Sunderland City Council

SUDS approval and adoption guide

Contents

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Acknowledgement is given to Durham County Council drainage team for permission to adapt their approved policy

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1.0 Introduction

This document sets out how The Council of the City of Sunderland to be known as Sunderland City Council (SCC) will consider adoption and approval of Sustainable Drainage Systems (SuDS) to reduce flood risk and improve water quality, amenity and sustainability in Sunderland.

Large areas of Sunderland are currently served by combined sewers, which do not meet current planning standards and will flood more frequently than desired as outlined in the Pitt Report[1]. Additionally future increases in rainfall intensity have been forecast. Surface water discharges into ordinary watercourse require management to ensure water quality can provide for ecology. This document details the adoption process and how schemes should demonstrate their compliance with National Standards and local policy, in a Sunderland context, by setting out a number of requirements which designs should meet.

The guidance is aimed at Developers of Major Development sites; these are developments that 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 floorspace or
- Where the site is 1 hectare or more

SCC's Flood & Coastal Team acting as Lead Local Flood Authority (LLFA) are a statutory consultee in determining planning applications.

This approach to SuDS in Sunderland is supported by the planning validation design requirement checklist under Flood Risk and Drainage (See Planning Application forms on the SCC website), which itself is based on the LASOO document (see Appendix A) and supported by our Local Flood Risk Management Strategy and Strategic Flood Risk Assessment.

This guidance is separate to the approval and adoption of SUDS draining highways which is undertaken by Sunderland City Council Highway Authority.

The Highway Authority adoptions team contact is Graeme Hurst – 0191 5611566

Relevant guidance documents

The requirements within this document are supported by reference to:

- Flood and Water Management Act (2010),

[1] Pitt Review final report 2008: Lessons learnt from the 2007 floods

- National Planning Policy Framework and the Planning Practice Guidance
- Non-statutory Technical Standards for sustainable drainage systems by DEFRA,
- CIRIA SuDS manual (C753) – provides industry-accepted national best practice,
- BS8582 2013 Surface water management
- Sewers for Adoption, and

SCC's policy documents:

- Sunderland Local Flood Risk Management Strategy (req'd by section 9 , FWMA) ,
- Sunderland Strategic Flood Risk Assessment (req'd by NPPF para 100) , and
- Sunderland Local Plan & Core Strategy (EN11 & EN12)

2.0 The planning process

An illustration of the process of SuDS adoption and approval is shown in the flow chart Figure 1.

Figure 1. Planning and adoption process for SuDS

PLANNING STAGE	SUDS PLANNING REQUIREMENTS	ACTION FOR DEVELOPER	FEES FOR SUDS ADOPTION
1. Pre Application	Concept plans (See Section 5.3)	Check planning validation checklist – seek formal pre- application meeting. Consult with LLFA to discuss concept drainage and discuss adoption process and fees preferably prior to finalising building layout	
2. Outline Planning Application	Provide Flood Risk Assessment and outline SUDS strategy (See Section 5.4)	Consult with LLFA to agree FRA and SUDS strategy details and submit documents	
3. Full Planning Application	Provide Flood Risk Assessment and drainage strategy (See section 3.0 for fees, 6.0 planning details & 7.0 & 8.0 for adoption)	Agree SUDS details with LLFA and submit. Payment of SuDS Approving Body Fee on approval. Discussion of costs of legal fees, adoption fees and annual SUDS fee	SUDS approval Fee 1 (see Section 3) to be paid by developer
Discharge of planning	Discharge of condition information (Section 2.0 and 6.0 for planning details)	Agree SUDS details with LLFA and submit Payment of SuDS Approving Body Fee on approval. Discussion of costs of legal fees, adoption fees and annual SUDS fee	
PLANNING APPROVAL			
Construction	Construction details to be submitted. SUDS agreement to be signed and fees to be paid (Section 7.0)	An SCC construction meeting Access for SCC to site for inspections as required. Confirmation of adoption meeting (s) Provisional approval certificate issued by SCC	
TWO YEAR DEVELOPER LED MAINTENACE PERIOD			*Costs of maintenance period to developer (none SCC cost)*
Maintenance	Final meeting and handover (Section 8.0)	Signing of: SUDS transfer document Deed of apportionment SUDS agreement Deed of Covenant	SUDS legal Fee (see section 3) to be paid by developer SUDS adoption fee (see section 3) to be paid by developer
SCC ADOPTION			

Annual SUDS fee to be paid by residents (agreed during full planning or discharge of conditions

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. Typically SCC will prefer not to condition details of SuDS and drainage for any full application. This follows national planning practice guidance.

SuDS adoption by SCC 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 SCC 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.

In all scenarios, pre-application discussions around the SuDS design with the LLFA ,LPA and developer 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.

3.0 Fees

Developer Fees, Charges and documents

Where SuDS are to be adopted by SCC, the following fees and charges must be met by the developer

1. SuDS adoption assessment 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. SCC's Legal fees.
3. SCC's Surveyors Fees

Discussion of fees and the SUDS transfer document, Deed of apportionment, SUDS agreement and Deed of Covenant will ideally be undertaken during pre-application meetings.

Future property owner Fees and Charges

The cost of future maintenance of a SuDS adopted by SCC 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 based on maintenance schedules provided by the developer. Guidance is provided within the CIRIA SUDS manual for the production of maintenance schedules.

The individual rent charges to property owners will be split by the number of building plots. We may determine the annual maintenance charge from a number of SuDS components throughout a site.

4.0 The SuDS Philosophy

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 discuss the philosophy of the surface water management approach. This document summarises the approach outline in the CIRIA SUDS manual (c753). The following objectives should be met:

- Surface water should be returned to the natural environment as soon as possible, promoting natural infiltration
- 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.
- Run-off for annual return periods and pollutants should be mostly controlled at source and intercepted before it can be transported downstream (SUDS source control interception).
- All impermeable sites other than those exempt near the sea and tidal River Wear will require attenuation to reduce excess run-off (SuDS attenuation).

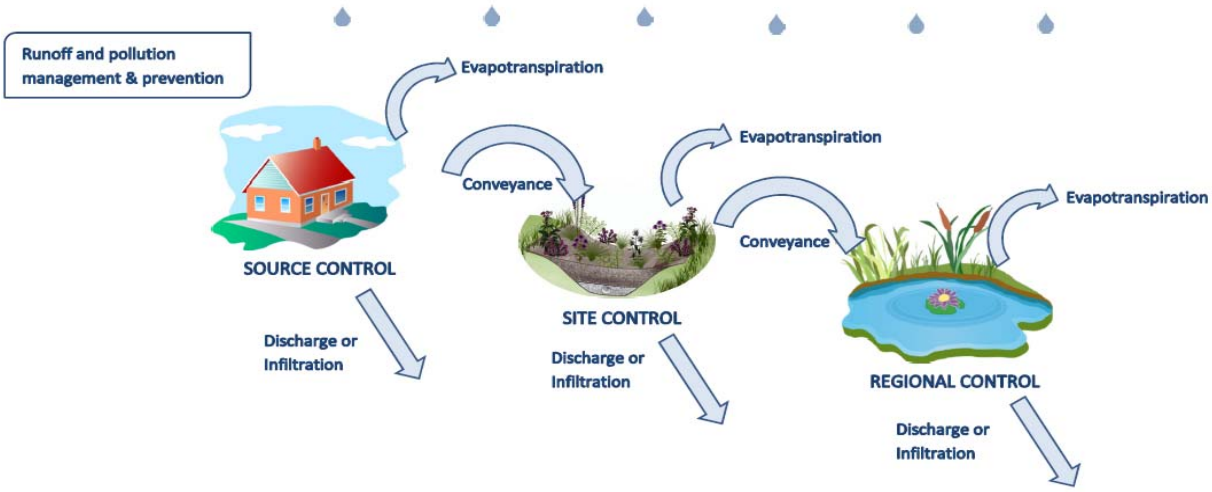

Figure 2. SUDS management train showing source control interception and attenuation

SuDS Source control interception and attenuation

SCC promotes the use of the SuDS approach in Sunderland by requiring all major developments to provide both source control interception and attenuation (LFRMS, p36). Examples of source control interception include green roofs, bioretention areas, swales, water gardens, permeable paving, filter drains and rainwater harvesting. Well-designed source control interception may contribute 10 BREEAM points (five for pollution control and five for rainwater management) toward a sustainable development. Examples of attenuation SuDS would include infiltration basins and ponds. SCC prefer SuDS above ground for ease of maintenance. It will be expected the developer will provide detailing specific to their site based on best practise guidance including the CIRIA SuDS manual (C753) or the latest revision.

Further information can be found on CIRIA's SUDS website http://www.susdrain.org

5.0 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. A high level estimation of the developable area of a site will give a designer an idea about how much plan area source control SuDS will be required. Further simple calculations are available to identify greenfield run-off rates and the amount of attenuation SUDS that will be required.

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, SCC can evaluate SuDS design in three stages (as shown on the Flowchart - Figure 1).

These are:

a) Pre planning enquiry
b) Outline Planning
c) Full Planning

Pre planning enquiry (concept) will generally tie in with the pre-application stage of the planning and adoption process.

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.

5.3 Pre planning enquiry (concept)

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

a) Demonstrate an understanding of the hydrology and 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. Consideration of the likely rate of infiltration should be carried out at this stage wherever possible. (even on sites where full

infiltration is not possible , partial infiltration can be very important for source control – interception)

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 interception
    - 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 statement describing the SuDS proposals in general terms together with the and initial thoughts on how the site will be maintained. This may be in the form of a section in a Flood Risk Assessment or Drainage Strategy.

5.4 Outline planning application

At the Outline planning application 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) ‘Source control’ interception measures including how they will be managed.
b) The use of sub-catchments with types of treatment in each sub-catchment
c) Conveyance techniques including low flow, overflow and exceedance arrangements
d) The storage hierarchy both spatially and for different return periods.
e) How flows and volumes are controlled
f) The final site runoff arrangements
g) Results of infiltration tests (or conservative calculations to enable approval)
h) How any contaminants will be dealt with
i) Consideration of climate change
j) Key operation and maintenance principles

5.5 Full planning application

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 within section 6.

6.0 Full planning application design requirements

6.1 Management of surface water

The design of the SuDS must demonstrate:

a) Management of water falling directly on the development site – by SuDS (source control interception AND attenuation features)
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) For a 1 in 1 year rainfall event,
b) On any part of the site for a 1 in 30 year rainfall event
c) 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), or
    - 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. These must be shown in detailed modelling with a ground model or on a plan.

6.2 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.

The developer must set out the hydrological context of the development. i.e. where water would flow on the site naturally with the FRA or drainage strategy.

Proposals for SuDS must follow the following hierarchy of discharge

1. Discharge into the ground
2. Discharge to a surface water body (to be considered within 250m).
3. Where 1&2 can be demonstrated to be impractical, to the surface water sewer or combined sewer (where no surface water 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.

In line with adopted policy SCC consider that full discharge is unlikely to be acceptable to the Magnesian Limestone aquifer. In these areas discharge to watercourse or sewer would generally be preferred. However, partial discharge for the purposes of source control interception may be allowable.

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 SCC.

In rare circumstances pumping may be required for surface water. Where this is proposed it is recommended to provide a backup pump. SCC will require detailed calculation of modelling for the site assuming both pumps fail.

6.3 Run-off rates, peak flow rate and volume

The introduction of impermeable area from development will lead to an increase in frequency, rate and volume of runoff. In line with Sunderland City Council LFRMS all sites (Brownfield and Greenfield) must meet Greenfield runoff rates for 1 in 1 year and 1 in 100 year events. It is recommended UKSuDS Greenfield run-off estimator (or a similar estimator) is used to determine a Greenfield Run-off Rate. SCC will consider amended SOIL ratings to determine a Greenfield Run-off Rate based on site ground condition data.

Proposals for SuDS must demonstrate how the frequency, rate and volume of runoff from the development will be managed to achieve a Greenfield (1 in 1 year and 1 in 100 year) rate.

Typically the Greenfield Run-off Rate should only be calculated on the impermeable area of the development. It may be possible to apply a complex control to match the 1 in 1 year and 1 in 30 events (ensuring the 1 in 100 rate is not exceeded) to reduce attenuation requirements.

To allow for maintenance the minimum flow that will be allowable on a site should be determined by an 75mm flow control.

Flow rate and storage volume calculations should be presented within the text of the FRA/drainage strategy in a manner that is acceptable to SCC. Typically SCC will require detailed modelling submissions in mdx (or similar) format to review.

For master planned sites the developer should show restricted flow rates and volumes of storage for each plot. Particularly where development will be phased.

6.5 ‘Source Control’ interception

Proposals for SuDS must demonstrate that ‘source control interception measures’ have been used to intercept runoff as close as possible to where runoff falls as rain for interception as well as water quality objectives. Guidance is provided within Chapter 24.6 of the CIRIA SUDS Manual (c753). For an initial design a quick check of the area or volume required for interception methods is to use an equivalent plan area to the proposed impermeable area or 5mm of rainfall on that area in volume.

It is very beneficial to have infiltration testing undertaken on site at a number of locations even if full infiltration is unlikely at the site. Infiltration of 1*10^-7 ms-1 can still reduce the area required for other source control measures within a site.

The source control interception features must be illustrated on Outline and Detailed drainage plans indicating both the type and extent of technique being used. These plans must be supported by calculations of the quantity of source control provided. Future maintenance requirements should be provided.

6.6 ‘Attenuation’

Proposals for SuDS must demonstrate that storage is provided on site to retain additional flows (above 1 in 1 and 1 in 100 yr rates) for a 1 in 100 year event plus a climate change allowance. The developer should ensure that half drawdown is provided within 24 hours. The plan area, depth, invert levels and outlet levels should be shown on drainage plans.

6.4 Water Quality

The Water quality aims are to:

- prevent pollution and control spillage;
- incorporate ‘source control’ interception features as close as possible to where rain falls;
- provide site control measures within the development to provide treatment and storage; and
- 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’ where more than one type or treatment is required. This 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.

Further details of simple indices to determine pollutant loading and mitigation are provided in Chapter 26 of the CIRIA SUDS manual (C753).

The higher the risk of pollution on a site the more detail will be required with regard to mitigation.

6.7 'Surface runoff managed on the surface'

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 Pre application (concept), Outline and Full planning application 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.

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

6.8 Integrating public space with the SuDS

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

a) A practical and cost effective SuDS solution
b) Access for maintenance
c) Where possible, a visually attractive SuDS that benefits wildlife

6.9 Climate change

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. The statement may comprise a section in a drainage strategy.

6.10 Full planning approval

At the Full planning application 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-application 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 health and safety assessment which assesses risks and proposes how these will be managed to an acceptable level
i) Information must also be provided in digital GIS/CAD form and Drainage/flood modelling in Micro Drainage format or similar approved.
j) Consideration of the impact of climate change on rainfall intensity should be made. Typically 40 %
k) Additional information or requirements may be requested, for example for none standard designs or site specific considerations.
l) Provision of details relating to temporary drainage or phasing of works that may impact on SUDS should also be provided

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 SCC where it discharges into an ordinary watercourse or from the Environment Agency where it discharges into a main river. Connections to sewers would need the consent of Northumbrian Water.

6.11 Maintenance

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 SCC are designed with easy and affordable maintenance in mind, as set out below.

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 plan showing access routes to and from structures should be provided.
e) 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.

6.12 Planning for construction

It is expected that a statement will be included within any submitted application to detail how construction will be managed on site. This may include details of key water receptors, any temporary drainage, how water flow paths will be managed and how water quality will be protected, a description of the build programme and any protection and remediation of SUDS features. A plan should be submitted to identify key risks and mitigation during construction. Further details can be found in CIRIA c648 and C768.

6.13 Miscellaneous drainage criteria

Some additional criteria that may assist with design are included below;

10% urban creep allowance – Developers should check their models or detailed calculations for a 10% future increase in impermeable area

10% on underground storage unit allowance - All proposals for underground storage tanks should include 10% additional capacity if sized less than 20m3 per impermeable hectare of development.

Landscaped areas collected by the drainage network – These should be included in detailed drainage calculations or modelling and applied to the nearest manhole with 0.3 considered an appropriate run-off coefficient.

7.0 Construction for adoption

A proposed SuDS system will only be considered suitable for adoption by SCC 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.

If the proposed SuDS is to be adopted by SCC 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 SCC 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 larger pipe runs are used, CCTV surveys may be required.

As a condition of approval SCC may, following consultation with the applicant, direct that access and supplementary information be provided at suitable stages during construction to enable SCC 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, SCC 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 SCC 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.

8.0 Final Adoption Meeting

SCC 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.

Once an appropriate 2 year period of maintenance has completed a meeting will be arranged by the developer giving the council two months' notice to allow for transfer of maintenance of the development and signing of appropriate documentation.

9.0 Further Information contact details

SCC is always keen to improve the design process and would be glad to hear comment, suggestions and feedback at the contact details below.

For further information and advice contact the Flood and Coastal Team, Commercial Road, Jack Crawford House, Hendon, SR2 8QR.

Telephone: (0191) 5611527

Email: LLFA@sunderland.gov.uk

Appendices

A. **LASOO guide (validation checklist)**
B. **Typical SUDS drainage components that SCC will adopt**

A. LASOO guide.

Planning Applications

2.13. Planning applications may be made either as an Outline application with one or more matters reserved for later determination, or as a Full application.

2.14. The level of information which would need to be submitted for each type of application or stage within the planning process will vary depending on the size of the development, flood risk, constraints, proposed sustainable drainage system and so on as shown in the table below:

Pre-app	Outline	Full	Reserved	Discharge	Document submitted
✓	✓	✓			Flood Risk Assessment/Statement (checklist)
✓	✓	✓			Drainage Strategy/Statement & sketch layout plan (checklist)
	✓				Preliminary layout drawings
	✓				Preliminary "Outline" hydraulic calculations
	✓				Preliminary landscape proposals
	✓				Ground investigation report (for infiltration)
	✓	✓			Evidence of third party agreement for discharge to their system (in principle/ consent to discharge)
		✓		✓	Maintenance program and on-going maintenance responsibilities
		✓	✓		Detailed development layout
		✓	✓	✓	Detailed flood & drainage design drawings
		✓	✓	✓	Full Structural, hydraulic & ground investigations
		✓	✓	✓	Geotechnical factual and interpretive reports, including infiltration results
		✓	✓	✓	Detailed landscaping details
		✓	✓	✓	Discharge agreements (temporary and permanent)
		✓	✓	✓	Development Management & Construction Phasing Plan

B. Typical SUDS features that SCC will adopt

B. Examples of SuDS features that SCC will adopt

Component	Summary	Practical considerations
Rainwater gardens/ bioretention 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 bioretention area is related to the frequency of maintenance. Care should be taken of vegetation planted.
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.
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 (soakaways)	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.
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 stormwater.	Between periods of rainfall, basins can be used for other activities.