



Component: Infiltration basins

Description

Infiltration basins are vegetated depressions designed to store runoff on the surface and infiltrate it gradually into the ground. They are dry except in periods of heavy rainfall.

Advantages & disadvantages

Advantages

- Reduces the volume of runoff from a drainage area
- Can be very effective at pollutant removal via filtering through the soils
- Contributes to groundwater recharge and baseflow augmentation
- Simple and cost-effective to construct
- Changes in performance easy to observe.

Disadvantages

- Potentially high failure rates due to improper siting, poor design and lack of maintenance, especially if appropriate pre-treatment is not incorporated
- Comprehensive geotechnical investigations required to confirm suitability for infiltration
- Not appropriate for draining pollution hotspots where high pollution concentrations are possible
- Requires a large, flat area.

Delivering SuDS

Using SuDS

Background

SuDS principles

Benefits of SuDS

SuDS components

SuDS components overview

Source control

Swales & conveyance channels

Filtration

Infiltration

Infiltration overview

Rain gardens

Infiltration basin

Infiltration trench

Soakaways

Retention & detention

Wetlands

Inlets, outlets and control structures

SuDS performance & monitoring

Delivery

Where component can be used

Residential: Yes
 Commercial/industrial: Yes
 High density: No
 Retrofit: No
 Contaminated sites: No
 Sites above vulnerable groundwater: No

Performance

Peak flow reduction: Average
 Volume reduction: Good
 Water quality treatment: Good
 Amenity potential: Good
 Ecology potential: Good

Quantity

Infiltration techniques:

- store runoff by allowing temporary and shallow ponding on the surface;
- enhance the natural ability of the soil to drain the water. They do this by providing a large surface area in contact with the surrounding soil, through which the water can pass.

The amount of water that can be disposed of by an infiltration basin within a specified time depends mainly on the infiltration potential of the surrounding soil. The size of the device and the bulk density of any fill material will govern storage capacity.

Quality

Runoff is treated in different ways in an infiltration basin. These include:

- physical filtration to remove solids
- adsorption onto the material in the surrounding soil
- biochemical reactions involving micro-organisms growing on the fill or in the soil.

The level of treatment depends on the size of the media and the length of the flow path through the system, which controls the time it takes the runoff to pass into the surrounding soil. Pre-treatment may be required before polluted runoff is allowed into an infiltration basin.

Amenity

Infiltration basins are easy to integrate into a site. They are ideal for use as playing fields, recreational areas or public open space. Infiltration basins can be planted with trees, shrubs and other plants, improving their visual appearance and providing habitats for wildlife. They increase soil moisture content and help to recharge groundwater, thereby mitigating problems of low river flows.

Maintenance

- Regular inspections for signs of deterioration in performance, clogging and other blockages
- Litter/trash removal
- Inlet/outlet cleaning
- Vegetation management
- Regular removal of sediment from pre-treatment.

Read more on:

- [SuDS components](#)
- [Soakaways](#)
- [Infiltration trenches](#)
- [Rain gardens](#)
- [Infiltration overview](#)



The costs & benefits of SuDS

Adoption & maintenance of SuDS

Legislation & regulation

Design guidance

Retrofitting SuDS

Why retrofit?

Opportunities

Retrofitting in the urban environment

A framework for retrofitting

Drainage exceedance

Background

Stakeholders

Managing exceedance

Encouraging uptake

Our Partners

Our Supporters

