

2.16 Drainage

General Requirements

In general, drainage systems shall be designed in accordance with the current edition of Sewers for Adoption and with the Specification accompanying this Design Guide.



All pipes that only carry surface water from the adoptable highway are prospectively maintainable by the Highway Authority. Their design and construction shall comply with the standards required in this document.

Pipes that carry surface water from the adoptable highway as well as other areas such as roofs, private drives etc must be adopted by the water authority and must comply with their requirements.

Lateral connections into public sewers will remain private but shall be designed and constructed to adoptable standards. All such connections shall run approximately at right angles to the centreline of the road to minimise their length.

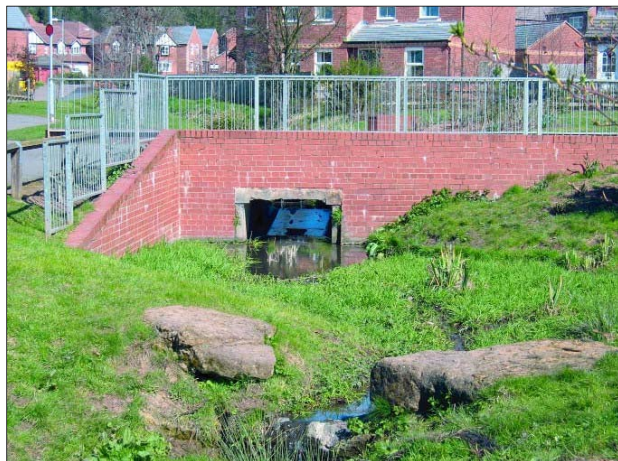
UDP Reference

S2 Development Requirements
DR8 Culverting

2. DESIGN CRITERIA

Adoption Requirements

Where foul or surface water sewers are to be laid under the adoptable highway or where the highway drainage is to be connected into a surface water sewer, written assurance must be obtained beforehand that the water authority will adopt the sewers, subject to compliance with their adoption procedure.



The Highway Authority will normally decline to adopt any highway covered by a Section 38 agreement until the water authority has confirmed the adoption of all sewers within the highway. This also includes any other sewers not within the adoptable highway but which carry water from it.

All drains that are intended to be adopted as highway drains shall discharge to a pipe or watercourse at a point approved by the Highway Authority. Evidence will be required that the developer has right to discharge, free of any liability which may be binding upon the Highway Authority when the drain is adopted.

Private drains will not normally be permitted within the adoptable highway.

All prospectively maintainable highway drains shall be located within land that is to be adopted by the Highway Authority. Only in exceptional circumstances will they be permitted in land that is to remain private. Where such circumstances do arise the land owner at the time of completing a Section 38 Agreement will be required to give a grant of easement keeping 3m each side of the pipe clear of all obstructions, which will be binding on successors in title. The developer is strongly advised not to sell any land that will contain a highway drain before completion of such an Agreement. The Highway Authority will not accept any different form of undertaking, which dilutes the rights conferred on it.

Outfalls and Watercourses

Where the outfall is into a ditch or watercourse the approval of the Environment Agency must be obtained in writing.

Where the outfall is proposed to be through an existing highway drain the developer will be required to prove its capacity and condition before approval for the connection can be given. This will include a CCTV survey of the drain and the carrying out of any improvement works found to be necessary.

Where the highway drain discharges into a watercourse, calculations shall take into account the possibility that the watercourse may be flooded.

Drainage Design

Gully spacing shall be determined using the recommendations of HA 102/00, Spacing of Road Gullies. Gullies will be required immediately upstream of block pavements, pedestrian crossing points and road junctions but shall never be located on a crossing point. It is the developer's responsibility to demonstrate and ensure that the number and positioning of gullies is adequate to drain the highway.

The proposed drainage system is to be designed using 'Micro Drainage' or similar approved. A disc containing the input data and the output must be submitted to the Director of Environment for checking prior to any works taking place.



Road gully

The parameters to be used during the drainage design are as listed below:

Rainfall average return period	2 Years
Rainfall average return period (risk of flooding)	10 Years
Time of entry	4 Minutes
Design flow velocities	0.75m/s (Min), 7.5m/s (Max)
Minimum gradient	1:225
Design maximum rainfall	50mm/hour
Minimum pipe diameter	225mm

The Council may consider the use of combined kerb and drainage systems depending on the situation and design submitted for approval.

In certain cases the Council may require the provision of a larger capacity drain than would normally be needed in order to accommodate the drainage of adjoining land and/or future development.

Soakaways

Where soakaways are to be considered it will be at the discretion and approval of the Director of Environment and will be considered as a last resort only (refer to Specification, Section 12.4.2). The Developer is to note that a commuted sum of £5000 may be charged for each soakaway installed. The minimum diameter shall be 1500mm.

If more than one soakaway is planned, they are to be linked by a 225mm diameter pipe. The soakaways are to be surrounded by Terram or similar, laid between the chamber and the filter material. The appropriate filter material to be used will vary according to prevalent ground conditions. Where possible, the soakaway is to incorporate an overflow link (minimum diameter 225mm) to an existing highway drain/outfall system.

2.17 Sustainable Urban Drainage (SUDS)

PPG 25 makes clear the need for measures to control surface water run-off and prevent flooding. While issues exist as to the acceptance of SUDS by various bodies, Herefordshire Council expects developers to incorporate storage, attenuation and filtration measures in accordance with 'SUDS- A Guide for Developers' by the Environment Agency and 'SUDS - A Design Manual for England and Wales' by CIRIA.

Herefordshire Council will examine all proposals for SUDS and judge them on their merits. Permeability tests and hydrology surveys will be required to verify the suitability of the designs and commuted sums will be required for ongoing maintenance



Sustainable Urban Drainage feature

of the systems. The amount of the commuted sums will be calculated by the Council and will reflect the special maintenance requirements of the proposed system.

The SUDS proposals for a development shall be submitted along with geology and hydrology information, at planning application stage. Any proposals for outfalls into existing watercourses or ponds shall be accompanied by an environmental impact report and obviously such outfalls will need Consent to Discharge from the Environment Agency. Private SUDS drainage shall drain into the water authority surface water sewers and any infiltration will be into private land. SUDS for the highway shall drain into the highway drain network and any infiltration will be within highway/public areas.

UDP Reference
S2 Development Requirements
DR14 Lighting

www.ciria.org/suds