

Sustainable Drainage Systems

Supplementary Planning Guidance

Adopted 22nd April 2003

Cheltenham Borough Council

SUPPLEMENTARY PLANNING GUIDANCE

SUSTAINABLE DRAINAGE SYSTEMS

1. INTRODUCTION

- 1.1. This guidance relates to policy UI 117 in the Cheltenham Borough Local Plan Second Review Revised Deposit Draft (2004).

2. BACKGROUND

- 2.1. Development of land reduces the surface permeability of rainwater by replacing greenfield areas with impermeable structures and materials, such as buildings, roads, car parks and pavements. Such development of land leads to an increase in surface water run off as the amount of water infiltrating into the ground reduces.
- 2.2. Traditionally, run off from developed areas is directed into underground pipes and drains, and released as quickly as possible to the nearest watercourse. The principle objective of this method of water management is to remove large quantities of surface water away from built up areas as quickly as possible to prevent local flooding. Whilst this method is generally effective in addressing issues of quantity, it has a number of negative impacts on the environment, see bullet points below. Continuing to drain built up areas without considering wider issues is not a long-term sustainable option.

- **Water Quality**

surface water run off carries a wide range of pollutants from urban areas, including oil, toxic metals, dust, and organic matter. These pollutants are discharged in watercourses and groundwater which impacts on water quality, biodiversity and amenity.

- **Flooding**

the removal of surface water quickly from built up areas, particularly large quantities over a short period of time exacerbates flood risk downstream. Flooding can lead to erosion of riverbeds and banks; damaging watercourses, and waterside habitats.

- **Water Resources**

reduction in permeability of surfaces through development reduces the ability of surface water to be stored in the ground, impacting on groundwater levels and river flows.

- **Amenity & Education**

conventional approaches to water management generally do not consider issues of amenity and education, including landscaping, wildlife habitats, and recreation.

- 2.3. An alternative way of removing surface water quickly, and efficiently in a more sustainable way is via Sustainable Drainage Systems (SuDS).
- 2.4. SuDS is a concept, which seeks to manage water as close to its origin as possible, before it enters the watercourse. Through design and construction, SuDS schemes should consider the removal of surface water alongside other water management issues, including, quantity of water, control of pollution, creation and enhancement of habitats and biodiversity, and opportunities for amenity, recreation, and education. SuDS should therefore be used wherever possible.

3. POLICY CONTEXT

Government policy

- 3.1. Government policy is set out in Planning Policy Guidance Note 25 (PPG25), Development and Flood Risk, 2001. This guidance recognises the problems associated with traditional drainage systems in accommodating run off from

developed areas, and the potential for sustainable drainage systems to control surface water run off as near to source as possible.

- 3.2. PPG25 advises that new development should not increase run off from the undeveloped situation, and that redevelopment should reduce run off. To meet this objective local planning authorities should work closely with the Environment Agency, sewerage undertakers, highways authorities, and potential developers in considering the suitability of SuDS for managing run off implications of proposed development and redevelopment.

Regional Planning Guidance for the South West

- 3.3. Regional Planning Guidance (RPG10) was published in 2001. It outlines the importance of water in terms of conservation, water quality, management of surface water run off, and the impacts of flooding. Policy RE1 sets out requirements regarding water resources and water quality, and states:

To achieve the long-term sustainable use of water, water resources need to be used more efficiently....Local authorities, the Environment Agency, water companies and other agencies should seek to:

- aim to conserve water through demand management and efficient distribution;
- protect groundwater resources
- protect and enhance river water quality.

In particular, development plans and other plans and programmes of bodies and agencies associated with future development and water issues, will need to:

- take water related issues into account from an early stage in the process of identifying land for development and redevelopment and should co-ordinate the timing of new development with the provision of sustainable water supplies, sewage treatment and discharge systems in accordance with advice in PPG12;
- seek to avoid sites where water supply and/or drainage provision is likely to be unsustainable;
- encourage use of sites where past problems can be solved;
- promote the use of sustainable urban drainage solutions and the production of detailed supplementary planning guidance to facilitate their adoption.

Policy RE2: Flood Risk, states:

Flooding causes risk to both property and life and protecting property and people in areas of flood risk is expensive. Local authorities, the Environment Agency, other agencies and developers should seek to:

- promote, recognise and adopt the use of sustainable drainage systems for surface water drainage.

Structure Plan

- 3.4. The Structure Plan for Gloucestershire (1999) outlines the need to protect the quantity and quality of water resources within the County, and the implications, which development and redevelopment can have for flood risk.

Cheltenham Borough Local Plan

3.5. Policy UI 117 Cheltenham Borough Local Plan Second Review Deposit Draft 2002 states:

“Development will only be permitted where it would:

- (a) in the case of new development, not increase the quantity or rate of surface water run-off; and**
- (b) in the case or redevelopment, not reduce the quantity or rate of surface water run-off; and**
- (c) not have a direct and adverse effect on a watercourse or its flood defences; and**
- (d) not impede access to flood defence and management facilities”.**

Building Regulations 2000 (Part H)

3.6. Building Regulations are approved by Parliament and deal with the minimum standards of design and building work for the construction of domestic, commercial and industrial buildings. They also contain a list of requirements, which cover subjects such as structure, fire safety, ventilation, drainage, energy conservation, and access and facilities for disabled people. Part H of the building regulations relates to drainage and waste disposal.

Requirement H3 of the building regulations relates to the drainage of rainwater and states:

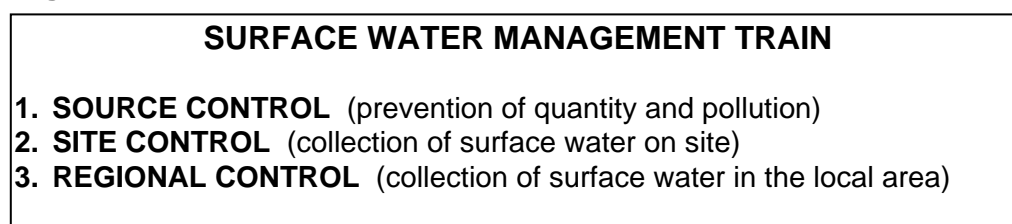
- 1. Adequate provision shall be made for rainwater to be carried from the roof of the buildings.**
- 2. Paved areas around the building shall be so constructed as to be adequately drained.**
- 3. Rainwater from a system provided pursuant to sub paragraphs (1) and (2) shall discharge to one of the following, listed in order of priority:**
 - a) an adequate soakaway or some other adequate infiltration system; or, where that is not reasonably practicable,**
 - b) a watercourse or, where that is not reasonably practicable, a sewer.**

4. THE USE OF SUSTAINABLE DRAINAGE SYSTEMS

4.1. SuDS are made up of one or more structures designed to replicate natural drainage processes. These structures may include hard options such as permeable and porous surfaces, and/or soft options such as vegetated landscape features, ponds, wetlands and grass swales.

4.2. SuDS can be designed to fit into most urban settings. The options available should be considered at the early stages of development, and should take full account of the surface water management train (see fig 1), with the objective of exhausting all measures at the top of the management train before considering other control options.

Figure 1.



Source Control

- 4.3. Source control forms the start of the surface water management train and should be considered at the outset of development proposals. Source control manages water through the use of prevention measures; these measures can make a significant contribution to the minimisation of surface water run off. Preventative measures not only include the design and maintenance of features, but also the education of users:
- minimising paved area - allowing surface water run off to drain naturally, through areas such as gardens, and areas of public open space.
 - use of porous surfaces where possible.
 - rainwater recycling/harvesting - capturing rainwater from the roofs of buildings. The capture of rainwater can be used for indoor needs such as flushing toilets, filtered and purified for use within the main water system, stored via water butts for use as grey water for activities such as car washing and general irrigation of gardens.
 - good housekeeping and education is essential in minimising pollution associated with surface water run off. Simple measures include, keeping paved areas clean and free of litter and animal waste, and informing and educating occupants how the site is drained.

Site Control

- 4.4. After exhausting potential to manage surface water run off through preventative measures, the next stage of the surface water management train is consideration of site control options for the management of water. Site control techniques should be designed with the objective of minimising the quantity of water discharged directly to a river:
- rainwater recycling.
 - permeable surfaces & filter drains - permeable surfaces offer alternatives to conventional hard surfaces. Use of materials such as porous paving, gravel, and grass allows water to permeate through the surface, rather than draining off it.
 - infiltration devices - work by enhancing the natural capacity of the ground to store and drain water. Devices may be in the form of surface features such as swales and filter strips. Generally these are small-scale systems, which are designed to fit into landscaped areas, consisting of vegetated sections of land and grassed depressions, which mimic natural drainage patterns, controlling discharge to a pond or wetland, or other discharge system. These systems assist in removing excess solids and pollutants before final discharge. Devices may also be in the form of below ground features, such as soakaways and trenches. These features create underground reservoirs, which allow surface water to infiltrate gradually into the subsoil, or discharge to another structure at a controlled rate.
 - grass swales – grassed areas adjacent to roads and pavements with a very shallow depression, allowing water to infiltrate.
 - basins, ponds & wetlands - generally these are shallow structures where surface water run off is stored until it infiltrates through the soil. They can work either as a dry area to accommodate temporary flooding which hold back surface water run off for a number of hours and allow the settlement of solids and pollutants; or as a permanent water feature which retains a certain volume of water at all times.

Regional Control

- 4.5. Regional control of surface water run off from a site lies at the bottom of the surface water management train. Where surface water cannot be accommodated on site, techniques should be considered which drain water away to a point where it can be returned to the natural water cycle. These systems can contribute to the flow and quality of run off. Systems include:
- filter drains
 - swales, and
 - infiltration devices.

5. SOILS AND GEOLOGY

- 5.1. The type and effectiveness of SuDS is dependent on surrounding and local ground conditions, and ground water levels in the area where SuDS is proposed.
- 5.2. Cheltenham has two basic soil types of sand and clay. The Borough Council holds maps, which indicate where these soil types lie. The information contained on these maps is indicative only, therefore for more accurate classification of soil types a detailed site investigation would be required. The existence of clay type soils does not necessarily eliminate the use of SuDS, however, it will often influence the SuDS technique adopted. The Borough Council and Environment Agency will provide guidance on the type of SuDS techniques appropriate for sites identified for development and redevelopment.
- 5.3. Where water tables are high, certain SuDS techniques are inappropriate. It may also be necessary to protect the ground water from contamination. The Borough Council will require site investigations to illustrate an understanding of the ground water regime.

6. SUBMITTING AN APPLICATION

Pre-application discussion

- 6.1. The Borough Council and the Environment Agency strongly encourages pre-application discussions on the application of SuDS. Where appropriate developers should make an initial assessment of drainage options for the proposed development site, taking account of soils and geology, to assist the Council in providing the most relevant advice.

Information to accompany planning applications and applications for prior approval

- 6.2. Planning applications and applications for prior approval should include, as a minimum, a scoping report, evaluating the means of incorporating SuDS as part of the proposed development. The scoping report should include an assessment of local soils and geology, supported with site investigation results. This information will assist in developing an outline proposal for SuDS, to be incorporated within the proposed layout of the development.

Planning obligations and conditions

- 6.3. Where development proposals are capable of accommodating SuDS, and the Council approves these, the developer will be responsible for meeting all necessary costs for the planning, design and installation of such systems. Approval of submitted details for SuDS proposals will normally be dealt with through planning conditions.
- 6.4. Where the physical characteristics of a development proposal precludes the use of SuDS, then the Borough Council will not normally permit development which will increase the rate of run-off to a watercourse (see Policy UI 117). Exceptions may

arise where the developer enters into a planning obligation to implement approved watercourse improvements or contributes financially to necessary works that will be undertaken by the relevant drainage authority.

- 6.5. A maintenance strategy will be required as a condition of any planning consent for SuDS, together with appropriate commuted payment. Commuted sums for maintenance will generally be sought where drainage schemes incorporate open space/amenity space and/or the physical maintenance of drains, filters and other similar works.
- 6.6. Where development is undertaken adjacent to a watercourse, the Borough Council will normally require the developer to carry out necessary improvements to the watercourse along the frontage of development, whether or not SuDS drainage measures have been approved for the site.
- 6.7. The Borough Council will expect all proposals for SuDS to respect amenity and ecology, this is particularly important where works are proposed which would affect a watercourse. Full details of any alterations and/or improvements to watercourses must be submitted to the appropriate drainage authority for approval, prior to any works commencing on site.

7. FURTHER INFORMATION

- 7.1. Appendix 1 provides details of the floodplain for Cheltenham. This is indicative only and will change over time. For a more detailed, up to date indicative floodplain map contact the Environment Agency. A larger scale version of appendix 1 is available to view at the Council's Municipal Offices.

7.2. Relevant legislation

- Highways Act 1980
- Sewers for Adoption 1985
- Sewerage Act 1989
- Town and Country Planning Act 1990
- Environment Protection Act 1990
- Water Industry Act 1991
- Water Resources Act 1991
- Land Drainage Acts 1991, 1994
- Environment Act 1995
- The Groundwater Regulations 1998

7.3 Guidance

- Planning Policy Guidance Note 25 - development and flood risk (2001). DTLR
- Building Regulations - approved document H3 (2001). DTLR
- Sustainable Urban Drainage Systems - design manual for England and Wales C522 (2000) DETR/CIRIA
- Sustainable Urban Drainage Systems - an introduction. SEPA, EA and Heritage Service
- Cheltenham Borough Local Plan Second Review Revised Deposit Draft, Cheltenham Borough Council (2002)

7.4 Useful websites

- www.cheltenham.gov.uk
- www.ciria.org.uk
- www.environment-agency.gov.uk
- www.sepa.org.uk
- www.severntrent.co.uk

8. CONTACTS

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