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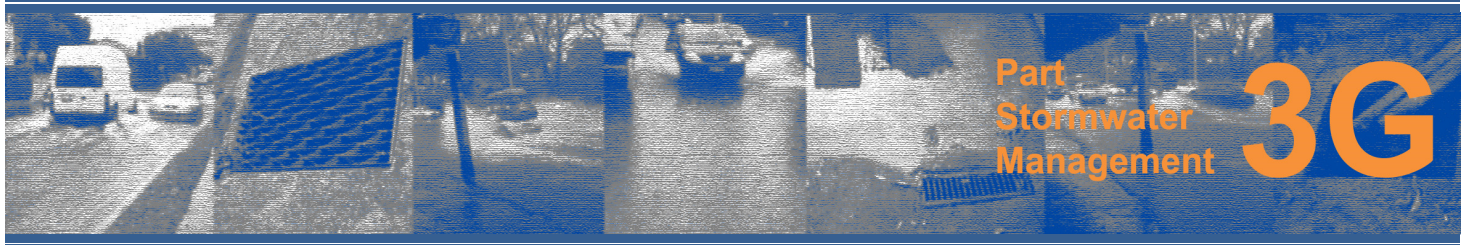
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3G.1 Introduction

The purpose of this Part is to guide all developments in the methods of managing water within the City of Botany Bay. It provides objectives and controls in relation to stormwater management, water sensitive urban design (WSUD) and water quality.

3G.1.1 Land to which this Part Applies

The controls in this Part of the DCP apply to all land within the City of Botany Bay where development consent is required.

This Part needs to be read in conjunction with:

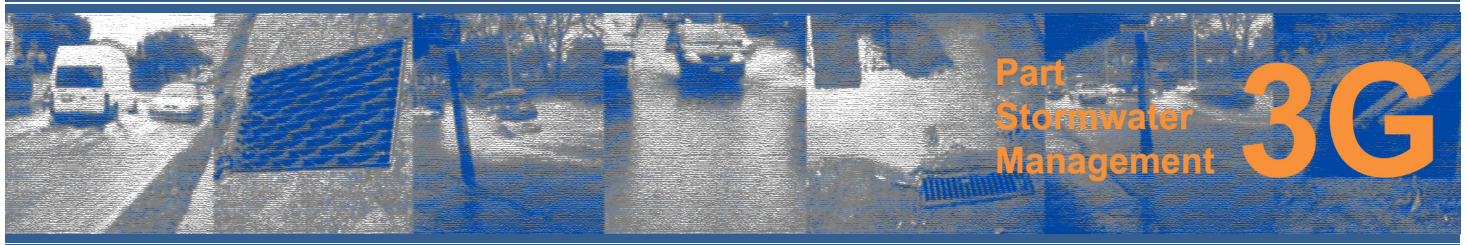
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- Part 10 – Technical Guidelines

This Part must be read in conjunction with Council's **Part 10 - Stormwater Management Technical Guidelines**.

3G.1.2 General Objectives

Objectives

- O1** To provide requirements and advice to applicants in relation to stormwater management, WSUD and water quality;
- O2** To protect development from stormwater inundation;
- O3** To implement Water Sensitive Urban Design (WSUD) principles into the design and construction of development;
- O4** To improve water quality within the City of Botany Bay; and
- O5** To ensure public health and safety is maintained.



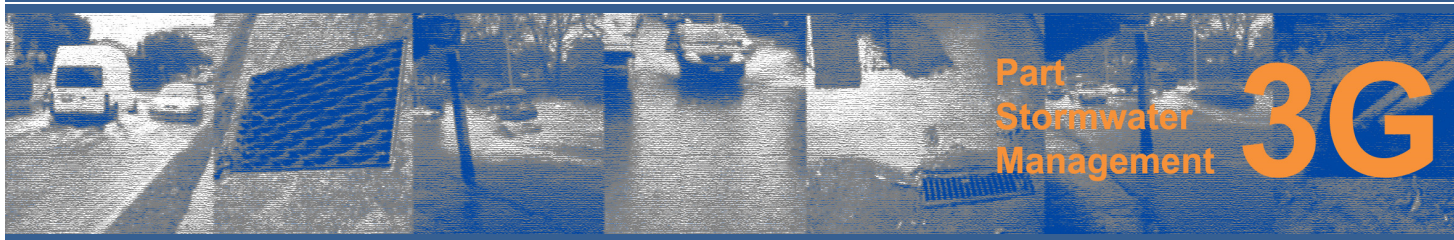
3G.2 Stormwater Management

Objectives

- O1** To provide effective and sustainable measures in managing stormwater runoff generated by new development;
- O2** To manage impacts from flooding;
- O3** To minimise impacts of stormwater runoff from development to public drainage systems, natural watercourses, adjoining and downstream properties;
- O4** To encourage the recharge of groundwater;
- O5** To encourage the re-use of stormwater runoff within the development;
- O6** To protect development and adjoining and downstream properties from stormwater inundation;
- O7** To implement and incorporate Water Sensitive Urban Design (WSUD) principles into the design, construction and operation of the site;
- O8** To improve water quality of stormwater runoff from the development;
- O9** To ensure water quality of receiving waterways is not adversely affected by pollutants resulting from development site;
- O10** To prevent negative impacts of stormwater on public health and safety;
- O11** To protect existing public stormwater drainage assets; and
- O12** To provide uniform stormwater management approaches in the assessment of development applications.

Controls

- C1** Development shall not be carried out on or for any lands unless satisfactory arrangements have been made with and approved by Council to carry out stormwater drainage works.
- C2** Stormwater runoff generated from the development site shall be collected and discharged in accordance with Council's **Part 10 - Stormwater Management Technical Guidelines**.
- C3** All requirements contained in the Council's **Part 10 - Stormwater Management Technical Guidelines** (including submission requirements, design and construction, etc) shall be fully complied with.



- C4** An infrastructure performance bond in the form of a cash deposit, cheque or unconditional bank guarantee shall be lodged with Council for any new stormwater drainage works on roads/ public lands/Council's drainage easements in order to cover against possible damage to public assets during the course of the construction and defective works undertaken by the applicant/contractor(s).

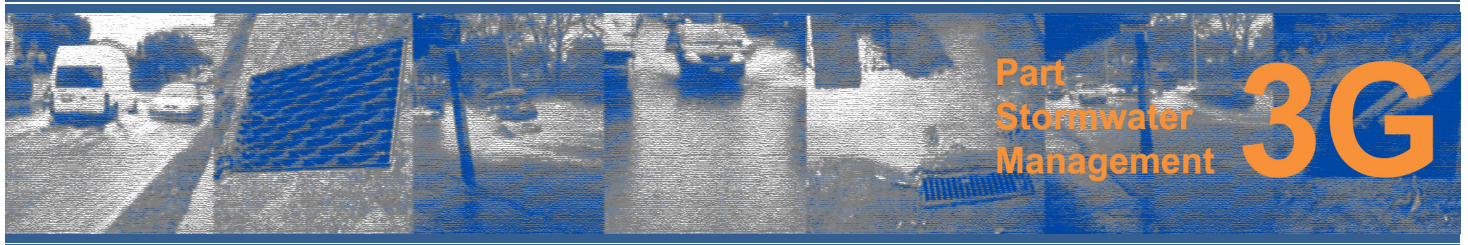
Note: The bond will be held by Council for a period of twelve (12) months from the date of completion as agreed to by Council and be refundable (with no interest) subject to the approval of Council at the end of the maintenance period. In this period, the contractor is liable for any part of the work, which fails to achieve the design specifications. Council shall be given full authority to make use of the bond for such restoration works within the maintenance period as deemed necessary. The amount of the bond will be determined at the development application assessment stage.

- C5** Development shall incorporate site constraints/limitations as described below:

- (i) Existing on-site public stormwater drainage infrastructures;
- (ii) Flooding and overland stormwater flows, particularly related to natural depressions, adjacent or over the existing public stormwater structures and impact from climate change; and
- (iii) Flood prone lands as indicated on Section 149(5) Planning Certificates.

Note: Council is prepared to volunteer whether or not a site is subject to flood/local inundation in a Section 149(5) Certificate.

- C6** To protect the quality of receiving waters, stormwater quality control devices and measures shall be provided in accordance with **Part 3G.5 - Stormwater Quality**.



3G.3 Water Sensitive Urban Design

All developments will be required to implement the principles of Water Sensitive Urban Design (WSUD).

The management of urban stormwater is a key issue in the protection and enhancement of waterways within and downstream of urban areas. Uncontrolled stormwater discharges from urban catchments have significant harmful effects upon the environmental health and amenity of creeks, rivers, wetlands, groundwater systems, estuaries and lagoons.

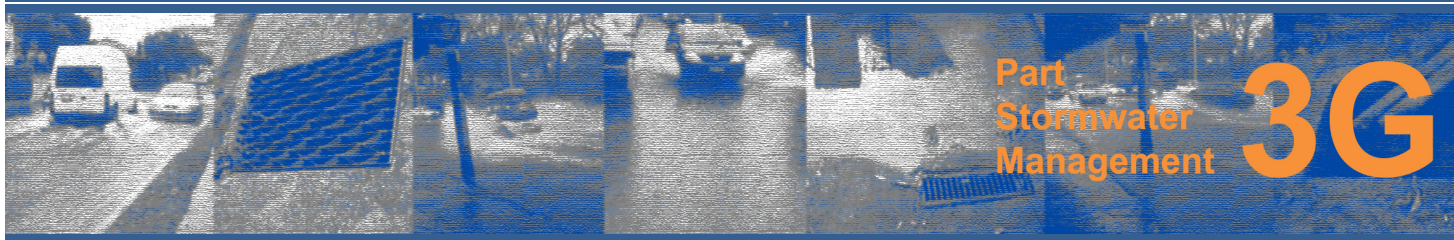
Water Sensitive Urban Design (WSUD) seeks to ensure that development is carefully designed, constructed and maintained to minimise impacts on the natural water cycle. WSUD enables the sustainable use and re-use of water within developments from various sources, including rainwater, stormwater, groundwater, mains water and wastewater (including 'greywater' and 'blackwater').

This Part has been prepared to facilitate the application of the following water sensitive urban design (WSUD) principles:

- (i) Protection and enhancement of natural water systems (creeks, rivers, wetlands, estuaries, lagoons, groundwater systems);
- (ii) Protection and enhancement of water quality, by improving the quality of stormwater runoff from urban catchments;
- (iii) Minimisation of harmful impacts of urban development upon water balance and surface and groundwater flow regimes;
- (iv) Integration of stormwater management systems into the landscape in a manner that provides multiple benefits, including water quality protection, stormwater retention and detention, public open space and recreational and visual amenity; and
- (v) Reduction in potable water demand by using stormwater as a resource.

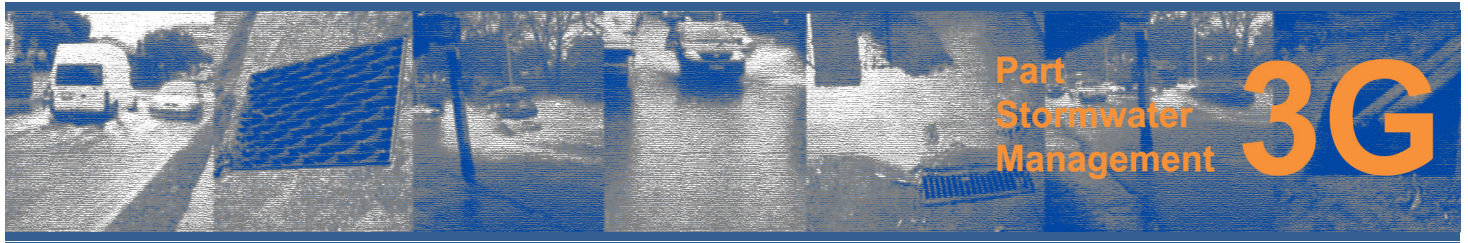
Objectives

- O1** To ensure an integrated approach to water management across the City through the use of water sensitive urban design principles;
- O2** To provide direction and advice to applicants in order to facilitate WSUD within the development application process;
- O3** To provide design principles that will help assist developments to meet the aims of this DCP;
- O4** To provide objectives and performance targets for specific WSUD elements, including water conservation, stormwater quality and waterway stability;
- O5** To promote improved urban stormwater management and water sensitive urban design (WSUD); and
- O6** To assist in the management of stormwater to minimise flooding and reduce the effects of stormwater pollution on receiving waterways.



Controls

- C1** All Development Applications shall adopt the following ten WSUD design elements (refer to *Water Sensitive Planning Guide: for the Sydney Region (2003)*):
- (i) Integrating the design;
 - (ii) Respecting the site;
 - (iii) Conserving water;
 - (iv) Preventing increased flooding;
 - (v) Preventing increased stream erosion;
 - (vi) Maintaining water balance;
 - (vii) Reducing ecotoxic risk;
 - (viii) Controlling stormwater pollution;
 - (ix) Managing the construction site; and
 - (x) Ensuring long-term effectiveness.
- C2** All WSUD elements shall not contribute to increase flooding risk and shall comply with **Part 3G.3 - Stormwater Management** and Council's **Part 10 - Stormwater Management Technical Guidelines**.
- C3** All developments shall adopt an integrated approach on water management through a coordinated process to address water efficiency, water conservation, stormwater management, drainage and flooding.
- C4** The following matters shall be taken into consideration during the preparation of all Development Applications incorporating WSUD:
- (i) Safety - public safety;
 - (ii) Maintenance - development of maintenance and monitoring regime for the management of WSUD elements;
 - (iii) Stormwater management - impacts that WSUD may have on the requirements stated in Council's Stormwater Management Technical Guidelines; and
 - (iv) Stormwater quality - must fully comply with the requirements contained in **Part 3G.4 - Stormwater Quality**.
- C5** In order to implement WSUD principles, the following information shall be submitted as part of documentation of development applications to Council. All information shall be prepared by qualified practitioners experienced in WSUD plans and strategies.



(i) For all types of residential developments except residential flat building:

- Compliance with State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;
- Site analysis; and
- Erosion and Sediment Controls Plan (for sites with area $\leq 2,500\text{m}^2$);
- Soil and Water Management Plan (for sites with area $> 2,500\text{m}^2$);

(ii) For new commercial, industrial and residential flat building (including subdivisions):

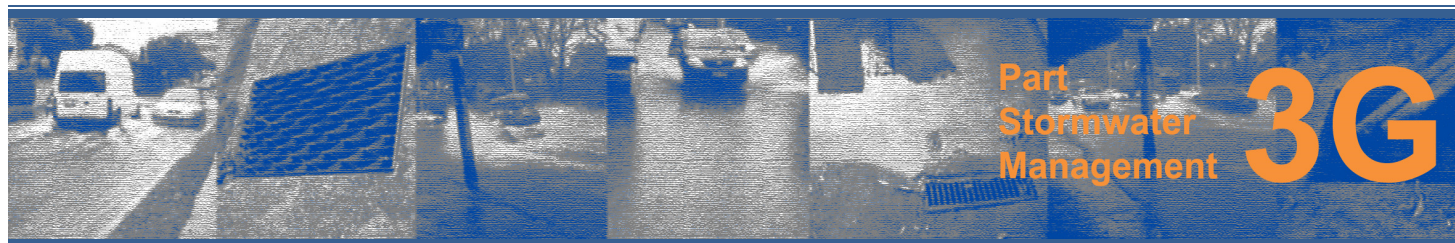
- Compliance with State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;
- Site analysis;
- Detailed Water Sensitive Urban Design Strategy (WSUD Strategy);
- Erosion and Sediment Controls Plan (for sites with area $\leq 2,500\text{m}^2$);
- Soil and Water Management Plan (for sites with area $> 2,500\text{m}^2$);
- Water Management Statement (for development containing ≤ 15 dwellings); and
- Integrated Water Cycle Plan (for development containing > 15 dwellings).

Note: Integrated Water Cycle Plan is a summary of water conservation measures to be applied on site, including an estimate of total water demands and expected savings associated with water conservation measures, as well as details on how water demands will be managed and monitored.

C6 The following components shall be incorporated in the WSUD design:

- (i) WSUD elements should be integrated into landscaped areas to fit seamlessly into a development;
- (ii) WSUD elements should be located and configured to maximise the impervious area that is treated; and
- (iii) Above-ground rain gardens may be adopted, in the form of planter boxes, to treat runoff from roof areas not draining to a rainwater tank. These typically require less space than an 'in-ground bio-retention system, but may be more costly to construct.

Note: Consideration should be given to incorporation of multiple uses of WSUD infrastructure (e.g. stormwater detention and treatment) where possible.



3G.4 Stormwater Quality

This section applies to all developments, except that development involving the construction of a new dwelling house or alterations and additions to a dwelling house (refer to **Part 4A - Dwelling Houses**).

Objectives

- O1** To minimise the impacts of urban development on the environmental values of waterways, groundwater systems and bushland areas;
- O2** To safeguard the environment by improving the quality of stormwater runoff;
- O3** To ensure development has minimal impacts on the natural water cycle and the environment, including natural water systems, water quality and surface/groundwater flow regimes; and
- O4** To minimise pollution from the development post construction.

Controls

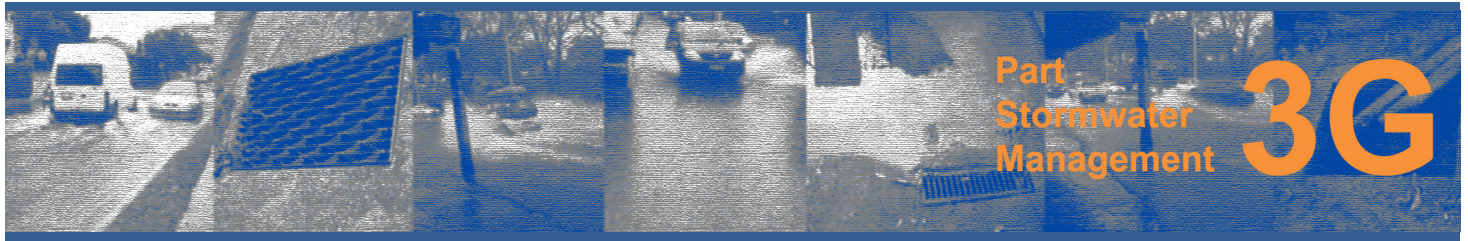
- C1** Water quality objectives stated in “*Botany Bay & Catchment Water Quality Improvement Plan (BBWQIP)*” shall be satisfied.
- C2** As a minimum, stormwater runoff generated from developments for regular rainfall events (i.e. 1 in 2 ARI storm events) must be captured for treatment prior to discharge from the site. The captured stormwater must be treated to meet the following water pollutant discharge requirements (post-development):

Table 1 - Stormwater pollutant reduction targets *

Stormwater Pollutant	Subdivisions greater than 6 lots or 2,500 m ²	All developments except new single residential dwelling
Gross Pollutants	90%	90%
Total suspended solids (TSS)	85%	80%
Total Phosphorus (TP)	60%	55%
Total nitrogen (TN)	45%	40%

* Reductions in loads are relative to the pollution generation from the development without treatment.

Source: Botany Bay & Catchment Water Quality Improvement Plan, April 2011, page ii.



Notes:

1. Standards to be achieved are a percentage of the baseline annual pollutant load, which is defined as the expected post development pollutant load that would be discharged from the site over the course of an average year if no stormwater reuse or treatment measures were applied.
 2. In situations where a higher treatment standard is needed to satisfy the Office of Water requirements, the Office of Environment and Heritage requirements or other water quality legislation such higher standard shall prevail.
 3. Certain types of development in areas subject to the Botany Sands Aquifer may be considered as Integrated Development and must be referred to the relevant State Government Authority.
- C3** New developments with a total site area greater than 1,500m² or provision of more than ten (10) car parking bays, *shall include* MUSIC modeling *which* shall be undertaken by the applicants to ensure the stormwater pollutant reduction targets have been achieved. Further information on MUSIC modelling is available in the ***Draft NSW MUSIC Modelling Guideline*** on Sydney Metropolitan Catchment Management Authority (CMA) Water Sensitive Urban Design (WSUD) Program website.
- C4** The treatment measure(s) shall include one or more of the following methods or any other as appropriate:
- (i) Gross Pollutant Traps;
 - (ii) Sediment Traps/ Basins;
 - (iii) Oil Separators;
 - (iv) Bio-retention Systems;
 - (v) Constructed wetlands; and
 - (vi) Rain Gardens.