Stormwater Quality Offsets

- A Guide for Developers

Introduction

Treatment of stormwater to protect receiving waterways is now common practice in greenfield development in Victoria. The publication, *Urban StormWater: Best Practice Environmental Management Guidelines*, (Victorian StormWater Committee, 1999) outlines the targets to be achieved by all development.

These targets are designed to retain 80% of the suspended solid annual load, 45% of total phosphorus and 45% of total nitrogen annual loads.

These guidelines are a referenced document in the State Planning Policy Framework and form part of the State Environment Protection Policies, including *Waters of Victoria*. As the caretaker of river health, Melbourne Water supports implementation of these objectives.

Current best practice encourages an integrated and distributed approach to stormwater quality treatment through water sensitive urban design (WSUD). Unlike traditional 'end of pipe' solutions, stormwater quality treatment using WSUD treats stormwater at its source, is practical and achievable on large and small-scale (ABM 2004) developments, and has the ability to offer equal or better environmental outcomes at a lower overall cost to the community. The new Sustainable Neighborhoods provisions (Clause 56) introduced by the Department of Sustainability and Environment now require all new residential subdivisions to meet the targets within each subdivision.

A number of best practice treatment options can be selected to suit the characteristics of a development and the likely pollutant loads. Further information about WSUD measures can be found in the websites listed below. Detailed advice on the design for stormwater treatment options is provided in the *WSUD Engineering Procedures: Stormwater* (Melbourne Water, 2005). The stormwater quality performance of a development proposal can be assessed using specialist software or simplified curves. On large developments, specialist software such as the *Model for Urban Stormwater Improvement Conceptualisation* (MUSIC) can be used (Monash University, 2005). Melbourne Water guidelines for the use of MUSIC can be found at www.wsud.melbournewater.com.au/resources/guidelines. On smaller developments, simplified curves are available via a web based calculator, STORM http://storm.melbournewater.com.au.

Melbourne Water is working with councils across the Port Phillip and Westernport catchments to implement the Integrated Water Management Provisions within Clause 56 in a coordinated manner.

The Stormwater Quality Offsets Program

Melbourne Water manages a *Stormwater Quality Offsets Program*. Stormwater offsets are a financial contribution to Melbourne Water for regional water quality works, undertaken elsewhere within the catchment to offset pollution loads not treated within the development. Offsets provide flexibility for developers where best practice performance objectives cannot be achieved on site, or where water quality works are planned as part of a drainage scheme. The program operates in the Port Phillip and Western Port catchments.

For residential subdivisions, the responsible authority, (council) will determine whether stormwater treatment must be provided on site or whether compliance may be achieved through offsets.

The availability of offsets for different development types and sizes is outlined in the following tables:

Residential Subdivisions – developments subject to Clause 56

Melbourne Water Greenfield Schemes

Regional water quality treatment provided within the scheme	No water quality provided within the scheme	Development outside of Greenfield Schemes	Development in Redevelopment Schemes
• Developer can contribute a financial contribution to treatment provided within the scheme • Reductions in contributions for on-site treatment	• Developer must provide water quality treatment within the subdivision in accordance with Clause 56 • Offsets are available for sites less than one hectare		
Hydraulic contributions required		No hydraulic contributions required	Hydraulic contributions required

The Land Development Manual http://ldm.melbournewater.com.au/ details which schemes include water quality treatment.

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Industrial and Commercial Subdivisions (development not subject to Clause 56)

Melbourne Water Greenfield Schemes

Regional water quality treatment provided within the scheme	No water quality provided within the scheme	Development outside of Greenfield Schemes	Development in Redevelopment Schemes
• Developer can contribute a financial contribution to treatment provided within the scheme • Reductions in contributions for on-site treatment	• Sites 5 hectares or greater must treat stormwater to best practice within the subdivision • Offsets are available for developments less than 5 hectares • Subdivisions less than 0.4 hectare encouraged to treat stormwater but not required – contributions not required		
Hydraulic contributions required		No hydraulic contributions required	Hydraulic contributions required

Applying for Stormwater Offsets

1. Determine the applicable contribution rate

The Land Development Manual (www.melbournewater.com.au/ldm) contains the payable offset contributions and densities for developments. Some of Melbourne Water's greenfield drainage schemes contain specific works within the scheme and a specific offset will apply. Where the scheme does not include water quality works or the development is outside a scheme a rate per council is applied. Variations in offset contributions take into consideration local elements that contribute to nitrogen generation and the cost of offsite nitrogen treatment. Offsite treatment is currently calculated at $800/kg for the 2005/06 to 2006/07 period, following which the rate will be revised.

2. Calculate stormwater quality contribution

Stormwater quality offsets are calculated on a sliding scale according to the percentage of best practice that is achieved on the site. Nitrogen is the currency for the contribution as it is typically the limiting pollutant (eg if nitrogen targets are achieved, then phosphorus and suspended solids objectives are also achieved). A specific contribution rate (based on rainfall) has been established for areas within Melbourne and is expressed in $/ha. An example is given below:

Worked Example: Stormwater Quality Contribution Calculation

Refer to Land Development Manual for water quality rates and development density factors.

Determine treatment performance using specialist water quality modelling.

Standard contribution rate (ie for lots from 450 m2 but less than 1000 m2) = $3000 per ha

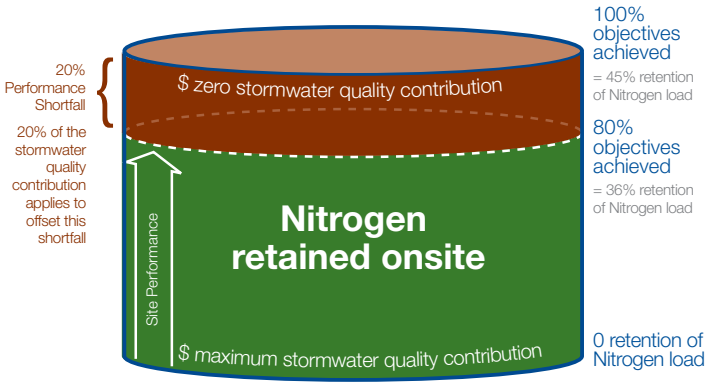
Development density factor = standard residential = 1.0

Development size = 1ha

Percentage of nitrogen reduction achieved onsite = 36%

- 36% reduction in Total Nitrogen (typical annual load t/y) achieves 80% of the best practice objective
- Offsets required for remaining 20%
- Offset contribution = $3,000/ha * 1ha * development density factor (1) * 20% (shortfall in best practice)

Amount payable = $600



3. Complete the Application for Offsets

Developers need to complete an *Offer of Conditions of Agreement for the provision of Drainage Facilities* which can be accessed at http://ldm.melbournewater.com.au. The application needs to be endorsed by the municipality in which the development occurs.

4. Payment of offsets

Following a request for offsets, the Land Development team at Melbourne Water will follow usual processes and enter into an agreement with the developer for payment of contributions.

Websites

Water Sensitive Urban Design - www.wsud.melbournewater.com.au

Land Development - www.melbournewater.com.au/ldm

Australian Runoff Quality Guidelines (draft) - www.arq.org.au

Municipal Association of Victoria Clearwater Program - www.clearwater.asn.au

CRC for Catchment Hydrology - www.catchment.crc.org.au

Water Sensitive Urban Design in the Sydney Region - www.wsud.org

Publications

Urban Stormwater Best Practice Environmental Management Guidelines, Victorian Stormwater Committee, CSIRO publishing, 1999.

WSUD Engineering Procedures: Stormwater, Melbourne Water, 2004.

Delivering Water Sensitive Urban Design: Final Report of Clean Stormwater – a planning framework, ABM, 2004.

MUSIC Input Parameters, Melbourne Water, 2002.

MUSIC Users Manual Version 3, Monash University, 2005

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