

WESTERN WATER

Integrated Water Management Developer Guidance

Edition 1, 2018



For more information call 1300 650 422
or visit us at WesternWater.com.au



Development Integrated Water Management Plans - guidance for developers

Contents

1. Introduction	1
2. An IWM plan for new developments	2
3. Development IWM plans as part of the development process	3
4. Integrated water management considerations	4
5. Key stakeholder IWM strategies contributing to Development IWM Plans	5
6. Objectives for integrated water management planning	6
7. Services integration	7
8. Western Water support	7
9. Requirements of a Development IWM Plan	8
10. Water cycle management interventions - examples	11
Appendix 1: Example Development IWM Plan structure	13



1. Introduction

The purpose of this guidance document is to provide assistance to developers and their consultants to ensure that Integrated Water Management Plans for their new developments advance water management solutions that support the values of the community into the long-term.

Western Water's Integrated Water Management Strategy aims to safeguard the region's water resources for the future.

At its foundation is the need to work closely with regional partners and stakeholders to develop innovative, sustainable, integrated opportunities for managing the urban water cycle for the benefit of the community and the broader region.

This strategy is aligned with the Victorian Government's policy for water, Water for Victoria, and the Integrated Water Management Framework for Victoria.

Integrated water management (IWM) is an approach to planning the infrastructure and management systems of the urban water cycle. It promotes the collaborative planning and management of water, land and related services to maximise economic and social wellbeing and preserve the sustainability of vital ecosystems.

It encompasses all the services provided by the water cycle including water supply, sewage management, drainage and flood management, waterways and ecosystems, urban amenity, and considers the values of the local community in the development of outcomes and management solutions.

IWM Plans facilitate a more holistic approach to urban water management that enables development, and the provision of water services, while also protecting environmental values and building resilience to climate change.

Planning with an IWM approach and implementing IWM solutions will ensure the best value infrastructure is provided for customers, and the resulting services will support thriving, liveable communities and natural environments.



2. An IWM plan for new developments

The land development process offers a one-time only opportunity for developers and authorities to plan the services and infrastructure that will determine the ongoing liveability and function of a development's future community.

A place based Development IWM Plan brings together the planning and design of all water cycle services and infrastructure across a new development into a single document.

Western Water requires developers to produce an IWM Plan for their development that incorporates water efficiency and alternative water supply measures. Local councils may also require a Development IWM Plan or similar document.

A Development IWM Plan must set out subdivision outcomes and water cycle management initiatives that appropriately respond to the site and any relevant regional, catchment or organisational IWM plans, strategies, objectives or structure plans.

Its documentation is to be undertaken using an integrated water management approach.

An example Development IWM Plan Structure based on that found in the Department of Environment Land Water and Planning's Integrated Water Management Framework for Victoria, is provided in Appendix 1.

Initiatives outlined in the Development IWM Plan addressing Western Water's requirements must be implemented before Western Water can issue a consent of the Statement of Compliance as shown in Figure 1.

A Development IWM Plan covers services provided by multiple organisations. Taking a collaborative approach with all relevant stakeholders through its compliance will ensure it meets the needs of authorities, stakeholders and the future community.

3. Development IWM Plans as part of the land development process

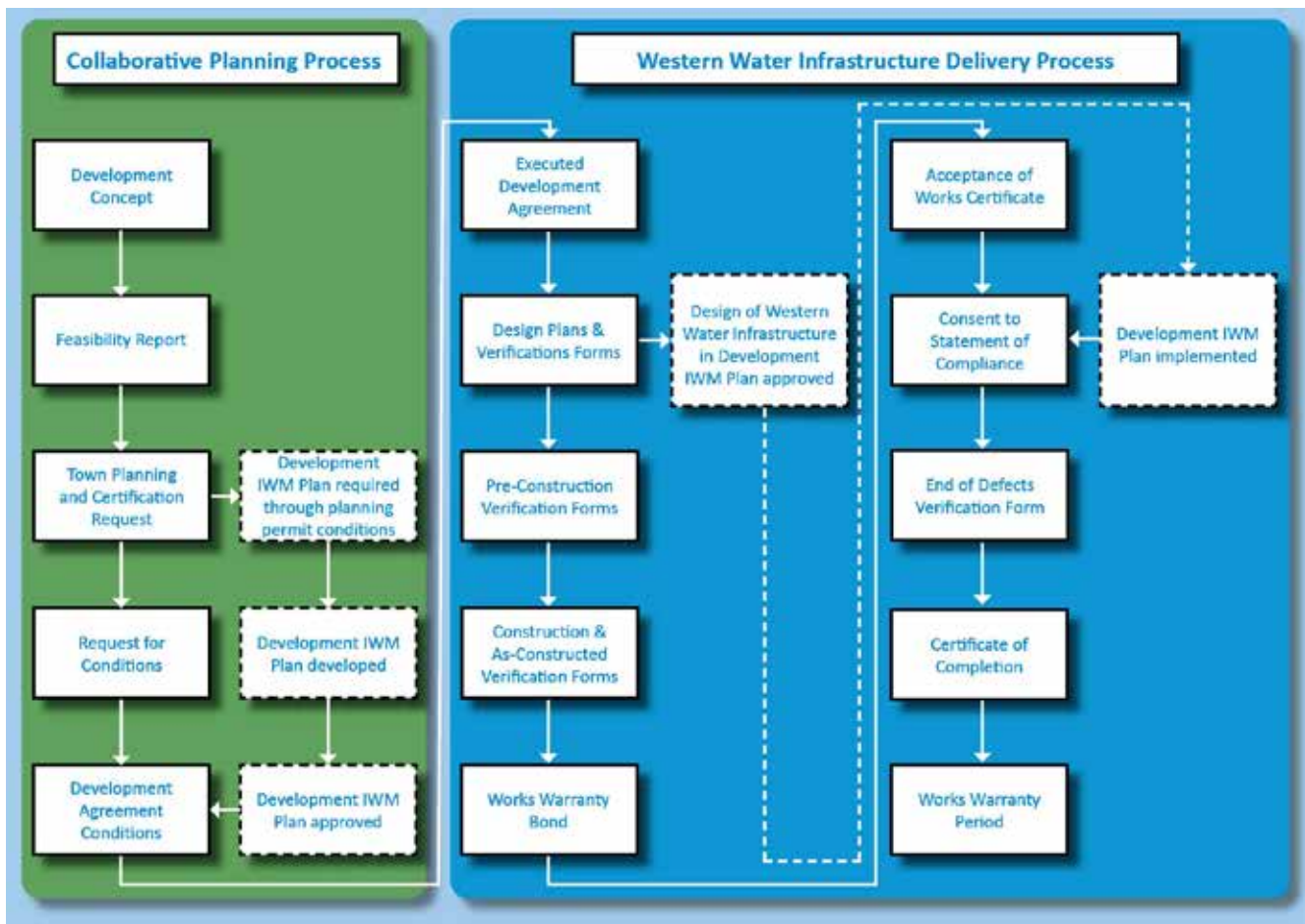
The Development IWM Plan process is integrated into the structured land development process.

The process outlined below separates this process between the collaborative Development IWM Plan compiling, and its implementation.

Regarding implementation, where infrastructure is delivered for a party other than Western Water, a different process may be followed.

This Development IWM process aims to integrate currently fragmented water cycle planning across the various water cycle service providers into a single plan.

Figure 1: Development IWM Plans within the land development process



4. Integrated water management considerations

A Development IWM Plan should consider how to manage water as a strategic resource within a sustainable development framework and should address the requirements outlined in Table 2.

In compiling a Development IWM Plan, consideration should be given to the following:

- Identifying place based issues and opportunities specific to the development's unique location within the catchment, this may for example include opportunities to protect downstream waterways from the detrimental effect of increased stormwater runoff.
 - The scale of a development does not change the need to manage the water cycle. Development IWM Plans must be undertaken for all greenfield and brownfield subdivisions, regardless of size. It is acknowledged that innovative, integrated opportunities for smaller developments may be limited, however, it needs to be demonstrated by the developer that more than a business as usual approach to servicing has been considered.
 - All elements of water cycle management including water supply, sewerage, drainage, waterways and the urban landscape should be considered as an integrated water cycle management system. This approach should recognise new approaches are necessary to conserve our valuable water resources, improve and protect our environment and ensure liveable urban spaces.
- The need to identify, bring together and address existing relevant local or regional water cycle management related strategies and plans, as referred to through Figure 2.
 - The impacts of climate change on the water cycle including changes in stormwater volumes and more frequent extreme weather events.
 - The water cycle is managed by several authorities (not just Western Water) as shown in Table 2.
 - Essential to the Development IWM Plan is input from the various organisations with water cycle management responsibilities during the IWM Plan process. Early engagement with Western Water, council and Melbourne Water in the development of the IWM Plan is advised.



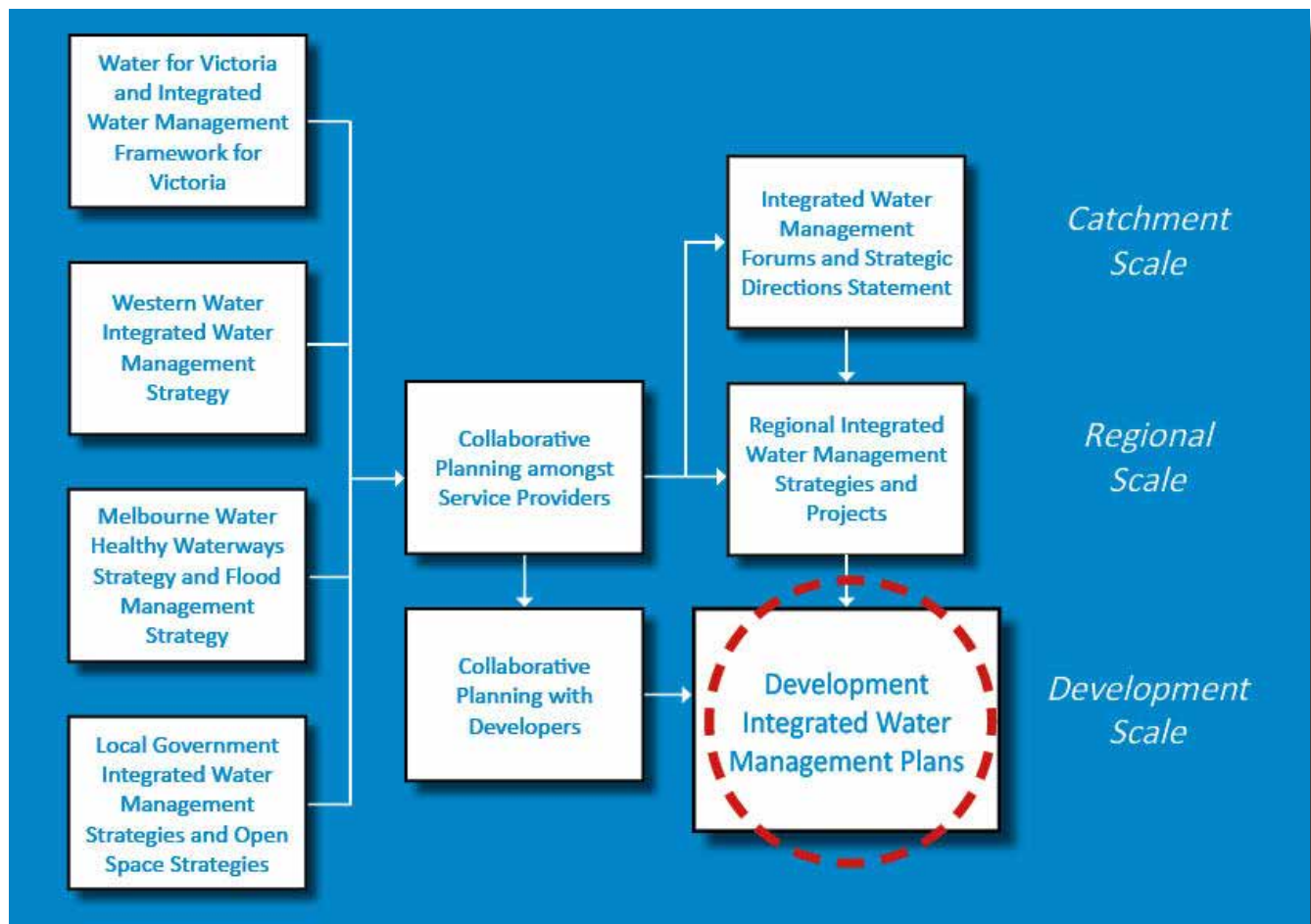
5. Key stakeholder IWM strategies contributing to Development IWM Plans

Collaboration in water cycle planning is taking place broadly across three scales - catchment scale, regional scale and, through the process outlined in this document, at development scale.

The various water cycle service providers typically have strategies and plans covering their services across their service region. IWM involves integrating these activities over a defined area.

The water cycle operates over all spatial scales, and planning its management also requires planning at a range of scales.

Figure 2: Various IWM Strategies across stakeholders and scales and how they feed into Development IWM Plans



6. Objectives for integrated water management planning

A Development IWM Plan considers the five key aspects of water cycle management as outlined below. These reflect common objectives for the Western Water region's respective authorities. Demonstrating how objectives have been considered and addressed through the requirements outlined in Table 2 will result in the endorsement of a Development IWM plan. Some of the objectives are aspirational and go beyond regulatory requirements.

Please note this document is general guidance for all development in Western Water's service region, some Precinct Structure Plans (PSPs) will have other, more specific requirements.

Table 1: Objectives for integrated water management planning

IWM aspect		Service objective
1	Water supply	<ul style="list-style-type: none"> Affordable, safe, reliable and quality potable water services now and in the future to meet mandatory standards for uses requiring potable water. Minimised consumption of potable water. Optimised use of alternative fit-for-purpose water sources (e.g. recycled water, rainwater, stormwater etc).
2	Sewerage services	<ul style="list-style-type: none"> Affordable, safe, reliable and quality sewerage services that protect public health and the environment. Recovery of valued resources from the sewerage system, such as recycled water, is maximised.
3	Drainage and stormwater	<ul style="list-style-type: none"> Manage stormwater in a way that maintains or enhances the pre-development hydrology of the area, minimises downstream impacts and enhances the liveability by retaining water in the landscape. Stormwater is a valued resource.
4	Waterway health and floodplains	<ul style="list-style-type: none"> Ensure natural waterways and floodplains maintain their hydraulic functionality, their ecological condition is improved and these assets offer multi-functional value to the urban landscape. Cultural and heritage values are identified, maintained and enhanced. Urban design maximises the value of waterways and floodplains for recreational use and as habitat for flora and fauna.
5	Land use and urban amenity	<ul style="list-style-type: none"> Ensure land use and open space within the development maximises opportunities for multi-functional use associated with the water cycle and enhances the natural living environment. Land use and open space contribute to urban cooling and mitigate the urban heat island effect. Urban amenity creates urban spaces that enhance the liveability of the community and are resilient in future climate conditions. Connections between community, waterways and open spaces are maximised both locally and within the broader landscape.

7. Services integration

The inherent nature of the urban water cycle means there are interactions between services, and innovative integrated solutions providing beneficial outcomes may be created through understanding and utilising these interactions. For example, urban landscapes require water supply to keep them green and cool, this could be provided from:

- the potable water supply network, with costs for production and transfer
- the recycled water supply network, with costs for production and transfer, and benefits to sewerage system management,
- the drainage system through stormwater harvesting, with costs for production and transfer, and benefits to the drainage system and waterway health, and
- the drainage system through passive irrigation, with no cost for production or transfer, and benefits to the drainage system and waterway health.

A collaborative integrated water management approach to evaluating these various options may demonstrate innovative solutions, or a combination of solutions, are preferred to a business as usual approach.

8. Western Water support

Innovation, and leveraging partnerships and technology to create future opportunities, is a core theme of Western Water's Strategic Plan.

In alignment with this guidance, Western Water will collaborate with developers and other stakeholders to identify innovative solutions that provide community value.

Developers are encouraged to work with Western Water and other water cycle service providers to realise cost-effective, innovative solutions that deliver better community outcomes than a business as usual approach. This collaboration may be as simple as participation in an ideas workshop.

Where there has been engagement and collaboration in the Development IWM Plan process, Western Water aims to assess plans within 28 days of submission to Western Water.



9. Requirements of a Development IWM Plan

The table below summarises the roles and responsibilities regarding water cycle management for the different authorities across the various elements of water cycle management and the expectations and requirements of these authorities a developer is to address in a Development IWM Plan.

Table 2: Water cycle authorities, responsibilities and IWM Development Plan requirements

Requirements for developers for inclusion in their Development IWM Plan	Context	Authority
<p>1. Outline the water cycle resilience and liveability outcomes that will be met through the provision of water cycle services for the development</p>	<p>Planning scheme</p> <p>The Victorian Planning Provisions dictate the regulatory outcomes required of a planning scheme. Typically, these are articulated in Precinct Structure Plans from the Victorian Planning Authority or in council planning schemes. This includes water cycle management outcomes.</p> <p>There may, however, be additional outcomes associated with management of the development's water cycle that are specific to the place in which the development is situated, for example in an IWM Strategic Directions Statement or a Regional IWM Plan. These may be required by an authority or be a specific outcome driven by the developer.</p>	<p>Victorian Planning Authority, Local Councils, Melbourne Water and Western Water</p>
<p>2. Outline how the development will be provided with water supply, sewerage services and/or alternative water supply from construction commencement to full development</p> <p>3. Demonstrate through options analysis, with consideration of other water cycle aspects, how the preferred option achieves IWM objectives and presents best community value</p> <p>4. Undertake a water supply and sewage flow balance for the life of the development</p> <p>5. Outline the measures that will be taken to ensure both potable water and alternative water is used efficiently</p> <p>6. Present geospatially the infrastructure required to provide water supply and sewerage services across the development</p> <p>7. Meet any other relevant requirements as outlined in the applicable Precinct Structure Plan</p>	<p>Water Supply and Sewerage Services</p> <p>Western Water provides potable water, recycled water and sewerage services in Sunbury, Melton, Bacchus Marsh, the Macedon Ranges and surrounds.</p> <p>Typically, subdivided land in Western Water's service region must be provided with reticulated potable water and sewerage services.</p> <p>Depending on the location of the development, these and other services may be provided on-lot independent of Western Water.</p> <p>Western Water's Land Development Manual outlines the process and requirements for developers to build water supply and sewerage infrastructure. In addition to these requirements, and in alignment with Precinct Structure Plan requirements, the IWM Plan will outline how the development will optimise water use efficiency both on lot and across the development broadly.</p>	<p>Western Water</p>

9. Requirements of a Development IWM Plan cont.

Table 2: Water cycle authorities, responsibilities and IWM Development Plan requirements (cont.)

Requirements for developers for inclusion in their Development IWM Plan	Context	Authority
<p>8. Outline how the development will be provided with drainage and waterway services from construction commencement to full development</p> <p>9. Demonstrate through options analysis, with consideration of other water cycle aspects, how the preferred option achieves IWM objectives including meeting or exceeding Clause 56 Best Practice Environmental Management requirements and presents best community value. Including its ability to maintain pre-development hydrology, minimize downstream impacts and improve ecological condition</p> <p>10. Undertake a stormwater flow and pollutant balance for the life of the development</p> <p>11. Present geospatially the infrastructure required to provide drainage and waterway services across the development</p> <p>12. Meet any other relevant requirements as outlined in the applicable Precinct Structure Plan</p>	<p>Drainage, stormwater management and waterway health</p> <p>Melbourne Water provides bulk water supply and sewerage services to water corporations, including Western Water.</p> <p>Melbourne Water also provide waterways and major drainage services across much of the Port Phillip Bay and Westernport Catchment, including most of Western Water's service area which encompasses the Werribee River and Maribyrnong River catchments.</p> <p>Melbourne Water has set conditions on developments so that they are safe from flooding and don't impact other properties or the protection of waterways.</p> <p>Melbourne Water has a range of guidelines and resources online to ensure developers build drainage infrastructure to protect properties from flooding, and waterways from excess stormwater runoff and pollution.</p> <p>Councils provide 'local-scale' drainage services to deliver local flood management strategies.</p> <p>Clause 56.07-4 of the Victorian Planning Provisions, sets stormwater management objectives that residential subdivisions must meet. These objectives are designed to reduce the impact of flows and pollutants to our waterways, bays and ocean.</p> <p>Local councils and the Victorian Government are responsible for Clause 56, and Melbourne Water also plays a role.</p> <p>Local councils have a range of guidelines and resources to ensure developers build minor drainage infrastructure to protect property from flooding, and waterways from excess stormwater runoff and pollution.</p>	<p>Melbourne Water</p> <p>Council</p> <p>Western Water's service area encompasses parts of the municipalities of:</p> <ul style="list-style-type: none"> • Melton City Council • Hume City Council • Moorabool Shire Council • Macedon Ranges Shire Council

Table 2: Water cycle authorities, responsibilities and Development IWM Plan requirements (cont.)

Requirements for developers for inclusion in their Development IWM Plan	Context	Authority
<p>13. Outline how the development will be provided with urban landscape services from construction commencement to full development</p> <p>14. Demonstrate through options analysis, with consideration of other water cycle aspects, how the preferred options achieve IWM objectives and present best community value</p> <p>15. Present geospatially the urban landscape infrastructure across the development, including parks, gardens, street trees and water sensitive urban design components and their associated water services</p> <p>16. Meet any other relevant requirements as outlined in the applicable Precinct Structure Plans</p>	<p>Urban amenity</p> <p>Local councils also provide urban amenity through public open space, streetscape and urban landscape infrastructure and are also a major user of water to support these community assets.</p> <p>Precinct Structure Plans dictate urban amenity requirements, which must be planned for to the satisfaction of the local council. The IWM Plan will outline how these services, and the water cycle interactions, will be provided.</p>	<p>Council</p>



10. Water cycle management interventions – examples

Various examples of water cycle management techniques have been provided below, so developers can evaluate and combine different solutions. By mapping the range of options against each aspect, synergies can be identified. These example interventions across each aspect may be used in a Development IWM Plan. The examples are not exhaustive and demonstrating effective use of new approaches and technologies will be viewed favourably. A combination of several of these interventions is expected for each development.

Table 3: Water cycle management interventions (ticks are indicative of IWM value)

Intervention	Water supply	Sewerage services	Drainage and stormwater	Waterway health and floodplains	Land use and urban amenity
Efficient potable water supply	✓				✓
Class A recycled water supply	✓ ✓	✓			✓ ✓
Class B & C recycled water supply	✓ ✓	✓			✓
Rainwater tanks and reuse	✓ ✓		✓	✓ ✓	
Water efficient appliances	✓	✓			
Local sewer treatment/ recycled water plants (gravity or pressure)		✓			
Sewer mining	✓ ✓	✓			✓ ✓
Aquifer storage and recovery	✓				✓
Stormwater capture and reuse	✓ ✓		✓	✓ ✓	✓
Water Sensitive Urban Design (WSUD) options (raingardens, sediment ponds, wetlands, swales)			✓	✓	✓
Greywater recycling	✓ ✓	✓			
Reticulated sewerage		✓			

Table 3: Water cycle management interventions (ticks are indicative of IWM value) cont.

Intervention	Water supply	Sewerage services	Drainage and stormwater	Waterway health and floodplains	Land use and urban amenity
Passive irrigation systems	✓		✓	✓	✓
Onsite domestic wastewater management		✓ ✓			
Digital metering	✓ ✓	✓ ✓			
Retarding basins			✓		
Rooftop greening			✓	✓	✓
Treed streetscapes, parks and gardens			✓	✓	✓
Water smart vegetation selection	✓			✓	✓
Porous paving			✓	✓	✓
Infiltration trenches			✓	✓ ✓	
Community education	✓	✓	✓	✓	✓
Well established long-term IWM accountabilities	✓	✓	✓	✓	✓

Appendix 1: Example Development IWM Plan structure

The example Development IWM Plan structure table below is provided as a guide and includes references to the various requirements set out in Section 9.

1. Recommendations and summary	Req.
a. Servicing plan	
b. Implementation timeframe	
c. Strategic alignment	
2. Introduction	
a. Project description and service need	
i. Water consumption demand	4
ii. Sewerage services demand	4
iii. Stormwater flow generated	10
iv. Stormwater nutrients generated	10
v. Flood management requirements	
vi. Urban amenity and open space requirements	
b. Success statement	
3. Background	
a. Scope of the plan	
b. Assumptions and constraints	
4. Project partners values	
a. Western Water values	
b. Melbourne Water values	
c. Local government values	
d. Community aspirations (where applicable)	
e. Aboriginal values (where applicable)	
f. Defined accountabilities (where applicable)	
5. Service levels and desired outcomes	1
6. Options analysis	3,9,14

7. Integrated Water Management Servicing Plans	Req.
a. Water supply (potable and alternative)	2,5
b. Sewerage management	2
c. Stormwater management	8
d. Flood protection	8
e. Waterway health protection	8
f. Urban amenity and open space provision	13
8. Implementation	
a. Stakeholder impact analysis (if applicable)	
Appendices	
i. Development maps with PSP features	
ii. Potable Water Network Servicing Plan	6
iii. Sewerage Network Servicing Plan	6
iv. Alternative Water Network Servicing Plan (if applicable)	6
v. Drainage Network Servicing Plan (including Developer Services Scheme)	11
vi. Public Open Space and Urban Amenity Network Plan	15



Integrated Water Management - Developer Guidance has been developed in collaboration with the following integrated water cycle management partners:



Contact us

Website - WesternWater.com.au

Email - feedback@westernwater.com.au

Telephone - 1300 650 425

Mobile and interstate callers - 03 9218 5400

Facsimile - 03 9218 5444

Mailing address - Western Water, PO Box 9371, Sunbury DC Vic 3429

Visit us at - 36 Macedon Street, Sunbury

Hours - 8.30am to 5.00pm

© State Government of Victoria, Western Region Water Corporation (Western Water) 2018. This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the Copyright Act 1968

