LLFA Summary Guidance for developers

Management of Surface Water Drainage

This factsheet provides a summary of information and a developer's checklist to assist you with producing a satisfactory Surface Water Drainage Assessment / Flood Risk Assessment (FRA) for your development in accordance with national planning policy. This guidance should be read alongside the **Local Flood Risk Management Strategy 2 (LFRMS2)** which includes the LLFAs SuDS Policies.

It covers matters relating to surface water drainage only and does not outline other considerations we may take into account such as works affecting Ordinary Watercourses.

As the Lead Local Flood Authority, we will assess Surface Water Drainage Strategies and Flood Risk Assessments for all Major planning applications. A local exception to this is where a site contains an Ordinary Watercourse in relation to our regulatory role under Section 23 of the Land Drainage Act 1991.

A surface water drainage assessment should be carried out to demonstrate that the proposed development will not create an increased risk of flooding from surface water to the development site and the surrounding area. It should be carried out in accordance with the **National Planning Policy Framework** and the **Practice Guide**, giving preference to infiltration over discharge to a watercourse, which in turn is preferable to discharge to surface water sewer. Guidance on the preparation of surface water strategies can be found in ***the Defra/Environment Agency R&D Technical Report W5-074/A/TR/1 Revision E "Preliminary rainfall runoff management for developments"***.

Technical Requirements

We require that the Surface Water Drainage Strategy / FRA demonstrates the following as a minimum;

1. Runoff rates

Peak discharge rates from site will not increase as a result of the proposed

development, up to a 1 in 100 chance in any year including an allowance for climate change storm event. We expect all applicants to achieve greenfield runoff rates for greenfield development sites and to aim to provide greenfield run-off rates for all brownfield sites to reduce the impact of the development on the surface water drainage infrastructure

2. Storage volumes

Storage volumes for all events up to a 1 in 100 chance in any year including an allowance for climate change storm event will be provided on site utilising above ground storage where practicable.

The site will not flood from surface water up to a 1 in 100 chance in any year including an allowance for climate change event, OR surface water flooding will be safely contained on site up to this event, ensuring that surface water runoff will not increase flood risk to the development or third parties. There should be no flooding within the site for up to and including the 1 in 30 chance in any year rainfall event.

3. Sustainable drainage techniques

Sustainable Drainage Systems (SuDS) such as green roofs, attenuation basins, ponds, swales and permeable pavements will be used.

SuDS are an approach to managing surface water runoff which seeks to mimic natural drainage systems and retain water on or near the site as opposed to traditional drainage approaches which involve piping water off site as quickly as possible. SuDS offer significant advantages over conventional piped drainage systems in reducing flood risk by attenuating the rate and quantity of surface water runoff from a site, promoting groundwater recharge and biodiversity benefits, as well as improving water quality and amenity value.

The SuDS hierarchy should be followed as you design the site. The methods at the top of the hierarchy are preferred because they are beneficial in terms of sustainability, water quality and biodiversity. The hierarchy should be used in descending order, with any obstacles to the use of SuDS methods clearly justified. If the ‘lack’ of space is given as a reason for not implementing SuDS we will require evidence that an alternative layout and consideration of other SuDS techniques has been considered. If the ‘cost’ is given as a reason for not implementing SuDS system evidence should be provided to the LPA.

SuDS Hierarchy

SuDS Hierarchy	SuDS Features	Flood reduction	Pollution reduction	Biodiversity benefit
Most Sustainable 1	Living roofs and walls	☒	☒	☒
2	Basins and ponds	☒	☒	☒
3	Filter strips and swales	☒	☒	☒
4	Infiltration devices	☒	☒	☒
5	Permeable surfaces and filter drains	☒	☒	☐
6 Least sustainable	Tanked and piped systems	☒	☐	☐

A sites drainage design can be made up of a range of SUDS techniques. The variety of SuDS techniques available means that any development should be able to include a scheme based around these principles. These should be explored **early** in the design of any development, to ensure they are an integral part of the site layout. Further information on SuDS can be found in:

- **CIRIA C522** SuDS design manual for England and Wales
- **CIRIA C697** SuDS manual
- **CIRIA C609** SuDS management train
- **The Interim Code of Practice for Sustainable Drainage Systems**.

4. Residual Risk

The residual risk of flooding can be managed and contained safely on site should any

drainage features fail (e.g., pumps, flow controls or Hydro-Brakes) OR during an extreme storm event. The location and depth and flow routes of any over ground flooding should be clearly shown on a plan.

5. Climate change allowances

Guidance on climate change allowances can be found within the **National Planning Policy Framework Technical Guidance** and Climate Change allowance note for Hertfordshire.

6. Infiltration rates

Infiltration rates should be worked out in accordance with **BRE Digest 365**.for shallow infiltration and Falling Head tests for deepbore infiltration. If it is not feasible to access the site to carry out soakage tests before planning approval is granted, a desktop study could be undertaken looking at the underlying geology of the area, however, experience has shown that these should not be used for site specific analysis. We will therefore require you to assume a worst-case infiltration rate for that site and provide a feasible alternative drainage scheme which gives priority to above ground SuDS techniques.

Local policies and recommendations

You should, as part of the surface water drainage strategy, demonstrate to the LPA that the requirements of any local surface water drainage planning policies have been met and the recommendations of the relevant Strategic Flood Risk Assessment (SFRA) and Surface Water Management Plan (SWMP) have been considered, including an assessment of the risk of flooding from other sources (e.g., groundwater). The LLFA have also adopted their own policies on SuDS as part of the **Local Flood Risk Management Strategy 2.**

To deliver all of the above please refer to the developer's checklist in Appendix 1 for the type of information to be included to support the above requirements.

Further Information

We cannot prepare or provide surface water drainage assessments / FRAs.

As the LLFA we may hold local flooding information, however in the first instance you should refer to the relevant LPA's SFRA.

Our Flood Risk Management and Surface Water Drainage webpages contain published Section 19 Flood Investigations, Local Flood Risk Management Strategy 2, Surface Water Management Plans, and guidance on Works affecting Ordinary Watercourses

(including an online ordinary watercourse map).

When available, we provide a Surface Water Advisory Service which is subject to a £110.00+VAT hourly fee, to request this service please refer to our pre-application Fees and charges and formal request form.

Please email: FRMConsultations@hertfordshire.gov.uk , or please refer to the following website; https://www.hertforshire.gov.uk/services/recycling-waste-and-environment/water/surface-water-drainage/surface-water-drainage.aspx

Appendix 1

Developer's checklist

To assist in delivering an adequate Surface Water Drainage Strategy / Flood Risk Assessment we have provided you with a checklist below. This has been broken into sections in relation to the type of planning permission you are applying to the LPA for. The level of assessment should be considered depending on the scale, proportion and nature of the development.

Outline Planning Application

Whilst we recognise that outline planning applications do not require full details of the proposed development (i.e., layout, access etc.), to manage drainage it is imperative that this is established prior to the layout being developed. We therefore require the following from the applicant;

☐ Statement of compliance with the NPPF and NPPG policies, LPA local plan policies and HCC SuDS Policies

☐ Anecdotal information on existing flood risk with reference to most up to date data and information

☐ Location of any ordinary watercourses including any which may be un-mapped

☐ Establish location/extent of any existing and potential flood risk from all sources including existing overland flow routes, groundwater, flooding from ordinary watercourses and referring to the national EA fluvial (River) and Risk of Flooding from Surface Water flood maps

☐ Evidence of ground conditions / underlying geology and permeability including BRE Digest 365 infiltration tests (or Falling Head tests for deepbore infiltration)

☐ An outline drainage strategy which includes a commitment to providing appropriate SuDS in line with the Defra Non -Statutory Technical Standards, industry best practice and HCC SuDS Policies within LFRMS2

☐ Detailed calculations of existing surface water storage volumes and flows

☐ Initial post development calculations / modelling in relation to surface water are to be carried out for all rainfall events up to and including the 1 in 100year including an allowance for climate change

☐ All calculations / modelling in relation to fluvial flood risk (from any watercourse) are to be carried out for all flood events up to and including the 1 in 100year + climate change event

☐ Topographical survey to metres AOD

☐ Evidence that if the applicant is proposing to discharge to the local sewer network, they have confirmation from the relevant Water & Sewerage Company that they have the capacity to take the proposed volumes and runoff rates

☐ Identify opportunities to improve flood risk directly by the development site or contribution to local flood risk schemes where appropriate

☐ Details of required maintenance of any SuDS features and structures and who will be adopting these features for the lifetime of the development

Full Planning Application

All of the above under Outline Planning application, plus;

☐ Full detailed drainage plan including location of SuDS measures, pipe runs and discharge points, informal flooding (no flooding to occur below and including the 1 in 30 year rainfall return period)

☐ Detailed modelled outputs of flood extents and flow paths for a range of return periods up to the 1 in 100year + climate change event

☐ Exceedance flow paths for surface water for events greater than the 1 in 100year + climate change event

☐ Depths and flow paths of all sources of flooding and the expected return period

☐ Full details of any required mitigation / management measures of any identified source of flooding

☐ Detailed drainage calculations for all rainfall return periods up to and including the 1 in 100year + climate change event including pre-development greenfield runoff rates (for brownfield sites we require pre- and post-development runoff rates and volumes)

☐ Detailed drawings of any proposed structures affecting ordinary watercourses and an impact assessment to demonstrate there will be no increase in flood risk. This should include a statement acknowledging there is a requirement for consent from HCC under Section 23 of the Land Drainage Act 1991

☐ Justification of SuDS selection including technical evidence (the LLFA will not accept that there is 'no space')

☐ All drawings to be 'final drawings' not 'preliminary' or 'draft' unless further details are to be submitted via discharge of condition

☐ Drainage statement to include a list of sustainable drainage treatment stages to ensure there is no detrimental impact to any local watercourses / ground water for water quality and ecological purposes in accordance with the Water Framework Directive

☐ Confirmation of permission to connect discharge point/s into open watercourse or sewer network

Reserved matters

All of the above under full planning requirements

☐ Full detailed drainage strategy based on the principles agreed at the Outline Planning permission stage and a demonstration of how it complies with the Outline drainage strategy

☐ Any changes from the agreed outline planning permission stage, must have full technical justification with an appropriate alternative

☐ Full detailed engineering drawings for SuDS measures, flood mitigation and management measures and any proposed structures affecting ordinary watercourses

Discharge of conditions

HCC LLFA will not comment on conditions relating to flood risk and surface water that were not recommended by HCC

☐ All final details not provided as part of a Full, Outline or Reserved matters application i.e., engineering drawings, detailed drainage strategy showing a detailed site plan and final calculations where it has been recommended by HCC to the LPA subject to planning permission being granted

☐ Details of required maintenance of any SuDS features and structures and who will be adopting these features for the lifetime of the development

☐ Confirmation of permission to connect discharge point/s into open watercourse or sewer network

☐ All details addressing each point in the condition and where appropriate, an explanatory note detailing the information provided

We strongly recommend to all applicants that each of their specialist experts including Sustainable Drainage Experts, Landscape Architects, Drainage Engineers, Highways Engineers, Building Architects, Flood Risk Consultants etc. each understand the above requirements as they will influence how the site is developed, designed and integrated.

Please note: The LLFA are not required to comment on adoption and maintenance of SuDS this should be agreed and discussed between the LPA and the applicant.