



FLOODING ADVICE AND GUIDANCE

July 2010

1. Purpose of the Guidance	2
SECTION A: BACKGROUND	
2.0 Causes of Flooding	2
2.1 North West Leicestershire District	3
SECTION B: ROLES AND RESPONSIBILITIES	
3.0 Environment Agency	3
3.1 Utility Companies	4
3.2 Highway Authorities	4
3.3 County Council	5
3.4 District Council	5
3.5 Leicester, Leicestershire and Rutland Local Resilience Forum	6
3.6 Private Responsibility	6
SECTION C: FLOOD AWARENESS: REDUCING THE RISK AND IMPACT OF FLOOD	
4.0 Be Aware, Be Prepared	7
4.1 What can I do as a householder to limit the risk and effects of flood?	8
SECTION D: REDUCE THE RISK OF FLOOD: GUIDANCE FOR NEW DEVELOPMENT	
5.0 Planning Policy Framework	11
5.1 Sustainable Urban Drainage Systems	12
SECTION E: USEFUL CONTACTS	14

INTRODUCTION

1.0 Purpose of the Guide

- 1.0.1 The damage and inconvenience that flooding can cause is widely recognised with recent events having raised the profile of flooding as a concern. With a number of rivers and tributaries running through the district and instances of flooding that have occurred, residents are well aware of the impacts and consequences of flooding. There have also been a number of incidents of severe weather conditions that have overloaded drainage systems and resulted in localised flooding.
- 1.0.2 This guide has been prepared due to recent events and to provide assistance to those who may be affected by flooding as well as those who maybe involved in the development industry. The document is intended to serve as a source of general information and provides a range of advice, including the causes of flooding, flood awareness, role and responsibilities, as well as measures that can be taken to manage and reduce the risk of flooding. There are also links to other important sources of information.

SECTION A: BACKGROUND

2.0 Causes of Flooding

- 2.0.1 Flooding can cause damage to properties, incurring significant expense, as well as threaten human life and can occur in various forms. The principal types of flooding are identified below and when floods happen it can often be as a result of a combination of these factors.
- Flooding from rivers, streams and brooks can occur when the watercourse cannot cope with the water feeding or draining into it.
 - Surface water flooding can occur when water from intense rainfall is unable to soak into the ground or enter the drainage systems. This type of flooding can be exacerbated if development increases the amount of hard surfaced area that the water is unable to penetrate in order to soak into the ground.
 - Groundwater flooding can occur when water levels in the ground rise above surface levels. For example, when the soil becomes saturated causing groundwater levels to rise.
 - Flooding from artificial drainage systems such as surface water sewers or combined sewers (surface and waste water) can result if they become overwhelmed by rainfall, become blocked or have an inadequate capacity.
- 2.0.2 There are also other factors that can exacerbate the impacts of flooding. For example, land use as well as the location, nature and design of development can worsen the impact of flooding incidents as well as the damage that is caused by flooding. It is predicted that in the future climate change will also have an impact

and it is likely that we will see comparatively more extreme weather events. Periods of short-duration high density rainfall as well as more frequent periods of long-duration rain are expected with impacts not only on river flooding but also on local flash flooding with the severity of the flooding predicted to be more damaging.

2.1 North West Leicestershire District

- 2.1.2 There are a number of sources of flood risk in North West Leicestershire. The primary source is fluvial flooding from a number of rivers such as the Trent, Soar, Mease and Sence and as well as brooks including Gilwiskaw and Grace Dieu Brooks.
- 2.1.3 There have been a number of flood events across the district resulting in the flooding of roads and properties, causing disruption to communities. Properties in the north of the district have experienced flooding from the River Trent and River Soar. Elsewhere in the district, in July 2002 there was significant flooding from Grace Dieu Brook with over 58 properties requiring some form of assistance or suffering damage to their homes and gardens. Other recent events include the significant flooding of roads and homes in Packington following heavy rainfall in July 2001 and June 2007.
- 2.1.4 Other potential sources of flooding in the district include the sewerage infrastructure, which is largely based on Victorian sewers, rising ground water in mining areas where water can gradually flood the closed mine, reservoirs and surface water. The risk of flooding varies from each of the sources and further information is included within the North West Leicestershire District Council – [Strategic Flood Risk Assessment](#) (August 2008). This document identifies the areas of the District at risk from flooding and the likely impact of future development.

SECTION B: ROLES AND RESPONSIBILITIES

If there is a flooding event, it is important to understand where the flooding is coming from in order to know who to contact to resolve the matter. However the responsibility for drainage and flooding problems can be complicated. The following list of agencies and a summary of their roles and responsibilities, although not exhaustive, is intended to be of assistance.

3.0 Environment Agency

- 3.0.1 The *Environment Agency* is responsible for managing main rivers and their flood defences in order to ensure the efficient passage of flood flow and to manage water levels. They manage flood risk and the effects of main river flooding. Designated main rivers within the district include the River Mease, the River Sence, the River Soar, and the River Trent along with Cole Orton Brook, Gilwiskaw Brook, Castle Donington Brook, Grace Dieu Brook, Hemmington Brook and Lockington Brook. Their Floodline number, which provides a flood

warning service is 0845 988 1188 and the website address is www.environment-agency.gov.uk

- 3.0.2 In addition, they support the planning system and will provide information and advice on flooding issues. They are also statutory consultees and will be consulted by local planning authorities on all applications for development in flood risk areas and during the preparation of Local Development Documents, which will provide the local plan policy for the area.
- 3.0.3 Flood risk is an issue when planning new development, for all types of proposals, be it a major residential scheme, a home extension or even a change of use. Flood risk will be assessed during the determination of a planning application with Environment Agency advice sought on either a case by case basis, or via a series of standard comments known as 'Standing Advice'. The 'Standing Advice' is used to assess whether a development is classed as a low or high flood risk. If it is a low flood risk development, the 'Standing Advice' will provide the appropriate level of advice without the need to consult the Environment Agency. However site specific comments will continue to be provided by the Environment Agency on a case by case basis for higher risk development. Further information can be found at www.environment-agency.gov.uk

3.1 Utility Companies – Public Sewers and Water Supply

- 3.1.1 *Severn Trent Water Limited* is responsible for the management and maintenance of all of the public sewers in the district. If a problem arises with a public sewer, such as an overflow leading to flooding of your home or property, then *Severn Trent Water* should be contacted to arrange clean up and remedial work. Problems with public sewers can usually be identified by flooding coming from a public manhole or where a number of properties are experiencing sewerage flooding at the same time. Their emergency contact number is 0800 783 4444.
- 3.1.2 Water utility companies provide water supply to your home and depending on where you live in the District, the water company will either be *Severn Trent Water Limited* or *South Staffordshire Water*. If you are unsure of your provider your water services bill will tell you which company supplies your water. If a burst main causes flooding the water supply company should be contacted. These companies are generally responsible for the water main and the communication pipe leading up to the boundary of the property, which is usually defined as the Main Stop Tap in the footpath. Beyond this point the pipe/sewer is regarded as a private pipe or sewer. Further information on these matters can be found on the www.stwater.co.uk or www.south-staffs-water.co.uk

3.2 Highway Authorities

- 3.2.1 The *Highways Agency* is responsible for managing road drainage from the motorway and the trunk road network in England such as the A42/M42, M1, A50 and A453 in the North West Leicestershire District. If flooding occurs on these roads the *Highways Agency* should be contacted on 08457 50 40 30.

3.2.2 *Leicestershire County Council* is the Highway Authority for the District and its local road network and is responsible for keeping clean and fully operational all roadside drains otherwise known as gullies. Blocked gullies can restrict water run off, which can then result in dangerous localised flooding and hazards to highway users, particularly during periods of heavy rain. If roadside drains are blocked, the public highway gets flooded or if the flood spreads to your house or garden, this needs to be reported directly to the County Council on Roadline 0800 626203.

3.3 County Council

3.3.1 The Flood Risk Regulations 2009 require Lead Local Flood Authorities (LLFAS), which are County Authorities., to carry out an assessment of local flood risk and use this information to identify Flood Risk Areas by June 2011. They must then prepare maps showing the level of risk by June 2011 and then prepare management plans for these Flood Risk Areas by June 2015.

3.4 District Council

3.4.1 The Local Authority, *North West Leicestershire District Council*, has a variety of roles and responsibilities with relation to flooding. In its role as Local Planning Authority, the District Council is responsible for the preparation of local plan policy. These policies will be prepared as part of the Local Development Framework (LDF) in the form of Local Development Documents (LDDs). Policies relating to flood risk should seek to allocate development sites and control development which avoids flood risk to people and property. Development should be directed away from the areas of highest risk and policies should also seek to manage flood risk elsewhere and where possible reduce flood risk. The District Council has commenced work on its LDF and has prepared a Strategic Flood Risk Assessment for the District which includes identification of the areas that are at flood risk, an assessment of the flood risk, flood risk management and potential mitigation. This assessment has been prepared in accordance with national planning policy, PPS25 – Development and Flood Risk and is available on the Council's website on its Development Planning pages.

3.4.2 In its determination of planning applications for new development, the Local Planning Authority, will give consideration to flood issues, taking into account specific local circumstances and issues. Reference will be made to the Environment Agency Standing Advice to identify whether they need to be consulted. This includes a Matrix which identifies when consultation is necessary and what sort of information should be provided. If a proposal is identified as a 'lower risk development', the Environment Agency provides advice via a series of standard comments.

3.4.3 The Council has discretionary powers in relation to the non-main river local drainage systems, which are ordinary watercourses that do not fall within the remit of the Environment Agency. These powers can allow for, for example, maintenance to be carried out on non-main river watercourse. The Council does also have powers to serve notice on riparian owners to maintain the flow of water in such a watercourse, but they do not have any powers to require the improvement of the watercourse or to issue consents for works to a watercourse.

3.5 *Leicester, Leicestershire and Rutland Local Resilience Forum (LRF)*

3.5.1 The **LRF** brings together all partners with a responsibility for emergency planning including the blue light services. It undertakes to develop an integrated emergency management response to major incidents and emergencies including flooding events. Up to date information on 'Preparing for Emergencies' is available on their website at www.localresilienceforum.org.uk

3.5.2 Using the Environment-Agency flood mapping system, the District Council has undertaken an assessment of the flood risk within its area and developed a District Flood Plan in consultation with other LRF partners. Through risk assessment, a structured communication network and the support of Community Wardens and Community Flood Plans it is hoped that the risk of flooding in the identified areas can be more effectively managed.

The District Flood Plan aims to;

- reduce the risk of flooding by monitoring water courses and maintenance of hot spots encouraging problems to be reported
- allow those at risk to receive early warning through the EA Floodline and Met Office advisory warnings
- Identify properties and critical infrastructure at risk
- Allows a prioritised response by the respective agencies in liaison with the local Community Warden
- Promotes self help and advice

3.6 *Private Responsibility*

3.6.1 Whilst water and sewerage companies are responsible for public sewers, private sewers are owned by either the owners of the land it runs through or the owner(s) of the properties it serves. It is the owners responsibility to maintain a private sewer therefore if there is flooding coming from a **private sewer**, it is the responsibility of the owner to arrange the necessary repair. This responsibility remains right up to the point where the private sewer pipe connects to the public sewer even though this maybe beyond the boundary of your property. Problems with private sewers are likely if it is only your property experiencing sewer flooding or if you don't share drainage with any other property. In these instances a private drainage or plumbing contractor should be contacted. If you need to identify whether a sewer your property uses is privately owed, your water company can help.

3.6.2 If a water leak is on the **private water supply pipe** that serves a property, this is also the responsibility of the property owner. This responsibility is generally for the supply pipe from the Main Stop Tap, which is at the property boundary, to the first draw-off point in your home. It may also be worth advising your water company of a leak in order that they are aware of any leakages on private supply pipes.

3.6.3 You are a **Riparian Owner** if you own land or property adjacent to a river or watercourse. It is presumed that you own the land up to the centre of the watercourse and as a riparian owner you have a number of rights and responsibilities. You have a right to protect your property from flooding and your land from erosion, although it is likely that you will need prior consent from the Environment Agency or Local Authority if you need to carry out any associated works. As a riparian owner you also have a legal responsibility to maintain the section of the watercourse that passes your property and to keep it clear from obstructions so flooding doesn't occur. Further information on the rights and responsibilities of riparian owners is contained within an Environment Agency published leaflet 'Living on the Edge' available on their website.

3.6.4 With the development of land comes the responsibility to consider the flood risk issues at the site. **Those proposing development** must show consideration has been given to the likelihood of the new development being affected by flooding and whether it will increase flood risk elsewhere. The development must be safe in flooding terms and where possible new development should reduce flood risk overall. In addition measures and design should be incorporated within a new development to:-

- Reduce flood risk to the development and elsewhere with the use of sustainable drainage systems i.e. systems designed to ensure that water drains effectively from a property without affecting other land or property
- Include measures that improve a developments resistance to flooding, such as flood resilience buildings and construction, where necessary
- Identify opportunities to reduce flood risk, enhance biodiversity and amenity, protect the environment and seek collective solutions to managing flood risk

3.6.5 Should you wish to submit a planning application for the development of land, further advice should be sought from PPS 25: Development and Flood Risk and the accompanying Development and Flood Risk Practice Guide <http://www.communities.gov.uk/corporate/>

SECTION C: HOW CAN I REDUCE MY RISK OF FLOODING?

Flooding can cause damage and inconvenience to property, people's lives and the environment. It cannot be prevented entirely but taking precautions and putting measures in place can reduce the effects of flooding. New development can also be managed to ensure that flood risks do not increase and in some circumstances can be reduced.

4.0 Be Aware, Be Prepared

4.0.1 The Environment Agency provides a flood warning service in the form of four codes. Flood warnings can be accessed via their website or you can sign up to their automated service that provides flood warning direct to you by telephone, mobile, email, fax or pager. This services can be signed up to either through their website or by calling Floodline Warnings Direct on 0845 988 1188.

4.0.2 In addition to the Flood Warning Service, the Environment Agency provides a range of information relating to flooding including flood risk maps. These can be used to find out the likelihood of flooding in your area, to identify whether your property is at risk of flooding and how flooding could affect your home insurance. Three flood guides are available for the general public providing practical advice on how to prepare for a flood, what to do during and after a flood.

Preparing for a Flood aims to assist in reducing the effects of flooding on persons and their property. This provides advice on how to prepare a Flood Plan, an explanation of flood warning codes and advice on temporary flood protection equipment.

During a Flood provides guidance on how to protect yourself and your property during a flood. Advice is provided on how to use the Flood Warning Service and what the codes mean as well as what to do in an emergency including how to protect yourself and your property and what to do when evacuation is instructed.

After a Flood is aimed to help those who have been affected by flooding. This provides guidance on clearing up after a flood, dealing with an insurance claim and the further steps that can be taken to protect your property.

To access the above information and for further flooding advice please go to the Environment Agency's website.

4.1 What can I do as a householder to limit the risk and effects of flood?

The responsibility for protecting your property lies in the first instance with the property owners. As a householder there are a range of basic precautions and measures that can be put in place to reduce the likelihood of the flood occurring and also reduce the impacts. Measures can be taken to reduce the various potential causes of flooding.

4.1.1 Flood Proof Devices

There is a range of products and devices available to temporarily flood proof your property and stop floodwater that can help protect your home and limit damage. These include:-

- Sand Bags can be obtained from most DIY stores and building merchants. Alternatively pillow cases or strong plastic bags could be filled with soil. They can be used to block doorways as well as airbricks, and it may be advisable to retain a supply as a precaution.
- Permanent covers can be fitted to air bricks and vents which will close in the events of a flood. Alternatively plastic covers can be clipped into place to seal airbricks when necessary. It may also be worthwhile repairing any weak or broken brickwork and seal any gaps around services that pass through the walls.

- Floorboards, panels or boards can be fixed to the frame of doors and windows and then washed and stored after their use, ready to use again in future events.
- Drainage plugs and covers can be fitted should a flood warning be issued or have permanent non-return valves fitted to drains and water inlet pipes to prevent backflow into your property. Sinks, toilets and baths are all liable in times of heavy flood.

There are also things that you can do to your property that will reduce the damage caused by flood water and make it easier to clean up after, such as:-

- Raise the height of electrical sockets and fuse boxes to 1.5m above ground level
- Water resistant skirting or use water resistant varnish on wood
- Lay uncarpeted floors, such as treated ceramic tiles
- Use lime plaster instead of gypsum on walls

The Environment Agency provides a list of flood defence products available, along with their supplier, all of which have been awarded a British Standards Institution (BSI) Kitemark. Details are available on their website at <http://www.environment-agency.gov.uk/homeandleisure/floods>. However the Agency does not endorse any individual product or manufacturer and it is the responsibility of the purchaser to ensure the products are appropriate for your property and are correctly fitted.

4.1.2 *Maintenance of water and drainage systems*

If you are on a water meter it is recommended that you take regular meter readings to check for leakage. Pipework, which is old and corroded, may also lead to future problems.

Blocked drains or the sewerage system can lead to flooding. Rubbish flushed down the toilet can cause blockages of the sewerage system as can the disposal of fats, oils and greases (FOG) via the drains. FOG will quickly solidify and stick to the side of the sewer. Other debris then becomes trapped and the system blocked. These actions add to the problems of sewage flowing out into the rivers and potentially into your homes as the waste water becomes blocked and then backs up into the system. Personal and disposable products should be disposed of correctly and Severn Trent Water provide guidance on this in their 'Bin It Don't Flush It' leaflet. Kitchen fats, oils and greases should be collected on a container and then disposed of in a bin. A 'Fat Trap' container can be ordered from Severn Trent Water to help with disposal of your FOG. Details are available on their website.

Other devices available include the use of a kitchen sink strainer that lets water pass but catches the food particles that could block the drain. A mesh could also be placed over the outside drain to prevent leaves blocking the drain and restricting the free flow of waster water.

4.1.3 *Riparian Owners*

Responsibility includes the maintenance of the bank and bed of the section of your watercourse, to ensure there is no obstruction to the free flow of the watercourse. Waste must not be dumped in watercourses and any accidental or deliberate blockage of watercourses, even if it did not originate from your land, must be cleared. This debris may be natural or man-made and can include trees, shrubs and litter. You must not cause any temporary obstructions and any structures that you own must be kept clear of debris including culverts, trash screens, weirs and mill gates.

4.1.4 *Rainwater Harvesting*

The storage of rainwater can help reduce flooding of properties by its retention and also encourage water conservation and recycling. The collection of rainwater allows it to be used for a range of domestic uses such as watering gardens, car washing, toilet flushing and domestic laundry. Storage facilities can range from the installation of rainwater butts used for garden watering to more advanced systems such as storage tanks, underground or in the roof, fitted with purification devices, to allow a greater range of uses for the stored water.

4.1.5 *Creation of a Hardstanding*

The creation of an area of impermeable hardstanding (eg drive, patio) can increase surface water run-off leading to flooding and pollution of the watercourse, as the water is unable to soak into the ground, particularly during a period of intense rainfall. It is therefore recommended that permeable surfaces be used should householders wish to create an area of hardstanding. Permeable surfaces allow the water to infiltrate into the ground and reduce water run-off as well as slowing down the movement of water. Appropriate surface materials include permeable concrete blocks, crushed stone and porous asphalt and can be used for pathways, car parking area

The cumulative and negative impact of householders, paving over their front gardens to provide off-street parking, on the drainage of surface water, has led to recent changes in planning legislation. Planning permission is required should a householder want to hard surface their front garden with an impermeable surface that exceeds an area of 5 square metres. Permission is not required if permeable surfaces are used or if the water is otherwise able to soak into the ground. Communities and Local Government and the Environment Agent have produced 'Guidance on the Permeable Surface of Front Gardens' which is available at www.communities.gov.uk. It provides useful information on the problems associated with paving front gardens, how the problems can be prevented as well as guidance on the types of permeable surfaces available, including how they can be designed, constructed and maintained.

SECTION D: HOW CAN MY NEW DEVELOPMENT REDUCE THE RISK OF FLOODING?

5.0 *Planning Policy Framework*

5.0.1 *National Planning Policy*

Planning Policy Statements (PPS) set out the Government's national policies on different aspects of land use planning. These are statutory documents that contain the key principles that the Local Planning Authority must conform to when dealing with planning applications or preparing planning policy.

PPS1: Delivering Sustainable Development (2005) sets out the government's overarching planning policies on the delivery of sustainable development. It encourages consideration of the potential impact of the environment and natural hazards on proposed development. The impacts of flooding and climate change should be identified and development avoided in areas at risk of flooding. New development should be designed to accommodate natural hazards and the impacts of climate change. PPS1 can be viewed at <http://www.communities.gov.uk/>

PPS25 – Development and Flood Risk (2006) focuses on development and flood risk as well as the reduction of the causes of flood risk. Inappropriate development should be avoided in the highest flood risk areas and the run-off from new developments onto adjacent property and into river systems minimised. Policy aims are to ensure flood risk is not increased and where possible, overall flood risk reduced.

The key messages from this document are: -

- *Appraising risk.* Land at risk should be identified and the degree of risk of flooding appraised. This information is contained within the North West Leicestershire Strategic Flood Risk Assessment (August 2008) and can be viewed on the Councils Web Site at its Development Planning pages.
- *Managing risk.* Development should be located in locations to avoid flood risk to people and property as much as possible. Residual risk, that which remains after risk avoidance measures have been implemented, should also be managed taking into account the impacts of climate change.
- *Reducing the risk of flooding.* Land could be safeguarded for use as flood management and flood risk from new development reduced through its location, layout and design as well as the incorporation of sustainable drainage systems (SUDS). New development could also be used as an opportunity to reduce the incorporation of SUDS and utilising Green Infrastructure as a means of flood storage.

PPS25 and the accompanying PPS25: Development and Flood Risk Practice Guide at <http://www.communities.gov.uk/corporate/>

5.0.2 *Regional Planning Policy*

Local plan policy should also be in conformity with regional plan policy. This is contained within the **East Midlands Regional Plan**, the regional spatial strategy. In respect of flooding issues this strategy promotes partnership working, the use of sustainable techniques and the need to take into account the effect of run-off from developments upstream on locations downstream.

5.03 *Local Planning Policy*

Current Local Plan Policy is provided by a number of policies within the **North West Leicestershire Local Plan (2002)**. Flood related policy does not permit development that would increase the risk of flooding and remove the discharge capacity from the floodplains of either Black Brook or Gilwiskaw Brook or of the River Mease, Soar or River Trent. The Local Plan is available on the Councils Website at <http://www.nwleics.gov.uk/development%5Fplanning/>

Future local planning policy will be provided for by the Local Development Framework and in the form of Development Plan Documents. Work is currently focused on the production of the Core Strategy Development Plan Document. Future policies will seek to allocate sites and control development in order to avoid flood risk to people and property where possible as well as the management of flood risk.

5.1 ***Sustainable Urban Drainage Systems (SUDS)***

5.1.1 Development with traditional drainage techniques can result in surface water run-off resulting in increased downstream risk due to sudden rises in flow rate, reduction in the amount of water soaking into the ground through the uses of piped systems and poor water quality entering our rivers and waterways due to contaminants contained within the water run-off. However Sustainable Urban Drainage Systems can reduce these harmful effects. The Flood and Water Management Bill and Flood Risk Regulations 2009 require SUDs to be incorporated in new developments.

5.1.2 Sustainable Urban Drainage Systems (SUDS) use a range of techniques to mimic natural drainage processes and manage surface water as close to its source as possible. They however not only concentrate on flood prevention but they also seek to control the quantity and rate of water run off from a development, to improve the quality of the run off and to enhance nature conservation, landscape and amenity value of the sites and its surroundings.¹ They aim to reduce the amount and rate of water flow by a combination of infiltration into the ground, holding water in storage areas and slowing down the movement of water. SUDS should be incorporated into development proposals at the earliest site-planning stage. PPS25 introduces the general presumption

¹ Sustainable Drainage Systems – A Guide for Developers (Environment Agency)

that SUDS will be used in new developments, and there are also opportunities for them to be retrofitted to existing developments.

5.1.3 Detailed guidance is provided by PPS25 and its accompanying Practice Guide and 'Sustainable Drainage Systems – a Guide for Developers' published by the Environment Agency. Below is a summary of the available techniques. The suitability of each technique depends on a number of factors including the level of pollutants present in run-off as well as the size and site circumstances of the development. For developments near old mining works SUDS must be designed to avoid linking to underground workings: -

- *Permeable Pavements*: This should be used for the creation of hardstanding area, allowing water to soak into the ground and reduce the need for surface water drains and off-site sewers.
- *Swales, Basins and Shallow Depression*: These can provide temporary storage for storm water, reducing peak flows to receiving waters, and facilitate the filtration of pollutants. These can also provide a wildlife habitat with planted trees and shrubs as well as amenity value by providing green links/corridors within a development.
- *Green Roofs and Rainwater Reuse*: Green roofs can reduce the volume and rate of run-off. Rainwater use can reduce water run-off and assist water conservation.
- *Infiltration Trenches*: These are stone-filled reservoirs to which stormwater run-off is directed. The collected water then gradually infiltrates into the ground, a technique that can enhance the natural flow of water through a development.
- *Filter Drains*: A perforated pipe carries the water flow, which enables the storage, filtering and some infiltration of water passing from the source to the discharge point. Pollutants within the water are removed by absorption filtering and microbial decompositions in the surrounding soil.
- *Balancing Ponds (Wet or Dry) and Wetlands*: These provide flood-storage capacity and can be designed to accommodate variations in water levels. They can also filter pollutants from the water, through for example, the presence of algae and wetland plants, as well as contribute to visual amenity and biodiversity.

5.1.4 The Association of British Insurers have produced guidance on the importance on making properties as flood-proof as possible, within the context of insurance issues. The 'Guidance on Insurance Issues for New Developments' is directed towards developers, planning authorities and house buyers. It provides advice on how to prepare for climate change and how developments can be designed to mitigate future climate change. A copy of the document is available on their website at www.abi.org.uk

SECTION E: USEFUL CONTACTS

Environment Agency:

General Enquiries – 08708 506 506
Flood Line – 0845 988 1188 (24 hour service)
Incident Hotline – 0800 80 7060 (24 hour service)
Flood Warnings – 0845 988 1188

Website: www.environment-agency.gov.uk/

Severn Trent Water:

Emergencies – 0800 783 4444 (24 hour service)

Website: www.stwater.co.uk

South Staffordshire Water

Leakline – 0800 24 33 52

Website: www.south-staffs-water.co.uk

National Flood Forum: www.floodforum.org.uk

Health Protection Agency:

Website: www.hpa.org.uk/

Leicestershire County Council:

General Enquiries – 0116 232 3232
Roads and Highways – Flooding (Drains and Gullies) – 0116 305 0001

Website: www.leics.gov.uk/

Leicestershire, Leicester and Rutland Local Resilience Forum:

Website: www.localresilienceforum.org.uk/index.php