

2.0 APPLICATION REQUIREMENTS

- a Table 1 defines certain types of developments and the specific information that is required with the submission of any development application. Performance targets that are to be satisfied for each development are also specified. This table also delineates development that can either be assessed under a Deemed to Comply Provision, or if a WSUD Strategy is required.
- b This DCP Chapter highlights when there is a need to incorporate a WSUD Strategy or Deemed to Comply Provision within the requirement to prepare a Stormwater Management Plan for a development proposal.
- c This DCP Chapter is complemented by a set of WSUD Technical Guidelines and tools to assist in the preparation of a DA and Stormwater Management Plan.

2.1 Pre-Application Consultation

- a Applicants are encouraged to discuss a development proposal with Council's Development Assessment Staff at an early concept stage prior to lodgement of a development application. Agreement on the overall WSUD design approach before the preparation of a detailed Stormwater Management Plan is a cost and resource effective approach to design.
- b The applicant should have the locality and site analysis available at this meeting so that parameters can be agreed rather than providing the analysis only at the development application stage, thus saving time and costs associated with revisions and major modifications. The aim of the consultation process is to provide direction and to assist the applicant with advice of Council's requirements.
- c The level of consultation required will largely depend on the size and the complexity of the development. In some instances it will be necessary to lodge a preliminary application with Council for developments of a certain scale.
- d Appointments with staff can be arranged through Council's Customer Service Centre. Telephone contact is available on (02) 4350 5555 from 8.30am to 4.30pm, Monday to Friday.

Table 1: Requirements for Development Applications for which this DCP Applies

Development Types		Performance Targets				Required Information	
		Water or stormwater	Stormwater Quality	Wetland Hydrology	Arterial Stability		
Residential	Alterations and additions	More than \$50,000 or increase in impervious area is greater than 150m ²					BASIX and Deemed to Comply solution (see single dwelling solution)
		All sites within an existing IWCM Strategy area ¹					WSUD Strategy (see DA guide)
	New development	Single dwellings					BASIX and Deemed to Comply solution (see single dwelling solution)
		Dual occupancy					BASIX and Deemed to Comply solution (see dual occupancy solution)
		Residential flat building up to 4 dwellings (including townhouses and multi-unit development)					BASIX and Deemed to Comply solution (see flat solution)
		Residential flat building of 5 or more dwellings (including townhouses, multi unit and mixed-use development)					WSUD Strategy (see DA guide)
		All sites within an existing IWCM Strategy area ¹					WSUD Strategy (see DA guide)
		up to 2,000m ²					Deemed to Comply solution (see commercial and industrial flat solution)
		greater than 2,000m ²					WSUD Strategy (see DA guide)
		All subdivisions within an existing IWCM Strategy area ¹					WSUD Strategy (see DA guide)
Commercial and industrial	Residential (5 or more lots) or commercial and industrial					WSUD Strategy (see DA guide)	
	More than \$50,000 or increase in impervious area is greater than 150m ²					WSUD Strategy (Discuss with Council and see DA guide)	
Subdivision where construction of stormwater infrastructure, roads, carriages & accessways are proposed							
Other development not listed above (e.g. schools, churches, tourist development, etc)							

Note 1: For developments within areas covered by an IWCM Strategy, the development should refer to that Strategy for guidance on how to meet the required performance targets.

2.2 Required Information

2.2.1 OBJECTIVE

- a To ensure sufficient information is provided with any Development or Construction Certificate application to permit efficient and timely processing of the application.

2.2.2 REQUIREMENTS

- a Preparation and submission of certain documentation is required at the DA stage depending on the nature of the development. The three types of submissions are summarised below;
 - i Deemed to Comply Checklist for residential single lot and dual occupancy
 - ii Deemed to Comply Checklist and a simple Stormwater Management Plan for Deemed to Comply - industrial, commercial and residential flats.
 - iii Stormwater Management Plan incorporating a WSUD Strategy typically required for subdivisions and larger industrial and commercial development.
- b Table 1 provides further guidance on the development types and reporting requirements.
- c Construction Certificate stage generally requires the submission of detail design drawings and relevant WSUD checklists. For further details refer to WSUD Technical Guideline No. 7 and 8.

2.2.2.1 Deemed to Comply Provisions

- a A Deemed to Comply Provision is the minimum requirement for small scale development. These provisions allow the builder or home owner to chose from a number of different WSUD elements that either treat, detain and/or reuse stormwater. Deemed to Comply Provisions advocate good practise in stormwater management with the resulting benefit that impacts from urban development on downstream sensitive receiving environments are minimised.
- b Deemed to Comply Provisions can be utilised for:
 - i. All new residential developments, including single dwellings, alterations and additions and dual occupancy.
 - ii. Residential flat developments, up to four dwellings, including townhouses and multi-unit development.
 - iii. All commercial and industrial developments up to 2,000m². This will not apply to large water users where water usage exceeds 6.0 ML / yr, in which case a WSUD Strategy and water balance analysis will be required.
- c A simple Stormwater Management Plan is required for Industrial and Commercial development assessed under the Deemed to Comply Provisions whilst single lot and dual occupancy residential development are exempt from this requirement. Refer to WSUD Technical Guidelines No 6 for further details.
- d Deemed to Comply Provisions are applicable to all development areas within the Shire, irrespective of whether located within or outside an existing IWCM Strategy Area. One exemption is for lots within a subdivision which have a positive covenant and/or a restriction as identified in a WSUD Strategy.
- e If the applicant wishes to modify the scope, extent and nature of the Deemed to Comply Provision for the proposed development described in the application, then a WSUD Strategy is to be submitted, the requirements of which are outlined in Section 2.2.2.2.

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- f The Deemed to Comply Provisions are to be assessed in accordance with WSUD Technical Guideline No 6. This Guideline also provides illustrated examples of various WSUD elements, worked examples, self assessment tool and checklist.

2.2.2.2 Water Sensitive Urban Design Strategy

- a A WSUD Strategy is to be prepared to reduce stormwater pollution, manage stormwater runoff, address wetland hydrology and waterway stability and demonstrate compliance with water conservation targets. This strategy is required for:
 - i. Development within an existing IWCM area.
 - ii. Residential flat buildings of 5 or more dwellings (including townhouses, multi unit and mixed use developments).
 - iii. Commercial and industrial development over 2,000 m² in area.
 - iv. All residential subdivisions of more than four allotments.
 - v. Commercial and industrial subdivisions.
 - vi. High water use developments where usage exceeds 6.0 ML / yr.
- b The DA checklist, which can be downloaded from Council's website, is to be completed and submitted with the Stormwater Management Plan.
- c The Stormwater Management Plan is to be included in a written report with plans detailing stormwater quality control measures, management of stormwater runoff, hydrology management measures, waterway stability management measures and potable water saving measures that are to be implemented on the site. The Stormwater Management Plan for a WSUD Strategy is to include the following:
 - i. Existing drainage pattern, identify receiving environments, flow details, all natural water courses and channels on site.
 - ii. Description and illustration of the proposed development. If considered a large water user, details of expected usage, peak visitation periods etc.
 - iii. The location of all points of discharge from the site, overflows and pipes.
 - iv. Evaluation of site conditions e.g. soils, groundwater, vegetation etc and documentation of constraints and opportunities
 - v. The extents of 100-year flood affectation from external gullies, creeks and waterways.
 - vi. Identify relevant objectives that apply and demonstrate through modelling results and/or other means how these objectives have been satisfied.
 - vii. Modelling and concept design of stormwater quality, hydrology and waterway stability measures. Location, size and configuration of stormwater treatment elements are to be specified together with the proposed or altered drainage pattern. Areas bypassing WSUD elements and treatment are to be clearly identified.
 - viii. Consider and identify maintenance requirements for the components of the WSUD Strategy including; maintenance frequency, safety issues, equipment required, vehicular access and maintenance cost estimates.
- d Planning of new residential, commercial and industrial subdivisions is to take into consideration the Deemed to Comply Provisions as detailed in Section 2.2.2.1 of this DCP Chapter. The assumption for modelling lot-scale treatment and stormwater management is to be in accordance with details provided in WSUD Technical Guideline No 4. WSUD Strategies that do not adopt Deemed to Comply Provisions at a lot scale will require notation on the Final Plan of Subdivision. Refer to Section 4.3 for further details.

2.2.2.3 Developing within Existing IWCM Strategies Areas

- a The preparation of a WSUD Strategy will be guided by regional strategies whenever the proposed development falls within an existing Integrated Water Cycle Management (IWCM) Strategy area. These areas are shown in Figure 1 and currently include:
 - i. The Warnervale Town Centre (WTC)
 - ii. The Wyong Employment Zone (WEZ)
 - iii. Precinct 7a and the Education Precinct (under development).
- b Detail information on existing IWCM areas (i) and (ii) are documented in Porters Creek Regional Stormwater Harvesting Scheme - Technical Paper which is available for download on Council's website. Within these areas, the existing IWCM Strategies will form the key reference for preparation of site-specific WSUD Strategies. Regional solutions have been developed to meet the water conservation, water quality, hydrology and stream stability objectives. Individual development sites need to address any components of these regional solutions that affect their site. For example, some on-site stormwater quality controls may apply and subdivisions need to incorporate regional elements such as constructed wetlands and stormwater storages.
- c Figure 1 also identifies the Warnervale-Wadalba area that falls within Porters Creek catchment. Development in this area preceded the Porters Creek IWCM Scheme and the regional strategy focus was primarily on stormwater quality. There are currently financial and land-take restrictions in this area, however the objectives of this DCP Chapter apply and a new strategy that considers IWCM has been developed. For any development within this area, DA applicants are required to liaise with Council in order to ascertain the specific requirements in relation to IWCM and management of stormwater.
- d Consultation with Council Development Assessment Staff is required to ascertain the most relevant design information and requirements for applications to be submitted for developments within these catchments.

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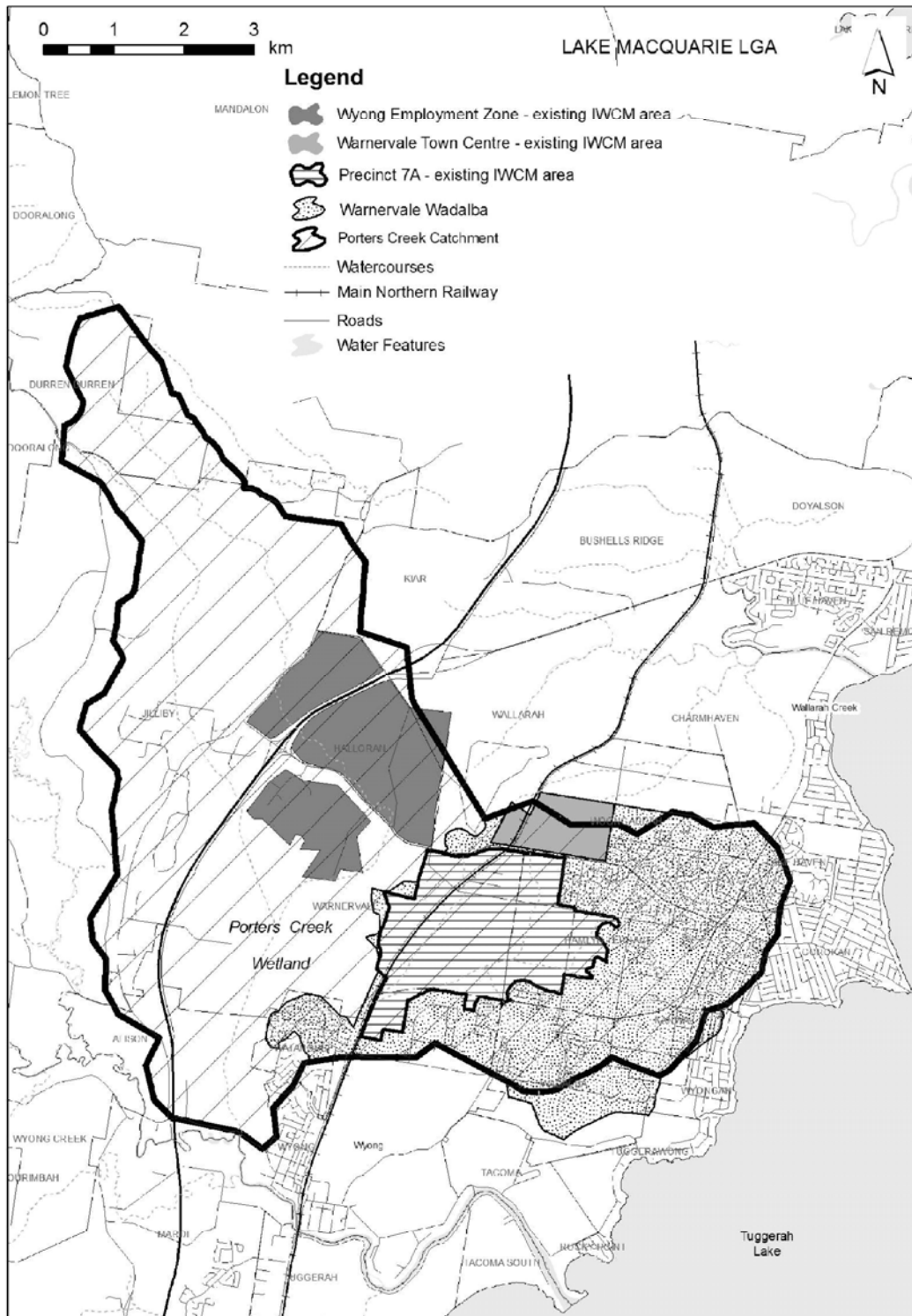


Figure 1: Porters Creek Catchment and existing IWCM Strategy areas

3.0 DESIGN PRINCIPLES

There are a number of design principles that will assist in reducing the impacts from development by seeking to achieve the objectives of this DCP Chapter. In summary an integrated stormwater design approach is required that considers floodplain management, stormwater volume/peak/duration/frequency, water quality, vegetation conservation and aquatic ecosystem health. These principles relate to:

- Storm and Flood Flows
- Water Conservation
- Stormwater Quality
- Wetland Hydrology
- Stream & Waterway Stability Management.

Note, that not all of the design principles are recommended for consideration for every development application or Wyong Shire Council's operations. This DCP Chapter defines where each design principle should be applied.

3.1 Storm and Flood Flows

Urban development and associated drainage infrastructure creates changes in the behaviour of catchments and can contribute to increased incidence and magnitude of urban flooding. WSUD elements can be used to mitigate these impacts if designed and constructed appropriately.

A Water Sensitive urban layout should aim to minimise disturbance to natural vegetation and drainage function and to provide for the safe passage of flood flows. For further information refer to Council's Engineering Guidelines – DCP Chapter 67.

3.2 Water Conservation

Water conservation reduces demand for potable water and reduces wastewater volumes. Reduced potable water demand will allow Wyong Shire Council's existing water supply system to meet the needs of a growing population, and postpone or reduce the need to develop additional potable water sources. Reduced wastewater volumes will help minimise the impact of wastewater discharges on Wyong Shire Council's beaches and marine environment, and also postpone or reduce the need to expand wastewater treatment elements.

3.2.1 OBJECTIVE

- a To safeguard the environment by managing the quality and quantity of stormwater run-off.
- b To reduce consumption of potable water by harvesting rainwater and urban stormwater runoff for use where appropriate.
- c To reduce wastewater discharge by capturing, treating and reusing wastewater where appropriate.
- d To ensure infrastructure design is complementary to current and future water use.

3.2.2 PERFORMANCE TARGETS

- a Residential buildings must demonstrate compliance with State Environmental Planning Policy - Building Sustainability Index (BASIX). Generally this requires a minimum 40% reduction in potable water consumption.

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- b. Commercial and industrial buildings are to incorporate water conservation measures in accordance with either the Deemed to Comply Provisions for small scale development or a specific WSUD Strategy. Generally this requires a reduction in potable water demand use through the use of water efficient fixtures, rainwater tanks and stormwater harvesting.
- c. For high water users such as nurseries, car washes, motels, hotels, swimming pools, holiday parks and where water usage exceeds 6.0 ML/yr, a WSUD Strategy is to be developed documenting the water conservation measures and savings in potable water. In this instance an appropriate target for potable water consumption (and water recycling) is to be agreed with Council prior to submission of a DA.
- d. For water demand within Public Open Space (e.g. irrigation, water features, open water bodies / pools) an alternative water source must be identified to meet 100% of all demand with non-potable water.

Further information regarding BASIX may be obtained from the following website: www.basix.nsw.gov.au. or by contacting the NSW Government Department of Planning.

3.2.3 APPLICATION OF THE WATER CONSERVATION OBJECTIVES

- a. A reduction in potable water consumption can be achieved through provision of elements such as stormwater and rainwater harvesting, wastewater/greywater recycling system and groundwater extraction. Careful consideration of the intended use and required level of treatment is required in order to implement an appropriate solution.
- b. For small scale development, WSUD Technical Guideline No 6 specifies the minimum requirements for acceptable stormwater management. This includes water conservation measures for small scale industrial and commercial development.
- c. For larger commercial and industrial developments where a WSUD strategy is required (see Table 1) or water usage exceeds 6.0 ML/yr, then demonstrating compliance with the water conservation objectives involves preparation of a water balance model that may require consideration of all or some of the following:
 - i. Model inputs and outputs are to be defined and the method and assumptions made in determining these parameters clearly documented. Information should include supply sources and volumes, expected demands on water usage with distinction between potable and non-potable, seasonal considerations on supply and demand, water storage and optimisation of sizing etc.
 - ii. Selection of an appropriate model time step. Generally for stormwater harvesting daily rainfall and daily time step is required.
 - iii. For irrigation demand modelling rainfall, evaporation, soil store, crop factors, irrigation method and controller are to be considered.
 - iv. For subdivisions, details of public open space water demands and proposed alternative water sources and information to demonstrate that 100% of the demands can be met with non-potable water.
 - v. The water balance model is to be submitted with the DA in the form of a functional electronic copy. A hard-copy summary of the inputs and outputs should be documented in the Stormwater Management Plan.

Guidance on modelling these targets is contained in WSUD Technical Guideline No 3 – Device Selection Guide and No 4 – Concept Design Tools.

Also available for reference and information is a Green Rating Star Tool (similar to BASIX) for industrial and commercial buildings that can be downloaded from the Green Building Council Australia – go to www.gbca.org.au.

3.3 Stormwater Quality

The stormwater quality objectives aim to reduce the total pollutant loads exported from urban development to receiving waters in Wyong Shire. Therefore best practice load based objectives (mean annual pollutant loads) have been adopted for defining stormwater quality treatment requirements from urban development.

3.3.1 OBJECTIVE

- a. To safeguard the environment by improving the quality of stormwater run-off from new development.
- b. Achieve best practice standards in relation to treating stormwater runoff.
- c. Stormwater quantity and quality discharge requirements and performance targets from any catchments upstream of an identified SEPP 14 wetland may be different from those outlined for other wetlands, however, the objectives outlined would still apply.

3.3.2 PERFORMANCE TARGETS

- a. For all new developments in the Wyong Shire, except residential alteration and additions, all stormwater is to be treated to the following targets¹:
 - i. 85% reduction in the post-development mean annual load of Total Suspended Solids (TSS).
 - ii. 65% reduction in the post development mean annual load of Total Phosphorus (TP).
 - iii. 45% reduction in the post development mean annual load of Total Nitrogen (TN).
 - iv. Retention of 100% of litter greater than 5mm for all flows up to the 1-year ARI peak flow.
 - v. No visible oils for flows up to the 3-month ARI peak flow.
- b. Post-development mean load refers to pollution export associated with the proposed development without any stormwater controls and/or treatment.

3.3.3 APPLICATION OF THE STORMWATER QUALITY OBJECTIVES

- a. These objectives can be met with the WSUD treatment measures outlined within the WSUD Technical Guidelines, which are capable of removing very fine and colloidal particles as well as dissolved nutrients and heavy metals.
- b. For small scale development, implementation of the Deemed to Comply Provisions will satisfy the above water quality targets. Modelling of water quality is not necessary in this instance on the basis the development complies with the relevant Deemed to Comply Provision.
- c. The configuration and sizing of appropriate WSUD measures to meet the water quality objectives should be outlined in the Stormwater Management Plan.
- d. Excluding Deemed to Comply Provisions, stormwater quality modelling is required to demonstrate compliance with the load-based targets for TSS, TP and TN for the treatable catchment. Results are required to be presented in the Stormwater Management Plan confirming compliance. An electronic copy of the modelling files is to be provided for assessment.

¹ other pollutants associated with development including heavy metals, hydrocarbons & other toxicants are also responsible for degradation of natural systems. The design of treatment systems to meet these performance targets will go to some way in removing these other pollutants. For further information refer Engineers Australia (2006) *Australian Runoff Quality*.

Specific guidance on modelling these targets is contained in the WSUD Technical Guideline No 4 - Concept Design Tools and *MUSIC Modelling Guidelines NSW* prepared by NSW Department of Environment, Climate Change and Water (available for download from *eWater* website (www.ewatercra.com.au))

3.4 Wetland Hydrology

Wyong Shire's sensitive aquatic ecosystems include extensive freshwater wetlands, estuarine lakes and salt marshes. Much of Wyong Shire's wetland vegetation is classified as Endangered Ecological Communities (EECs) and several wetlands are also protected under State Environmental Planning Policy (SEPP) 14 – Coastal Wetlands. In order to preserve these ecosystems, they need to be protected from hydrological disturbances.

3.4.1 PREAMBLE

In Wyong Shires freshwater wetlands, both wetting and drying processes are important and these occur in cycles of months to years. As well as regular periods of wetting/inundation, natural wetlands should experience periods without or with very little surface water inflow which provides relief from sustained inundation. Urban development tends to increase the frequency and duration of surface water inflows, which can lead to stressful conditions for the vegetation (low oxygen, chemically reducing conditions) in these wetlands. Preserving the natural hydrologic regime is therefore the objective.

Further discussion regarding wetland hydrology and wetting and drying cycles is contained within WSUD Technical Guideline No1

3.4.2 OBJECTIVE

- a To preserve the natural wetting and drying cycles of freshwater wetlands through the implementation of WSUD and IWCM principles.
- b For areas within existing IWCM Strategy Areas, to comply with the regional stormwater harvesting scheme.
- c For areas outside existing IWCM Strategy Areas, to demonstrate that incorporation of WSUD and IWCM principles mitigates the impact on the natural hydrologic cycle of the receiving environment.
- d To manage stormwater runoff in an appropriate manner in order to minimise the impact on salt marsh and estuarine habitats.

3.4.3 PERFORMANCE TARGETS

All developments within existing IWCM Strategy Areas, as indicated in Figure 1, must attain the following:

- i. Preserve the pre-development 30-day low flow duration frequency curve for the dry season (October to January).
- ii. Preserve the low flow spells frequency curve for the dry season (October to January).
- iii. Preserve the pre-development 30-day high flow duration frequency curve for all months.
- iv. Maximise collection and reuse of stormwater.

Adherence to a Regional IWCM Scheme (see existing IWCM Strategy areas – Section 2.2) which uses an active storage pump rate of 38 (kL/day/ha) and an active stormwater storage volume of Impervious Area (ha) x 170 (kL/ha) will be deemed to satisfy the above targets.

- a Within catchments draining to a freshwater wetland as indicated in Figure 2, should aspire to the targets outlined in Section 3.4.3 (a) above. It is acknowledged that full compliance with the