

Appendix A2 - Surface Water Drainage Proforma Statement for Category C and D applications (see Appendix F for full descriptions)

This form should be used on planning applications which include any of the following:

- 9 or less dwellings
- Manufacture or retail with a floor space less than 1000 sqm
- All development sites less than 1 hectare in Flood Zone 1

Applicant Name

Planning Application Name

Development Address & Post Code

Application Type (Please circle)

Outline

Full

Is the site developed or greenfield?

Developed

Greenfield

(Please circle)

Total Site Area served by drainage system (excluding open space) (Ha)*

Ha



In order to provide the level of surface water drainage detail required for small major development sites the applicant, or those working on their behalf, must complete the following proforma to be submitted in support of an application.

The proforma should be considered alongside other supporting SuDS Guidance but focuses on ensuring flood risk is not made worse elsewhere. The SuDS solution must operate effectively for the lifetime of the development, taking into account climate change. This proforma is not exhaustive, so feel free to provide any additional supporting information. This submission will be used as a basis for our response to a consultation from the Local Planning Authority.

1. Existing Site

Evidence Required	Evidence Supplied
Site location plan	
Detailed site layout plan at an identified scale with a north arrow (minimum 1:500)	
Topographical survey of the site, including cross sections of any adjacent watercourses for an appropriate distance upstream and downstream of the proposed discharge point	
Simplified Flood Risk Assessment for single building developments in Flood Zones 2 and 3	
Full Flood Risk Assessment for multiple buildings in Flood Zones 2 and 3	
Plan showing the proximity of Flood Zones 2 and 3 where development is in Flood Zone 1	
Plan showing proximity of surface water / pluvial flooding where development is in Flood Zone 1	

2. Impermeable Area

Area	Existing	Proposed	Difference (Proposed – Existing)
Impermeable Area (ha) Areas to be shown on a plan			
Urban Creep	N/A		N/A
Total Impermeable Area			

3. Surface Water Discharge

Strategy	Evidence Supplied
Infiltration calculations to BRE 365 to cater for a 1% AEP plus CC event or 10% AEP event with exceedance flood routing details	
To watercourse	
To surface water sewer. with permission for connection	
To Combined Sewer / Foul with permission for connection	
Layout plan showing where the sustainable drainage infrastructure will be located on site.	
Calculation demonstrating sufficient capacity in existing piped outfall	
Proposed surface water calculation	
Drainage proposal demonstrating the SuDs hierarchy	

4. Infiltration

Evidence Required	Evidence Supplied
Are infiltration rates above 1×10^{-6} m/s.	
Type of infiltration system to be used	
Depth to high water table	
State the distance between a proposed infiltration device base and the water table (GW) level	
Is the site within a known Source Protection Zones (SPZ)?	
Is the site free of contaminated? If no, consider advice from others on whether infiltration can happen	
Soakaways design in accordance with BRE Digest 365 to cater for a 1% AEP storm event plus 40% climate change. Alternative soakaway designed for the 10% AEP storm event together with details of flood routing to show what would happen in an 'exceedance event' above the 10% AEP storm event.	

5. Peak Discharge Rates

	Existing Rates (l/s)	Proposed Rates (l/s)	Difference (l/s) (Proposed-Existing)
Greenfield QBAR		N/A	N/A
1 in 1 year			
1 in 30 year			
1 in 100 year			
1 in 100 year plus 40% climate change			

6. 6 hour Peak Discharge Volumes

Return Period	Existing Volume (m ³)	Proposed Volume (m ³)	Difference (m ³) (Proposed-Existing)
1 in 1 year			
1 in 30 year			
1 in 100 year			
1 in 100 year plus 40% climate change			

7. Attenuation Volume

Return Period	Proposed Volume (m ³)
1 in 1 year	
1 in 30 year	
1 in 100 year	
1 in 100 year plus 40% climate change	

Flow Control	Evidence Supplied
What type on control device is being proposed?	

8. Exceedance Flow

Exceedance	Evidence Supplied
Have exceedance flows been checked to ensure that surface water flows do not <i>result the flooding of more vulnerable areas within the development site or contribute to surface water flooding of any area outside of the development site?</i>	

9. Management Train

Measure	Y / N	Consideration Reason
Swales		
Permeable paving		
Rain gardens		
Green roofs		
Other		

10. Management and Maintenance of SuDs

Measure	Evidence Supplied
<p>How is the entire drainage system to be maintained in perpetuity?</p> <ul style="list-style-type: none"> • Clear details of the maintenance proposals of all elements of the proposed drainage system. • Provide a management plan to describe the SUDS scheme • Specification notes that describe how work is to be undertaken • A maintenance schedule describes what work is to be done and when it is to be done using frequency • A site plan showing maintenance area, control points and outfalls. Responsibility for the management and maintenance of each element of the SUDS scheme will also need to be detailed within the Management Plan 	
<p>Please confirm the owners/adopters of the entire drainage systems throughout the development. Please list all the owners.</p> <ul style="list-style-type: none"> • If these are multiple owners then a drawing illustrating exactly what features will be within each owner's remit must be submitted with this Proforma. Please give details of each feature and how it will be managed in accordance with the details in the management plan. 	
<p>Please provide details demonstrating that any third party agreements required using land outside the application site have been secured.</p>	

11 Foul Drainage for Non Mains Connections

Non Mains Foul Connection	Evidence Supplied
Details and sizing of the existing package treatment plant or septic tank in accordance with 'British Water Flows and Loads 4'	
Details and sizing of the proposed Package treatment plan or septic tank in accordance with 'British Water Flows and Loads 4'	
Details of percolation tests and design of the drainage fields in accordance with The Building Regulation part H2'	
Evidence that package treatment plant discharge is to a watercourse that normally has flow throughout the year.	
Submission of the Foul Drainage Assessment Form (FDA1 Form).	



The above form should be completed using evidence from information which should be appended to this form (including from the site plans). It should serve as a summary of the drainage proposals and should clearly show that the proposed rate and volume as a result of development will not be increasing. If there is an increase in rate or volume, the rate or volume section should be completed to set out how the additional rate/volume is being dealt with.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form Completed By.....

Qualification of person responsible for signing off this pro-forma

Company.....,

On behalf of (Client's details)

Date:.....

Design Principles

Local Standards

Local Standard A – Phased Development and Drainage Strategies

For phased developments, the LLFA will expect planning applications to be accompanied by a Drainage Strategy which takes a strategic approach to drainage provision across the entire site and incorporates adequate provision for SuDS within each phase.

Local Standard B – Pollution Prevention and Control

The LLFA will expect the SuDS to demonstrate how pollutants are prevented or controlled as part of the SuDS scheme. This should include consideration of the sensitivity of receiving waterbodies and particular attention should be given to the first 5mm of rainfall ('first flush' that mobilises the most pollutants).

Local Standard C – Conformity with the SuDS Management Train Principles

The LLFA will expect the SuDS design to demonstrate how the principles of the SuDS Management Train have been taken into account

Local Standard O – Multiple Benefits

The LLFA will expect the SuDS design to demonstrate, where appropriate, how environmental site constraints have been considered and how the features design will provide multiple benefits e.g. landscape enhancement, biodiversity, recreation, amenity, leisure and the enhancement of historical features.

Local Standard Q – Connection to Highway Drainage Network

A connection to the existing highway drainage network will not be permitted unless the system downstream of the connection is put up for adoption by STW up to the point where this interacts with the existing public network or where it discharges to a surface water outfall or a connection to the existing highway drainage network will not be permitted until model evidence has been submitted to show that any connection will not cause flooding to the public highway.

Any costs associated with this process including design fees, the physical upgrading of the highway drain to an adoptable standard, or those associated with the fee for adoption will be borne by the applicant.

Local Standard R – Network Modelling Software Requirements

The design this should be submitted in MicroDrainage (.mdx) format.

Design Parameters

The rainfall data must be based on the most up to date FEH

The maximum rainfall intensity should be set to 100

The volumetric runoff coefficient should always be 1.0

Simulation Parameters

The Areal Reduction Factor should always be set to 1

The MADD Factor must be set to 0

Peak Flow Control

Applicable National Standards

S2 *For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 100% Annual Exceedance Probability rainfall event and the 1% Annual Exceedance Probability rainfall event should never exceed the peak greenfield runoff rate for the same event.*

S3 *For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 100% Annual Exceedance Probability rainfall event and the 1% Annual Exceedance Probability rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.*

Volume Control

Applicable National Standards

S4 Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1% Annual Exceedance Probability, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

S5 Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1% Annual Exceedance Probability, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.

S6 Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with S4 or S5 above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.

Local Standards

Local Standard E – Climate Change

The LLFA will expect SuDS design to include an allowance for a 40%* increase in rainfall for a 1% Annual Exceedance Probability rainfall event in order to accommodate the 2016 Upper End climate change predictions. (*note that guidance may be subject to change and therefore the most up to date information should be referenced / clarification sought from the LLFA)

Local Standard F – Urban Creep

The LLFA will expect the SuDS design to include an allowance for an increase in impermeable area to accommodate urban creep as set out in the SuDS Handbook.

Local Standard G – Emergency Overflows

The LLFA will expect an emergency overflow to be provided for piped and storage features above the predicted water level in a 1% Annual Exceedance Probability rainfall event, with an allowance for climate change

Local Standard H – Freeboard Levels

The LLFA will expect all surface water storage ponds to provide a 300mm freeboard above the predicted water level arising from a 1% Annual Exceedance Probability rainfall event inclusive of an allowance for climate change. Care must be taken to ensure that excavations do not take place below the ground water level.

Flood Risk Within the Development

Applicable National Standards

S7 *The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 3.3% Annual Exceedance Probability rainfall event.*

S8 *The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1% Annual Exceedance Probability rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.*

S9 *The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1% Annual Exceedance Probability rainfall event are managed in exceedance routes that minimise the risks to people and property.*

Local Standards

Local Standard D – Exceedance Flows

The LLFA will expect exceedance flows, originating from both within and outside of the development site, must be directed through areas where the risks to both people and property are minimised.

It should be demonstrated that exceedance flows up to the 1% Annual Exceedance Probability (AEP) plus climate change will not result in the surface water flooding of more vulnerable areas within the development site or contribute to surface water flooding of any area outside of the development site.

Exceedance flow paths should be provided to ensure that any such flows are managed on site. The discharge of any such flows across the adjacent land would not be permitted and would mean that the surface water drainage system is not being used.

When considering exceedance routes, particular attention should be paid to

- i. The position of walls, bunds and other obstructions that may direct water but must not cause ponding*
- ii. The location and form of buildings (e.g. terraces and linked detached properties) that must not impede flows or cause ponding*
- iii. The finished floor levels relative to surrounding ground*

Local Standard I – Watercourse Floodplains

The LLFA will expect the floodplains of ordinary watercourses to be mapped to an appropriate level of detail considering the nature of the application (i.e. detailed flood modelling should be undertaken to support full planning applications). The layout of the development will then take a sequential approach, siting the least vulnerable parts of that development in the highest flood risk areas.

Local Standard J – Retention of Natural Drainage Features

The LLFA will expect natural drainage features on a site should be maintained and enhanced. Culverting of open watercourses will not normally be permitted except where essential to allow highways and / or other infrastructure to cross. In such cases culverts should be designed in accordance with CIRIA's Culvert design and operation guide, (C689).

Where a culverted watercourse crosses a development site, it should be reverted back to open channel. In such a case the natural conditions deemed to have existed prior to the culverting taking place should be re-instated.

Local Standard K – Impact of Downstream Water Levels

If high water levels within a receiving watercourse into which a SuDS scheme discharges are anticipated, the LLFA will expect that they will not adversely affect the function of that SuDS system.

Structural Integrity

Applicable National Standards

S10 Components must be designed to ensure structural integrity of the drainage system and any adjacent structures or infrastructure under anticipated loading conditions over the design life of the development taking into account the requirement for reasonable levels of maintenance.

S11 The materials, including products, components, fittings or naturally occurring materials, which are specified by the designer must be of a suitable nature and quality for their intended use.

Designing for Maintenance Considerations

Applicable National Standards

S12 Pumping should only be used to facilitate drainage for those parts of the site where it is not reasonably practicable to drain water by gravity. See local Standard N

Local Standards

Local Standard L – Maintenance Requirements

The LLFA will expect SuDS to be designed so that they are easy to maintain. Proper use of the SuDS management train, including surface features, is one way to achieve this.

The developer must set out who will maintain the system, how the maintenance will be funded and provide a maintenance and operation manual.

Local Standard M – Minimising the Risk of Blockages

The LLFA will expect the SuDS design to minimise the risk of blockage as far as is reasonably possible e.g. by using suitable pipe sizes and making underground assets as visible and accessible as possible.

Local Standard N – Use of Pumped Systems

Shropshire Council do not permit the use of surface water pumps on new development.

Development should always be directed to areas where a gravity connection to a suitable outfall can be provided. Areas that cannot be drained by gravity should remain as Public Open Space.

Any proposed foul pumping stations should be built to an adoptable standard and put up for adoption by STW.

Construction

Applicable National Standards

S13 *The mode of construction of any communication with an existing sewer or drainage system must be such that the making of the communication would not be prejudicial to the structural integrity and functionality of the sewerage or drainage system.*

S14 *Damage to the drainage system resulting from associated construction activities must be minimised and must be rectified before the drainage system is considered to be completed.*

Foul Drainage for Non Mains Connections

Local Standards

Local Standard P – Disposal of Foul Water

The proposed method of foul water sewage disposal should be identified and submitted for approval, along with details of any agreements with the local water authority and the foul water drainage system should comply with the Building Regulations H2.

If main foul sewer is not available for connection, full details and sizing of the proposed septic tank/ package sewage treatment plant including percolation tests for the drainage field soakaways should be submitted for approval including the Foul Drainage Assessment Form (FDA1 Form). British Water 'Flows and Loads: 4' should be used to determine the number of persons for the proposed development and the sizing of the septic tank/ package sewage treatment plant and drainage fields should be designed to cater for correct number of persons and in accordance with the Building Regulations H2. These documents should also be used if other form of treatment on site is proposed

