Durham County Council

Sustainable Drainage Systems (SuDS) Adoption Guide 2016

Altogether better

Durham County Council

Version Date	Version ref	Revision History	Reviser	Approved by	Review Date
25/09/2015	v0.3	Draft	Brian Weatherall Senior Area Drainage Engineer		
17/02/2016	v1	Final	Brian Weatherall Senior Area Drainage Engineer	John Reed Head of Technical Services	2019
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Contents

1. Introduction

This document sets out how Durham County Council's (DCC) criteria for adopting Sustainable Drainage Systems (SuDS). It details how schemes should demonstrate their compliance with National Standards and local policy, in a County Durham context, by setting out a number of requirements which designs should meet.

The guidance is aimed at Developers of Major Development sites which meet any of the following criteria:

- For residential development, developments that contain 10 or more dwelling houses or where the site is 0.5 hectares or greater
- For non-residential development, developments of 1,000 square metres or greater of floor space or where the site is 1 hectare or more.

DCC's Drainage and Coastal Protection Team acting as Lead Local Flood Authority (LLFA) is also a statutory consultee in determining planning applications.

As well as ensuring all schemes comply with the National Standards and local policies, which focus on the quantity and quality elements of SuDS, the Council will seek to secure SuDS schemes which demonstrate best practice and maximise amenity, biodiversity and other benefits to the local area. Fundamental to this approach is that the four components of the SuDS philosophy, as set out in the Construction Industry Research and Information Association (CIRIA) SuDS Manual:

- Quantity
- Quality
- Amenity
- Biodiversity.

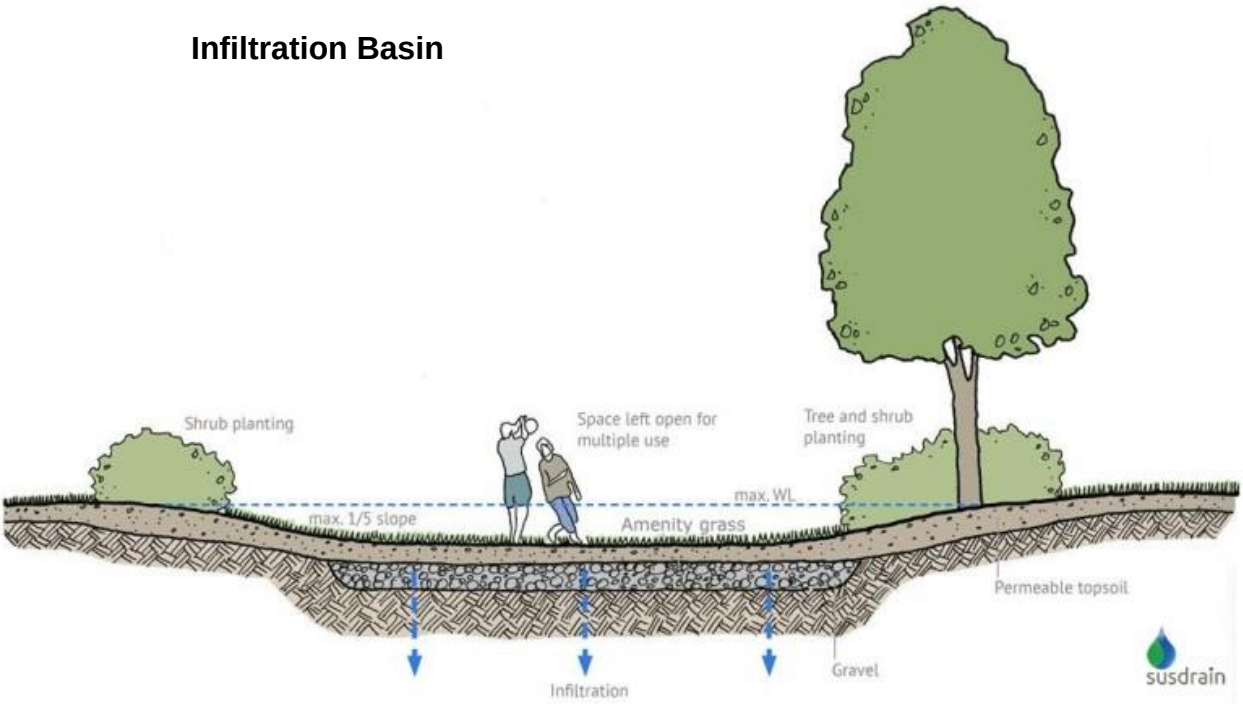
The above components cannot be separated and should be considered in a holistic way to achieve 'best value' from a SuDS design.

The Council will seek to deliver SuDS in line with this philosophy through a coordinated approach in its role as both the LLFA and Local Planning Authority (LPA). This aim is to maximise coordination with planning policy whilst still ensuring SuDS are affordable and practical.

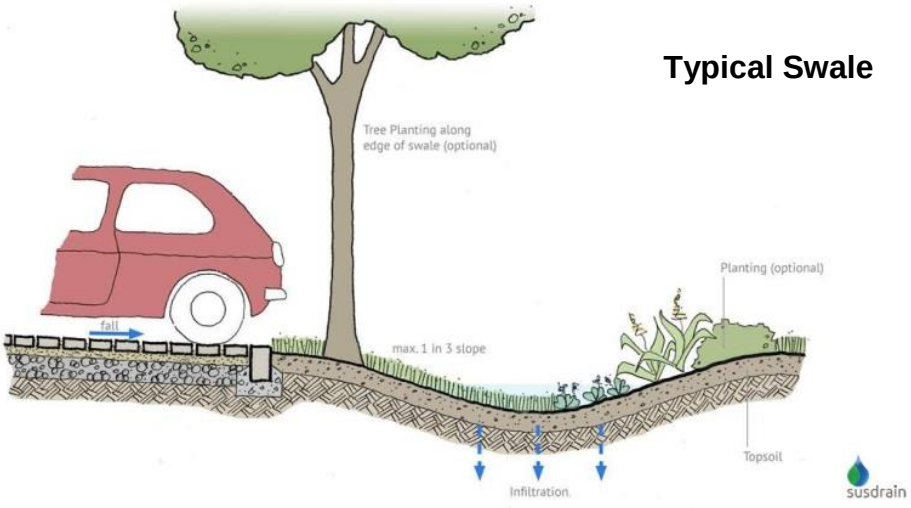
This document and the requirements within it are supported by references to the following sources of further information:

- Non-statutory Technical Standards for sustainable drainage systems by DEFRA
- CIRIA SuDS manual – provides industry-accepted national best practice
- National Planning Policy Framework and the Planning Practice Guidance
- And DCC's policy documents, namely:
- Strategic Flood Risk Assessments covering County Durham
- The Surface Water Management Plan
- The Preliminary Flood Risk Assessment (PFRA)
- County Durham Plan
- Water Cycle Study.

Infiltration Basin



Typical Swale



2. The Surface Water Management Train

In comparison with conventional drainage, SuDS offer a number of options to designers. To give some structure to the design process it is helpful to use the philosophy of the surface water management train. This reinforces and, where possible, follows the natural pattern of drainage. In adopting the surface water management train the following objectives should be met:

- Surface water should be returned to the natural environment as soon as possible, promoting natural infiltration and the functioning of the hydrological cycle
- Pollutants should be controlled at source before they can be transported and mixed downstream
- The use of impermeable areas should be minimised and, where there is no alternative to their use, they should not be connected to piped drainage systems but, wherever possible, directed back into the natural water cycle.

If impermeable areas are used, they should be kept clean to prevent pollution of the runoff. If the water is not contaminated, it will not need to be treated before it is returned to the land.
The management train provides a hierarchy of techniques that are listed in order of preference.

1. **Prevention** - the use of good site design and housekeeping measures on individual sites to prevent runoff and pollution (for example, the use of sweeping to remove surface dust from car parks)
2. **Source control** - control of runoff at or very near its source (for example, the use of permeable pavements or green roofs)
3. **Site control** - management of water from several sub-catchments (such as routing water from roofs and car parks to one large soakaway or infiltration basin for the whole site or using swales to transport water through the site allowing infiltration and evaporation)
4. **Regional control** - management of runoff from several areas, typically in a detention basin or wetland area.

The management train shows how runoff can be managed using a series of processes. Each process changes the characteristics of the runoff until it can be discharged. Regional controls should be required only if the runoff cannot be managed locally.

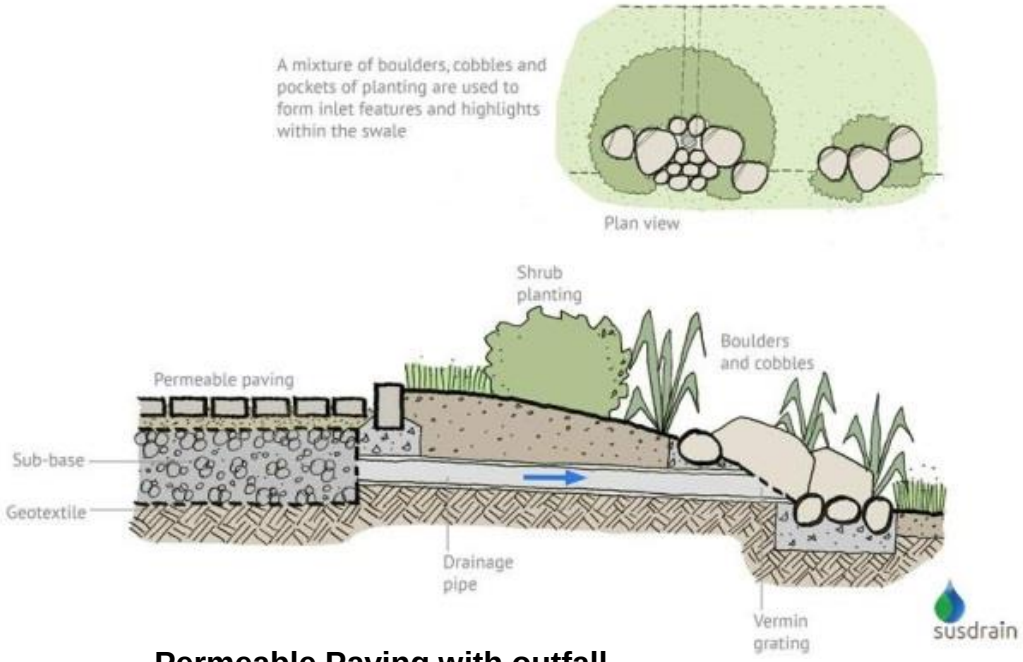
The SuDS Management Train

3. SuDS Drainage Components

Ideally, SuDS should not be designed to operate as a number of isolated drainage devices but should be designed using a holistic approach and operated collectively.

Within the philosophy of the surface water management train each component adds to the performance of the whole of the drainage system.

The full range of SuDS that can be used and associated publications are detailed on CIRIA's SuDS website [susdrain]



Permeable Paving with outfall

The most popular methods for managing surface water are summarised in Table 3.1 As each SuDS site has specific requirements, the definitions are not precise.

Table 3.1

Component	Summary	Practical considerations
Prevention/site management	Includes the design and management of a site to reduce the impact of surface runoff, e.g. minimising impermeable areas, encouraging rainwater use, and good housekeeping to minimise diffuse pollution.	Requires consideration of site design and practices that occur within the site to minimise runoff and diffuse pollution. This will involve good housekeeping practices, e.g. sweeping hard surfaces.
Filter strips	Strips of ground that treat runoff from adjacent impermeable areas.	The vegetation that forms an essential part of the filter strip needs to be cared for. The grass has to be mown as required and bare patches re-seeded in order to trap pollutants.
Swales	Shallow channels that convey runoff and remove pollutants.	The vegetation that forms an essential part of the swale needs to be cared for. The grass has to be mown as required and bare patches re-seeded in order to trap pollutants in the runoff. Litter should be removed to enhance the swales' amenity value.
Permeable surface	Normally hardstanding structures that allow rainwater to infiltrate through the surface into an underlying storage layer.	Surfaces should be inspected for clogging and water ponding and should be kept clean by sweeping twice a year.
Filter drains	Trenches filled with permeable material into which runoff is collected from the edge of an impermeable area, stored and conveyed.	Surface should be kept clean to prevent the voids from becoming blocked.
Infiltration devices	Devices that temporarily store runoff and allow it to percolate into the ground. They include soakaways, infiltration trenches and infiltration basins as well as swales, filter drains and ponds.	Care should be taken to prevent the ground becoming compacted or the device becoming blocked with silt.
Bio-retention areas	Vegetated areas that are designed to collect and treat water before discharge via a piped system or by infiltration to the ground.	The useful life of a bio-retention area is related to the frequency of maintenance. Care should be taken of vegetation.

Component	Summary	Practical considerations
Pipes and accessories	A series of conduits and their accessories normally laid underground and designed to convey surface water to a suitable location for treatment and/or disposal. (These techniques are sustainable where the use of other SUDS techniques are not practicable.)	Care should be taken to ensure that pipes do not become blocked or the flow impeded.
Basins and ponds	Basins are temporary water features. They only fill with water during and after storms. Ponds are permanently wet basins designed to retain storm water.	Between periods of rainfall, basins can be used for other activities.

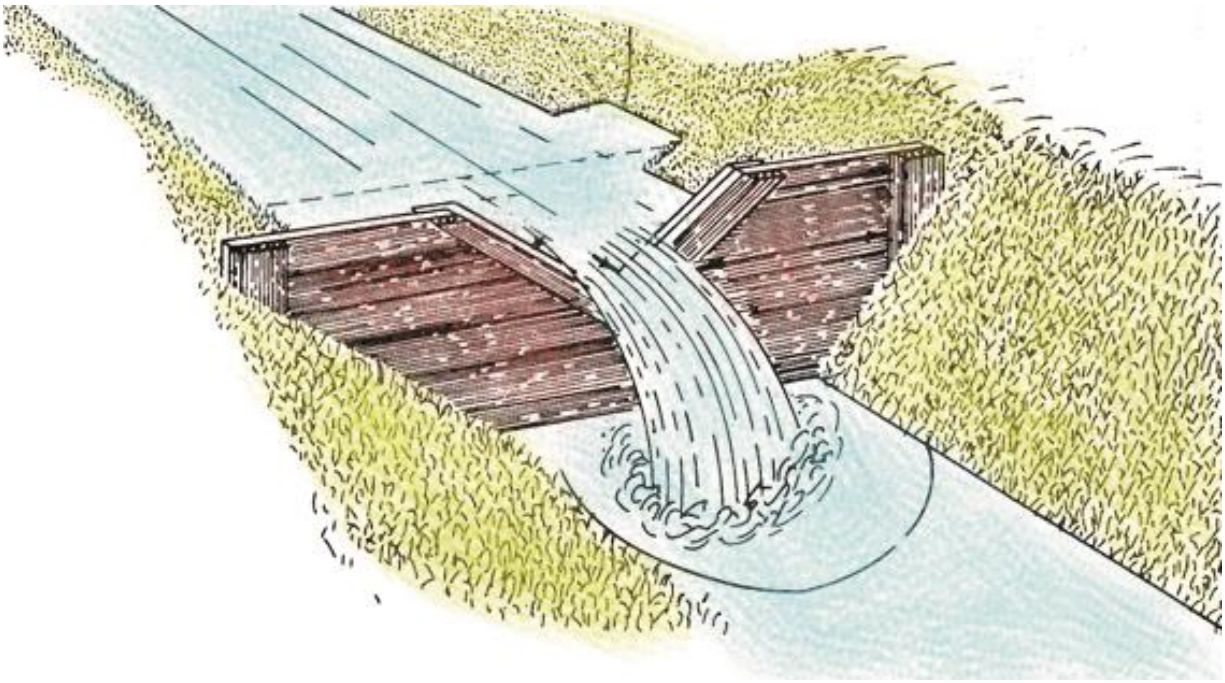
SuDS Support Structures

SuDS components also include various structures that contribute to their function and operation. These should be inspected and maintained to ensure they remain undamaged. The main structures and devices are summarised in Table 3.2 below:

Table 3.2

Component	Function	Practical considerations
Inlets	Deliver water into the drainage component, which can be open structures or closed, such as pipes.	Should be easily accessible and free from obstruction.
Outlets	Can operate as a control mechanism; they include pipes, weirs and storage structures.	The outlet structure should not be allowed to become blocked.
Silt traps (sediment forebays)	Silt traps can be soft features such as open basins, filter strips and swales. Other structures include small in-line chambers (often called catchpits). Both types of device are designed to protect drainage features.	Where possible, silt should be managed in open traps where monitoring can take place. Maintenance entails regular or site-specific inspections and planned removal of silt.
Flow control devices	The control of flows through a drainage system should be passive and not complicated.	Simple solutions such as orifice plates, slot weirs and sluice controls offer robust solutions to flow control and can easily be managed. Devices should be accessible and easy to maintain without risk and by unskilled personnel.

Swale with V-notch Weir



4. Design, LLFA and Planning Process

The preferred approach is that Developers seek planning permission at the same time as entering into SuDS adoption discussions. This coordinated approach is likely to ensure a more efficient process for applicants and result in a better scheme.

SuDS adoption by DCC is not normally a condition of planning approval. However, where SuDs adoption is not discussed before or during the planning process and a request is later made for DCC to enter into an adoption agreement an adapted process would be followed and a decision made regarding the suitability of the proposed design to be adopted.

We would seek to ensure a high level of coordination between the LLFA and the LPA. In all scenarios, pre-application discussions around the SuDS design with both the LLFA and LPA are vital to the success of the planning application and SuDS Adoption agreement. This is essential to deliver the most efficient and cost-effective SuDS scheme.

As a statutory consultee, the LLFA will be involved in the planning process regardless of whether the new SuDS scheme will be offered for adoption.

Basin Cascade

5. The Design, Submission and Evaluation Process

5.1. Introduction to the Design Process

Unlike the traditional approach to conventional pipe and gully drainage, which is often applied to sites at a relatively late stage in the design process, it is essential that the consideration of SuDS takes place at the start of the design process and that the site design is developed accordingly. This should ensure the most cost effective, well designed SuDS.

The design objective is to ensure run-off flows in a controlled and predictable way through development with appropriate SuDS techniques located along a ‘management train’. In order to comply with local planning policy and best practice requirements, the SuDS schemes will also need to offer other functionality,

particularly amenity and biodiversity benefits. Details of these wider benefits will be confirmed during the first design stage.

5.2. A Three-Stage Design Process

In order to confirm that the SuDS design is developing in the right way and to avoid unnecessary design costs for the developer, DCC can evaluate SuDS design in three stages as recommended in the CIRIA SUDS Manual C697 2007 (Section 2, p13) as follows:

a) Conceptual Drainage Design
b) Outline Drainage Proposals
c) Detailed Drainage Design.

Conceptual Drainage Design will generally tie in with the pre-application stage of the planning and adoption process. Detailed Drainage Design will normally be required for the full planning approval, although in some cases Outline Proposals may be sufficient, with Detailed Design covered by a planning condition.

The following sections summarise the key requirements for each of the three design stages. The level of detail required at each stage will be proportionate to the scale of the scheme.

Conceptual Drainage Design

Generally, the drainage design concept should be submitted as part of pre-application discussions.

Outline Drainage Proposals

Outline Drainage Proposals are often developed prior to development of the full application submission; there should be sufficient information to show that the proposal is viable.

Detailed Drainage Design

At this final stage, those seeking approval must provide all details necessary to demonstrate that the design solution will function effectively now and in the future.

5.3. Conceptual Drainage Design

Generally, the drainage design concept should be submitted as part of pre-application discussions and should address the following:

a) Demonstrate an understanding of the drainage characteristics, within and outside the development, during flooding and downstream of the site
b) Provide an outline assessment of existing geology, ground conditions, contaminant status and permeability through desk-based research and site visit observations. Infiltration tests, conforming to industry standards should be carried out at this stage wherever possible

c) Provide a flow route analysis for existing conditions and modified surface flow pathways as a result of proposed development
d) Prepare a Conceptual Drainage Plan to show the above together with:
    - The proposed 'management train'
    - Location and type of source control
    - Site controls with storage locations
    - Conveyance routes
    - The destination of runoff

    Suggested mitigation proposals for known flood risk issues, or proposed betterment.
e) Provide a Preliminary SuDS Design Statement describing the SuDS proposals in general terms together with the SuDS Design Criteria agreed for the site and initial thoughts on how the site will be maintained.

5.4. Outline Drainage Design Submission Information

At the Outline Drainage Design stage, those seeking approval must submit spatial and technical information to cover all aspects which may or may not have been considered at the pre-submission stage and, furthermore, to demonstrate:

a) The SuDS 'management train' in detail
b) 'Source control' measures including how they will be managed
c) The use of sub-catchments with treatment stages in each sub-catchment
d) Conveyance techniques including low flow, overflow and exceedance arrangements
e) The storage hierarchy both spatially and for different return periods
f) How flows and volumes are controlled
g) The final site runoff arrangements
h) Results of infiltration tests
i) An initial health and safety assessment which assesses risks and proposes how these will be managed to an acceptable level
j) How any contaminants will be dealt with
k) SuDS Design Statement describing the SuDS proposals in detail terms together with how they meet the SuDS Design Criteria agreed for the site at Concept Stage
l) Climate Change Statement
m) Key operation and maintenance principles.

5.5. Detailed Drainage Design

At this final design stage, those seeking approval and/or adoption must provide all details necessary to demonstrate that the SuDS will function effectively now and in the future. The Detail Design information will normally comprise those listed in requirement below.

This stage will normally be required as part of the Planning application but, in some cases, for example on very large schemes, it may be required via a condition

Requirement 1: At the Detailed Drainage Design stage those seeking approval or approval and adoption must submit spatial and technical information to cover all aspects which may or may not have been considered at the pre-submission and outline stages. It should include:

a) Levels data and/or drawings to show that runoff will flow in predictable pathways through the site
b) Construction details and location plans that demonstrate practical, robust and simple structures for the collection, conveyance, cleaning and storage of runoff
c) Details for inlets and outlets and flow control chambers to demonstrate how flows and volumes are managed. Relevant details to include cover levels, inverts, soffit, base and crest; shown on plan, cross and long-section with relevant calculation or hydraulic model references as appropriate
d) Cross and longitudinal profiles and planting details of all swales, basins, wetland and pond features together with SuDS sympathetic landscape proposals for the whole development
e) All level data provided as metres above ordnance datum (mAOD)
f) Specification notes for all SuDS installation
g) An Operation and Maintenance Plan for the site (see Requirement 15)
h) A final SuDS Design Statement modified where necessary to include additional information or minor amendments
i) A final health and safety assessment which assesses risks and proposes how these will be managed to an acceptable level
j) Information must also be provided in digital GIS/CAD form and Drainage/flood modelling in Micro Drainage format or similar approved
k) Additional information or requirements may be requested, for example for none standard designs or site specific considerations.

It should be noted that developers will need to seek formal consent for their outfall. For example, a headwall outfall would need land drainage consent from DCC where it discharges into an ordinary watercourse or from the Environment Agency where it discharges into a main river. Connections to Surface Water sewers would need the consent of Northumbrian Water.

5.6. 'Source Control'

Requirement 2:
Wherever possible proposals for SuDS must demonstrate that 'source control measures' have been used to intercept runoff as close as possible to where runoff falls as rain, for water quality objectives as well as attenuation.

The source control features must be illustrated on Outline and Detailed drainage plans indicating both the type and extent of technique being used. The method of source control should be agreed with DCC.

The source control features must also be described in detail in the SuDS Design Statement with clear requirements for ongoing maintenance into the future

5.7. 'Surface Runoff Managed on the Surface'

Requirement 3:
Proposals for SuDS must demonstrate that the SuDS are designed at or near the surface to provide an easily maintained, visible and cost effective solution for the lifetime of the development.

SuDS features that collect and store runoff should be shown graphically on the Concept, Outline and Detailed drainage plans indicating both the type and extent of technique being used together with the linking conveyance arrangements. The level of drawing detail required should reflect the design stage.

The use of SuDS features at or near the surface should also be described in each of the SuDS Design Statements with clear requirements for ongoing maintenance into the future. The level of detail required should be proportionate to the design stage.

Underground treatment will only be acceptable where it can be proved that alternate surface based treatment methods are not appropriate or not feasible

5.8. Integrating Public Space with the SuDS

Requirement 4:
Proposals for SuDS must demonstrate that SuDS have been integrated into public space to provide:

A practical and cost effective SuDS solution
Surface conveyance to an appropriate outfall destination
Surface storage of clean water in a visually attractive SuDS that benefits wildlife.

The integration of SuDS into public space should be shown graphically on the Concept, Outline and Detailed drainage plans indicating both the type and extent of technique being used together with the linking conveyance arrangements.

The integration of SuDS into public open space should also be described in each the SuDS Design Statement with clear requirements for ongoing maintenance into the future. The level of detail required will be proportionate to the design stage

5.9. Cost-effective Operation and Maintenance over the Development Design Life

Requirement 5:
Proposals for SuDS must demonstrate that the SuDS have been designed at or near the surface using techniques that can be simply managed using established landscape management practices or a straightforward process. All inlet, outlet and control structures must be shown to be protected from blockage and located near the surface, to allow for easy management during routine maintenance visits

5.10. Climate Change

Requirement 6:
Proposals for SuDS must be accompanied by a climate change statement which explains how the SuDS system will accommodate and adapt to anticipated climate change and reasonably foreseeable changes in context and SuDS efficiency, including the effects of drought on structures, soils and vegetation integral to the SuDS.

5.11. Affordability

Where the following criteria are met, SuDS systems should be no more expensive than an equivalent conventional drainage system meeting the same design criteria (achieving comparable storage volumes and treatment stages):

- Early consideration of SuDS at the site planning stage
- Source control being integrated into the design
- SuDS being at or near the surface.

As a result of these requirements, DCC will expect that SuDS techniques will be the normal means by which surface water is drained from all future developments. Genuinely exceptional circumstances where this is not possible will be assessed on a case by case basis. Consequently:

Requirement 7:
All SuDS design should comply with the above criteria to ensure cost effective SuDS. DCC will only consider alternatives to SuDS as an acceptable solution in exceptional cases.

5.12. Suitability for Adoption by DCC

Requirement 8:
A proposed SuDS system will only be considered suitable for adoption by DCC once it has satisfactorily received:

a) Approval by the evaluation process
b) Approval of the construction stage
c) Approval of the maintenance requirements
d) Approval that the Practical Completion and Final Completion (sign off) has been managed satisfactorily
e) Approval that the SuDS is functioning properly once the site has received a Final Completion Certificate and for an agreed period (2 growing seasons minimum) This timeframe may be extended, where no significant rainfall is experienced over the agreed period to allow for the performance of the system to be properly assessed.

The definition of ‘significant/heavy rain’ will be a minimum of a 1 in 1 year event. SuDS will not normally be adopted until the site is substantially complete.

5.13. Additional Design Criteria

The National Standards state that 'The Local Authority could set local requirements for planning permission that have the effect of more stringent requirements than these National Standards.' Additional benefits are sought by DCC through and in partnership with the Planning Authority.

What wider benefits are appropriate will depend on the site and its particular context in terms of local plans, strategies and policies, and physical environment factors. These are likely to be similar to those that require to be addressed as part of the development management process. Other benefits may also be sought where appropriate to the scheme and its wider context.

Requirement 9:
In accordance with relevant local policies, or any future powers that may be given to DCC to produce local guidance, proposals for SuDS must maximise wider benefits as appropriate, including for:

a) Biodiversity
b) Visual amenity, landscape character/urban design and legibility
c) Recreation potential
d) Rainwater harvesting
e) Safer environments
f) Highway-friendliness
g) Natural security
h) Land remediation
i) The integrity and value of important historic features
j) Land use economy
k) Affordability
l) Integration with other water management
m) Ease of management.

6. SuDS Standards

6.1. Runoff Destination

Local Policy and the National Standards specify a preference hierarchy for runoff destinations, and set out conditions under which a less preferred route may be allowable.

Requirement 10:
Proposals for SuDS must follow the following hierarchy of discharge

1. Discharge into the ground
2. Discharge to a surface water body
3. Where 1and 2 can be demonstrated to be impractical, to the storm sewer or combined sewer (where no storm sewer is available).

Before a connection to a sewer can be considered developers must provide evidence as to why discharge into the ground or a surface water body is not practicable. This may be in the form of infiltration testing and topographical survey data.

The destination of runoff (drainage route) for proposed SuDS must be justified in accordance with the SuDS standard requirement for runoff destination using a methodology acceptable to DCC.

6.2. Peak Flow Rate and Volume

The introduction of impermeable area from development will lead to an increase in frequency, rate and volume of runoff. Significant changes to Greenfield runoff characteristics as a result of development will not be acceptable.

It is accepted that that frequency, rate and volume of run-off from previously developed land will be higher than on equivalent sized Greenfield sites. However, the redevelopment process will normally provide opportunities for redesign of site drainage to restore Greenfield runoff characteristics.

Requirement 11:
Proposals for SuDS must demonstrate how the frequency, rate and volume of runoff from the development will be managed to achieve a Greenfield (QBar) rate.

On previously developed land, as close as practicable to a greenfield rate must be achieved, in exceptional cases where the developer can satisfactorily demonstrate that greenfield run-off rates are unachievable, a betterment rate will be agreed with DCC.

Flow rate and storage volume calculations should be presented in a manner that is acceptable to DCC.

6.3. Water Quality

Water quality is provided by a 'management train' that aims to:

- Prevent pollution and control spillage
- Incorporate 'source control' features as close as possible to where rain falls
- Provide site control measures within the development to provide treatment and storage
- Incorporate regional controls outside the development, usually in Public Open Space, where appropriate.

The treatment and removal of pollutants is provided through the provision of a 'treatment train', which provides a number of treatment stages in series. The determination of the number of treatment stages required is based on a risk based assessment of the possible level of pollution to the site (based on proposed site use) and the sensitivity of the receptor.

The National Standards allow for conditions under which the requirement for effective treatment may not apply, including consideration of what may be reasonably practicable

Requirement 12:
Proposals for SuDS must demonstrate the sufficient treatment stages are provided in line with the intended site use and sensitivity of receptor. Where the required number of treatment stages cannot be provided acceptable justification must be given on the basis of the 'sensitivity' of receptors or not being 'reasonably practicable'

6.4. Function

National Standards refer to the provision of a plan 'which identifies the measures required to maintain the designed function of the SuDS'. DCC's requirements around operation and maintenance are covered by requirement 15

7. Design and Flood Risk

Requirement 13:
The design of the SuDS must demonstrate:

a) Management of water falling directly on the development site – by SuDS
b) Management of estimated overland flows entering the site from adjacent areas
c) Management of runoff produced by impermeable areas on site to prevent increase in flood risk downstream (unless an area is designated for flood management in the Local Flood Risk Management Strategy).

Flooding must not occur:

a) On any part of the site for a 1 in 30 year rainfall event
b) During a 1 in 100 year rainfall event in any part of:
   - A building (including a basement)
   - Utility plant susceptible to water (e.g.: pumping station or electrical sub-station)
   - A neighbouring site.

Flows that exceed design criteria must be managed in flood conveyance routes (exceedance routes) that minimise risks to people and property both on and off the site.

Consideration must be given to increase in rainfall intensity due to climate change; increased runoff due to urban creep; and potential for blockage at any of the control structures. These considerations must be factored into the calculations for the 1 in 30 and 1 in 100 year design calculations.

8. Construction, Adoption, Maintenance and Fees

8.1. Construction and Adoption

If the proposed SuDS are to be adopted by DCC the developer needs to ensure that all SuDS features are constructed as designed so that they perform as intended, are easy to maintain and have a design life similar to that of the overall development. This will require a level of access to construction works being provided to DCC to verify that the SuDS are suitable for adoption. Wherever possible, SuDS features should be designed at the surface to allow easy inspection and maintenance. Where, in particular circumstances, underground techniques are used, more extensive inspection processes will be necessary, for example where longer pipe runs are used, CCTV surveys may be required.

Requirement 14:
As a condition of approval DCC may, following consultation with the applicant, direct that access and supplementary information be provided at suitable stages during construction to enable DCC to inspect the following:

a) Levels
b) Inlets, outlets and control structures
c) Details for all SuDS features
d) Services information where necessary
e) Controlled outfall details
f) Specification requirements
g) Soft landscaping.

In addition to the pre-application meeting to discuss adoption issues at concept stage, DCC may condition that the applicant must attend the following meetings:

a) A construction meeting to:
   - Provide a design induction
   - Determine a programme for SuDS construction
   - Confirm information necessary for a 'SuDS Adoption Portfolio'
   - Confirm critical design information
   - Confirm specification delivery notes
   - Provide a photo record of agreed construction
   - Confirm critical site inspections of construction profiles, e.g. permeable pavement, pond liner installation, etc. All critical construction profiles if covered up during construction will be uncovered at the contractor's expense for inspection by a DCC officer or their representative.
   - Confirm critical levels during construction and as a final record of site profiles.
b) Meeting(s) to assess for practical completion subject to submission of a satisfactory Adoption Portfolio, including as built drawings and an independent level survey. Agree remedial works to be undertaken during the practical completion period of 12 months, to include all seeding, planting and maintenance of the site
c) A final meeting to confirm completion subject to confirmation that all defects have been addressed.

DCC will only confirm adoption subject to rectification of any defects identified at final completion, full establishment of seeding and planting and a functionality period of 2 growing seasons or 2 years, subject to a period of heavy rainfall during this time to demonstrate that the SuDS are fit for purpose and meet all the design requirements.

Adoption will not normally occur until the development is substantially complete.

8.2. Maintenance

One of the key objectives of the adoption process is to ensure that the SuDS installation can be maintained easily over the lifetime of the development. Therefore, the SuDS must be designed with maintenance in mind.

The main difference between conventional drainage (where gullies, pipes, manholes and oil interceptors are maintained by dedicated drainage management techniques) and SuDS is that this new approach integrates with the landscape at or near the surface and is maintained as part of everyday site care.

All development requires some periodic maintenance including litter collection and grass cutting. In some cases, this will need to be co-ordinated with grounds maintenance being carried out and should follow a similar frequency or output based specification. Additional maintenance such as dredging and silt removal may also be required periodically.

Maintenance will be a key issue throughout the approval process and information will need to be provided to demonstrate that SuDS to be adopted and maintained by DCC are designed with easy and affordable maintenance in mind, as set out below

Requirement 15:
Proposals for SuDS must include an operation and maintenance document, setting out the following:

a) A description of the SuDS scheme, how it works and a general explanation of how it should be managed in the future
b) The management plan should include a SuDS plan identifying the SuDS techniques used, together with inlets, outlets and control structures
c) Inspection and maintenance tasks should be identified and checked to ensure they can be undertaken by standard landscape contractors
d) A specification for maintenance actions, based on agreed standards and including frequency or performance criteria needed to achieve the desired outcome should be included.

The Operation and Maintenance Plan should be concise with a maximum 2 page checklist for day-to-day site checks.

8.3. Fees

Developer Fees and Charges

Where a SuDS is to be adopted by DCC, the following fees and charges must be met by the developer:

1. SuDS adoption fee. This is based on the size of the development that is to be served by the SuDS. It covers checking and approving the design and on-site inspections to ensure the scheme is built and functions as designed.
2. DCC's Legal fees
3. DCC's Surveyors Fees.

Property Owner Fees and Charges

The cost of future maintenance of a SuDS adopted by DCC will be met through an estate rent charge on the properties that are served by the scheme and a Deed of Covenant. The charge will be based on the operational maintenance cost as per the documents produced for requirement 15. The individual rent charges to property owners will be a proportion of this based on the area of each building plot. We may determine the annual maintenance charge from a number of SuDS components throughout a site. A typical maintenance and management schedule for a SuDS basin is detailed in table 8.4

Other documents would include SuDS Agreement, SuDS Transfer and Deed of Apportionment.

Rain Garden

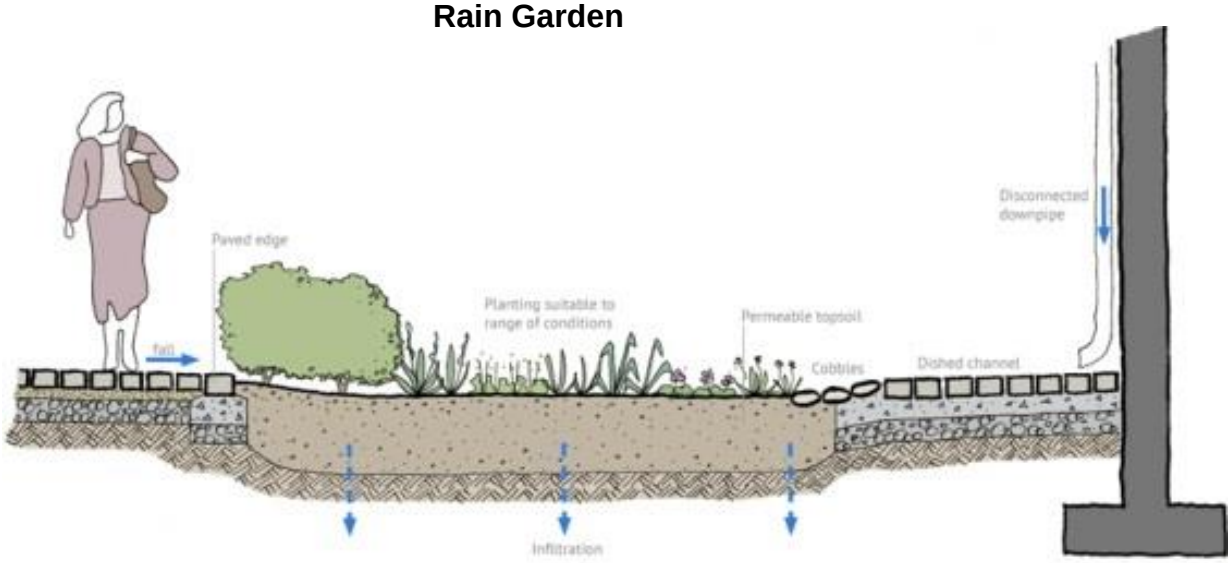


Table 8.4 Typical Maintenance and Management Schedule for a Suds Basin

	Item	Frequency	Comments	No. of times per Year
Regular Maintenance	Litter Removal	1 per month	Litter collection should be undertaken at each site visit and at the beginning of any maintenance task, particularly grass cutting. All litter to be removed off-site.	12
	Grass cutting on slopes and in bottom of basin	1 per month	all grass cuttings managed on site in wildlife or compost piles	
	Scrub clearance from bankside	1 per year	Overhanging branches and encroaching growth to be removed	1
	Habitat mosaic 30% cut and remove to site wildlife piles	1 per year	carry out Sept - Nov if possible to minimise wildlife disruption	
Occasional Maintenance	Remove silt from base and place in site piles	1 per 10 years	Silt accumulation is slow if source control features are located upstream in the management train. Recommended maintenance is once every 5 years, however for some site as the basin may not be used in this time a 1 in 10 year period is more appropriate.	12
	Re-seed areas of poor vegetation growth	1 per year	Less likely when vegetation has established.	1
Remedial Actions	Repair of erosion or other damage	1 per 10 years	Re-turfing or seeding	0.1
	Re-level uneven surfaces and reinstate design levels	1 per 40 years	Scraping, profiling and levelling	0.025
Management	Inspect and clean control structures and debris screens	1 per month	Ensure flow controls are working as designed	12
	Issue invoice and receive maintenance fee from properties owners	1 per year		1

9. Equality and Diversity

"Durham County Council is committed to promoting equality of opportunity, valuing diversity and ensuring discrimination, harassment or victimisation is not tolerated. Our policy is to treat people fairly, with respect and dignity. We also comply with legal requirements in relation to age, disability, gender, pregnancy and maternity, marriage and civil partnership, gender reassignment, race, religion or belief and sexual orientation."

10. Further Information

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