



# **Olinda Creek Water Supply Protection Area Stream Flow Management Plan 2007**

**Consolidated version incorporating proposed amendments in 2018**

August 2018

This is a consolidated version of the Olinda Creek Stream Flow Management Plan 2007 (the Plan). It has been prepared from the Plan to include all subsequent amendments made as the Olinda Creek Stream Flow Management Plan Amendments 2018 (Amendments) made in accordance with section 32G of the *Water Act 1989*. This is version 1 developed in May 2018.

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## Aboriginal acknowledgement

Melbourne Water proudly acknowledges Aboriginal people as Australia's first peoples and the local Traditional Owners as the original custodians of the land and water on which we rely and operate. We pay our respects to the Elders past, present and future.

We acknowledge the continued cultural, social and spiritual connections that Aboriginal people have with the lands and waters, and recognise and value that the Traditional Owner groups have cared for and protected them for thousands of generations.

In the spirit of reconciliation, we remain committed to working in partnership with local Traditional Owners to ensure their ongoing contribution to the future of the water management landscape while maintaining the cultural and spiritual connections.

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# Preface

Throughout Victoria Stream Flow Management Plans (SFMP) are used to better manage the surface water resources of particular catchments. The plans are prepared for the benefit of water users and the general community and aim to ensure the surface water in these catchments are managed sustainably.

The Olinda Creek SFMP process commenced in 2004 with the declaration of the Water Supply Protection Area (WSPA). Following this declaration, the Minister for Water established a consultative committee who developed the Olinda Creek Water Supply Protection Area Stream Flow Management Plan 2007 following extensive discussions, considerations of technical work, and in response to public submissions.

In 2013 a five-yearly review of the Olinda Creek SFMP operation was undertaken. The review recommended that amendments could be made to improve the SFMP, which included:

- Reduced diversion ban triggers for most months in the lower catchment (based on new minimum environmental flow requirements determined by the 2013 environmental flow study)
- Updated target allocation caps for all-year and winter-fill licences based on the environmental flow study recommendations
- Altering the metering prescription in the SFMP which is considered impractical to implement
- Amending contradictory licence transfer prescriptions.

In November 2016 the Minister for Water appointed the Olinda Creek Stream Flow Management Plan Amendment Consultative Committee to develop and advise on the proposed amendment to the Olinda Creek Water Supply Protection Area Stream Flow Management Plan. The members were appointed under Section 29 of the *Water Act 1989*.

## **Olinda Creek Stream Flow Management Plan Amendment Consultative Committee members**

Mr Sam Violi (Chair)	Licensed water user
Mr Henry Kita	Licensed water user
Mr Bruce Adams	Licensed water user
Mr Shayne Van Der Klift	Licensed water user
Mr Richard Charylo	Licensed water user
Ms Jeminah Reidy	Environment Victoria
Ms Vivian Amenta	Department of Environment, Land, Water and Planning
Ms Edwina Manifold	Melbourne Water
Ms Beth Wallis	Yarra Ranges Council
Ms Clare Worsnop	Mt Evelyn Protection and Progress Association

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This document details the revised Olinda Creek Water Supply Protection Area Stream Flow Management Plan, incorporating the amendments established by the Amendment Consultative Committee. It is prepared in two parts. The first part is the explanatory text which provides the background for the development of the plan, including the amendments, and explains the reasons why the various recommendations have been made. The second part contains the SFMP prescriptions and schedules.

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# Glossary and acronyms

**All-year licence:** A licence that allows harvesting of water from a waterway any time during the year.

**Catchment dam:** A dam that is not located on a waterway and which captures rainfall run-off from the catchment.

**Cap:** An upper limit placed on licence allocations.

**Commercial use:** Water used for irrigation of produce to sell and for industrial uses such as cooling or dairy washing

**Winter-fill licences:** Licences to fill on or off stream dams during the winter-fill period. The licence is limited to the volume of the storage. Also known as dam-filling licences.

**Winter-fill period:** The wetter months of the year when flows are high enough to allow additional water to be harvested over and above extraction by all-year licence holders. Also known as dam-filling period.

**Domestic and stock licence (D&S):** A licence to take water from a waterway for use in, and around, a house or for watering of stock, but not for commercial purposes.

**Environmental flow:** A pattern of stream flows that maintains or improves aquatic ecosystems and their habitats by mimicking the size and timing of natural flows.

**Fresh flow:** Stream flow peaks occurring after rain. These peaks partially fill the river channel for a number of days. They 'freshen' the creek by providing water to flush the system and to rejuvenate the aquatic life.

**High flow:** Stream flow peaks occurring after rain. These are flow events with longer duration than freshes, these flows cover streambed and low in-channel benches.

**Natural flow:** The flow that would exist if there was no harvesting of water by dams or direct extraction. Natural flows are estimated by adding an approximation of the water taken out of the catchment back onto the flows that are recorded at a stream gauge.

**Macroinvertebrate:** Animal species without a backbone that can be seen with the naked eye. Macroinvertebrates are commonly used as a measure of stream health.

**Median:** The middle number of a set of numbers, such that half the results are greater than the median and half are less than the median.

**ML:** Megalitre, one million litres. Approximately the size of an Olympic swimming pool.

**Off-stream dam:** A storage which is not located on a waterway but is filled with water pumped from a waterway.

**On-stream dam:** A storage that is located on a waterway.

**Reliability of supply:** A percentage chance of being able to fully obtain a volume of water in any year.

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**Sleeper licences:** Licences held but not utilised.

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# **1. Background**

## **1.1 What is a Stream Flow Management Plan?**

The object of a Stream Flow Management Plan is to manage the water resources of the area in an equitable manner so as to ensure the long-term sustainability of those resources. It is developed by a committee that represents all relevant interests in the area.

A Stream Flow Management Plan defines the total amount of water in a catchment and describes how it will be shared between the environment and water users. In preparing a Plan, community involvement is necessary to ensure community needs are fully understood and that essential background knowledge is considered.

It aims to recognise the needs of licensed water users whilst maintaining or improving waterway health by protecting minimum flows for the environment.

## **1.2 Stream Flow Management Plans in the Yarra Basin**

This Plan has been prepared as a part of Melbourne Water's program for managing priority catchments throughout the Yarra River basin. This program will see continual review of existing plans, and the development of other diversion management actions (such as Local Management Plans) as required.

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## **2. Development of the Plan**

### **2.1 How is a Stream Flow Management Plan developed?**

The original (2007) Olinda Creek Stream Flow Management Plan was developed and approved by the Minister for Water in 2007. The original plan was developed by a Consultative Committee (the Consultative Committee) consisting of Olinda Creek water users, Melbourne Water staff, representatives of environmental interests, Shire of Yarra Ranges and key government agencies.

In 2013, Melbourne Water conducted a review of the 2007 Stream Flow Management Plan. Based on new scientific studies of the catchment and feedback from the community, it was decided that amendments should be made to the plan. A new Olinda Creek Stream Flow Management Plan Amendment Consultative Committee (the Amendment Consultative Committee) was ministerially appointed to undertake this amendment process which has occurred between 2013 and 2018. This committee included representatives from the same groups as the original Consultative Committee.

Using advice from numerous scientific and other studies (listed in the References section), the Amendment Consultative Committee identified improvements that could be made in the management of water licences and negotiated a series of recommendations that aim to both balance security for water users and maximise environmental gains.

This Plan, the Amended Olinda Creek Stream Flow Management Plan incorporates amendments made up to 2018 and includes the recommendations from the Amendment Consultative Committee.

### **2.2 Consultation and information available during Plan development**

The development of the Amended Olinda Creek Stream Flow Management Plan will involve consultation to ensure that the rules are relevant to local stakeholders and conditions. Stakeholders are being informed and involved during the development of the Amended Olinda Creek Stream Flow Management Plan through the following activities and communication.

- Amendment Consultative Committee membership – including local water users, relevant authorities, interest groups
- Amendment Consultative Committee meetings

The consultative committee published a draft Plan in May 2018 for the consideration of water users and the broader community. The Amendment Consultative Committee will consider the issues raised by the community submissions and amend the Plan in response. A summary of the Committee's response to the submissions will be provided in Appendix 1 of the final document. The feedback received will be forwarded to the Minister for Water, along with the Committee's responses.

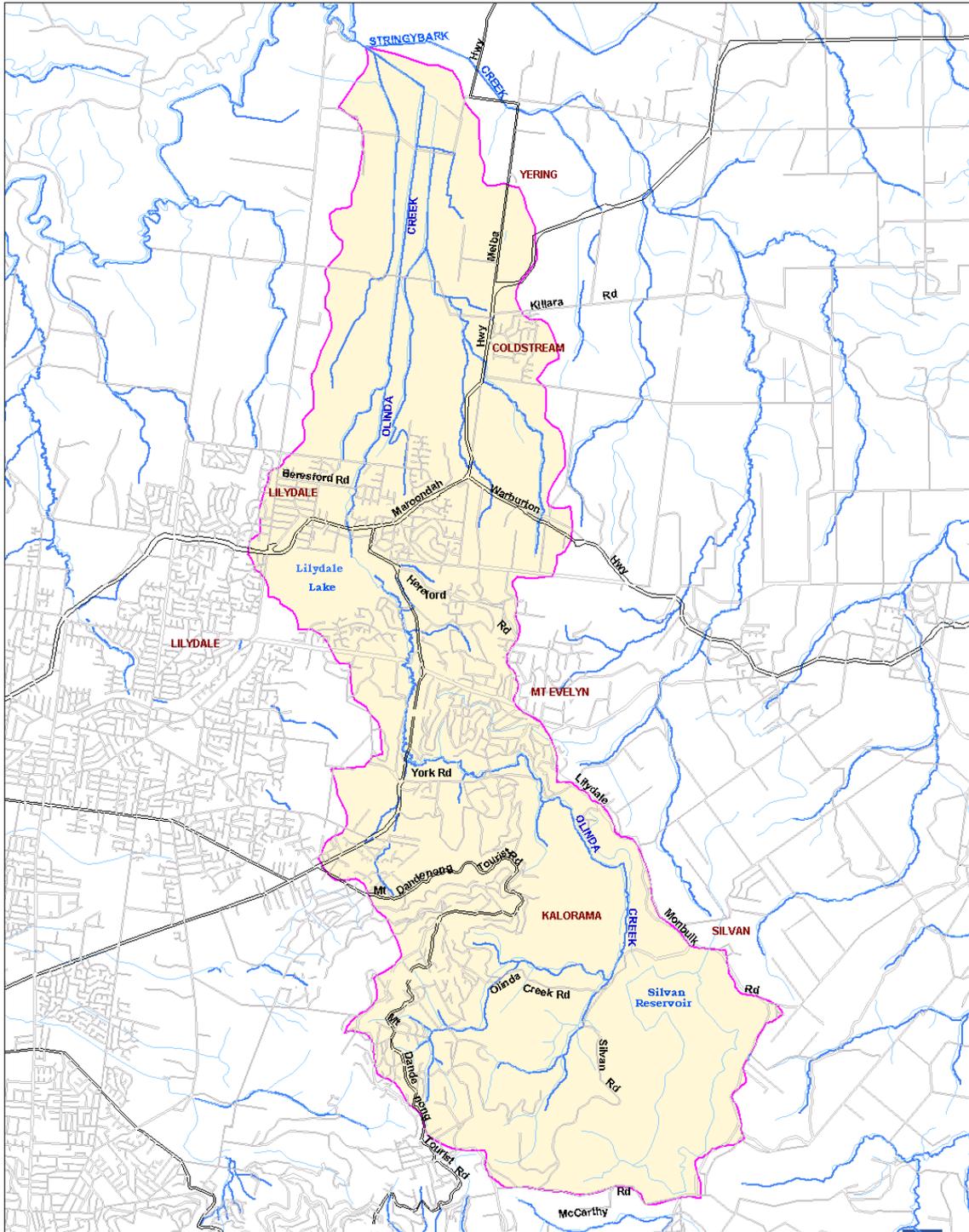
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## **3. The Olinda Creek Catchment**

### **3.1 The Water Supply Protection Area**

The Amended Olinda Creek Stream Flow Management Plan applies to the catchment of Olinda Creek. In accordance with the *Water Act 1989*, Section 27, Melbourne Water advertised the Water Supply Protection Area for Olinda Creek in August 2002. After reviewing public submissions, the Minister for Environment and Water declared the Olinda Creek catchment a Water Supply Protection Area in December 2002.

This Plan applies to the surface waters of the Water Supply Protection Area, which is shown in Figure 1 below.



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	Major Road		Minor Road
	Major Waterway		Catchment Boundary
	Minor Waterway		

**LEGLJ02-0028**

**Olinda Creek Catchment**  
**Water Supply Protection Area**

Approx. Scale 1:60,000



Figure 1. Olinda Creek Water Supply Protection Area

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## **3.2 Catchment description**

Olinda Creek is a tributary of the Yarra River, rising in the Dandenong Ranges. It flows northward through the townships of Kalorama, Mt Evelyn, Lilydale, and the Coldstream district before flowing into the Yarra River. The catchment is approximately 82km<sup>2</sup> and supports a diverse range of native bird, reptile, macroinvertebrate and mammal species, several of which are threatened or endangered. Silvan Reservoir is situated in the upper catchment at Silvan and supplies water to Melbourne's urban demand centre, and while Silvan Reservoir does not collect significant volumes of water from the Olinda Creek catchment, it provides constant minimum flow releases of 2 ML/day to Olinda Creek.

The natural flow regime of Olinda Creek has been significantly altered, primarily by the diversion of water for irrigation and stock and domestic purposes. Irrigation licences and farm dams (particularly unlicensed farm dams) represent the greatest consumptive water demand in the Olinda Creek catchment (SKM, 2012a). The constant outflow from Silvan Reservoir also contributes to the altered flow regime, as does the output from Lilydale Sewage Treatment Plant.

### **Lillydale Lake**

Lillydale Lake is primarily a 'wet' retarding basin constructed by Melbourne Water to protect downstream properties from the effect of major flooding. The lake averages approximately 1.5 metres deep, with a maximum depth of 3 metres. The presence of the lake on the floor of the basin has no impact on the capacity of the retarding basin to mitigate flooding. Two islands were constructed to reduce reach lengths and thus wave sizes to limit erosion.

In addition to the main lake, a series of wetlands were constructed to protect water quality in the lake. At the time of construction the Shire of Lillydale also created a park adjoining the lake, to maximise its enjoyment by the public.

Construction of the complex was completed in 1988 and was named Lillydale Lake to reflect the Shire of Lillydale's desire for the lake to be considered an asset for the entire shire, not just the township of Lilydale, hence the now odd spelling of Lillydale.

### **Lilydale Sewage Treatment Plant**

Yarra Valley Water (YVW) operates the Lilydale Sewage Treatment Plant (STP) which discharges treated effluent to Olinda Creek below Lilydale. The STP discharges on average 4.7 ML/day of treated effluent to the creek however this can range between 0.4 and 15.9 ML/day depending on the time of year and rainfall within the STP's catchment.

Yarra Valley Water's operation of the STP is governed by an Environment Protection Authority (EPA) Waste Discharge Licence. The licence details contaminant limits and monitoring requirements for the effluent discharged to Olinda Creek. This information is reported to the EPA annually.

Currently the Lilydale STP has two recycled water customers. Supply to these customers commenced in 2009. Should further recycled water customers be supplied from Lilydale STP in the future, the volume discharged to Olinda Creek from the STP could reduce.

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## 4. Water use within the catchment

### 4.1 Licensed water allocations

Licences are required to take and use water from a catchment and are issued and managed by Melbourne Water under the *Water Act 1989*. Licences in the Olinda Creek catchment are issued as:

- all-year pumping licences for domestic and stock or commercial irrigation for any month of the year, or
- off stream dam filling during the winter-fill period, or
- on-stream dam harvesting during the winter-fill period, or
- all-year harvesting for irrigation or commercial use farm catchment dams.

Winter-fill licences are issued for the purposes of filling dams by pumping from the waterway during the high-flow period. Water stored in dams can be used at any time of the year, which provides a higher reliability of supply to water users.

Amendments to the *Water Act 1989* enabled a person to obtain a registration licence for water taken from a spring, soak or dam that was used for irrigation or commercial purposes in any year within a 10-year period prior to 4 April 2002.

Farm catchment dams that were licensed or registered are permitted to take water in any month of the year in recognition of their operation prior to the changes to legislation. Landholders who registered their water use cannot transfer the water off their property. However a registration licence can be converted to a standard licence at any time. A standard licence incurs an annual fee and may be transferred.

New farm dams must be constructed to enable them to comply with licence conditions and restrictions.

In June 2017, there were 61 licences in the Olinda Creek catchment with a total allocation of 726.3ML per year (Table 1).

Table 1. Licence allocation in Olinda Creek as at June 30 2017

Licence Type	Volume	Number
All-year licence	556.6 ML	45
Winter-fill licence	119 ML	6
Farm dam registration	50.7 ML	10
Farm dam licence	0 ML	0
<b>Total</b>	<b>726.3 ML</b>	<b>61</b>

### 4.2 Water use not requiring a licence

Water for domestic and stock use can be taken from a waterway without a licence, if the waterway flows through a person's property or the waterway immediately borders a person's property. If a crown frontage or property owned by someone else exists

between a person’s land and the waterway, a licence for domestic and stock use is required.

Water can also be collected in a farm catchment dam without a licence provided the water is not used for any irrigation or commercial purpose, for example, a farm dam used for aesthetic, stock or domestic purposes. The collection of reuse water, within allowable volumes, and the collection of rainwater from a roof, are also exempt from any licensing requirements.

### 4.3 Current licence management arrangements and current water use

Water may be diverted in accordance with licence conditions that typically specify an annual volume and minimum flow triggers to be met before water may be taken. Licence conditions will also specify a permitted area of use or requirement for metering in order to account for water taken. Meters have already been fitted to all active major irrigation and commercial licences in the Olinda Creek catchment (licences greater than 5 ML in volume).

Historically during drought periods, Melbourne Water used the Drought Response Plan for Diverters to protect minimum flows throughout the Yarra basin. Initially, water restrictions were applied uniformly throughout the Yarra basin, regardless of the flow in individual catchments. Melbourne Water set specific restriction levels for the Olinda catchment as a part of the Drought Response Plan review in 2004. For Olinda Creek, catchment specific ban levels were set at 4.5 ML/day in summer, and in winter the ban level was 6 ML/day measured at the York Rd gauge, Mt Evelyn.

The 2007 Stream Flow Management Plan for Olinda Creek developed different diversion ban triggers for the upper (upstream of Lillydale Lake), and lower (downstream of Lillydale Lake) sections of the catchment. Dividing the management of the catchment in this way recognised differences between the two sections of the catchment. These new triggers were introduced gradually in the catchment, with all licences being subject to them by 1 July 2012. Diversion ban triggers for Olinda Creek as set in the 2007 Stream Flow Management Plan are shown in Table 2.

Following further ecological investigations and negotiations with the Amendment Consultative Committee since the 2007 Stream Flow Management Plan, ban trigger levels have been updated and will be discussed in Section 5.5.

Table 2 Existing diversion ban triggers for Olinda Creek as set in the 2007 Stream Flow Management Plan

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Upper catchment (ML/day)</b>	4.5	4.5	4.5	6	6	6	12	12	12	12	6	6
<b>Lower catchment (ML/day)</b>	12	12	12	12	12	12	16.6	16.6	16.6	16.6	12	12

To facilitate the management of the catchment in two sections, a new stream flow gauge was installed at MacIntyre Lane. Stream flows are now monitored at MacIntyre

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Lane, Coldstream for the lower catchment and York Road, Mt Evelyn for the upper catchment. Bans are implemented based on the flow at each of these gauges.

The 2007 Stream Flow Management Plan set an allocation limit (cap) on all-year licence allocations of 685.7 ML. A long-term target for a sustainable all-year licence cap was set at 388 ML which took into account the needs of the environment and licensed diverters. The cap for winter-fill licences was set at 574 ML.

The Yarra Basin cap was established in 2006 to recognise that the Yarra system is already under stress from the existing water demands within the catchment. It allowed for the trade (also known as transfer) of licences within the Yarra Basin, however does not allow the granting of any additional allocation within the system.

The allocation caps established in the 2007 Olinda Creek Stream Flow Management Plan are detailed in Table 3. The granting of new licences in the Olinda Creek catchment is subject to meeting the requirements of both the Amended Olinda Creek Stream Flow Management Plan, and the allocation cap for the Yarra basin.

Table 3 Allocation caps for Olinda Creek set in 2007 Olinda Creek Stream Flow Management Plan

Allocation Cap Type	Cap Volume
All-year licences	685.7 ML
Target all-year licences	388 ML
Winter-fill licences (also known as dam-filling licences)	574 ML

The establishment of a target all-year licence cap was to recognise that the existing level of all-year licence allocation in the catchment was unsustainable. The 2007 Olinda Creek Stream Flow Management Plan required that no new all-year licences be granted until allocation was below the target cap volume. In addition, it required that when trade of an all-year licence occurred, its volume be reduced by 20% in order to reduce the total volume of all-year allocation, until such time the target all-year licence volume was reached.

The allocation cap established in 2007 did provide for the granting of additional winter-fill licences in the catchment, subject to meeting the requirements of the Yarra Basin cap.

Individuals seeking access to additional water in the Olinda Creek system are required to purchase allocation either temporarily or permanently from other licences holders following the rules of the Stream Flow Management Plan.

## 5. Determining Environmental Flows

### 5.1 Stream flow in Olinda Creek

A hydrological model was developed to represent flows and diversions in the catchment and to assess the impacts on water user reliability of supply under several scenarios (SKM, 2002). In 2012, this model was reviewed and updated (SKM, 2012b). The model incorporates available stream flow data from York Rd and MacIntrye Lane gauges, as well as older data available within the catchment to extend model inputs from 1965 to 2011 (inclusive). This hydrological modelling allowed the change between natural conditions and those currently in the catchment to be estimated.

Figure 2 and Figure 3 show the range of stream flows that would have occurred throughout the year if no development had occurred in the catchment (natural stream flows) for the upper and lower catchment gauges.

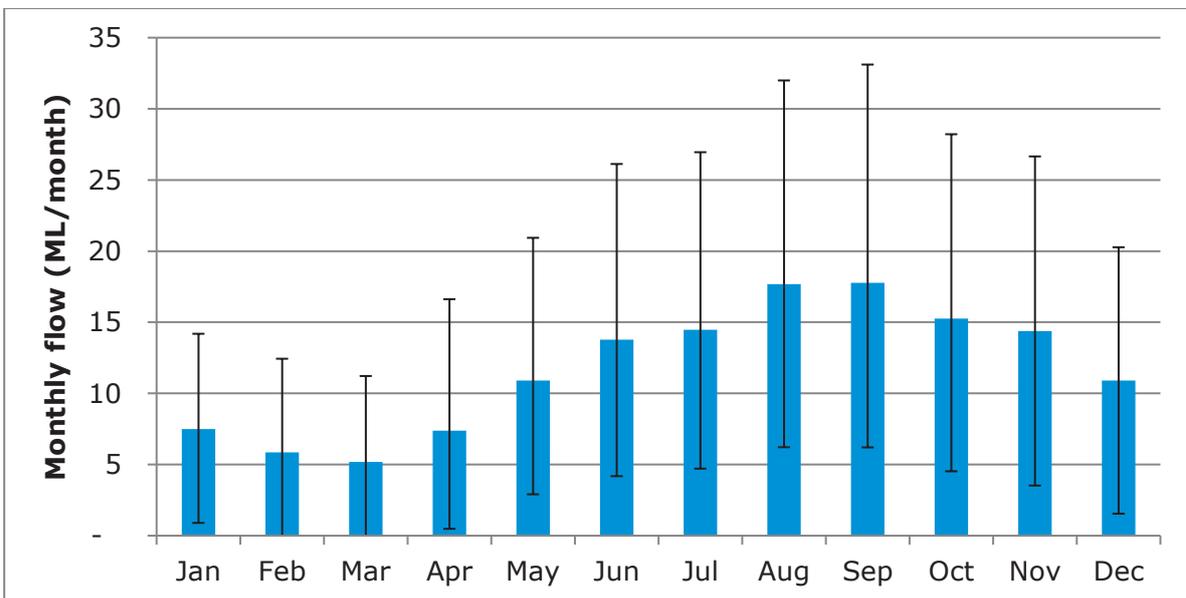


Figure 2 Average natural daily flow each month in Olinda Creek at York Rd, Mt Evelyn. Error bars represent 90<sup>th</sup> and 10<sup>th</sup> percentile flows

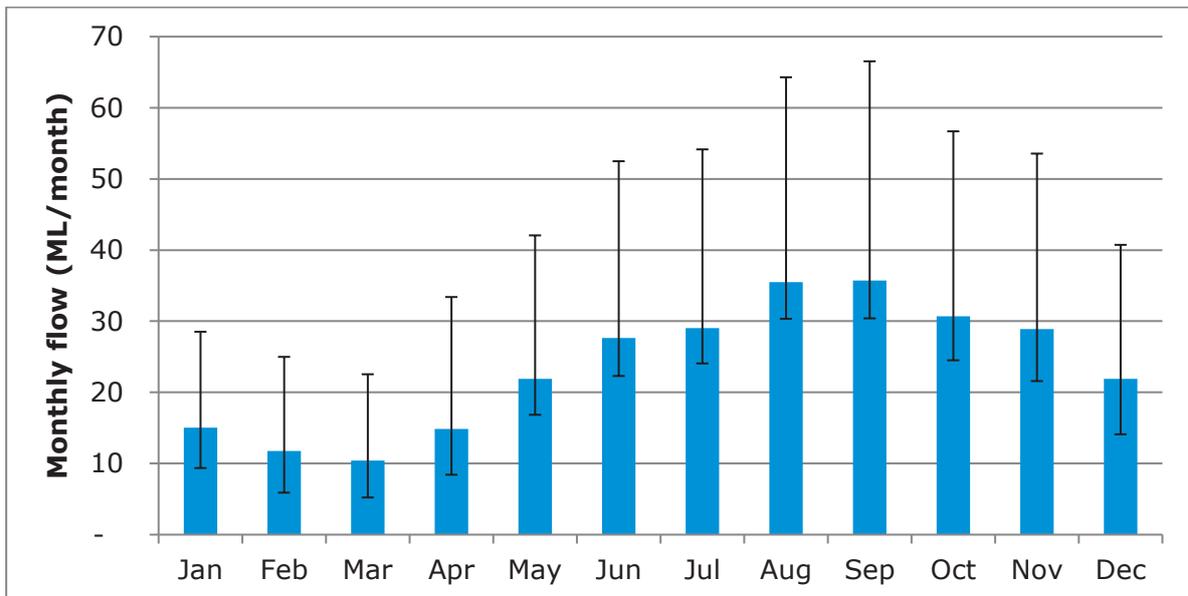


Figure 3 Average natural daily flow each month in Olinda Creek at MacIntyre Lane, Coldstream.

## 5.2 Current flows compared to natural flows

The hydrological modelling found that current practices in Olinda Creek have resulted in changes to the flow regime. In the upper catchment (upstream of Lillydale Lake), the current flow regime is similar in both seasons and magnitude to the natural regime (refer Figure 4). However the current flow regime is slightly higher than the natural flow regime due to the constant release of 2 ML/d of passing flow from Silvan Reservoir (SKM, 2013a). It is noted that the hydrological model does not include natural inflows from Silvan Reservoir catchment and that if those inflows were considered, the current flows would be less than under natural conditions (SKM, 2013a).

These statistics suggest that current flows are similar to the natural flow regime, and for most of the time current water harvesting practices have little if any effect on flow in the upper reaches of Olinda Creek. However, an analysis of low flows shows that flows less than 5 ML/day do occur more frequently in the summer months (December to March) under current conditions compared to natural conditions (SKM, 2013a).

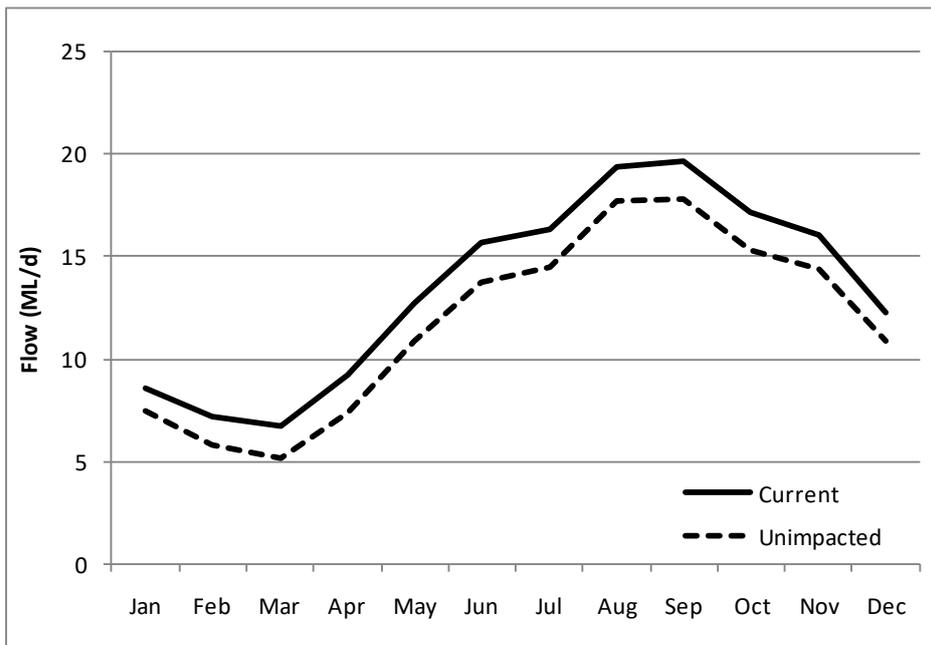


Figure 4 Comparison of natural and current stream flows at York Rd

In the lower catchment the characteristics of the current and natural flow regimes are also similar in both seasons and magnitude. Average daily flows are consistently higher under the current flow regime compared to the natural flow regime (refer Figure 5). This difference is mainly due to the discharge from the Lilydale STP and the natural flow series does not include any contribution from the catchment upstream of Silvan Reservoir.

These statistics suggest that current flows are higher than the natural flow regime, and for most of the time current water harvesting practices have little if any effect on flow in the lower reaches of Olinda Creek. However, an analysis of low flows shows that flows less than 13 ML/day occur more frequently in the summer months (January and February) under current conditions compared to natural conditions, demonstrating that the total volume of water harvested from the lower reaches of Olinda Creek in summer sometimes exceeds the flow that is discharged from the Lilydale STP into Olinda Creek (SKM, 2013a).

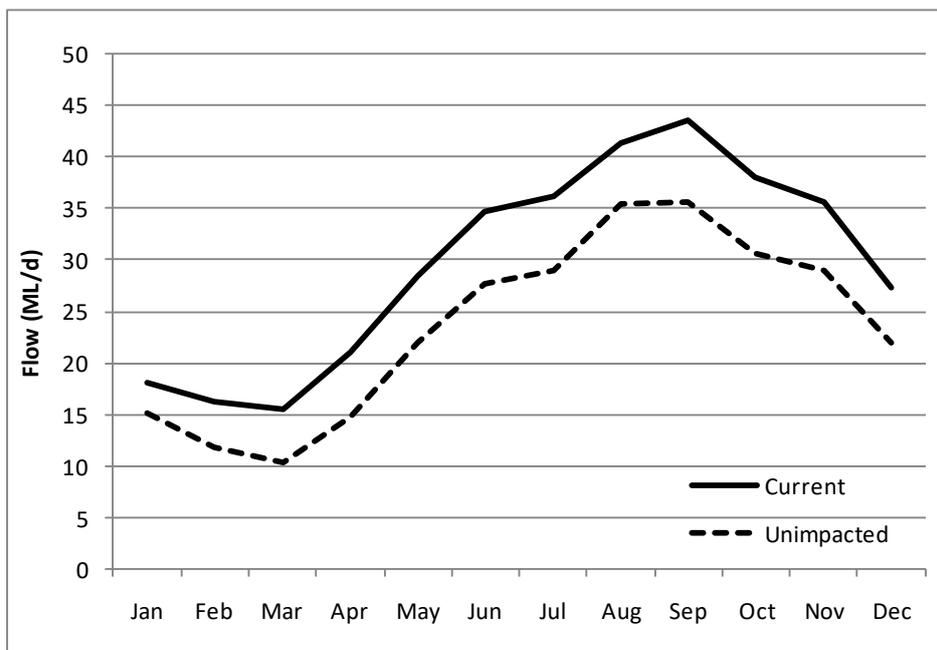


Figure 5 Comparison of natural and current stream flows at MacIntyre Lane

### 5.3 Environmental values

The upper most reaches of Olinda Creek run through National Park and a Melbourne Water reserve, and are in near natural condition. The reaches upstream of Mount Evelyn support a very diverse community of macroinvertebrates, including several important crustaceans including the endangered Dandenong Freshwater Amphipod (*Austrogammarus australis*), and two species of freshwater crayfish (Central Highlands Crayfish *Euastacus woiwuru*, and Southern Victoria Spiny Crayfish *Euastacus yarraensis*). The condition of the macroinvertebrate community between Mount Evelyn and Lillydale Lake is considered to be moderate, and declines further to poor condition downstream of Lillydale Lake (SKM, 2013a).

The Olinda Creek catchment supports six native fish species including a population of River Blackfish upstream of Lillydale Lake that may be regionally significant. Short-finned Eel is the most widespread of the native species. Mountain Galaxias and River Blackfish only occur upstream of Lillydale Lake, while Common Galaxias and Australian Smelt have only been recorded downstream of Lillydale. Flat Headed Gudgeon were first recorded in Olinda Creek in 2007, but were very abundant in Lillydale Lake and in Olinda Creek downstream of the Lake in 2008. Eight exotic fish species have been recorded in the Olinda Creek catchment (SKM, 2013a).

The section of Olinda Creek between Mount Evelyn and Lillydale Lake supports a significant platypus population, and the artificial wetlands near Hull Road are thought to provide important foraging habitat. Lillydale Lake is thought to be a significant barrier to platypus movement and any individuals that try to move overland to access the lower reaches of Olinda Creek and the Yarra River are likely to be vulnerable to predation by dogs or foxes. The lower reaches of Olinda Creek do not offer very good habitat for platypus and while some individuals have been caught near Macintyre Lane, it is thought that those individuals were on foraging expeditions from the Yarra River and are unlikely to have established burrows in Olinda Creek. (SKM, 2013a).

Upstream of Mount Evelyn, the streamside vegetation is in near natural condition, but downstream of Mount Evelyn it has been modified by urban development and the

stream channel and entire floodplain downstream of Lilydale are highly modified by urban and agricultural development (SKM, 2013a).

## 5.4 Minimum Environmental Flows

Sinclair Knight Merz were engaged in 2012 to update the environmental flows study for the Olinda Creek catchment. The previous environmental flows study had been undertaken in 2001 by the Freshwater Ecology section of the Department of Sustainability and Environment. Since the 2001 study, a new environmental flow assessment methodology had been adopted across the state and the 2012 study used this new methodology. The FLOWS method is a scientific and transparent approach to assessing the flow requirements for freshwater reaches of river systems where sufficient information and expertise is available (DEPI, 2013).

To determine the environmental flow requirements of a system, the ecological objectives of a system need to be well defined. Together with Melbourne Water and a community advisory group, the main objectives developed include those detailed in Table 4.

Table 4 Main ecological objectives for Olinda Creek (SKM, 2013a)

<b>Olinda Creek Ecological Objectives</b>
Maintaining the high value macroinvertebrate community (including populations of the endangered Dandenong Amphipod) in Olinda Creek upstream of Mount Evelyn and its headwater tributaries
Maintain the established platypus population in the reach between Mount Evelyn and Lillydale Lake
Maintain the regionally significant population of River Blackfish in the reach upstream of Lillydale Lake
Maintain the diverse vegetation communities present on the low lying banks and benches adjacent to the stream in the reach between Mount Evelyn and Lillydale Lake.

The ecological values and the hydrological regime for Olinda Creek informed the development of a set of minimum environmental flow recommendations. The recommendations aim to achieve ecological objectives such as those detailed in Table 4, while flow recommendations were made for two reaches of the system, the upper Olinda Creek (upstream of Lillydale Lake) and the lower Olinda Creek (downstream of Lillydale Lake).

Minimum environmental flow recommendations have been made for wet years and dry years in the upper catchment in recognition of the need to build resilience in aquatic populations in wet years to help them survive dry years. In the lower catchment the types of ecological values present were not considered to require different flow recommendations in wet and dry years.

For the purposes of the assessment, wet and dry years were classified based on total annual flow volume. The mean annual flow was calculated from the long-term modelled flow record at Mount Evelyn and Coldstream. Years with a total annual flow volume less than the long-term median are considered dry years and years with a total annual flow volume greater than the long-term median considered wet years (SKM, 2013b).

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The low flow recommendation outlined by the environmental flow study is considered to be the minimum flow the waterway needs to protect the existing values in the waterway. Allowing diversions to maintain water levels below this level will pose a risk to the waterway.

As part of the Environmental Flow Study, an assessment of how well the environmental flow recommendations are achieved under the existing management of the catchment was undertaken. This assessment indicates that minimum environmental flow recommendations are met over 90% of the time in Olinda Creek, with achievement of the larger flow events such as high flows and bankfull events occurring more often than low flows (SKM, 2013b).

The full set of minimum environmental flow recommendations are detailed in Table 5 and Table 6.

Table 5 Minimum environmental flow recommendations for upper Olinda Creek (SKM, 2013b)

Flow component	Magnitude	Duration	Frequency	Months	Objectives
<b>Summer</b>					
Low flow (dry years)*	6 ML/day or natural but can drop to 4.5 ML/day for short periods so long as flow does not cease	All season	All season	Jan - March	6 ML/d provides a depth of 100 mm in shallowest riffle/run to support native fish and macroinvertebrates that use those habitats, and a depth of >500 mm in some pools for platypus. 4.5 ML/d maintains a depth of 100 mm in about 70% of riffle/runs, but reduces extent of pools >500 mm deep. In dry years flow can drop below 6 ML/d for short periods provided cease-to-flow events do not occur in the main channel or main tributaries. Fish will probably remain in deeper pools at these lower flows, which will be satisfactory for short periods. The 'or natural' clause recognises that flows will naturally drop below the recommended levels on some occasions. Such events will cause ecological stress and therefore water harvesting should not create or extend periods of environmental stress.
Low flow (wet years)*	10 ML/day or natural but can drop to 6ML/day for short periods so long as flow does not cease	All season	All season	Jan - March	A slightly higher flow is recommended in wet years to ensure that fish have access to riffles and shallow runs throughout summer and to maximise the available pool habitat >500 mm deep to increase platypus survival and recruitment.
Shoulder season low flow (dry year)*	6 ML/day or natural	All season	All season	Dec, Apr, May.	Higher shoulder season flows maintain natural seasonal variation and ensure that any period of potential flow stress in summer is restricted to the three driest months. These higher shoulder season flows will be particularly important in ensuring that platypus have good habitat (i.e. pools greater than 300-500 mm deep for most of the time) and to improve the ease of movement through shallow runs. Greater magnitude flows in wet years are intended to increase the abundance of suitable habitat (i.e. >500 mm deep) for platypus.
Shoulder season low flow (wet year)*	10 ML/day or natural	All season	All season	Dec, Apr, May.	

Flow component	Magnitude	Duration	Frequency	Months	Objectives
Fresh (dry year)*	≥10 ML/day with ≥1 event ≥15 ML/day	1 day each	4 during season (max 2 months apart)	Dec - May	Summer freshes aim to increase water level in channel by 50-100 mm compared to the summer low flow, to improve water quality, wet leaf packs and flush leaf litter into the stream (which will be important for macroinvertebrates), provide opportunities for biota to move between pools and to flush fine sediment from the substrate.
Fresh (wet year)*	≥15 ML/day with ≥1 event ≥ 20ML/day	1 day each	4 during season (max 2 months apart)	Dec - May	
<b>Winter</b>					
Low flow (dry year)*	10 ML/day or natural	All season	All season	Jun - Nov	Winter low flow aim to provide seasonal variation and ensure that fish can access and move through all shallow habitats and to ensure that platypus have an adequate abundance of pools > 500 mm deep and can move unimpeded through shallow riffles or runs. A flow of 15 ML/d in wet years increases depth throughout the channel by 5 cm and increases the number and extent of pools > 500 mm deep compared to the dry year recommendation.
Low flow (wet year)*	15 ML/day or natural	All season	All season	Jun - Nov	
Fresh	≥35 ML/day	1 day each	1 per year (2 in wet years)	Jun - Nov	Winter freshes should increase the water level in channel by 50-100 mm to wet leaf packs and flush leaf litter into the stream (which will be important for macroinvertebrates), and to provide opportunities for larger fish and platypus to move between pools and throughout the reach. The recommended flow will generate a flow velocity of 0.7 m/s in riffles and 0.28 m/s in pools, which will be sufficient to flush fine sediment from substrate.
High flow	≥80 ML/day	1 day	1 per year in wet years	Jun - Nov	The winter high flow will wet low lying backwater habitats on the floodplain to help maintain a mosaic of riparian plants that require periodic inundation. Once inundated, these backwater habitats will remain wet for several weeks after the flows drop. The recommended flow will generate a velocity of 0.83

Flow component	Magnitude	Duration	Frequency	Months	Objectives
					m/s in riffles and 0.44 m/s in pools, which will help flush silt and sand through to system and help to maintain the channel form.
Overbank flow	≥120 ML/day	1 day	1 in every 5 years on average	Any time	Overbank flows will inundate all features of the floodplain adjacent to the channel which would help maintain and recruit floodplain plants. It will also flush sediment including coarse sand and fine gravel through the system.
* Dry years are considered years when the total annual flow volume is less than the long-term median flow; wet years are considered years where the total annual flow volume is greater than the long-term median flow. Mean annual flow was calculated from the long-term modelled flow record at Mount Evelyn and Coldstream.					

Table 6 Minimum environmental flow recommendations for lower Olinda Creek (SKM, 2013b)

Flow component	Magnitude	Duration	Frequency	Months	Objectives
<b>Summer</b>					
Low flow	6 ML/day or natural	All season	All season	Jan - March	A flow of 6 ML/d is equivalent to flow of 4.5 ML/d at Mt Evelyn. It inundates the bottom width of the channel and provides a depth of 300-500 mm in pools and runs, which should be adequate for any platypus and fish that opportunistically use the reach. 6ML/d will also maintain adequate flow for the macroinvertebrates that have colonised the artificial riffles that have been constructed in the reach.  The recommended flow will reduce water depth throughout the reach by approximately 50 mm compared to the current recommendation in the SFMP and may not allow fish passage through concrete culverts. However, problems associated with artificial flow barriers should not be managed by providing unnaturally high flows for sustained periods.
Shoulder season low flow	10 ML/day or natural	All season	All season	Dec, Apr, May.	The shoulder season flow aims to increase water depth throughout the reach by 30-40 mm compared to the summer low flow to maintain natural seasonal variation and to ensure the period of potential flow stress is restricted to the

Flow component	Magnitude	Duration	Frequency	Months	Objectives
					three driest months. These higher shoulder season flows will be particularly important in ensuring that platypus have good habitat (i.e. pools greater than 300-500 mm deep for most of the time) and to improve the ease of movement through shallow runs.
Fresh	20-30 ML/day	1 day each	4 during season (max 2 months apart)	Dec - May	The recommended summer fresh will increase water level in channel by 130-200 mm compared to summer low flow. It aims to wet leaf packs and flush leaf litter into the stream (which will be important for macroinvertebrates), help maintain sedges and paperbarks in channel and provide opportunity for biota to move between pools. It also generates a velocity of 0.32 m/s in runs, which is enough to flush fine sediment from hard substrate surfaces.
<b>Winter</b>					
Low flow	15 ML/day or natural	All season	All season	Jun - Nov	The winter low flow provides seasonal variation. It is intended to provide sufficient depth to allow fish to move through all shallow habitats in the reach and a depth of >500 mm in pool habitats to support platypus movement and foraging.
High flow/fresh	≥135 ML/day	1 day each	1 per year (2 in wet years)	Jun - Nov	High flow freshes aim to wet paperbark trees that currently grow at a level approximately half way up the banks near Macintyre Lane and require periodic inundation for growth and recruitment. The recommended flow also creates a flow velocity of 0.6 m/s, which will flush sand and finer sediment through the system
Bankfull flow	≥230 ML/day	1 day	Once every 3-5 years	Any time	The recommended flow is primarily intended to move sediment through the system to maintain channel capacity and conveyance. It will generate flow velocities of at least 0.8 m/s and shear forces greater than 22 N/m <sup>2</sup> , which will be sufficient to move fine gravel and coarse sand and scour pools. The recommended flow does not fill the channel due to historical excavations, which have significantly increased the channel capacity.

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## 5.5 Protecting environmental flows in the system

In an unregulated waterway such as Olinda Creek, the major tool available for protecting environmental flows is through diversion management, including the development of rules to ensure that the water resource is shared equitably between water users and the environment. This approach is suitable for protecting low flows, and some fresh flow events. In Olinda Creek, the main priority for management rules is protecting low flows and fresh flows, as the higher flow events are already well achieved in this system.

As part of the Olinda Creek Stream Flow Management Plan amendment process the diversion ban triggers documented in the 2007 Olinda Creek Stream Flow Management Plan were reviewed. This review was based on the new environmental flow recommendations, updated hydrological knowledge of the catchment, and updated estimates of water demand within the catchment. In addition, a risk assessment of ban trigger levels was undertaken by Jacobs in 2014, providing information regarding the ecological risks associated with proposed trigger levels (Jacobs 2014).

Summaries of the environmental flow recommendations and harvesting bans are documented in Table 7 for the upper catchment, and Table 8 for the lower catchment. The information and assessments were used as part of the consultation and negotiation process undertaken for this Amended Olinda Creek Stream Flow Management Plan.

The Amendment Consultative Committee recommends that updated ban triggers be introduced to the upper and lower catchments as part of the Amended Olinda Creek Stream Flow Management Plan. The updated ban triggers are below the recommended minimum environmental flow for some months. The Committee resolved to allow this for the following reasons:

- Rosters would come into force when flows were at or approaching the ban trigger to protect the system from further declines in stream flow.
- Recognition that environmental flow recommendations were higher than the original ban triggers, and that a compromise should be reached to allow for equitable sharing of the resource while providing some increase in environmental flows in summer months in the upper catchment.

Table 7 Diversion ban triggers and environmental flow recommendations for upper Olinda Creek.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007 Plan ban level (ML/day)	4.5	4.5	4.5	6	6	6	12	12	12	12	6	6
Environmental low flow recommendation (ML/day)	6*	6*	6*	6	6	10	10	10	10	10	10	6
Revised ban level recommended by Amendment Consultative Committee (ML/day)	5	5	5	6	6	8.5	10	10	10	10	8.5	6

\* May drop to 4.5 ML/d for short periods of time

Table 8 Diversion ban triggers and environmental flow recommendations for lower Olinda Creek.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007 Plan ban level (ML/day)	12	12	12	12	12	12	16.6	16.6	16.6	16.6	12	12
Environmental low flow recommendation (ML/day)	6	6	6	10	10	15	15	15	15	15	15	10
Revised ban level recommended by Amendment Consultative Committee (ML/day)	6	6	6	8	10	15	15	15	15	15	12	8

The stream flow at which rosters should be introduced for each month were not considered in detail by the Amendment Consultative Committee.

Water use in the catchment has remained well below the sustainable allocation limit for all-year licences (388 ML) for the past five years, with a maximum recorded use of 180.2 ML in 2016-17. Therefore the risk to the catchment from existing diverters is low. The Amendment Consultative Committee recommends that a further review of ban triggers should be undertaken if there is a significant increase in all-year licence water use in the catchment (greater than the sustainable allocation trigger).

Fresh flow events following a prolonged period of low flow are also important to protect. This will be achieved in the Amended Olinda Creek Stream Flow Management Plan by requiring water users to refrain from pumping until the seven-day average stream flow rises back above the minimum flow level prior to the ban being lifted. This will allow the flushing event to pass through the creek and the ecological processes to take place before any pumping is allowed.

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Using a seven-day average stream flow to lift bans does not mean that irrigators must wait seven days to commence diversions. The seven-day average flow is calculated by Melbourne Water each morning. If a large flow event has occurred that is sufficient to increase the average stream flow of the past seven days over the ban limit, then bans will be lifted. Given the flashy nature of Olinda Creek this is likely to occur following a significant rainfall event.

The committee considered the use of seven-day average stream flow as a fair compromise between the need to protect the waterway from over extraction in dry times, and the need to ensure irrigators can access water following a rainfall event.

**Recommendation 1**

That the Amendment Consultative Committee recommends:

- a. That updated ban triggers be introduced to the upper and lower Olinda Creek catchment.
- b. That updated ban triggers be reviewed if there is a significant increase in water use under all-year licences in the catchment to levels above the sustainable allocation trigger.
- c. That the seven-day average stream flow calculations be used to inform the lifting of bans.

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## 6. What the plan contains

### 6.1 Object of the Plan

The *Water Act 1989* States:

*"The object of a management plan is to make sure that the water resources of the relevant water supply protection area are managed in an equitable manner and so as to ensure the long-term sustainability of those resources."*

In addition to this general objective, the Amendment Consultative Committee has identified further guiding principles and objectives specific for the Amended Olinda Creek Stream Flow Management Plan. These guiding principles have been used to guide the amendments of the Plan:

- Water resources in the Water Supply Protection Area are managed in an equitable manner and so as to ensure the long-term sustainability of the resource.
- Water management rules that are clear and fixed in the short-term but adaptable to long-term change.
- Water availability and access be clearly defined.
- Trading rules and opportunities specified to encourage water licence trading.
- Protect flow dependent ecological assets of the catchment.

In addition, objectives have been developed to provide a measure against which to assess the implementation of the Amended Olinda Creek Stream Flow Management plan. The objectives are outlined in Table 9.

Table 9 Objectives of the Amended Stream Flow Management Plan

Objective	Measure	Timeframe
Stream flow to match natural seasonal pattern	Implementation of the ban triggers that have been developed to protect the natural seasonal pattern. Annual recording of achievement of the recommended volume, duration and frequency of summer and winter fresh flows as specified in the Environmental Flow Study.	Annual
Total allocation in the catchment is consistent with the sustainable allocation of the catchment.	Licence allocation each year is either: a) Below the defined sustainable allocation limit b) Less than or equal to the previous year's total allocation.	Annual
Diversions managed to meet stakeholder agreed minimum flow regimes.	Annual recording of number of properties visited and number of non-compliances identified. Every active licensed property will be subject to a site inspection minimum every five years.	Annual
Transfer of licences will not unreasonably adversely affect other water users or the environment.	All water trades meet the requirements specified in the SFMP.	Annual

## 6.2 Administration and Enforcement

Melbourne Water has the duty of enforcing and administering the Amended Olinda Creek Stream Flow Management Plan. It is responsible for ensuring that:

- The metering and monitoring program is undertaken.
- Licence holders comply with rosters, restrictions and licence conditions.
- Licences are issued with the appropriate licence conditions.
- Illegal water use does not occur.

## 6.3 Prohibitions on granting new licences

In 2006, the Victorian Government placed a cap on the total volume of water allocated within the Yarra basin. This cap includes the Olinda creek catchment and recognises that water is a precious and limited resource and that the Yarra catchment is under stress from the existing water demands.

While this policy prohibits the maximum volume taken within the Yarra Basin from increasing it still allows a re-distribution of the rights. In other words, the location where the water is taken may change so long as the total volume is not exceeded. In this way, the right to take and use water can be bought and sold between irrigators and transferred around the Yarra basin. The

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only limit to this is a condition that the water can only be taken at a new location without impacting upon the environment or existing users. This section outlines the maximum volumes that can be taken within the Olinda Catchment, subject to the trading rules outlined in this Amended Olinda Creek Stream Flow Management Plan.

### **All-year licence allocation limit**

The 2007 Olinda Creek Stream Flow Management Plan set an all-year allocation limit of 685.7 ML within the Olinda Creek catchment. This cap was in line with the all-year licence allocation that existed in the catchment at the time the plan was developed. At the same time, the Consultative Committee recommended that the long term target for a sustainable all-year licence cap was 388 ML. Under this arrangement, a new all-year licence could only be issued when a water user surrendered an existing registration licence to obtain a standard all-year licence. This restriction would remain in place until the all-year licence allocation in the catchment reduced to below 388 ML.

In 2017, the volume of all-year licences in Olinda Creek was 607.3 ML. This represents a decrease in all-year allocation of 78.4 ML since the original Olinda Creek Stream Flow Management Plan was developed in 2007. For the amendment of the plan, modelling work was undertaken to determine the sustainable all-year licence allocation using updated data and the new environmental flow recommendations. The model was run with the minimum environmental flow requirements and at the full level of developed (all licences assumed to be active). The reliability of the licences was then calculated. The reliability criteria for this assessment was set at 80% reliability (demands can be met fully in 8 of every 10 years). The results of the modelling show that a sustainable all-year licence allocation within the Olinda Creek catchment is 394 ML.

#### **Recommendation 2**

The Amendment Consultative Committee recommends:

- a. An allocation limit on all-year licence allocation be retained. The allocation limit (cap) will be 607.3 ML, in line with the current volume of allocation in the catchment.
- b. The sustainable all-year allocation be set at 394 ML.

### **Winter-fill licence allocation limit**

The 2007 Olinda Creek Stream Flow Management Plan set a winter-fill allocation limit of 574 ML within the Olinda Creek catchment. This cap was in line with the Sustainable Diversion Limit (SDL) calculated for the Olinda Creek catchment as part a state wide project in 2004. Under this cap, there was still winter-fill allocation within Olinda Creek catchment that could be issued, within the constraints of the Yarra Basin cap.

In 2013 the Olinda Creek water resources model was used to investigate the winter-fill sustainable allocation. The methodology used for this assessment was similar to the methodology used for the all-year licence assessment, and is different from the SDL calculation. This method considered the needs of the existing winter-fill licence holders, and also calculated the volume of water that is available to be taken from the catchment on a sustainable basis. The winter-fill sustainable allocation limit was calculated as 973 ML.

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### **Recommendation 3**

The Amendment Consultative Committee recommends:

- a. Imposing an allocation limit on winter-fill allocations. The cap will be equal to the sustainable allocation 973ML.

### **Annual allocation limit**

The Amendment Consultative Committee recognises that the sum of the all-year allocation cap and the winter-fill allocation cap is greater than the annual volume that can be sustainably supplied by the catchment. Therefore the Committee has recommended that an annual allocation limit be put in place in the Amended Olinda Creek Stream Flow Management Plan to help protect the environment from further over allocation.

### **Recommendation 4**

The Amendment Consultative Committee recommends:

- a. That an allocation limit (cap) be placed on all licensed allocation. This cap will be equal to the sum of the all-year sustainable allocation (394 ML) and the winter-fill sustainable allocation (973 ML), equalling 1,367 ML.

## **6.4 Trading Licences**

The *Water Act 1989* allows licences to be transferred following approval by Melbourne Water of an application. Licences can be transferred on the sale of the property to which the licence relates but they can also be transferred to the owners of other land within the Yarra catchment. Licences can be transferred permanently or temporarily.

Water transfers promote water use efficient and will result in farmers moving water over time to its highest value use. It provides access to water in areas where no new licences are being issued. However, water transfers also have the potential to increase the overall water use within the Protect Area, as unused licences become active.

Under the 2007 Olinda Creek Stream Flow Management Plan, rules relating to a change in licence conditions on transfer of licences from one location to another were established to ensure that additional development can occur without adversely affecting existing users or the environment.

When considering an application to transfer a licence, Melbourne Water is required under the *Water Act 1989* to have regard to any adverse effect that the allocation or use of water may have on existing users or on the environment.

Refined rules are being proposed through the Amended Olinda Creek Stream Flow Management Plan. Considerations in the development of specific transfer rules for Olinda Creek included:

- The need to keep the rules simple.

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- Recognising that the all-year licence allocation in the catchment exceeds the sustainable volume of allocation, and this situation disadvantages both the environment and existing water users.
  - Recognising that 20% reduction in allocation on the trade of an all-year licence in place since 2007 has not resulted in a significant reduction in all-year allocation within the catchment, and may have been acting as a deterrent to water trading within the catchment.
  - Protecting the reliability of supply when licences are transferred, particularly considering the high volume of sleeper licences within the catchment and their potential to impact on existing users' reliability of supply upon trade.
  - Equity in trading between the environment and extractive water users and between licences holders.

### **Lifting the 20% volume reduction on the transfer of all-year licences.**

In 2007, the Olinda Creek Stream Flow Management Plan Consultative Committee recommended that all-year licences be either:

- Converted to winter-fill licences upon trade; or
- Reduced in allocation by 20% if they remained an all-year licence.

The aim of this recommendation was to encourage the reduction in all-year licences within the catchment in recognition of the over allocation of all-year licences.

The Amendment Consultative Committee reviewed the operation of the 20% reduction in volume and found that the reduction in allocation volume upon transfer was a disincentive for people to transfer their licences.

Following examination of the updated all-year licence sustainable allocation limit, and a comparison of this volume with recent water use within the catchment, the Amendment Consultative Committee recommends removing this requirement. The Committee noted that with the highest demand in recent times being approximately half of the sustainable all-year allocation, the likelihood of increasing water use substantially was considered low, and therefore the risk to the environment and active water users was low. The Committee recommends that this issue be re-examined in future reviews, and future committee consider re-instating this requirement should demand start to approach the sustainable allocation limit.

Alternative mechanisms to reduce allocation to the sustainable limit, including voluntary licence surrender, should be considered. For example, Melbourne Water may investigate the value of a voluntary buyback of all-year licences, subject to funding being available.

### **Upstream trade within the catchment**

The 2007 Olinda Creek Stream Flow Management Plan did not contain specific rules relating to the upstream trade of licences. The Olinda Creek Stream Flow Management Plan Consultative Committee identified this as a deficit to be addressed in the amendment process. To encourage the uptake of winter-fill allocation, and in line with current state policy, the Amendment Consultative Committee recommends allowing the transfer of winter-fill licences to any upstream location in the waterway. This would also apply to an all-year licence that would become a winter-fill licence upon transfer.

To encourage farming in the catchment, the Amendment Consultative Committee also recommended making allowances for limited upstream trade of all-year licences. However, the

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Committee also recognised the different characteristics and flow dependent environmental values of different sections of the waterway. Based on the altered hydrological regime of the waterway, and the risks to the waterway identified in the Environmental Flow Study (SKM 2013a), the Committee recommends dividing the catchment in to three zones when considering allowing upstream trade:

- Downstream of Lillydale Lake. This zone reflects the uniform nature of the waterway downstream of Lillydale Lake, including the input from Lillydale Sewage Treatment Plant
- Between Silvan Reservoir outlet and Lillydale Lake. This zone reflects the constant supply of water contributed by Silvan Reservoir
- Upstream of Silvan Reservoir outlet. This recognises the ephemeral nature of the waterway upstream of the reservoir, and the higher risk to the environment of allowing increases in water extraction in this reach.

The Amendment Consultative Committee also recommends that all upstream trades be subject to an assessment of the available water resource at the proposed new location to ensure that an upstream trade does not unreasonable adversely affect other water users or the environment.

### **Transfer rule summary**

The following transfer rules have been recommended by the Amendment Consultative Committee:

- No change in licence conditions should occur if the transfer is part of the sale of land, as long as the extraction point and the use of the water will remain the same.
- The maximum volume of a transferred licence will be determined by Melbourne Water after considering the water available at the new location, and the water needs of existing licence holders and the environment at that location.
- An all-year licence may be traded to another owner without any reduction in allocation volume.
- All-year licences may be traded to any downstream location.
- All-year licences may be traded upstream throughout the catchment if converted to winter-fill
- All-year licences in the lower catchment may be traded upstream within the lower catchment due to the uniform nature of this reach.
- All-year licences in the upper catchment between Silvan Reservoir outlet and Lillydale Lake may be traded upstream within this set region. This limit recognises the constant release from Silvan Reservoir that provides consistent stream flow for this section of waterway.
- All-year licences in the upper catchment upstream of Silvan Reservoir outlet may not be traded upstream within this region. This recognises the ephemeral nature of the waterway upstream of Silvan Reservoir outlet.
- All upstream trades will be subject to an assessment of the available water resource at the proposed new extraction location.
- Winter-fill licences may be transferred upstream and downstream within the catchment.

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- No individual licence holder can hold more than 100ML of all-year licence allocation. This limit recognises the existing over allocation of all-year licences in the catchment, and aims to encourage large water users to find alternative sources of water such as winter-fill licences or recycled water.

### **Recommendation 5**

The Amendment Consultative Committee recommends:

- a. That Melbourne Water may or may not alter the licence conditions of a transferred licence depending on whether the location of the licence changes.
- b. If a licence is transferred on sale of land, and the location of the extraction and the use of the water does not change, the licence conditions should not alter.
- c. That all-year licences be allowed to be traded as all-year licences without any reduction in allocation volume.
- d. That all-year licences be allowed to be traded upstream throughout the catchment if converted to winter-fill licences.
- e. That all-year licences may be traded upstream within the following trading zones, subject to an assessment of the water resources available at the new extraction location:
  - (i) within the lower catchment (from Lillydale Lake to the confluence with the Yarra River)
  - (ii) within the upper catchment between Silvan Reservoir outlet and Lillydale Lake.
- f. That winter-fill licences may be traded upstream to any location in the catchment as long as the conditions relating to the impact on the environment and other users are satisfied.
- g. That no individual licence holder may hold more than 100 ML of all-year licence entitlement.

## **6.5 Unused or “Sleeper” Licences**

Estimates of the water use by licenced diverters since 2007 indicate a large proportion of licences in the catchment are inactive. If through trade these licences become active, there will potentially be more demand for water in the catchment than can sustainably be supplied and diverters would suffer more frequent bans on water use. The 2007 Olinda Creek Stream Flow Management Plan recommended that all non-active licences that are permanently traded should be required to convert to winter-fill licences. The Amendment Consultative Committee considered this requirement a deterrent to trade within the catchment, and that it should be lifted. The committee discussed likelihood of permanent trade in the catchment and it was currently considered low.

The Amendment Consultative Committee recommends removing the requirement to convert traded licences to winter-fill licences, however this should be reviewed if water use in the catchment increases to above the sustainable all-year allocation of 394ML.

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## Recommendation 6

The Amendment Consultative Committee recommends:

- a. Removing the requirement to convert all traded licences to winter-fill licences.
- b. Reviewing the rules relating to converting licences should water use in the catchment increase above the sustainable all-year allocation levels.

## 6.6 New Dams

A licence is required to harvest water for commercial or irrigation purposes in a dam, regardless of whether it is on or off a waterway. However under the Amended Olinda Creek Stream Flow Management Plan, no new dams on waterways will be permitted, as the environmental impacts are too great.

## 6.7 Rostering

During periods of low stream flow, rosters for water extraction can be used at any time throughout the year to share available flows or to protect environmental flows. Rosters will be implemented by Melbourne Water when there will be a tangible benefit to both water users and the environment.

The roster levels were updated during the review of the 2007 Olinda Creek Stream Flow Management Plan. However, the Amendment Consultative Committee did not consider the setting of detailed roster levels.

The wording from the 2007 Olinda Creek Stream Flow Management Plan is therefore retained for this Amendment. In protecting the environmental flows, Melbourne Water may give water users advance notice of decreasing stream flows and impending bans, and consequently introduce rosters or restrictions.

The arrangements will involve the setting of trigger flow levels that will activate various stages of the roster or restrictions. Rosters for diversions may be developed with the input of licenced water users. The specific arrangements will be negotiated at the time with the affected licence holders.

Farm dams that have been licensed or registered as a result of the passage of the *Water (Irrigation Farm Dams) Act 2002* will not be subject to rosters or restrictions due to the physical limitations of these dams which do not provide a mechanism to pass incoming flows.

## 6.8 Metering

Effective water resource management relies upon information about water usage patterns and volumes. Metering is useful for the following reasons:

- **Equity** – metering ensures that the water is shared equitably amongst licence holders, other entitlement holders and the environment.
- **Compliance** - metering ensures water users are complying with the conditions of their licences. Water is a valuable resource with an economic value. Water taken by one person

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in excess of their entitlement is not available to other users. Metering of water use ensures the security of this valuable asset is not eroded.

- **Planning and management** – metering aids the development, implementation and review of plans to manage the resource. To properly manage the water resource it is necessary to know how much and from where the water is taken. It also aids in development of water sharing arrangements during times of low flows when rosters or restrictions are necessary.
- **On-farm management** – metering is an important mechanism to encourage on-farm water efficiency. This can lead to a more productive farming enterprise by increasing the area irrigated without exceeding the volumetric licence entitlement.
- **Tradeability of water entitlements** – metering facilitates water entitlement trading. It allows users to identify their water requirements and to sell excess water or alternatively purchase additional water to secure their farming enterprise.

The aim of a Stream Flow Management Plan is to balance the needs of users and the environment. For this purpose understanding water use at the catchment scale is most important. This information can either be collected by metering extractions, and/or estimated at the catchment scale.

Melbourne Water has installed meters to measure any water that is taken under active licences greater than 5 ML. Meters have already been fitted to many licensee's pumps in Olinda Creek. An active meter is defined as a licence where a pump is in place and water is extracted. Non-active licences are monitored to determine if they become active through:

- Licence holders applying to install a pump thereby indicating an intent to take water
- Routine property inspections of licence holders every five years
- Reviewing aerial images that indicate if irrigation may be occurring within the catchment.

Metering costs are met by licence holders through their licence and application fees. The metering of licences less than 5 ML is generally not considered economical given the costs associated with metering (purchase, installation, maintenance, replacement and reading) against the low volumetric users.

Likewise, registration licences do not pay an annual fee and so there is no opportunity to recover the cost of meters from these licence holders. These licences may continue to be monitored using area-based condition that describes a maximum area on which water can be applied. In the event that uncertainty arises in relation to whether licensed volumes are being complied with or that take and use activities may be impacting disproportionately on other users or the environment then Melbourne Water at its discretion may require meters to be installed on any unmetered licence.

Melbourne Water must read all-year licence meters annually and read winter-fill licences meters at the beginning and end of the winter-fill period each year. It is not physically possible for Melbourne Water to attend all licenced properties on a single day, and therefore meter reading inspections may occur shortly either side of the nominated licence period date. The usage recorded as close as practical to the beginning or end of the nominated licence period for which the reading is being made will be deemed to be the usage on the actual nominated licence period date.

In cases where meters have not been installed, or are found to be defective, it may be possible to estimate the usage at an individual property scale through a number of methodologies including by comparison with historic usage information available on the property in question

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or a similar property, or by application of industry irrigation rates across the area being irrigated. However the value of such an estimation at individual property scale is limited to on-farm management by the user or for assessment of the need for more accurate measurement by Melbourne Water. With such a large number of variables influencing irrigation of different crops and different areas and no state-wide agreed method for estimating water use in these situations, any estimate made may provide a sense of water accounting accuracy that does not exist.

Historically Melbourne Water has not formally reported usage against any estimated volumes due to the lack of accuracy available around these figures and the resources required to provide these estimations at property level. Broader estimates may also be able to be made at catchment level through comparison of metered use against unmetered licences and we consider this a more appropriate level to be reporting usage at a public level. The committee may consider it appropriate to also declare which components of usage are measured versus which components are estimated for transparency.

### **Recommendation 7**

The Amendment Consultative Committee recommends:

- a. That the metering clause be updated to restrict mandatory metering of licences to active licences 5 ML or greater. Metering of all other licences is at the discretion of Melbourne Water.
- b. That the metering clause be updated to clearly state that usage recorded when a meter is read shortly either side of the nominated date, will be deemed to be the usage on the nominated date.
- c. That the metering clause be updated to allow Melbourne Water to decide whether or not to estimate water usage at an individual property scale.

## **6.9 Maintaining Environmental Flows**

The Olinda Creek Stream Flow Management Plan Amendment Consultative Committee has recommended appropriate ban triggers for diversions in Olinda Creek catchment (refer to Section 5.5). These triggers represent a compromise between the minimum environmental flow requirements identified for the waterway, and the need to ensure sufficient water access to diverters within the catchment. In some months, the ban triggers have been set below the minimum passing flow recommendations. It must be acknowledged that doing this will pose a risk to the environmental values of the waterway. However, following analysis of current levels of water use in the catchment, and considering the level of risk this posed to the waterway, the Amendment Consultative Committee were comfortable with the recommended ban triggers.

The obligation for protecting the environmental flows is twofold. Licensees have an obligation as a condition of their licence to protect environmental flows, while Melbourne Water has an obligation to ensure, to the best of its ability, that the licensees fulfil these licence conditions. Melbourne Water provides daily flow updates on its web page ([www.melbournewater.com.au](http://www.melbournewater.com.au)) as well as its customer service centre (131 722). These flow updates detail the status of bans and restrictions in each catchment across the Yarra basin. Irrigators must check the status of their catchment prior to pumping each day.

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Melbourne Water must do its best to ensure that the extraction of water by licence holders does not cause flows in Olinda Creek to drop below these environmental flows. This will generally be achieved with rosters or the implementation of bans on the taking of water.

## 6.10 Licence Conditions

With the approval of this Amended Olinda Creek Stream Flow Management Plan the conditions of licences will be amended to ensure they reflect the requirements of the Plan.

Schedule 3 outlines the conditions that must be placed on all relevant licences. The conditions are specific to each licence type and will be applied on renewal of licences or granting of new licences.

## 6.11 Stream flow monitoring program

The Plan requires Melbourne Water to monitor and record flows at two locations within the Olinda Creek catchment:

- York Road gauging station
- MacIntyre Lane gauging station

### Recommendation 8

The Amendment Consultative Committee recommends:

- a. That the stream flow monitoring program clause be updated to reflect the installation of the MacIntyre Lane gauging station.

## 6.12 Dams on subdivisions

The subdivision of rural land may increase the number of dams, particularly domestic and stock dams, throughout the catchment. The *Water Act 1989* enables a management plan to limit the maximum volume of water retained in private dams on lots in a subdivision.

The Plan limits the volume of water that can be retained in domestic and stock dams on subdivided lots to the greater of:

- Those dams that were there before the Plan.
- A volume that is reasonable to meet the domestic and stock water needs of the land, calculated in accordance with approved guidelines.

Once this limit is reached no additional water can be retained in additional domestic and stock dams.

Melbourne Water will liaise with the Shire of Yarra Ranges to encourage the Council to have regard to this prescription of the Amended Olinda Creek Stream Flow Management Plan when considering applications to subdivide land in the Protection Area.

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## 6.13 Reporting

In accordance with section 32C of the *Water Act 1989*, Melbourne Water is required to prepare an annual report on the implementation of the Amended Olinda Creek Stream Flow Management Plan.

As part of the annual report, Melbourne Water will make an assessment of the following matters:

- changes to the level and type of development within the area including:
  - the extent of water usage resulting from transfers
  - location and impact of new take and use licences
- water usage information
- the effectiveness of management prescriptions in meeting the objectives of the Plan including:
  - metering,
  - flow monitoring,
  - restrictions and rosters
- any difficulties associated with, and progress towards, meeting environmental flows specified in the Plan.

The report will be provided to the Minister and the Port Phillip and Westernport Catchment Management Authority on or before 30 September in each year. It will be made available to the public for inspection free of charge at the Melbourne Water offices and on the Internet. A notice will also be published in a local newspaper advising of the availability of the report at the time of its release.

## 6.14 Monitoring the effects of the Plan

During the implementation of the Plan, information will be collected to allow a meaningful review of its effectiveness in meeting its objectives. Whilst it is important to measure the success of the Plan against its objectives, it is also important to keep in mind that environmental change may be incremental and cumulative. Therefore, short term monitoring may not identify any significant changes to stream health over the five-year period.

In line with the recommendations of the 2007 Stream Flow Management Plan, Melbourne Water submitted a Stream Flow Management Plan Monitoring Program to the Minister. This plan was approved by the Minister in 2013. Melbourne Water will, unless directed otherwise by the Minister, continue to implement this monitoring plan throughout the life of this Stream Flow Management Plan.

In addition, Melbourne Water has identified Olinda Creek as a groundwater dependent drought refuge and is a priority area for investment in the current Healthy Waterways Strategy (Melbourne Water 2013). An updated Healthy Waterways Strategy is currently being developed and the Olinda Creek catchment is likely to remain a priority area for investment. Routine

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monitoring of macroinvertebrates, fish and platypus is undertaken in the Olinda WSPA as part of these programs.

## 6.15 Review of the Plan

The Amended Olinda Creek Stream Flow Management Plan must be reviewed against its objectives after five years. Any amendments will require a review of all information and consultation with all stakeholders. The *Water Act 1989* provides for the constitution and convening of a consultative committee to develop any proposed amendment and the process to be followed by the Minister before approving it.

The Amendment Consultative Committee recommends that the plan be reviewed before the five year point if either the discharge from Lilydale STP reduces significantly, or annual demand increases to close to the sustainable all-year allocation limit.

### **Recommendation 9**

The Amendment Consultative Committee recommends:

- a. Reviewing the Amended Olinda Creek Stream Flow Management Plan if discharge from Lilydale Sewage Treatment Plant reduces by greater than 30% of the mean 2013 discharge rates.
- b. Revising the Amended Olinda Creek Stream Flow Management Plan if water use under all-year licences in the catchment increases to greater than 394 ML.

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## **7. Other Matters that are relevant to river health but fall outside of this Plan**

The Amendment Consultative Committee expressed concern regarding a number of other matters during the Olinda Creek Stream Flow Management Plan amendment process. These include the degradation of banks and streamside zones and the accumulation of sediment in the lower reach of the waterway. There are significant portions of the waterway streamside areas that are in private ownership.

The Melbourne Water River Health Program, driven by the Healthy Waterways Strategy (2013), was developed to help address these, and other, issues throughout the Port Phillip and Westernport region. The Healthy Waterways Strategy is developed with extensive community consultation, and is reviewed every five years. The next Healthy Waterways Strategy is due to be released at the end of 2018.

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## 8. References

DEPI (2013), FLOWS – a method for determining environmental water requirements in Victoria Edition 2. Report prepared by Sinclair Knight Merz, Peter Cottingham and Associates, DoDo Environmental and Griffith University for the Department of Environment and Primary Industries, Melbourne.

Jacobs (2014), Risk assessment for water harvesting bans in Olinda Creek, report prepared for Melbourne Water, Jacobs

Melbourne Water, (2013), Healthy Waterways Strategy, Melbourne Water

SKM (2002), Estimation of stream flow and demand data of a REALM model for Olinda Creek catchment, report prepared for Melbourne Water, Sinclair Knight Merz

SKM (2012a), Determining environmental water requirements for Stringybark Creek and Olinda Creek - Site paper, report prepared for Melbourne Water, Sinclair Knight Merz

SKM (2012b), Olinda Creek REALM Model Update, Sinclair Knight Merz

SKM (2013a), Determining environmental water requirements for Olinda Creek - Issues paper, report prepared for Melbourne Water, Sinclair Knight Merz

SKM (2013b), Determining environmental water requirements for Olinda Creek – Flow Recommendations paper, report prepared for Melbourne Water, Sinclair Knight Merz

# Appendix A

## Olinda Creek Stream Flow Management Plan

### Amendment Consultative Committee responses to community submission on the draft SFMP amendment

Table 10: Summary of the community consultation submissions and the response by the consultative committee

Section	Respondent	Comment	Consultative Committee Comment
Section 4.3	Melbourne Water	Change Paragraph 1 to: Water may be diverted in accordance with licence conditions that typically specify an annual volume and minimum flow triggers to be met before water may be taken. Licence conditions will also specify a permitted area of use or requirement for metering in order to account for water taken. Meters have already been fitted to all active major irrigation and commercial licences greater than 5ML in volume in the Olinda Creek catchment.	<i>Agree as MW now use meters, so the recommendation is to remove the reference to the land use for water use.</i>
Schedule 3 (Licence Conditions)	Melbourne Water	The following points are provided to ensure that diverters are made aware of the changes to the ban triggers :  <ul style="list-style-type: none"> <li>• In both the Upper and Lower catchments, there are only a handful of active users in each section. Most of the other entitlements are in fact inactive licences.</li> <li>• The proposed ban triggers shown in Table 7 and Table 8 change up to 6 times over the year. Note the current 2007 ban triggers only change four times across the year.</li> </ul> <p>Melbourne Water will be able to implement these proposed changes with updates to our Diversion webpage and updating condition sets on the Victoria Water Register.</p>	<i>Noted.</i>

Section	Respondent	Comment	Consultative Committee Comment
Section 6, Table 9	Melbourne Water	<p>"Objective - Diversions managed to meet stakeholder agreed minimum flow regimes"</p> <p>Recommend change to:</p> <p>"Every <b>active</b> licensed property will be subject to a site inspection minimum every <b>five</b> years"</p>	<i>Agreed</i>
Clause 9 (Transferring Licences)	Melbourne Water	<p>No individual licence holder can hold more than 100ML of all-year licence allocation.</p> <p>Diversions team through that it would be removed</p>	<i>Consultative committee discussed and agreed to retain this clause in the plan</i>
Clause 11 (Rosters)	Melbourne Water	Recommend changing "must" to "may"	<i>Agreed</i>
Section 3.2	Yarra Valley Water	<p>Update the following:</p> <p>"Currently the Lilydale STP has <b>two</b> recycled water customers" (Not three)</p>	<i>Agreed</i>
Section 6.15	Yarra Valley Water	<p>Agree with the statement:</p> <p>The Olinda Consultative Committee recommends reviewing the Amended Olinda Creek Stream Flow Management Plan if discharge from Lilydale STP reduces by greater than 30% of the mean 2013 discharge rates</p>	<i>Noted</i>

<p>Clause 16 Schedule 3 (Maintaining Environmental Flows)</p>	<p>Chris Walsh University of Melbourne</p>	<p>The plan should adopt the minimum flow requirements recommended for the upper Olinda Creek by the Jacobs environmental flows study</p>	<p><i>The committee noted this point. The Committee discussed this at a meeting on 29<sup>th</sup> August, 2017. The proposed ban triggers were considered a reasonable compromise between diverters and the environment. The triggers in the proposed Plan will be higher than the current triggers in place in the Upper Catchment for some months (including January - March), providing a higher level of protection than is present currently.</i></p> <p><i>A risk assessment on the proposed lower ban triggers was also undertaken by Jacobs in 2014 and concluded that the risk to the environmental water values to Lyrebird Creek is low due to low water demand in this reach (page 4, executive summary). To address the issue of potential increase in water demand, the Plan has a clause (Cl. 20.1) that requires MW to review the plan if water use in the catchment increases to greater than the Sustainable water allocation limit or output to the Lilydale STP reduces by greater than 30%.</i></p> <p><i>The TAP Review supported the lower ban triggers than the environmental recommendations, but suggested that MW should develop roster guidelines for when flow was at or approaching the ban triggers and for the triggers to be reviewed if there was a significant</i></p>
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Section	Respondent	Comment	Consultative Committee Comment
			<p><i>increase in water use in all year licences to a level above the sustainable allocation level.</i></p> <p><i>The committee noted that the Plan is to be reviewed in five years' time and monitoring results will be reviewed from the new ban trigger levels and if there has been an impact then a change to the ban triggers will be investigated.</i></p>
<p>Clause 16 Schedule 3 (Maintaining Environmental Flows)</p>	<p>Chris Walsh University of Melbourne</p>	<p>The risks to main tributaries of the upper Olinda Creek catchment require reassessment, and the plan should consider applying separate objectives for Lyrebird and Olinda Creeks. The SKM environmental flows risk assessment assessed the risk to Lyrebird Creek of reducing the ban threshold from 6 to 4.5 ML/day because "low because demand and water use in that sub-catchment is low". This assessment was made without reference to our study of the threats to lower Lyrebird Creek resulting from repeated cease-to-flow events from 2007 to 2009</p>	<p><i>See above. The committee agreed that Licences Holders in the Lyrebird Creek sub- catchment will be informed about the impact of water extraction on the creek and meeting environmental objectives and will be reminded of their obligation to pass flows as per their licence conditions</i></p>

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# **OLINDA CREEK STREAM FLOW MANAGEMENT PLAN 2007 INCORPORATING 2018 AMENDMENTS**

This is a consolidated version of the Olinda Creek Stream Flow Management Plan 2007 (the Plan). It has been prepared from the Plan to include all subsequent amendments made as the Olinda Creek Stream Flow Management Plan Amendments 2018 (Amendments) made in accordance with section 32G of the *Water Act 1989*. This is version 1 developed in May 2018.

Disclaimer: This document has been created as a convenient record for Melbourne Water staff and members of the public.

Melbourne Water does not provide any assurance of the correctness or accuracy of this record and any member of the public accessing it is referred to the Olinda Creek Stream Flow Management Plan Amendments 2018 (Amendments) and the original Olinda Creek Stream Flow Management Plan 2007 detailed on Melbourne Water's website from which it was compiled (see <https://www.melbournewater.com.au/water/waterway-diversions/stream-flow-management>).

Melbourne Water disclaims all liability for any loss which may be occasioned by any person relying on this record.

## OLINDA CREEK STREAM FLOW MANAGEMENT PLAN 2007 INCORPORATING 2018 AMENDMENTS

### 1. INTERPRETATION

#### 1.1 Definitions

The following definitions apply in this Plan.

**“Act”** means the *Water Act 1989*.

**“all-year licence”** means a licence issued under section 51(1)(a), 51(1)ba), 51(1A), 51AA or 51AB of the Act to take and use water during the all-year period from:

- (a) a waterway; or
- (b) a dam, spring or soak,

within the Protection Area.

**“all-year period”** means the period between 1 January and 31 December in any year.

**“average stream flow”** means the mean daily stream flow.

**“lower catchment”** means the portion of Olinda Creek catchment which is below Lillydale Lake.

**“MacIntyre Lane gauging station”** means the stream gauging station no 229258 located on Olinda Creek.

**“Melbourne Water”** means Melbourne Water Corporation.

**“Minister”** means the Minister administering the Act.

**“Olinda Creek Water Supply Protection Area”** means the area referred to in clause 4.

**“Protection Area”** means the Olinda Creek Water Supply Protection Area.

**“registration licence”** means a licence issued under section 51(1A), 51AA or 51AB of the Act to take and use water from a dam, spring or soak within the Protection Area.

**“upper catchment”** means the portion of Olinda Creek catchment which is above Lillydale Lake.

**“winter-fill licence”** means a licence issued under section 51(1)(a), 51(1)ba), 51(1A), 51AA or 51AB of the Act to take and use water during the winter-fill period from:

- (a) a waterway; or
- (b) a dam, spring or soak,

within the Protection Area.

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“**winter-fill period**” means the period between 1 June and 30 November in any year.

“**York Rd gauging station**” means the stream gauging station no 229690 located on Olinda Creek.

## **1.2 Rules for interpreting this Plan**

Headings are for convenience only and do not affect interpretation. The following rules also apply in interpreting this Plan, except where the context makes it clear that a rule is not intended to apply.

- (a) Expressions defined in the Act have the same meaning as in the Act.

*Note: Section 3(1) of the Act defines “dam”, “person”, “registration licence” and “waterway”.*

- (b) A reference to:
- (i) legislation (including subordinate legislation) is to that legislation as amended, re-enacted or replaced, and includes any subordinate legislation issued under it;
  - (ii) a document or agreement, or a provision of a document or agreement, is to that document, agreement or provision as amended, supplemented, replaced or novated;
  - (iii) a reference to a person includes a permitted substitute or a permitted assignee of that person and that person’s employees, officers, agents and contractors;
  - (iv) anything (including a right, obligation or concept) includes each part of it.
- (c) A singular word includes the plural, and vice versa.
- (d) If a word is defined, another part of speech has a corresponding meaning.
- (e) If an example is given of anything (including a right, obligation or concept) such as by saying it includes something else, the example does not limit the scope of that thing.

## **2. AUTHORISING PROVISION**

This Plan is approved by the Minister under section 32A of the Act.

*Note: The Plan was amended by an Order made by the Minister entitled Olinda Creek Stream Flow Management Plan Amendments 2018.*

## **3. COMMENCEMENT**

This Plan commences on the day on which the Minister approves it.

## **4. WATER SUPPLY PROTECTION AREA**

The boundaries of the Protection Area:

- (a) were declared by the Minister by Order under section 27 of the Act on December 30 2002; and

- 
- (b) are set out in Schedule 1; and
  - (c) may be inspected on Plan No. LEGL./02-0028 at the Landata office, Department of Environment, Land, Water and Planning, 2 Lonsdale Street, Melbourne, or on the Central Plan Office page of the Landata website [www.landata.vic.gov.au](http://www.landata.vic.gov.au).

## **5. SURFACE WATERS**

This Plan applies to the surface waters of the Protection Area.

## **6. OBJECT OF THE PLAN**

- 6.1 The general object of this Plan prescribed by section 32A(1) of the Act is “to make sure that the water resources of the “Protection Area” are managed in an equitable manner and so as to ensure the long-term sustainability of those resources”.
- 6.2 For the purpose of achieving that general object, Melbourne Water must have regard to specific objectives proposed by the Olinda Creek Stream Flow Management Plan Consultative Committee and Olinda Creek Stream Flow Management Plan Amendment Consultative Committee that are set out in Schedule 2.

## **7. ADMINISTRATION AND ENFORCEMENT**

Melbourne Water has the duty of enforcing and administering this Plan.

## **8. PROHIBITIONS ON GRANTING NEW LICENCES**

Melbourne Water must refuse an application under section 51(1)(a) or (ba) of the Act if, in its opinion, the approval of the application will or may cause:

- (a) the total volume of water taken in any year under all all-year licences to exceed 607.3 ML; or
- (b) the total volume of water taken in any year under all winter-fill licences to exceed 973 ML.

*Note 1: Section 51A of the Act allows a person to surrender a registration licence and apply for a licence under section 51(1)(a) or (ba) of the Act. and Melbourne Water must within 14 days issue a licence for the same annual volume as the registration licence.*

## **9. TRANSFERRING LICENCES**

*Note: Section 62 of the Act empowers Melbourne Water to approve an application to temporarily or permanently transfer a licence.*

9.1 Melbourne Water must refuse an application made under section 62(3) of the Act to transfer an all-year licence or a winter-fill licence if, in its opinion, the approval of the application will or may cause:

- (a) the total volume of water taken in any year under all all-year licences to exceed 607.3 ML; or

- 
- (b) the total volume of water taken in any year under all winter-fill licences to exceed 973 ML; or
  - (c) the total volume of water taken in any year under all all-year licences and all winter-fill licences to exceed 1367 ML.

9.2 Melbourne Water must refuse an application made under section 62(3) of the Act to transfer an all-year licence or a winter-fill licence if the total volume of water held by the applicant will exceed 100 ML as a result of the transfer.

9.3 Melbourne Water may grant an application made under section 62(3) to transfer an all-year licence, provided relevant matters have been considered:

- (a) to any upstream location if the licence is converted to winter-fill licence; or
- (b) to an upstream location within the lower catchment if the licence is being transferred from within the lower catchment (between Lillydale Lake and the Yarra River); or
- (c) to an upstream location within the upper catchment between Lillydale Lake and the Silvan Reservoir outlet if the licence is being transferred from within the upper catchment between Lillydale Lake and the Silvan Reservoir outlet.

9.4 Melbourne Water may grant an application made under section 62(3) to transfer a winter-fill licence, provided relevant matters have been considered, to any upstream location.

9.5 Melbourne Water may grant an application made under section 62(3) to transfer an all-year licence or a winter-fill licence, provided relevant matters have been considered, to a downstream location.

## **10. NEW DAMS**

After the commencement of this Plan, Melbourne Water must not issue any licence under section 67 of the Act to construct a dam on a waterway within the Protection Area.

## **11. ROSTERS**

11.1 Melbourne Water may, from time to time, prepare and implement rosters or other arrangements for taking and using water, in accordance with the principles specified in clause 11.3.

11.2 Melbourne Water may implement rosters if stream flows fall:

- (a) between 6 ML/day and the levels specified under the licence condition 1.1 of Schedule 3 between 1 January and 31 March inclusive in the upper catchment; and
- (b) between 15 ML/day and the levels specified under the licence condition 1.1 of Schedule 3 between 1 January and 31 March inclusive in the lower catchment.

11.3 In developing rosters or restrictions, Melbourne Water must have regard to the

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need to:

- (a) maintain flows above the minimum levels specified under licence condition 1.1 of Schedule 3; and
- (b) limit the number of days upon which licensees are unable to take water because of the effect of licence condition 1.1 of Schedule 3; and
- (c) take account of:
  - (i) the relative requirements of different crops and other uses of land for water; and
  - (ii) differences between types of licence, maximum volumes which may be taken under licences, and pumping capacities; and
  - (iii) the need for all licensees to have fair and reasonable access to available water, given the matters referred to in sub-paragraphs (i) and (ii);

11.4 Melbourne Water may specify a maximum volume or percentage of allocation of water that a licensee may take or use on any rostered day (or lesser roster period).

11.5 Melbourne Water must ensure that each licensee has an up to date copy of any roster that is developed.

## **12. LICENCE CONDITIONS**

For the purposes of section 32A(12) of the Act, a licence granted under section 51(1)(a) or (ba) of the Act for a purpose specified in Schedule 3 is subject to each condition set out in that Schedule, in relation to that purpose.

## **13. STREAM FLOW MONITORING PROGRAM**

13.1 Melbourne Water must:

- (a) continuously record flows at the York Rd gauge and MacIntyre Lane gauge; and
- (b) periodically inspect the condition of these gauging stations; and
- (c) maintain these gauging stations in good condition; and
- (d) keep a record of each inspection and all work undertaken under paragraph (b) and (c)
- (e) make all flow data publicly available, or as requested by the Minister.

## **14. INSTALLING METERS**

14.1 Melbourne Water must ensure that a flow meter is installed to measure water taken for irrigation or commercial purposes under any active all-year licence or winter-fill licence which has been or is issued under section 51(1)(a) or 51(1)(ba) of the Act to take and use 5 ML or a greater volume.

14.2 At Melbourne Water's discretion, and where practical to do so, Melbourne Water may install a meter to measure water taken under any all-year licence or

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winter-fill licence issued under section 51(1)(a) or 51(1)(ba) of the Act to take and use less than 5 ML.

14.3 Melbourne Water must:

- (a) periodically inspect the condition of each flow meter referred to in sub-clauses 14.1 and 14.2; and
- (b) maintain each flow meter in good condition; and
- (c) replace any damaged flow meter; and
- (d) keep a record of all work done under paragraph (b) and (c).

## 15. READING METERS

Melbourne Water must:

- (a) read each meter referred to in sub-clause 14.1 and 14.2 at least:
  - (i) in the case of an all-year licence, once in every year; and
  - (ii) in the case of a winter-fill licence, shortly before the beginning and shortly after the end of the winter-fill period in every year; and
- (b) record, for each meter:
  - (i) the reading obtained; and
  - (ii) the number of the relevant licence; and
  - (iii) the date on which the meter is read; and
  - (iv) any information about the accuracy of the meter which Melbourne Water considers relevant; and
- (c) if a meter becomes defective, registers incorrectly or is removed for any reason, estimate the correct registration in any of the following ways:
  - (iii) by comparison with the quantity of water taken under similar conditions during some other period; or
  - (iv) by comparison with the quantity of water taken after the meter has been restored to proper order; or
  - (v) by comparison with the registration of a substitute meter used temporarily in place of the defective meter; or
  - (vi) by applying a correction factor if the meter is found to have a consistent error of registration.
- (d) when the meter is read shortly before or shortly after the nominated date, deem usage on the nominated date as the usage recorded when a meter is read.

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## 16. MAINTAINING ENVIRONMENTAL FLOWS

Melbourne Water must do its best to ensure that licensees comply with the conditions referred to in Item 1.1 in Schedule 3.

## 17. DAMS ON SUBDIVISIONS

The total volume of water for domestic and stock purposes that may be retained in all private dams within a subdivision must not exceed the greater of:

- (a) the total volume retained in all private dams on that land before the relevant plan of subdivision was approved; or
- (b) the total volume required for domestic and stock purposes on each lot within the subdivision as determined by Melbourne Water in accordance with the Act.

## 18. REPORTING

Melbourne Water must report on its activities in carrying out its duties in relation to this Plan in each financial year and:

- (a) give the report to the Minister and the Port Phillip and Westernport Catchment Management Authority by 30 September in each year; and
- (b) make a copy available for public inspection at its offices.

## 19. MONITORING THE EFFECTS OF THE PLAN

19.1 Melbourne Water must, unless otherwise directed by the Minister, implement the Monitoring Program: Streamflow Management Plans approved by the Minister in September 2013.

19.2 Melbourne Water must implement the monitoring and management recommendations detailed in the Environmental Water Action Plan: Olinda Creek or other monitoring activities specified in the Healthy Waterways Strategy.

## 20. REVIEW OF PLAN

20.1 Melbourne Water must:

- (a) review the operation of this Plan:
  - (i) not more than 5 years after it commences; and
  - (ii) thereafter, at intervals of no more than 5 years; and
- (b) propose any consequential amendment (if any) to the Minister.

*Note: Sections 29, 31 and 32G of the Act provide for the constitution and convening of a consultative committee to provide advice on any proposed amendment and the process to be followed by the Minister before approving it.*

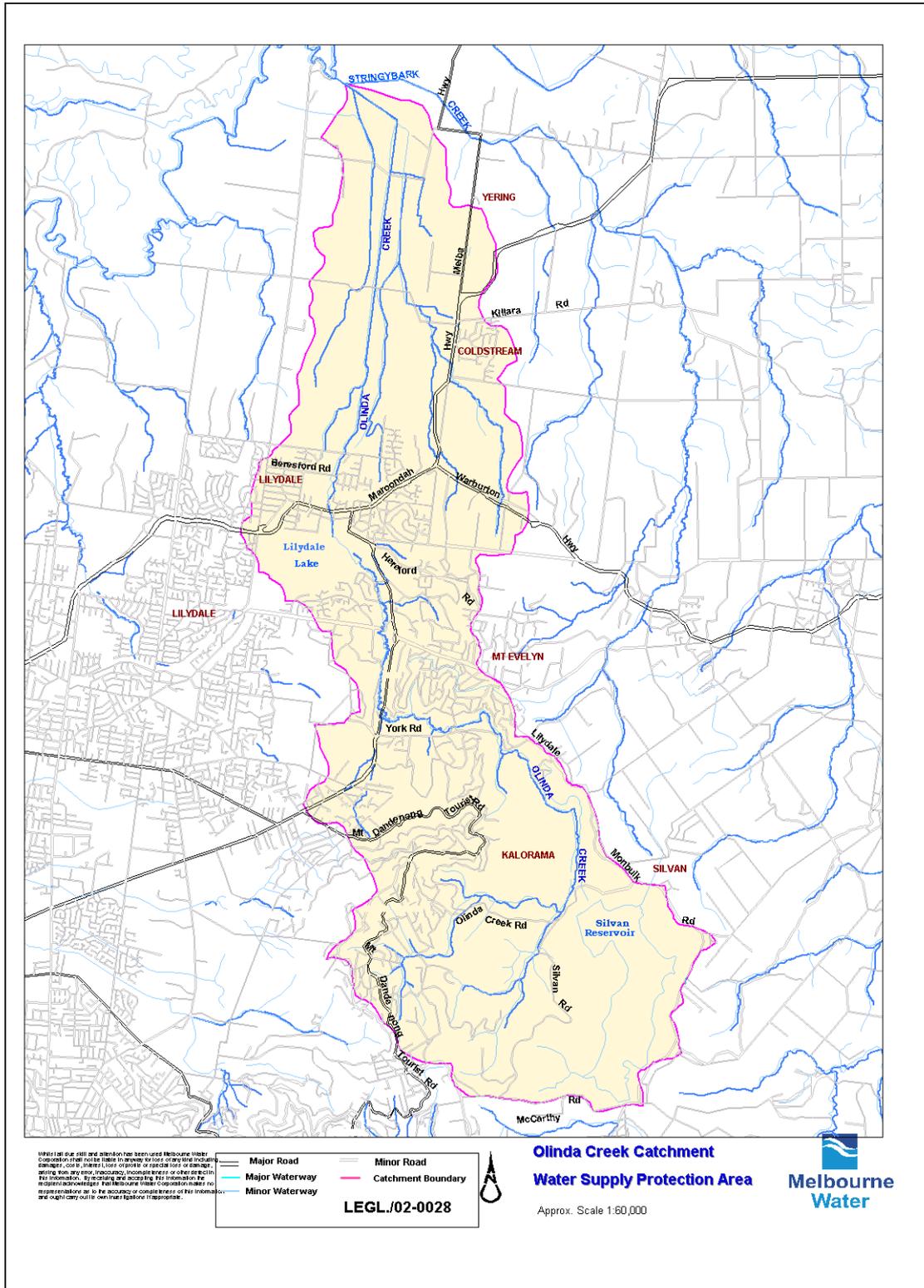
20.2 Melbourne Water may review this plan earlier than at five yearly intervals as required by clause 20.1 if:

- (a) water use in the catchment increases to greater than the sustainable all-year period volume of 394 ML; or

- 
- (b) output to the waterway from Lilydale STP reduces by greater than 30% of mean 2013 discharge rates.

**SCHEDULE 1**

**Olinda Creek Water Supply Protection Area**



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## **SCHEDULE 2**

### **SPECIFIC OBJECTIVES**

#### **Specific objectives proposed by the Olinda Creek Consultative Committee 2007**

- (a) Stream flows that match natural seasonal flow patterns.
- (b) Water management rules that are clear and fixed in the short term but adaptable to long term change.
- (c) Water availability and access clearly defined.
- (d) Trading rules and opportunities specified to encourage water licence trading.

#### **Additional objectives proposed by the Olinda Creek Olinda Creek Stream Flow Management Plan Amendment Consultative Committee**

- (a) Total allocation in the catchment is consistent with the sustainable allocation of the catchment.
- (b) Diversions managed to meet stakeholder agreed minimum flow regimes.
- (c) Transfer of licences will not unreasonably adversely affect other water users or the environment.

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## SCHEDULE 3

### Licence conditions

**1. Licences to take and use water for other than domestic and stock purposes only:** *[section 51(1)(a)]*

1.1 The licensee must not:

- (a) take any water for other than domestic and stock purposes from a waterway within the upper catchment when the streamflow at York Road gauging station:
  - (i) is 5 ML/day or less, at any time between 1 January and 31 March; or
  - (ii) is 6 ML/day or less at any time between 1 April and 31 May; or
  - (iii) is 8.5 ML/day or less at any time between 1 June and 30 June; or
  - (iv) is 10 ML/day or less at any time between 1 July and 31 October; or
  - (v) is 8.5 ML/day or less at any time between 1 November and 30 November; or
  - (vi) is 6 ML/day or less, any time between 1 December and 31 December.
- (b) take any water for other than domestic and stock purposes from a waterway within the lower catchment when the streamflow at the MacIntyre Lane gauging station:
  - (i) is 6 ML/day or less, at any time between 1 January and 31 March; or
  - (ii) is 8 ML/day or less, at any time between 1 April and 30 April; or
  - (iii) is 10 ML/day or less, at any time between 1 May and 31 May; or
  - (iv) is 15 ML/day or less, at any time between 1 June and 31 October; or
  - (v) is 12 ML/day or less, any time between 1 November and 30 November; or
  - (vi) is 8 ML/day or less, any time between 1 December and 31 December.
- (c) after any event referred to in paragraph (a) or (b), resume taking water from a waterway until the seven-day average stream flow at the relevant gauging station rises above the stream flow referred to in 1.1(a) or (b).

- 1.2 The Licensee must comply with any rostering or other arrangements prepared and implemented by Melbourne Water under clause 11 of the Olinda Creek Water Supply Protection Area Stream Flow Management Plan.

**2. Licence to take water from a waterway to fill a dam:** *[section 51(1)(a)]*

The Licensee must not take or collect water from a waterway to a dam, whether the dam is built on or off a waterway, between 1 December and 31 May in the following year.

**3. Licence to use water from a dam constructed after the commencement of Olinda Creek Water Supply Protection Area Streamflow Management Plan:** *[section 51(1)(ba)]*

The Licensee must not allow water (other than rain water supplied to the dam from the roof of a building or a bore or for use other than domestic and stock use) to collect in a dam between 1 December and 31 May in the following year.

**4. Licence to take and use water transferred into the Protection Area:** *[section 62(3A), 62(6)(b)]*

The Licensee must not take any water from a waterway between 1 December and 31 May in the following year.

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**5. Licence for a purpose referred to in section 51(1)(a) or (ba)**

From the date upon which Melbourne Water installs a flow meter to measure water taken, used or collected for commercial or irrigation purposes, the Licensee is not required to comply with the condition describing the area to be irrigated in the First Schedule of this Licence.

*Note: These conditions are additional to, or replace, existing licence conditions where appropriate.*