

D34 Stormwater Management Plan

What is a Stormwater and Siteworks Plan?

All applications must identify the method of stormwater disposal. Plans, specifications and computations must be provided to demonstrate compliance with the requirements in *Table 1: Requirements and Guidelines*. This is a requirement for planning approval.

The following check list is provided to assist in identifying and specifying components of the proposed stormwater systems:

- Pervious and impervious area identification
- Existing site and adjacent road levels
- Existing and proposed floor levels
- Proposed site levels
- Directions of flow
- Pollutant control devices
- All proposed drainage lines
- Pipe sizes
- Pipe gradients
- Pipe levels
- Collection points
- Discharge points
- Pits, sumps
- Soakage systems

Table 1: Requirements and Guidelines

Requirements	Guidelines
<p>1. No run-off shall be directed from the development site to adjacent properties.</p>	<p>Runoff from the whole site shall be directed to the street gutter via one or more of the following:</p> <ul style="list-style-type: none"> • Gravity drains • Sealed pressure drains • Overflows from soakage pits • Overflows from detention/retention systems • Pump systems • Site-works grading • Overflow paths.
<p>2. The floor levels, site works and drainage system shall be designed to provide 100-year ARI protection against inundation of buildings and any flood intolerant structures.</p>	<ul style="list-style-type: none"> • This applies to a 1 in 100 year ARI storm over the development site. • This is to be achieved by a combination of the above drainage systems and the setting of safe floor and site-works levels. • All finished floor levels (excluding under croft car park) shall be a minimum of 0.3m above the highest adjacent street water table level. • It is required to be demonstrated that driveway profile(s) comply with the vehicle clearance and grade requirements of AS2890. The levels, distances, gradients and any required transitions for the entire driveway (from the roadway crossfall and including the footpath) are required to be specified. Any required alterations to a footpath are required to be detailed, must comply with AS1428 (limiting longitudinal gradient 1 in 14) and Council's requirement for a maximum crossfall of 2.5%. • Reference must also be made to the Development Information Guide Stormwater Inundation Mitigation for requirements for dwellings at risk to stormwater inundation in a 1 in 100 year ARI event. These requirements may exceed the requirements here in this document.
<p>3. Measures shall be incorporated within the site-works along the property boundary to contain gutter flows.</p>	<ul style="list-style-type: none"> • Driveway and property levels along the property/road reserve boundary shall be specified at least 225mm above the adjacent street gutter levels (unless in a flood zone, refer to Development Information Guide D33 – Stormwater Inundation). • If the property falls away from the roadway or the floor levels are less than 0.3m above the highest adjacent street

Requirements	Guidelines
	<p>gutter level, measures are to be specified to form a continuous (including its driveway) barrier along or near the lot frontage at a minimum of 0.3m above adjacent street gutter levels.</p>
<p>4. Measures shall be incorporated in all development to ensure no stormwater borne pollutants (including litter, silt and any harmful substances) are discharged into Council's drainage system.</p>	<ul style="list-style-type: none"> • For Residential development: by the provision of silt and litter traps. • For Commercial/Industrial development: by the provision of devices to remove solid and liquid pollutants, prior to discharge to Council's drainage system. (For Commercial/Industrial development at risk to large fuel spills additional EPA requirements may be applicable.)
<p>5. Soakage systems shall be safely located, shall provide effective detention and shall be environmentally appropriate.</p>	<p>Soakage systems:</p> <ul style="list-style-type: none"> • Shall be located only class A and S sites OR alternatively borelog testing is required for council assessment to determine if the site soil conditions are sufficient for soakage system. • Shall be designed for a 1 in 100 year ARI. • Shall not be located within 3m of any footing or property boundary and not be located on ground sloping more than 30 degrees. • Shall collect only roof and surface runoff from clean, non-vehicular areas and comply with EPA requirements. • For Detention purposes systems shall be demonstrated to be empty within 24 hours of a storm. • Shall incorporate an overflow for when/if the storage capacity is exceeded.
<p>6. Pump System Design and pump system failure. When pump system failure may result in inundation of any building or adjacent property, measures shall be incorporated to minimise the risk of failure during a storm.</p>	<p>If failure of the pump system is likely to result in flooding of a building, under-croft or adjacent properties then the following shall apply:</p> <ul style="list-style-type: none"> • Two pumps shall be provided, each capable of the design flow rate. • The pumps shall be configured to automatically alternate as the duty pump. • The system shall be configured to automatically revert to the alternate pump should the duty pump fail. • An Audible Alarm system must be provided • Either a back-up power supply or a safe power failure storage (below and/or above ground) with a volume equal

Requirements	Guidelines
	to a 5 year ARI, 4 hour duration storm run-off without pump operation and without flooding of buildings, under-crofts or any properties shall be provided.
7. When a development property abuts a Council laneway, buildings shall be located safely and have safe floor levels to reduce flood risk from the laneway.	<p>Where a building or structure is proposed at a location abutting a Council lane-way, the following additional minimum requirements apply:</p> <ul style="list-style-type: none"> • Proposed buildings and structures shall be set back a minimum distance of 2m from the property/laneway boundary. • Proposed floor levels shall comply with other applicable requirements and shall be a minimum of 0.20m above the highest adjacent laneway level, whichever is the highest. • No stormwater is permitted to discharge to a laneway.
8. All works necessary beyond the property boundaries shall be to Council's requirements and standard details.	All works (e.g. connections across Council's footpath, connection to Council's drains, new entranceways and removal and reinstatement of abandoned entranceways) shall be specified on the plan to meet Councils requirements and standard details.
9. Discharge rates	<ul style="list-style-type: none"> • The maximum discharge rate per development to council street water table is 10L/s. • All residential development is required to be discharge stormwater to the street water table. • Development with large pre development flows will be assessed on their own merits.
10. Maintenance	It is the responsibility of the property owner to ensure all Drainage Infrastructure within the development site shall be maintained, serviced, cleaned and sustained operational as required by the stormwater design.

Note: Further requirements will apply for sites identified as flood prone. See [City of Charles Sturt Development Information Guide D33 – Stormwater Inundation](#).

What are the requirements for stormwater detention on site?

For some development, Council requires the discharge of stormwater from the site to Council's drainage system to be restricted. The objectives are to minimize flooding and the impact of increased runoff from infill development within catchments. Compliance with Council's requirements can require detailed engineering analysis and computations. To simplify this process for Applicants, two options are provided. Option 1 is a simplified requirement which can be applied for specific conditions. All other development or Applicants not choosing to comply with Option 1, are required to comply with Option 2.

Option 1

For new dwellings or extensions to a dwelling, with total proposed roof area up to 400 m² and a street frontage of more than 5m, provision of an above ground rainwater detention tank, collecting a minimum 90% of the total proposed roof area, draining to Council's drainage system or street gutter via a 20mm orifice restriction such that the volume is available at all times, will be considered as complying with Council's detention requirements without computations.

The minimum detention tank volumes are:

<u>Total proposed roof area (m²):</u>	<u>Detention volume (litres):</u>
Up to 50 m ²	Nil
Up to 200 m ²	2000 litres
Up to 300 m ²	4000 litres
Up to 400 m ²	6000 litres
Greater than 400 m ²	Option 2 applies

For underground detention tank(s) and all other development, stormwater detention systems and computations are required as per Option 2.

Option 2

- All commercial and industrial development
- Sites identified as at risk of flooding (as defined by City of Charles Sturt to [Development Information Guide D33 – Stormwater Inundation](#))
- Development Applications for more than two dwellings
- Sites which abut laneways
- Vacant Land
- Sites which; form part of a larger development, where detention has already been incorporated, may be exempt from this requirement. Please refer to Council's Planning Department for advice regarding exemptions.
- Note development of less than 50 square meters is excluded from this requirement.

For the above identified development, the post development peak rate of runoff from the development site from the "design" storm must not exceed that from the pre development site from a 5 year ARI storm.

Note:

- The critical storm duration must be identified.
- For residential development of less than 3 dwellings and more than 50m², the "design" storm is 5 year Average Recurrence Interval (ARI).
- For all other development the "design" storm is 100 year ARI.

- Any required detention storage can be either above or below ground tanks, soakage systems or graded site areas or any combination.
- Any outflow restriction device shall be calculated and specified on the plan.
- Computations shall be provided to demonstrate compliance with the requirements.
- Impervious, detained and un-detained catchments shall be identified.
- Detention storages must be available at all times and must be demonstrated to be emptied within 24 hours of a storm.
- Retention storages for re-use or plumbing to a dwelling are not permitted for detention purposes. Detention tanks must be empty at the beginning of a rain event.

What are the requirements for stormwater retention on site?

Requirements: An additional water supply must supplement mains water:

- For all new dwellings; and
- For extensions and additions which include a toilet, laundry or water heater.

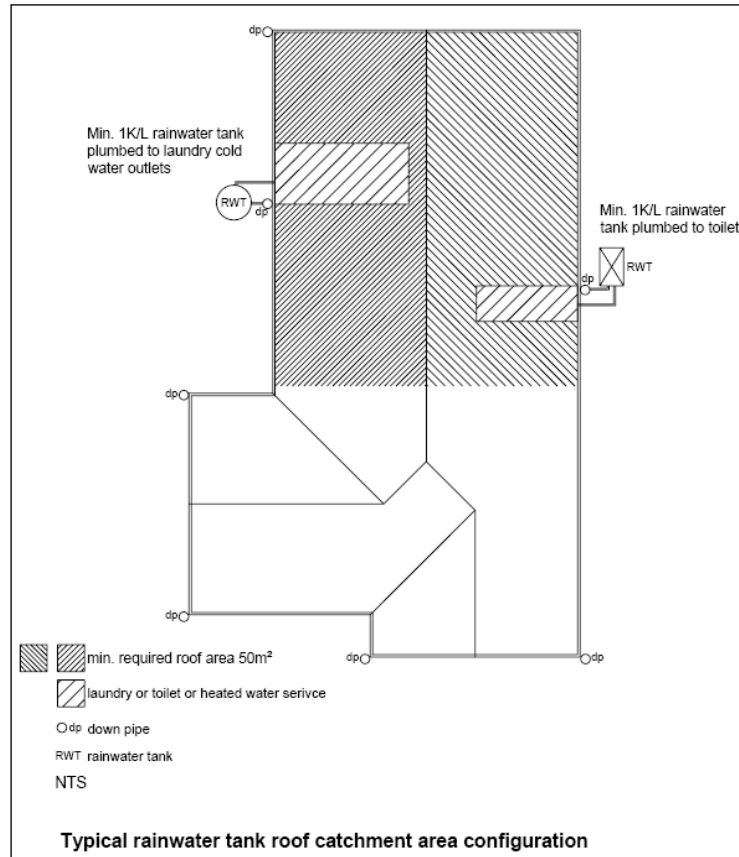
What minimum size rainwater tank do I require and does it need to be plumbed into my house?

Rainwater from a minimum of 50m² of the roof catchment area must be collected by gutters and downpipes; stored in a rainwater tank with a minimum capacity of 1 kilolitre (1000 litres) and plumbed to either:

- A toilet; water heater; or all cold water laundry outlets.

The Floor Plan / Plan View must include:

- Roof layout showing catchment area and location of downpipes and water tanks.
- An overflow device must be fitted to the tank and to ensure water quality a mosquito proof, non-degradable screen must be attached.



Example of roof water re-use plan provided by Department of Planning and Local Government above.

Where multiple dwellings utilise a communal rainwater tank, the minimum capacity of the tank must be multiplied by the number of dwellings contributing to it. Plumbing work must be done by a licensed plumber and comply with AS/NZS 3500:2003, the National Plumbing and Drainage Code and any SA variations published by SA Water. The technical requirements of rainwater tanks are contained in Section 14 of AS/NZS 3500:2003 and the SA Water variations.

Further Information:

Department of Planning, Transport and Infrastructure

Web: <http://www.dpti.sa.gov.au/>

Department of Environment, Water and Natural Resources

Web: <http://www.environment.sa.gov.au>

SA Water

Web: www.sawater.com.au

Phone: 1300 650 950

EPA

Web: www.epa.sa.gov.au

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Development Information Guides are intended to help applicants to submit applications which are complete, well prepared, and can be processed efficiently. The information provided is intended as a general guide only and applicants are encouraged to refer to the City of Charles Sturt Development Plan and to seek professional advice if necessary. This information is subject to frequent updates. This version last updated January 2016. Access the Development Plan and current versions of information guides at www.charlessturt.sa.gov.au.