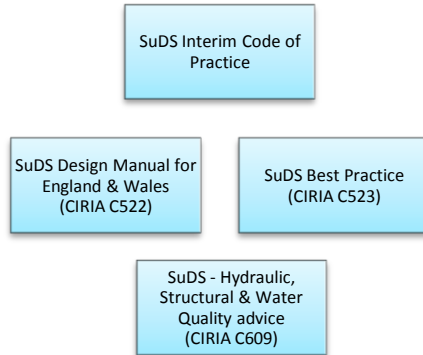


SuDS Design

The principles used for the design of SuDS are straightforward and do not involve complex calculations. Design relies on basic well tried principles. Design guides are available.



The above guides are available from CIRIA together with “Review of the design & management of constructed wetlands”, (CIRIA R180), “Infiltration drainage – manual of good practice”, (CIRIA R156), and “Source control using constructed previous surfaces”, (CIRIA C582).

SuDS Costs

In general terms, SuDS are no more expensive to install than conventional systems and can deliver significant savings in many circumstances.

Dual Uses

Some SuDS features, such as infiltration basins, are normally dry and can be used for other purposes when not required for drainage. In these cases, notices should be provided to warn people that the basin may flood in the event of a storm. SuDS can often be accommodated in Public Open Space.

The SuDS Working Group for Wales

Our members include:

- Environment Agency Wales
- Dŵr Cymru Welsh Water
- Welsh Government
- Welsh Local Government Association
- Home Builders Federation
- CIWEM
- Hyder Consulting
- Atkins Global
- Consumer Council for Water
- Countryside Council for Wales
- South Wales SuDS Forum
- North Wales SuDS Forum

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Visit our website for further details on SuDS and the activities of the SuDS Working Group



Sustainable Drainage Systems

SuDS Working Group for Wales



www.sudswales.com



The Working Group

The SuDS Working Group for Wales includes representatives of organisations that encompass all aspects of stormwater management and drainage design. The Working Group promotes the use of SuDS with a view to providing water quality improvement, water quantity control, amenity provision and enhancement as well as maximising habitat potential. The Working Party can also provide strategic advice on planning and implementation of stormwater control facilities and development of policies.

Why SuDS?

Using SuDS for the disposal of surface runoff from impermeable areas has a number of advantages, including:- Reduced impact on watercourses; Reduced diffuse pollution; Reduced flows in combined sewers; Improved amenity; Reduced construction costs. SuDS are designed to mimic natural drainage systems by using soft landscaped techniques instead of hard engineering.

SuDS Principles

The term SuDS covers a range of sustainable drainage facilities from end of pipe facilities such as wetlands or retention ponds, to source control systems such as soakaways, infiltration trenches, swales and permeable pavements. The Working Party believes that there is a need for an integrated approach to SuDS design, whereby issues of water quality and water quantity are considered together with amenity and habitat.

SuDS Terms

The following terms relate to SuDS.

Attenuation – Slowing down the rate of flow to prevent flooding and erosion, with a consequent increase in duration of flow.

Balancing ponds – ponds that hold surface water for a time and allow it to flow to a water course at a reduced rate, hence attenuating the flow.

Detention basin – a basin that is normally dry, constructed to store water temporarily to attenuate flows. As these features are normally dry, they may be used for other purposes when not required for drainage.

Filter drains – trenches constructed alongside highways which are filled with free draining material such as shingle, and which may have a perforated pipe running in the bottom of the trench. (Sometimes known as ‘French Drains’)

Infiltration basin – shallow depression in the ground which is usually dry but which is used to hold surface water for a time while allowing it to soak into the ground.

Infiltration trench – a trench, usually filled with stone, designed to promote infiltration of surface water to the ground.

Lagoon – A pond designed for the settlement of suspended solids.

Permeable paving – hard surfaces, usually block paving, that allow rainwater to pass through the surface and into the underlying ground

Pond – Flow control or water treatment structure that is wet.

Pound – section of swale that is designed to detain runoff.

Rainwater Harvesting – Capturing rain where it falls and using it for non-potable uses such as toilet flushing and garden watering.

Soakaways – A subsurface structure into which surface water is conveyed, designed to promote infiltration.

Source control – The control of runoff at or near its source.

Swales – shallow, usually grass lined channels, often running alongside roads, designed to drain water from a site as well as controlling the flow and quality of surface water.

Wetland – a pond, with emergent vegetation, that is created in order to provide a treatment area for water running off impermeable surfaces and which may contain pollutants such as oil or silt. Long retention periods allow biological action.

Safety Concerns

Any open water is potentially dangerous especially for children. SuDS design principles recognise this and the designs are intended to minimise this risk. This is achieved by constructing the water retaining areas of ponds and basins with very gently sloping floors, without sudden changes in depth.

Where appropriate, open water may be fenced or guarded with barrier planting to prevent access. Individual developers and local authorities need to decide on their approach to this issue.