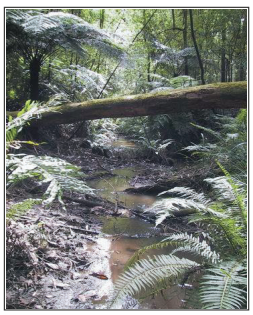
Impacts of stormwater on receiving waters

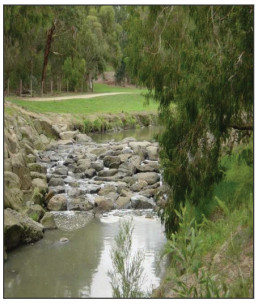
Natural

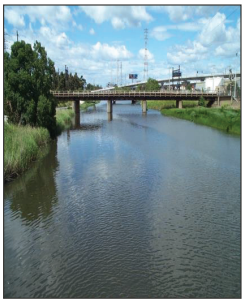
0% imperviousness
(hard surfaces)

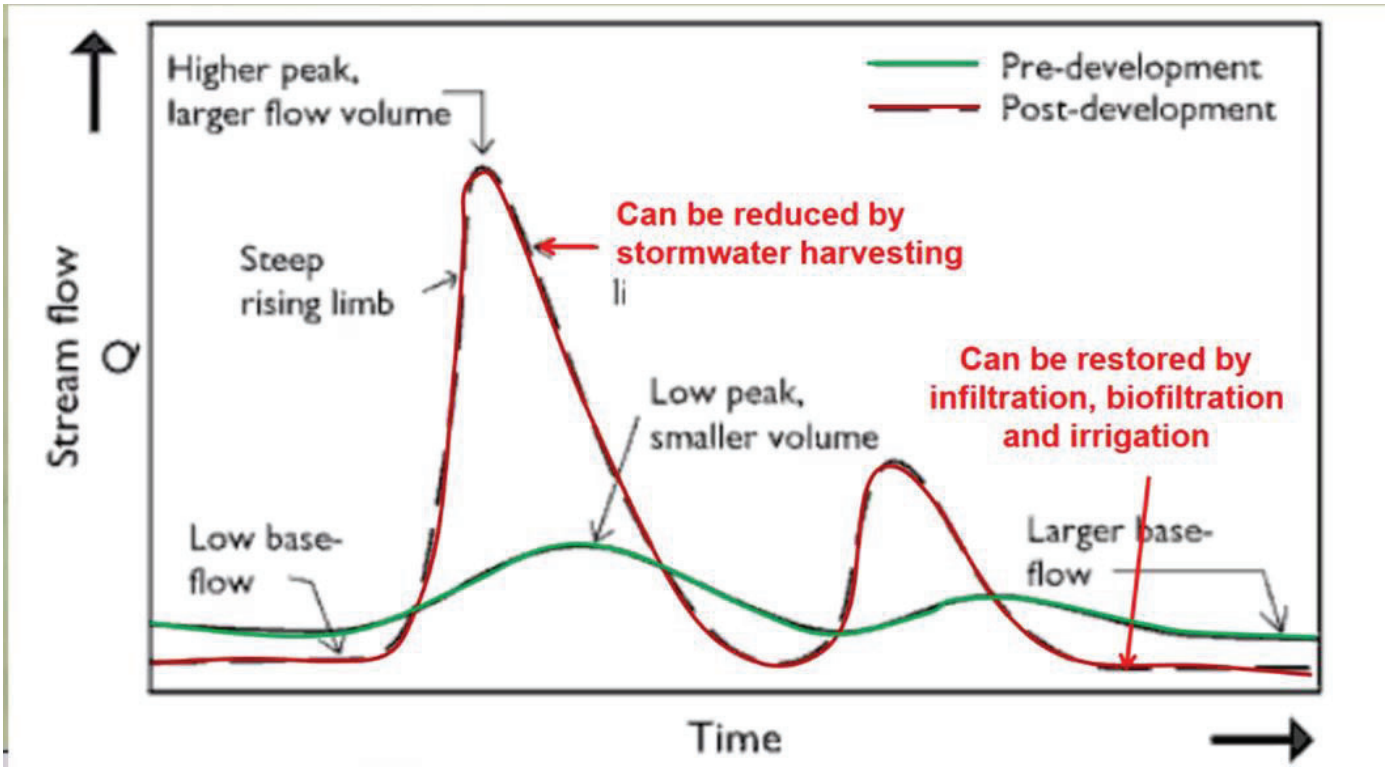
Fully urbanised catchment

60% Imperviousness
(hard surfaces)

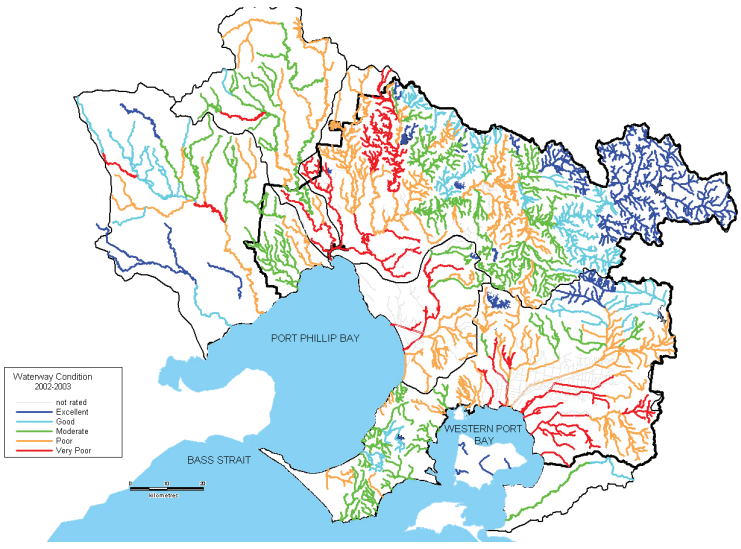








Impacts of stormwater on waterways

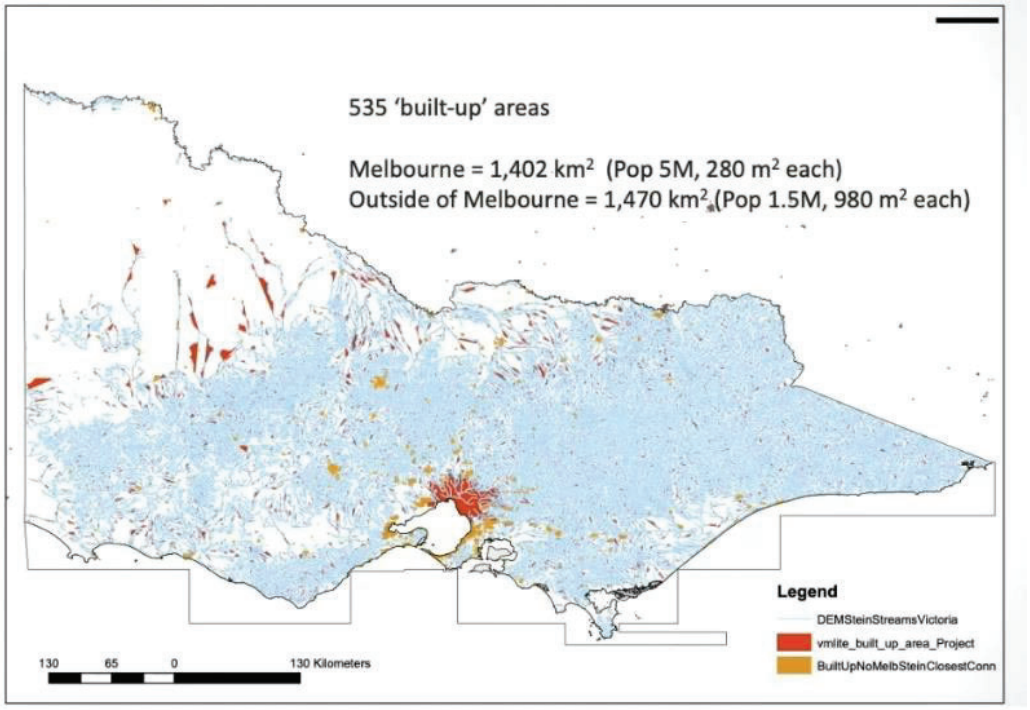


28% good or excellent condition (good health)

25% moderate condition (impacted)

47% poor or very poor condition (degraded)

Built-up areas and stream network



State policy context for cooler, greener environments and healthier waterways

- Water for Victoria
- Plan Melbourne
- Yarra Strategic Plan
- Port Phillip Bay Environmental Management Plan
- Central & Gippsland Region Sustainable Water Strategy

IWM Framework for Victoria

IWM Forums established for:

- Each of the major waterway catchments of Greater Metro Melbourne (5)
- Regional areas defined by water corporation boundaries (10)

Key partners:

- Local Government, Catchment Management, Authorities, Traditional Owners, Water Corporations, others as relevant e.g. Victorian Planning Authority

The role of the planning system in stormwater management

Development types required to meet Victoria's stormwater planning requirements

Since 2006

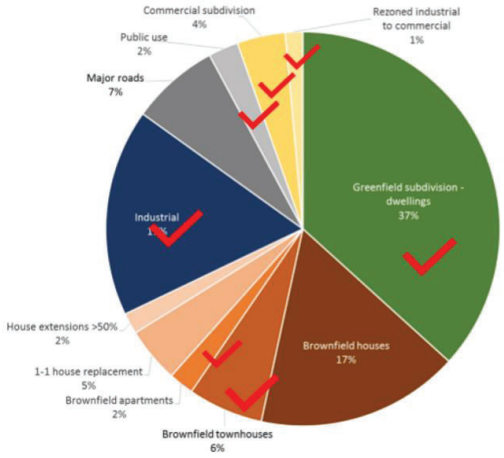
- Residential subdivision

Since 2017

- Apartments

Since 2018

- Residential multi-dwellings (e.g. townhouses)
- Commercial subdivisions and developments
- Industrial subdivisions and developments
- Public use developments



Future development: estimated impervious area 2020-2050

6

11

Stormwater planning for cooler, greener environments and healthier waterways – tools & resources

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Capacity building initiatives underway by DEECA

Training and information sessions

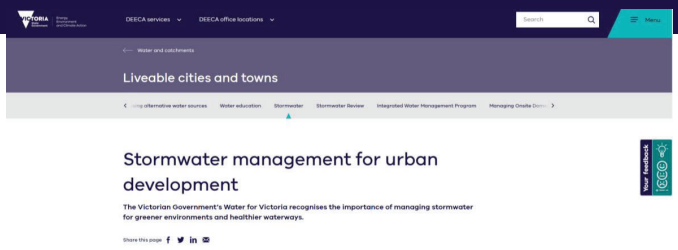
- 44 information sessions have been delivered statewide to an audience of over 2000 people

Resources

- DEECA stormwater planning website, checklists and guidance
- Online Navigator Tool Resource Portal

Developed in partnership between DEECA and Clearwater

DEECA resources: website, checklists and example development scenarios



https://www.water.vic.gov.au/water-sources/diverse-water-sources/stormwater-management-for-urban-development

Stormwater report checklists – handy compliance reference for applicants and assessors

1. Subdivision
2. Buildings and works

Example development scenarios - cross reference checklists and provide further detail and resources

1. Non residential building and works (such as commercial/retail)
2. Medium to high-density residential building and works (such as apartments)
3. Multi-dwelling building and works (such as townhouses)
4. Non-residential subdivision

Stormwater checklist: for buildings and works

This checklist is a handy reference guide to support compliance with stormwater management requirements for residential and non-residential buildings and works, under relevant clauses of the Victoria Planning Provisions.

This includes buildings and works covered by 53.18-6 (Site management objectives), and relevant stormwater buildings and works provisions under Clauses 55.03-4 (Permeability and stormwater management objectives), 55.07-5 (Integrated water and stormwater management objectives) and 58.03-8 (Integrated water and stormwater management objectives) under the Victoria Planning Provisions (VPP).

The development application should consider the information required by your approval authority to satisfy requirements, including but not limited to the items in the checklist below. Please note that the requirements listed below may differ for different development types and from council to council.

Some councils may ask for a site layout plan showing the Water Sensitive Urban Design (WSUD) treatment systems proposed, demonstrating that there is space to accommodate such treatment and that it satisfies all VPP objectives and standards. The design detail for each WSUD treatment system may then be a requirement of permit if a planning approval is granted.

Conversely, other councils may require design detail and supporting information as part of the application assessment process (before a decision on the outcome of the application is determined).

It is recommended that you check the requirements with your relevant local council.

A: Proposed development description

- ☐ **A1:** Describe the proposed development, i.e. describe the land use, anticipated tenancy, buildings and works, number of car parking spaces, expected number of occupants, etc.

B: Site layout plan, catchment areas and WSUD treatment systems

- ☐ **B1:** Provide a site layout plan showing all building roofs and covered areas, pervious (unsealed) surface areas and impervious (unsealed) surface areas with dimensions. These details must be consistent with the plans and other documents lodged with the planning application.
- ☐ **B2:** Show the site boundary, dimensions, and total site area on the site layout plan.
- ☐ **B3:** Show the location of the Legal Point of Discharge (LPOD) on proposed plans. This is generally requested from the council and should be to the municipal drainage system with direction on how the connection is to be made, e.g. connect to underground pipe, to gutter, etc. Show all drainage pipe infrastructure on a plan. The specific depth of LPOD is required only for systems which include an underground drainage outlet component. Generally, the developer (not Council) needs to confirm the depth of the LPOD.
- ☐ **B4:** Specify the area draining to each downpipe, rainwater tank and LPOD (includes both impervious and pervious areas). Arrows can be used to indicate the direction of flow for impervious surfaces. All impervious areas are to drain to either a WSUD treatment system or directly to the legal point of discharge. The designer is to group impervious and pervious areas into internal drainage catchment areas.
  Definitions: Impervious areas include roofs, covered areas and sealed surfaces. Pervious

C: Modelling and compliance

- ☐ **C1:** Compliance summary with objectives outlined in the relevant Clause (53.18, 55.03, 55.07 or 58.03).

D: Functional design consideration

Note: This section may be required for inclusion with the planning application, or else the information is to be provided as a condition of permit. Check with your council for advice on which applies.

Note: Under the relevant Clause (53.18, 55.03, 55.07 or 58.03) all applications must be accompanied by details of the proposed stormwater management system, including drainage works and retention, detention and discharges of stormwater to the drainage system.

- ☐ **D1:** Plan from Checklist item B or amended plan required by permit.
- ☐ **D2:** Sectional view of each WSUD treatment showing indicative levels (e.g. a raingarden must show the depth of the various soil profile layers, i.e. filter media, etc.).
- ☐ **D3:** Size of treatment elements, e.g. tank volume, raingarden overall width and length.
- ☐ **D4:** Details of pipe connections between any rainwater tank and end uses, such as toilet/s, laundry, irrigation etc.
- ☐ **D5:** Relative Levels (RLs) for each WSUD treatment including surface level, extended detention depth, filter layers and depth, under drain system, and connection to LPOD.
- ☐ **D6:** Plant species and planting densities to be used in any vegetated treatment systems, in accordance with best practice requirements (e.g. Melbourne Water recommends 6-10 plants/m² in a raingarden).
- ☐ **D7:** For vegetated treatment systems, management of the interface between the WSUD treatment and immediately surrounding areas, e.g. car parking spaces, walkways, lawns, so that the

E: Site management plan

- ☐ **E1:** A statement outlining the environmental protection measures to protect the stormwater system during construction (e.g. sediment, dust, waste, chemicals management).
- ☐ **E2:** Site management measures shown on a plan which is suitable for endorsement.

F: Asset maintenance program

Note: This section may be required by your council. Check with your council for further advice on what is required. It is recommended the following is submitted:

- ☐ **F1:** A clear diagram with labels to identify key elements to be regularly inspected and maintained.
- ☐ **F2:** A checklist summarising key treatment elements, and inspection and maintenance tasks and frequency.
- ☐ **F3:** Outline of who is going to own and maintain the WSUD assets and the associated costs (i.e. future tenants or owners, a body corporate, etc.).

Assessing appropriateness of ongoing maintenance arrangements is critical in ensuring continued function of stormwater management assets.

It is suggested property owners record the location and details of their buried on-site stormwater management

Stormwater checklist: for buildings and works

D: Functional design considerations

Note: This section may be required for inclusion with the planning application, or else the information may be required as a condition of permit. Check with your council for advice on which applies.

Rainwater tank

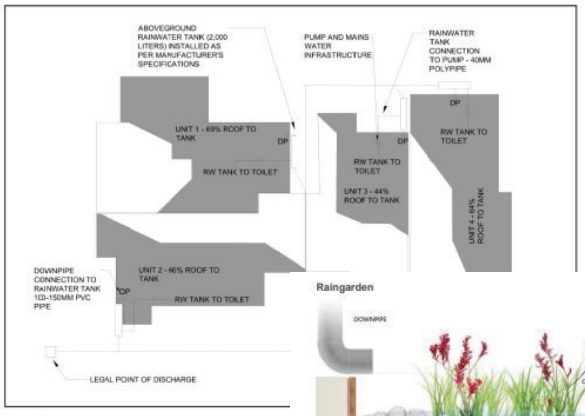


Figure 3: Rainwater tank concept design plan

D: Functional design considerations

- ☐ **D1:** Plan from Checklist item B or amended plan required by permit.
- ☐ **D2**: Sectional view of each WSUD treatment showing indicative levels.
- ☐ **D3**: Size of treatment elements, e.g. tank volume, raingarden width and length, extended detention depth, etc.
- ☐ **D4**: Details of pipe connections between any rainwater tank and end uses, e.g. toilet/s, laundry, hot/cold water and irrigation, as applicable.

Raingarden

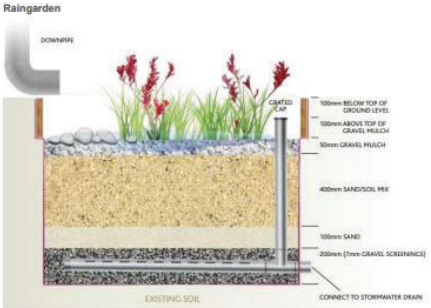


Figure 4: Raingarden cross section

D: Functional design considerations

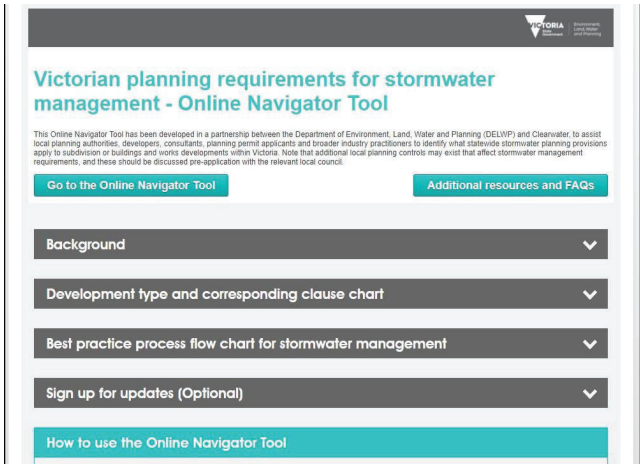
- ☐ **D5:** Levels for each WSUD treatment including surface level, extended detention depth, filter layers and depth, under drain system, legal point of discharge.
- ☐ **D6**: Plant species and planting densities to be used in any vegetated treatment systems. Refer to checklist.
- ☐ **D7**: For vegetated treatment systems, management of the interface between the WSUD treatment and immediately surrounding areas, e.g. car parking spaces, walkways, lawns, so that the WSUD elements and public safety are protected.

Table 2: Plant species preferences

Recommendations for plant types*	
Vegetation for raingarden	*Ficinia nodosa* (Knobby Club Rush)
	Anigozanthus spp. (Kangaroo Paw)

*These are only two of many species which could be used. For purposes of aesthetics other species may also be used to add variety – refer to the resources below. For a development of this size a density of 6-10 plants/m² is proposed.

Online Navigator Tool Resource Portal



[Victorian planning requirements for stormwater management - Online Navigator Tool (clearwatervic.com.au)]

- Decision support tool to assist planning system users identify stormwater management requirements set out in VPPs
- Non statutory guide, supported by checklists and context specific guidance
- Links to DEECA checklists and example development types
- Links to additional resources (e.g. EPA, Melbourne Water, local council)
- Outlines site management and asset maintenance requirements
- Launched in March 2021 – online webinar

Relevant planning clauses and guidance material

Zone	Development Type	IWM/Stormwater clause	Site Management clause
RESIDENTIAL	Subdivisions	56.07	56.08
	Apartments (buildings & works)	55.07-5 B39 58.03-8 D13*	At responsible authority's discretion (65.01)**
	Multi-dwelling (buildings & works)	55.03-4 B9	At responsible authority's discretion (65.01)**
NON-RESIDENTIAL	Subdivisions	53.18-4 W1	53.18-6 W3
	Buildings & Works	53.18-5 W2	53.18-6 W3

* The Permeability and Stormwater Management objectives in these clauses are identical – the applicable clause is dependent on the zoning and number of storeys in the development.

** Clause 65.01 specifies decision guidelines which list matters the responsible authority must consider, as appropriate, before deciding on an application or approval of a plan. This includes consideration of whether a proposed development is designed to maintain or improve the quality of stormwater within and exiting the site. They do not apply to VicSmart permits.

Outlines stormwater and site management VPP clauses that apply to your development.

Provides resources to support development of stormwater report:

- Site layout plan, catchment areas and WSUD treatments
- Modelling to demonstrate compliance
- Functional design consideration
- Site management plan
- Asset maintenance program

DEECA development checklists and example developments

Print PDF summary of requirements and resources

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