

Following the floods in 2007, 2008 was a year for reflection and response for those that manage flood risk and sustainable drainage.

The floods of 2007 raised some serious concerns and many recommendations were made in the *Pitt Review: lessons learned from the 2007 floods* (Cabinet Office, 2008). As a result, many consultations and studies have been undertaken to improve surface water and flood risk management, including Defra's *Consultation on improving surface water drainage* and work on surface water management plans. Supporting this new guidance documents such as PPS25: *Development and flood risk – practice guide* have been introduced.

This edition of sustainable drainage news focuses on the regulatory outputs, consultations and development of guidance that is currently occurring within England.

## PPS25 Development and Flood Risk Practice Guide

In June 2008, the updated PPS25 was published in response to some of the issues raised in the Pitt Review. Greater emphasis was placed on surface water management and improved integration within the planning system.

The guide provides further detail on the evolving Surface Water Management Plans (SWMPs, see article below), their scope, how they can be linked to the planning process and successfully implemented. It suggests that SWMPs inform local planning authority's core strategy documents and form important links to the statutory spatial planning system without actually being part of it. The remit of SWMPs given in PPS25 includes:

- the mapping and assessment of surface flows and drainage with sufficient detail to identify potential risks and enable strategic planning for local flooding events
- to produce a delivery plan that clarifies responsibilities and then directs resources at managing surface water, prioritising those areas of greatest risk
- to influence local planning policy such that new development is located primarily in areas of low surface water flood risk or where flood risk can be managed effectively, making use of sustainable drainage solutions where appropriate.

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The guide also demonstrates the interactions between SWMPs, strategic flood risk assessments, spatial planning and water cycle strategies, which will be conducted in high growth points and eco-towns.

The need to consider the delivery of multiple objectives is also emphasised in PPS25, where developments that effectively manage flood risk and surface

water management can also deliver better places to live.

PPS25 outlines the roles and responsibilities of planning bodies/authorities with respect to surface water management. Specific policies to encourage sustainable drainage practices should be included at all levels of the planning process. As to be expected, priority should still be given to the use of SUDS. Where the application of SUDS is considered inappropriate in a particular situation, adequate justification should be given as to why it is best to use traditional drainage systems.

The guide suggests that the first point of reference for a site drainage or surface water management strategy for a new

development site should be policies in local delivery documents, supplementary planning documents and any site-specific guidance within the Strategic Flood Risk Assessment (SFRA) or SWMP. However, it is unclear what happens in those situations where the relevant policies do not exist.

PPS25 practice guide:

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/pps25practiceguide.pdf>

## Permitted development rights

Several thousand front gardens in London are reportedly paved over equating to an area 22 times the size of Hyde Park (London Assembly, 2005). Research conducted by the Greater London Authority in 2005 revealed around two thirds of London's front gardens are either paved or partially paved over to allow for off street parking or minimalist gardens. Generally, this directly affects surface water runoff, sustainability and may attribute to flooding.

To help reduce the effect of paving, amendments to the permitted development rights were introduced in October 2008. Householders now wishing to pave over their front garden with an impermeable surface must apply for planning permission, however, those wishing to use permeable surfaces do not. This approach could also potentially be extended to include back gardens and non domestic developments, as recommended by the Pitt Review.

### ODDS & SUDS

Guidance on the permeable surfacing of front gardens has been produced by CLG and can be found at <http://www.communities.gov.uk/documents/planningandbuilding/pdf/pavingfrontgardens.pdf>

## Integrated urban drainage pilots

Many professionals working in surface water management recognise that the institutional and regulatory complexities of urban flood management disrupt the delivery of integrated and holistic solutions.

An attempt to overcome this challenge was undertaken as part of the Government's flood risk management strategy *Making space for water*, where 15 integrated urban drainage (IUD) pilot projects were carried out to understand:

- the causes of urban flooding and how to manage urban drainage
- how effective partnership between drainage systems are

- the effectiveness of new approaches such as SWMPs, SUDS, hydraulic models and managed routing of drainage exceedance flows.

These pilot projects found that collaborative working enabled information sharing, and a collective understanding of flood mechanisms and risks as well as stakeholder roles, responsibilities and funding arrangements. Modelling and mapping surface water flood risk was also found to be invaluable to emergency planners and better informed decisions regarding land allocation for planning departments.

Measures to reduce flood risk and improve water quality across the whole drainage system require the engagement of all stakeholders, as identified through the IUD projects. This collaborative effort is considered to be more cost effective and beneficial than stakeholders acting individually. However, current institutional arrangements and responsibilities inhibit the potential to co-ordinate and fund integrated cross-stakeholder improvements.

Other challenges identified by the IUD pilots included:

- data and models available for use are often inadequate resulting in misleading or incomplete flood risk assessments
- guidance is lacking on which flood risk assessment approach to adopt
- current institutional arrangements and responsibilities present a barrier to funding and co-ordinating cross-stakeholder improvements
- in some areas, surface water flood risk may only be decreased significantly through the redevelopment of town centres and housing so that space can be made for water
- there is a skills shortage within the Environment Agency and local authorities with regard to IUD and capacity building initiatives are required.

Many pilots within the project developed SWMPs with the potential to help assess and manage either existing urban flood risk management or risks posed from new development. The experiences gained through these projects were used in the development of the guidance on SWMPs within PPS25. These will also be used to develop high level guidance on the delivery of SWMPs that will be tested early in 2009.

### ODDS & SUDS

For further information on the IUD pilots:

<http://www.defra.gov.uk/enviro/fcd/policy/strategy/ha2.htm>

The photographs in this issue are of a SUDS scheme in Blashfield Place, Stamford in Lincolnshire which is a high density urban redevelopment with sustainable drainage.

Most of the rain collection is through permeable block paving on the roads with roofwater collected through geotextile covered filters directly into the voided stone.

In a few instances the voided stone is enhanced for capacity using sub-base replacement storage and geocellular drainage systems.

Rainfall received on hard surfaces passes through a two stage treatment train, although some roofwater discharges directly into the rill system integrated within the development which is linked to a canal. This conveyance system enhances an otherwise very hard visual landscape providing amenity and a flavour of bio-diversity for local people who live with small linear wetlands outside their front doors and see the occasional dragonfly hawking along the SUDS scheme.

Designer: Bob Bray, Robert Bray Associates

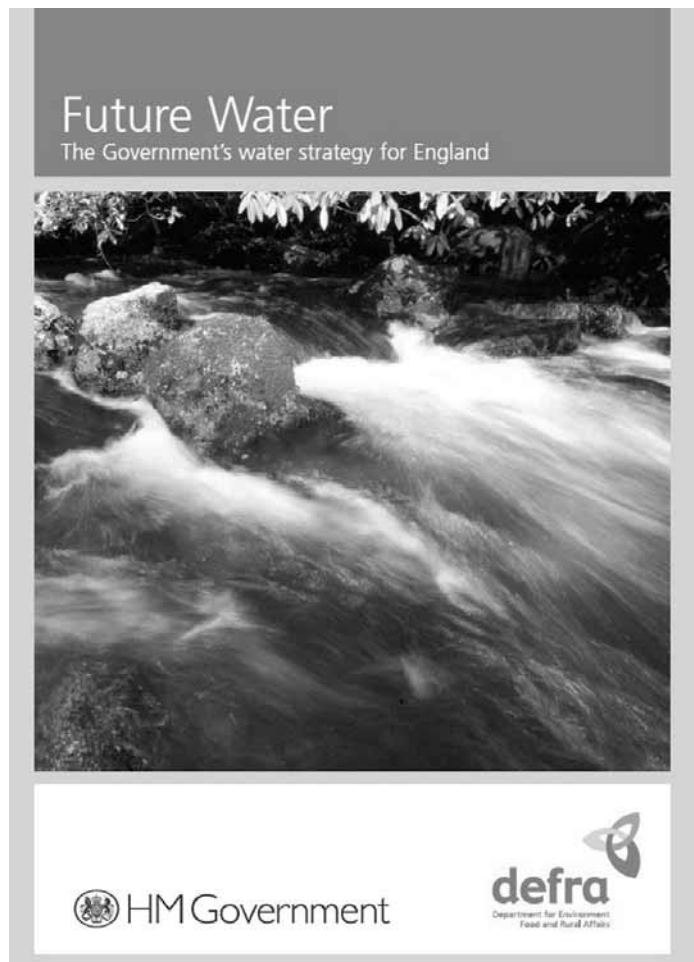
## Defra's consultation on improving surface water management

In spring 2008 Defra issued a consultation on *Improving surface water drainage*. This was used to develop some of the key policy proposals given in *Future Water*, the Government's latest water strategy. It highlights a vision for improvements in surface water management to resolve existing problems and prepare for climate change.

Complementing the *Interim Pitt Report*, the consultation considered policy measures to improve the way that surface water runoff is managed. It was separated into three parts:

- 1 Using Surface Water Management Plans as a tool to improve co-ordination between stakeholders involved in drainage and local management of flood risk.
- 2 Increasing uptake of sustainable drainage systems (SUDS) by clarifying responsibilities for adoption and management.
- 3 Reviewing the ability for premises to connect surface water drainage automatically into the public sewer system (Section 106 of Water Industry Act 1991).

The Consultation raised a series of questions for stakeholders to consider based on these three measures and Defra published a summary of responses in September. The following opinions were expressed by the majority of respondents:



- LAs should lead on surface water management, but there is concern about lack of skills, resources and guidance. There was agreement that the EA should play an advisory/regulatory role
- suggestions as to the content of SWMPs included: monitoring arrangements for the maintenance of surface water drainage assets, managing water quality issues and emergency planning information
- complexity and cost of modelling surface water risk was regularly highlighted as one of the biggest challenges to overcome
- to ensure better co-operation, SWMPs should be mandatory in critical drainage areas rather than voluntary
- spatial planning had a key role to play in resolving surface water flood problems, for both issues arising from new development and, to some extent, existing development
- LAs should be responsible for adopting and maintaining above-ground SUDS in public open spaces. In two-tier authorities, the district level was considered most appropriate to take on the role because of planning control and landscaping responsibilities
- almost all respondents believed that property owners should be responsible for SUDS within their curtilage. Developers and those selling properties should advise potential buyers of the drainage serving their property and associated maintenance responsibilities

- in general, sewerage undertakers did not consider it appropriate for them to adopt and manage all SUDS features. However, they considered that they should take responsibility for below-ground engineered SUDS with outfalls into surface water sewers, providing an integrated approach with local authorities
- there was no interest in a new and separate body to take on responsibility of maintaining SUDS.

Many respondents proposed that legislative changes would need to be made to help the adoption of SUDS, particularly the need to update section 106 of the Water Industry Act (1991).

Overall, respondents felt that the Government's aims were unlikely to be met other than with legislative change as at least one part of a package of measures. Guidance or financial incentives alone would not be sufficient to encourage the necessary institutional change that would result in less reliance on piped drainage solutions for management of surface water.

It was recognised that funding and resources would need to be available for those developing SWMPs and taking on responsibilities for maintaining sustainable drainage systems.

These findings are broadly in line with commentary from other organisations and demonstrate the requirement for robust stakeholder engagement and an integrated approach to surface water management. The consultation responses also support the findings from a survey conducted by the Local Authority Network on Drainage and Flood Risk Management (LANDFARM), managed by CIRIA. The survey revealed that about three quarters of respondents agreed that local authorities should be responsible for co-ordinating SWMPs. However they would require a boost in skills and resources to do so because the vast majority of respondents believed that LAs are insufficiently resourced to lead on SWMPs.

For more information about the consultation:

<http://www.defra.gov.uk/corporate/consult/water-drainage/>



Blashfield Place: Stamford Court demonstrating permeable block paving. Photo: Bob Bray, Robert Bray Associates.

## The Pitt Review: sustainable drainage

Roles and responsibilities regarding surface water management are unclear, a problem that arguably exacerbated the consequences of the 2007 summer floods. The Pitt Review clearly recognises that flood risk and surface water management is reliant on people as well as the need to clarify leadership and other roles and responsibilities. The report strongly suggests clear leadership hierarchy for the Government, Environment Agency (EA) and more notably local authorities (LAs). The Review identifies significant institutional, organisational and financial challenges including:

- bringing stakeholders together to work collaboratively, sharing information, with a clear understanding of roles and responsibilities
- establishing mechanisms to generate and allocate funds (that often have to be shared) and creating financial incentives for different stakeholders involved in surface water management
- building the skills and capacity of organisations, especially LAs, who will take a leading role in co-ordinating and delivering sustainable drainage locally
- developing a clear understanding of pluvial and urban flooding, and providing information at the right time, to the right people in the right format.

As part of this plan, the EA will have a strategic overview of all flood risk management, including surface water management. It will work closely with LAs to deliver local flood risk management and with other partners to improve surface water modelling and flood prediction. The new Floods and Water Bill (for public consultation in spring 2009) will set the framework for stakeholders and establish roles and responsibilities particularly for the EA, which is likely to assist stakeholder engagement by potentially helping broker solutions between stakeholders. Local authorities will deliver local surface water management, largely through their role in developing SWMPs, which will require significant stakeholder engagement during both production and delivery.



Blashfield Place: A canal part of the conveyance system at Stamford. Photo: Bob Bray, Robert Bray Associates.



The Pitt Review strongly recommends the management of surface water with the implementation of sustainable drainage systems (SUDS) and drainage exceedance. In conjunction with this, Pitt recognises the need to determine and allocate the responsibilities for the maintenance of SUDS through effective stakeholder engagement. This could be achieved through the introduction of SWMPs, where implemented.

#### ODDS & SUDS

The full Pitt flooding review can be found at:  
<http://www.cabinetoffice.gov.uk/thepittreview>

## The Government's response to the Pitt Review

In December 2008 the Government issued a response to Sir Michael Pitt's review of the summer 2007 flooding. The document, which formalised many of the policy initiatives already underway, reports on responses to the 92 recommendations in the Pitt Review.

For surface water management it confirms plans for the Environment Agency to take on a strategic role for all forms of flooding and for local authorities to assess and manage local flood risk, including surface water. In two-tier council areas this responsibility will rest with county councils, with the opportunity to delegate to other organisations. There will also be funds to progress this role, particularly in areas where surface water flooding risk is greatest. Money has been made available to test the surface water management guidance produced by Defra (see the earlier article).

For further information on the detailed response please visit:  
<http://www.defra.gov.uk/enviro/fcd/floods07.htm>

## Evolving surface water management plans and delivering good practice

Defra, in collaboration with Halcrow, is developing high level guidance on implementing SWMPs. The guidance, which is based on the IUD pilots, uses a six phase framework approach covering initial planning and partnering arrangements, risk assessment, options appraisal, implementation and monitoring. It is principally aimed at helping to find solutions where there is a complex interaction between different elements of drainage controlled by different stakeholders.

Defra announced £300 000 for pilot schemes to test and evaluate this guidance, by creating first edition SWMPs following the principals of integrated urban drainage. They are especially keen to test aspects of the guidance that aid selection of approaches to modelling, mapping and quantifying

surface water flood risk, and explain benefit-cost approaches to select a preferred option.

The guidance will be tested for ease of implementation in Hull, Gloucestershire, Leeds, Warrington, Richmond upon Thames and West Berkshire who will also be expected to develop surface water management plans overseen and supported by a steering group that includes Defra, Communities and Local Government and the Environment Agency.

Complementing this work CIRIA, together with MWH and Bob Bray, is developing guidance for planners on delivering sustainable drainage that reflects good practice and innovative approaches to overcoming challenges. CIRIA project RP784 *Delivering sustainable drainage* will develop guidance for planners and other stakeholders involved in the specification, planning, design and implementation of sustainable drainage in developments. It will complement recent outputs that provide greater detail on the delivery of sustainable drainage and the outcomes from the SWMP guidance.



Blashfield Place: Slot well and outfall to discharge to River Welland.  
Photo: Bob Bray, Robert Bray Associates.

## For the future

It will be interesting to see how the lessons learnt from the 2007 flooding events and the regulatory changes inform the Environment Agency's *Strategic Overview* and the development of the Floods and Water Bill early in 2009.

Government, regulators, local authorities and the whole industry need to understand the Pitt Review and the governments' response. This may require those involved with flood risk management finding better ways to work together to assess, avoid and manage flood risk and implement improved surface water management.

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