Engineering Information Sheet

A Breath of Fresh Air

(ES1) Stormwater Management

As outlined in the Local Government Act, it is the landowner's responsibility to manage stormwater runoff from buildings, hard stand (impervious) areas and gardens within the property boundary.

When designing a stormwater management system for your property, the following must be considered:

- Attenuation (containment) of runoff generated from impervious areas;
- Connection to the Shire's drainage network (where available);
- Overflow routes to road and drainage reserves;
- Runoff will not impact structures within your property, or result in the inundation of a neighbor's property.

For any further information relating to this document, please contact the Shire on 9729 0300 or via email shire@harvey.wa.gov.au

Residential Properties

1.1 Class A Lots

Referring to properties located on sandy free draining soils (i.e. Australind, Binningup, Myalup or similar).

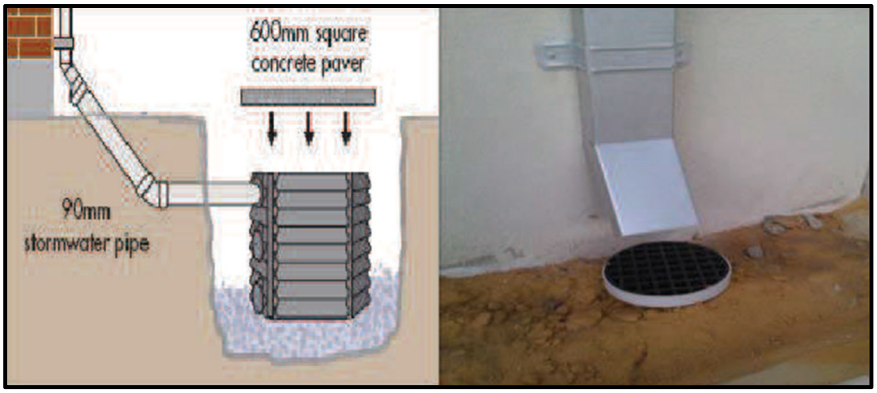
Properties are required to attenuate and infiltrate stormwater into the surrounding sand to the volume of $1m^3$ per $100m^2$ of impervious area (i.e. roofed, paved and driveway areas). This storage volume can be achieved through the use of:

- Perforated soakwells; and/or
- Rain Gardens.

Please see drawing DR-03 for examples of a Class A stormwater management setup. Note that any soakwells should be installed a minimum distance of 1.5m from buildings and rear or side boundaries.

During large rain events, storage capacity may be exceeded. When designing your stormwater management system, consider having safe overland route/s to direct excess runoff away from buildings and adjoining properties. Runoff can be directed towards road and drainage reserves where available.

The Shire also recommends that gutter and downpipes allow for overflow relief in the event that a blockage in your stormwater system occurs. This can be achieved by leaving a gap between the downpipe and the below ground stormwater pipes (refer Overflow Relief example).



Typical soakwell setup

Overflow Relief

Rain Garden (example 1)

Rain Garden (example 2)

1.2 Class S – Class P Lots

Referring to properties located on clay and/or reactive ground, with high or perched water table conditions (i.e. Harvey, Brunswick or similar).

Property owners may be permitted to discharge attenuated stormwater into the Shire's drainage network where available. Properties must provide stormwater detention storage of $1m^3$ per $65m^2$ of impervious area (i.e. roofed, paved, parking and driveway areas). Storage volume can be achieved through the use of one or more of the following:

- Rainwater Tanks (trickle-down volume only);
- Sealed soakwells;
- Rain Gardens.

Please see drawings DR-01 and DR02 for examples of Class S – Class P stormwater management setups. Note that any soakwells should be installed a minimum distance of 1.5m from buildings and rear or side boundaries.

Storage is required so that stormwater can be discharged into the Shire's drainage network at a controlled rate. A perforated riser, located inside the property connection pit (refer to drawing DR02) is used to achieve the rate of discharge required. The perforated riser setup can be calculated through the following steps:

Step 1: Select the allowable outflow based on your lot size (refer Table 1);

Step 2: Determine the riser height (450mm to 1,000mm subject to groundwater level);

Step 3: Select the number and diameter of perforations required (refer Perforated Cap Detail and Table 2).

The discharge pit must have a 300mm deep silt trap.

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A drainage connection point may have already been provided within your property boundary (typical in newly developed subdivisions). The owner/builder can complete all works including the connection (as detailed above). The Shire will inspect stormwater systems at the building completion. Note the Perforated Riser must be installed prior to connection being made.

If a drainage connection point does not currently exist, the property owner will need submit a Stormwater Connection Application to the Shire for assessment. If approved, the property owner can then engage a licensed plumber to perform the connection.

To propose an alternate stormwater management system, you are required to submit detailed plans to the Shire for approval. This process must be completed prior to construction.

1.3 Large Lots > 1,200m²

Refer to sections 1.1 and 1.2 to ascertain the required ratio of attenuation in accordance with the properties lot class.

Larger residential lots do have more opportunity to integrate stormwater management controls into the landscape (refer Runoff Management Control examples).

Runoff Management Control (example 1)

Runoff Management Control (example 2)

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The Shire also recommends that gutter and downpipes allow for overflow relief in the event that a blockage in your stormwater system occurs. This can be achieved by leaving a gap between the downpipe and the below ground stormwater pipes (refer Overflow Relief example).

Commercial and Industrial Properties (all classes)

Property owners may be permitted to discharge attenuated stormwater into the Shire's drainage network where available. Properties must provide stormwater detention storage of $1m^3$ per $65m^2$ of impervious area (i.e. roofed, paved, parking and driveway areas).

Prior to any design being undertaken, please contact the Shire's Manager Design and Development to confirm any conditions or restrictions resulting from:

- Local Development Plans (LDP);
- Urban Water Management Plans (UWMP);
- Restricted outflow.

Commercial and industrial drainage management must also consider runoff treatment due to the high nutrient loading. If no guidance is provided on the LDP or UWMP, the Manager Design and Development will provide any required parameters.