

Management of Urban Stormwater Quality Planning Scheme Policy

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1 Introduction

Under the Act, the Integrated Development Assessment System allows for Council and other referral agencies to request additional information to assist in assessing a development proposal.

This Planning Scheme Policy explains how applicants can identify and apply relevant environmental values and water quality objectives in receiving waters within or outside their proposed development in order to comply with the **Stormwater Management Code** and the *Environmental Protection (Water) Policy 1997*.

In particular, this Planning Scheme Policy is to be used in conjunction with the preparation and submission of a Site Based Stormwater Management Plan (SBSMP) detailing the overall planning, layout and design for stormwater management infrastructure for larger scale developments (refer to the **Stormwater Management Code**).

Glossary

Environmental values: the actual or potential function carried out by the water body, e.g. suitability for recreational use or use as a modified aquatic ecosystem to support biological integrity. These values are typically determined through a process of consultation with key stakeholders. This can be done on a site-specific basis or via a regional planning exercise. Refer to Schedule 2 of the *Environmental Protection (Water) Policy 1997* for more information.

Receiving waters: the closest creek, stream, river, lake, wetland, estuary, bay, aquifer or other waterway that has environmental values that require protection and could be affected by stormwater draining from

the proposed development. For the purposes of this policy, water bodies that are primarily designed to treat stormwater are not classed as receiving waters, e.g. constructed wetlands.

Water quality objectives: measurable long term goals for the quality of receiving waters to ensure the environmental values are upheld, e.g. to sustain seagrasses in Moreton Bay, the concentration of suspended sediment in the water needs to be less than 10 mg/L on a sustained basis. Applicants must ensure that stormwater being discharged from the site does not threaten these objectives and, where possible, the development proposal should seek to enhance these values, i.e. by improving receiving water quality to levels above the minimum acceptable standard. Refer to Schedule 2 of the *Environmental Protection (Water) Policy 1997* for more information.

2 Environmental values and water quality objectives

2.1 Background

The primary objective in relation to the quality of stormwater originating from a development is to ensure that the development's design, construction, operation and maintenance are undertaken so that the environmental values of affected receiving waters within or outside the development are maintained or enhanced.

For larger scale, high risk developments, the **Stormwater Management Code** requires the development applicant to:

- identify the relevant environmental values and associated water quality objectives to be protected or enhanced in receiving waters within and/or downstream of the development
- ensure the development plans and designs clearly demonstrate that stormwater draining from the site will not threaten the relevant environmental values and their corresponding water quality objectives, in affected receiving waters.

This section of the Planning Scheme Policy explains how to identify and apply relevant environmental values and associated water quality objectives in affected receiving waters within or outside of proposed developments. The approach is consistent with the process outlined in the *Environmental Protection (Water) Policy 1997* and is designed to assist applicants comply with the relevant provisions of the *Environmental Protection (Water) Policy 1997*. In particular, it requires all reasonable and practicable measures to be taken to minimise environmental harm from stormwater run-off on the receiving environment.

The *Environmental Protection (Water) Policy 1997* provides the legislative basis and widely accepted process for determining environmental values of receiving waters and converting these values to measurable water quality objectives so that quantifiable performance objectives or standards can be determined with respect to water quality.

Council is involved in a variety of waterway related planning exercises including regional water quality studies and the development of Catchment Management Plans, Stormwater Management Plans and Waterways Management Plans. Outcomes from these planning exercises include the definition of environmental values to be protected in waterways within the City (and in some cases water quality objectives).

As these values and objectives are determined, Council will maintain a set of recommended environmental values and water quality objectives for all of the City's waterways to give developers guidance on the performance objectives that their development is to be designed to achieve for receiving water quality. These are documented in Council's *Guidelines on Identifying Water Quality Objectives in Brisbane City*.

These water quality objectives have been developed based on expert advice and the best information available. However, where a developer wishes to invest in local water quality studies to better define applicable site specific environmental values and water quality objectives, this may be done in consultation with regulatory authorities, and the resulting site specific water quality objectives may override Council's recommended water quality objectives.

The hierarchy of water quality objectives to be used as performance objectives for proposed developments can be summarised as:

- objectives derived from Schedule 1 of the *Environmental Protection (Water) Policy 1997* (highest status)
- objectives derived from site specific scientific investigations, i.e. as part of the development's environmental impact assessment process
- objectives derived from recent government water quality studies, Catchment Management Plans, Stormwater Management Plans and Waterways Management Plans
- Council's current summary of water quality objectives for the City's waterways (note that this summary attempts to collate all relevant water quality objectives for the City). Refer to Council's *Guideline on Identifying and Applying Water Quality Objectives in Brisbane City*

- objectives derived from using the current *Australian National Water Quality Guidelines* to convert environmental values into numerical objectives, where values have been determined from a limited consultation exercise (lowest status).

This Planning Scheme Policy uses the general term 'objectives to' include all measurable water quality goals that have been derived to protect corresponding environmental values.

2.2 Process for identifying relevant environmental values and water quality objectives

Applicants seeking to identify applicable downstream receiving water quality objectives to guide the design and management of a proposed development should use the following procedure.

Step 1

Identify the receiving waters immediately outside or within the proposed development. This may be a creek, river, lake, wetland, estuary, bay or other waterway as defined in the **Waterway Code**. Where the immediate receiving waters are overland flow paths or constructed drainage networks, the receiving water is to be taken as the nearest affected waterway, e.g. creek or river. Standard topographic maps can be used for this task.

If groundwater is used in the area, the receiving waters can include groundwaters that could be contaminated by the proposed development. If groundwater is likely to be contaminated and users of the groundwater are likely to be affected, consultation with the State Government agency that regulates groundwater usage will be necessary to identify relevant environmental values and water quality objectives.

Step 2

Identify the creek catchment and planning unit that includes the affected receiving waters for the development. Brisbane has 33 creek catchments, each divided into planning units. In total there are 208 units, which are given a unique planning unit identifier. Council's *Guideline on Identifying and Applying Water Quality Objectives in Brisbane City* provide maps to help identify these units and catchments.

Step 3

Refer to Schedule 1 of the *Environmental Protection (Water) Policy 1997* to determine whether the relevant water body has been formally assigned water quality objectives by the State Government. If these have not been assigned, go to Step 4.

Step 4

The applicant may wish to undertake site specific water quality and ecological studies to derive local receiving water quality objectives. If this option is chosen, the onus is on the applicant to construct a scientifically rigorous case as to why the proposed objectives are superior to those derived via Step 5. The applicant may be required to consult with relevant regulatory authorities and key stakeholders in order to identify appropriate environmental values for the receiving waters. If this site specific water quality and ecological study approach is not adopted by the applicant, go to Step 5.

Step 5

Refer to Council's summary of recommended water quality objectives for the City to identify relevant environmental values, water quality objectives and how to apply them. Water quality objectives for all of the City's planning units have been derived and published by Council, in *Guideline on Identifying and Applying Water Quality Objectives in Brisbane City*.

2.3 Process for converting water quality objectives into site specific discharge limits

Once receiving water quality objectives have been identified for the proposed development, there are two options to derive discharge limits for the quality of stormwater leaving the site:

- simply use the receiving waterbody's water quality objectives as discharge limits for the quality of stormwater leaving the site, e.g. if the receiving waters must have a pH above 6.5 and below 8.5, so must stormwater flowing from the site. Special consideration is allowed for the quality of stormwater leaving the site in association with a major storm event as water quality objectives are usually defined as an upper limit (or range) that a water quality data set's median value must fall below (or within)

- Council may allow the discharge limit for the quality of stormwater leaving the site to exceed the receiving waterbody's water quality objectives, if the applicant can demonstrate with the assistance of ambient water quality monitoring, environmental assessments, pollutant export modelling and/or receiving water modelling that water quality objectives in the nearest affected receiving water will be met. For more information refer to Council's *Guideline on Identifying and Applying Water Quality Objectives in Brisbane City*.

2.4 Water quality objectives and choice of indicators

A range of different waterborne pollutants may be exported from a site, depending on the type of development that is proposed. Additionally, the environmental value of a waterway may be sensitive to particular waterborne pollutants, and therefore require particular attention to these specific water quality parameters. The water quality objectives for a development are to include (as a minimum) consideration of these water quality parameters, known as key indicators.

For example, a service station is to always consider petroleum hydrocarbons and heavy metals as key indicators and the water quality objectives developed for the site are to include consideration of at least these parameters. If the nearest affected aquatic environment is considered to be sensitive to other water quality parameters, e.g. sediment for receiving waters containing seagrasses, additional key indicators may need to be considered when developing the water quality objectives.

Table 1 outlines the minimum key indicators that need to be included in the water quality objectives for particular development types.

Table 1 Minimum key indicators to be evaluated for particular development types

Development type	Minimum key indicators
Land-disturbing activities, e.g. subdivisions, large commercial developments	<ul style="list-style-type: none">• Suspended solids (sediment)• Nutrients (nitrogen and phosphorus)• Litter• Faecal coliforms
Vehicle-related activities e.g. service stations, carparks and motor vehicle repair centres/dismantlers	<ul style="list-style-type: none">• Metals• Hydrocarbons• Litter
Acid sulfate soil related activities, e.g. development in areas known to host acid sulfate soils	<ul style="list-style-type: none">• pH level• Metals