

Complying with the National Standards for Sustainable Drainage Systems (SuDS)

Guidance for Developers

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Introduction

For different types of planning application, different levels of information are required. As Lead Local Flood Authority (LLFA), we have produced the following guidance to ensure that Sustainable Drainage Systems (SuDS) are satisfactorily considered throughout the planning process.

To ensure the National Standards for SuDS are adequately addressed, we suggest using the major development template available to download from [CIRIA](#).

Outline Applications

For an outline planning application, we require the following information.

For Standard 1 (Runoff Destinations)

- Evidence that there is at least one viable method of draining the site, and that the hierarchy is being followed.
- West Sussex is “seriously water stressed”; we expect all major applications to consider rainwater harvesting from outline planning stage.

For Standard 2 (Management of Everyday Rainfall – Interception)

- Interception features can have a significant impact on the scale and layout of sites; we strongly recommend early consideration of Standard 2.
- We would recommend including a high-level assessment of potential interception methods which should be considered at reserved matters stage. These suggestions shall be site specific, and consider impacts of high winter groundwater levels.
- This should mean that at reserved matters stage, interception is accounted for when producing the detailed site layout.

For Standard 3 (Management of Extreme Rainfall and Flooding)

- Evidence that the 1% AEP plus climate change event (design flood in PPG) can be managed on site, without increasing flood risk elsewhere. As Standard 3 has the most significant impact on the parameter plan, it is essential to demonstrate at the outline stage that adequate space exists for the provision of the required attenuation volumes. The discharge volumes shall be calculated using 1 in 100 6-hour storm, as stated in the Standards.

For Standards 4, 5, 6, and 7

- A high-level overview of the use of multi-functional SuDS and who is expected to be responsible for the maintenance of the SuDS and ordinary

watercourses (under riparian ownership/responsibilities) within the red line are required.

Other Requirements

- A drainage layout showing all attenuation features and proposed outfall locations. This must also identify any required easements, as these may affect the parameter plan.
- A catchment plan to demonstrate the natural catchments within the site are being followed. We suggest using area summaries which include the proposed impermeable area for each catchment.
- Winter groundwater monitoring and infiltration testing results demonstrating whether an infiltration-based strategy is feasible or should be ruled out.

Full and Reserved Matters Applications

A technical report shall be submitted which clearly sets out how the development complies with the National Standards for SuDS. A non-technical summary should also be included to provide a clear overview for non-specialist readers.

A drainage layout must be provided and be consistent with the hydraulic calculations and all other submitted plans, including landscape proposals.

Applicants must also supply details of the site's existing drainage arrangements. An early CCTV survey is strongly recommended to confirm the location and condition of any existing surface water sewers or drainage assets. The ownership of all existing drainage infrastructure should be established by the applicant prior to submitting the application, to avoid delays later in the planning process.

Standard 1: Runoff Destinations

Evidence must be provided that the drainage hierarchy (runoff destinations) has been followed in accordance with the National SuDS Standards (NSfS).

Higher cost shall not be an acceptable reason to utilise lower priority final runoff destinations.

Priority 1: Non-Potable Use

As West Sussex is a seriously water stressed area, we expect rainwater harvesting to be a core part of Sustainable Drainage Strategies. Any omission of rainwater harvesting shall be strongly justified. It is acknowledged that this is likely to be in conjunction with a lesser priority final destination.

On other sites nationwide which include rainwater harvesting, the SuDS land take has been smaller.

Some examples of where rainwater harvesting has been included in developments are available on the [Enabling Water Smart Communities \(EWSC\)](#) website.

Where the relevant British Standards for water recycling are met, water companies provide Environmental Incentives for developers. This can then reduce water bills. For further information please see:

- [Environmental Incentives](#) (Southern Water)
- [Help with a new connection to a water main](#) (Thames Water – Section 13 in [Charging arrangements for new connection services 2026-27](#))
- [Environmental Incentives – Portsmouth Water Developer Portal](#) (Portsmouth Water)

We would recommend developers discuss Environmental Incentives with relevant water companies using their pre-planning services.

Priority 2: Infiltration

Groundwater Monitoring – Applicants must undertake groundwater monitoring to determine the maximum groundwater level. This maximum level must be considered when designing the surface water drainage system.

A groundwater monitoring plan shall include:

- Locations of all monitoring points
- Borehole depths
- Recorded groundwater levels presented in mAOD where possible
- Evidence of ground strata encountered

Infiltration Testing – To demonstrate whether infiltration is feasible, and therefore whether Priority 2 of the hierarchy can be met, infiltration testing shall be undertaken in accordance with BRE 365 or another approved method.

The submission must include:

- A plan showing the location of all trial pits, appropriately distributed across the site.
- Full BRE 365-compliant testing records (or another approved method), including:
 - Three tests per pit
 - Pit dimensions and depth
 - Date and time of testing
 - Infiltration rate calculation for each test

The lowest infiltration rate shall be used in the design of infiltration features (not an average or extrapolated value).

In areas where infiltration has been discounted on geological grounds, but the maximum groundwater table is demonstrated to be at least 1m below the base of the proposed attenuation feature, an unlined design is recommended. This approach enables any residual infiltration capacity of the underlying strata to be utilised, thereby maximising the effectiveness of the drainage system.

Priority 3: Discharge to a Surface Waterbody

Where infiltration is not viable and discharge to a surface waterbody is proposed, applicants must demonstrate that the waterbody is:

- Connected to the wider hydrological network, and
- Capable of receiving the proposed flows.

The following must be provided:

- Drawings clearly showing waterbody connectivity (supported by topographic survey where practical);
- Confirmation that all proposed connections lie within the red line boundary, or evidence that easements have been secured where they do not.
- Drawings showing required easements:
 - 3m minimum from ordinary watercourses (including culverts);
 - 8m minimum from main rivers (Environment Agency remit).
- Watercourse condition information, including hard bed levels where:
 - Clearance between the outfall invert and ditch bed is <150mm, or
 - Pumps are proposed.
- Demonstration that proposed discharges follow natural pre-development drainage patterns:
 - Where sites drain in multiple directions, the strategy must maintain these natural patterns;
 - Catchment plans should be used to define and justify flow paths;
 - Where ground raising over 0.5m is proposed, this shall consider pre-development drainage patterns.

Priority 4: Discharge to a Surface Water Sewer

Where discharge to a surface water sewer is proposed, applicants must demonstrate:

- Sufficient capacity in the downstream network to accept additional flows

Discharge rates shall be restricted to greenfield runoff rates, regardless of any higher rate permitted by the sewerage undertaker (Southern Water or Thames Water).

Please be aware that Southern Water have the following policy:

- [Surface Water Management Policy \(Southern Water\)](#)

WSCC highways do not allow third-party connections, unless any of the following conditions apply:

- The existing development already has a connection to the existing highway system;

- Surface water already runs off the site and into the adjacent highway drainage system, without causing any downstream flooding issues, i.e. the existing system has capacity for additional flow;
- The system (i.e. the existing highway drainage) was once an ordinary watercourse adjacent to the road and the adjacent property has a riparian right to connect.

Standard 2: Management of Everyday Rainfall (Interception)

Evidence must be provided that the first 5mm of rainfall from everyday (frequent) rainfall events is fully intercepted on site and does not discharge into the surface water network or sewers.

Interception can be achieved through rainwater harvesting, infiltration and interception storage.

Environmental incentives (mentioned above) also cover other aspects of surface water drainage, including SuDS.

Where infiltration is not viable, interception storage must still be provided. The interception assessment table in the NSfS should be used to determine the required volume, and Section 24.8 of the CIRIA SuDS Manual offers further detailed guidance on how interception should be achieved and demonstrated.

We expect the following to be submitted at full/reserved matters stage:

- A drawing/plan shall be provided to demonstrate the interception methods clearly shown, and their contributing positively drained surface area.
- The example table below (or similar) shall be provided to demonstrate compliance with the Standard.
- The design of interception methods shall consider maximum groundwater levels.

The NSfS set out the detailed criteria that each interception method must meet in order to comply with Standard 2.

Positively drained surface area	Interception method	Details of how Standard 2 met
Parking/private road	Permeable surfaces	No additional drained area X m ² area - provides X m ² area of interception
Access road and residential areas	Swale	Longitudinal gradient of swale less than 1:100 500mm base material X m ² swale vegetated base area - provides X m ² area of interception
School/medical building	Green roof	X m ² area - X m ² area of interception

Standard 3: Management of Extreme Rainfall and Flooding

Evidence must be provided that no surface water drainage features are located within areas identified as being at risk of flooding during the 1% AEP event from either pluvial or fluvial sources, unless those features are specifically designed to operate under flood conditions and their functionality in such conditions has been robustly demonstrated.

Where drainage features are close to mapped flood risk areas, the drainage layout should be overlaid with pluvial and fluvial flood risk mapping to confirm suitability of their location.

For infiltration-based sites:

- Appropriately sized features based on ground conditions and contributing areas.
- For each infiltration feature, the invert level, cover level, impermeable area drained (including urban creep), infiltration rate (site specific and compliant with BRE365 testing, SuDS Standards or similar), maximum groundwater level from winter groundwater monitoring (to show 1m clearance from maximum groundwater level) and appropriate factor of safety provided.
- Evidence that the 3.33% AEP event plus climate change half drains/empties within 24 hours.

For discharge to surface water bodies or surface water sewers:

- Greenfield runoff rate calculations, following EA Flood Estimation Guidelines. Please note, this should not include climate change or urban creep allowances.
- Proposed discharge rate.
- Proposed discharge volumes.
- Proposed attenuation features.
- Where the sewerage undertaker (Southern Water or Thames Water) includes a maximum discharge rate in their response that is greater than greenfield runoff rates, the total discharge rate from the site shall still be equivalent to greenfield runoff rate.
- Exceedance plan for 1% AEP event plus climate change (design storm in PPG). This must show that there is no off-site flooding, with exceedance plan showing any areas/depths of flooding within the site from the surface water drainage system, no flooding of property or critical infrastructure and that safe access/egress is retained.
- Hydraulic calculations – including summary of results for critical storms including 1 in 1 (no surcharging), 1 in 30 plus climate change (no flooding unless designed to store or convey water) and 1 in 100 year plus climate change (no flooding to buildings, utility plants or safe access/egress routes).

- Surcharged outfall accounted for – where levels are unknown, top of bank shall be used.
- Consideration of blockage risk (for example from flow control structures).

Calculation parameters:

Parameter	Value required
Area (when calculating greenfield rate)	Site specific
SAAR	Site specific - From FEH web service
Soil Index	Site specific (between 1 and 5)
BFIHOST/BFIHOST19	Site specific- From FEH web service
Region	Site specific - From FEH web service
Cv value	1 for summer and winter
Time of entry	5
Design return period	1 (for greenfield rates), 30, 100
Urban creep	10% (can be inputted as 'Additional flows')
Rainfall	FEH 2022 or later
Storage volume in pipe network (m ³)	0
MADD factor	0
Additional flows	0 (see urban creep above)
Climate change	Use: Climate change allowances for peak rainfall

Standard 4: Water Quality

Evidence shall be provided that a SuDS management train has been applied.

A water quality assessment should be undertaken using the CIRIA SuDS Manual Simple Index Approach. For sites with multiple drainage catchments, it is recommended that each catchment is assessed separately to ensure that runoff from all areas receives adequate treatment before infiltration or discharge.

Standard 5: Amenity

Evidence must be provided that the SuDS deliver amenity benefits in accordance with the CIRIA SuDS Manual and the National SuDS Standards.

Water depths should not exceed 1 metre, with side slopes no steeper than 1:3. Following the detailed design guidance in the CIRIA SuDS Manual is strongly recommended, as well-designed features can often eliminate the need for additional safety measures – such as lifebuoys or fencing – which may detract from the visual quality and amenity of residential developments.

The LLFA will not provide detailed comments on amenity matters and expect the LPA to seek input from specialists in this area.

Standard 6: Biodiversity

Evidence must be provided that the SuDS deliver biodiversity benefits in line with the CIRIA SuDS Manual and the National SuDS Standards.

Where SuDS create or enhance habitats, these features may contribute to Biodiversity Net Gain (BNG). In such cases, applicants must follow recognised best-practice approaches for both SuDS design and BNG metrics to ensure that ecological benefits are robust, measurable, and deliverable.

The LLFA will not provide detailed comments on biodiversity matters and expect the LPA to seek input from specialists in this area.

Standard 7: Design, Construction, Operation, Maintenance, Decommissioning and Structural Integrity

A SuDS Construction Method Statement, SuDS Phasing Plan and the SuDS Maintenance and Management Plan may be secured through pre-commencement planning conditions.