



Sustainable Drainage Systems

Completing your Pro-Forma: Advice Note



Knowsley Council

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1. What do I need to submit with my Planning Application?

If your development proposal is for major development, regardless of your type of application, you must submit the following with your application for planning permission:

- **Site Specific Flood Risk Assessment (FRA)** - Where one is required under the National Planning Policy Framework and Policy CS24 of Knowsley MBC's Local Plan. In some cases these also require you to submit a Sequential Test and/or Exception Test. More information is available in the Council's [Sustainable Drainage & Surface Water Management Technical Guidance document](#).
- **Sustainable Drainage Strategy** – This will include your overall approach and is where you will evidence your approach to surface water management. E.g. plans, drawings, calculations etc.
- **Sustainable Drainage Strategy: Pro-forma** – The pro-forma summarises and confirms the details contained within your Sustainable Drainage Strategy. It is intended to ensure all aspects of sustainable drainage have been considered.
Choose from:
 - **Pro-Forma 1: Planning Applications**
 - **Pro-Forma 2: Discharge of Conditions**

These documents form part of the Council's 'Planning Validation Checklist.' Planning applications for major development that are not submitted with the above information will not be regarded as a 'valid' application.

This document contains information and guidance about what you need to submit in support of your major planning application. More information, is available in the Council's [Sustainable Drainage & Surface Water Management Technical Guidance document](#) and in Policy CS24 of the Knowsley MBC Local Plan.

Major development is defined in section 2 of [Statutory Instrument 2015 No. 595](#).



2. Completing your Sustainable Drainage Strategy and Pro-forma

What is a Sustainable Drainage Strategy?

The purpose of a Sustainable Drainage Strategy is to set out how surface water from a development site will be managed sustainably under both current and future conditions, and to support your proposed approach with appropriate evidence, such as drainage calculations and relevant plans and drawings.

The Sustainable Drainage Strategy must also set out how sustainable drainage components are intended to be managed and maintained to ensure that the sustainable drainage system will continue to perform throughout its design life.

What's the purpose of the Pro-forma?

The pro-forma will support your planning application by ensuring that your sustainable drainage design, contained within your Sustainable Drainage Strategy, has considered and appropriately evidenced everything it needs to, reducing the risk of delays as a result of a lack of information about sustainable drainage proposals.

This guide will help you complete your Sustainable Drainage Strategy Pro-forma.

Why are there two Pro-formas?

They are aimed at different stages of planning:

- Use **Pro-forma 1** when you are applying for planning permission, including Outline, Full, Hybrid and Reserved Matters applications.
- Use **Pro-forma 2** when you are applying to discharge condition(s) relating to your sustainable drainage system and flood risk.

What if I don't submit a pro-forma with my application?

The pro-forma is a requirement of the planning validation checklist. This means if you do not submit a completed pro-forma your application will not be processed by the Local Planning Authority until a completed pro-forma has been received.



3. Pro-Forma 1: Planning Permission

Section 1: Development Details

What is classified as 'Greenfield' and 'Previously Developed'?

It is important that you are clear on the difference between 'Greenfield' and 'Previously Developed' sites in the context of drainage – not planning – and therefore the surface water drainage design standard expected for your development site.

Previously Developed

If you are proposing to use an existing drainage system for surface water management on your development site, your drainage system can be designed to 'previously developed' standards. [Table 6.1 in Knowsley MBC's Level 2 Strategic FRA \(Page 73 of Volume 1\)](#) requires a reduction of 50% (compared to the pre-existing rates) for sites covered by buildings or impermeable hard surfaces.

For the avoidance of doubt, 'use of an existing drainage system' means utilising the **entirety** of the existing drainage system on site and does not refer to simply the point of discharge.

- **Example:** If you are proposing to demolish an existing building and replace it with a new building but will use the existing means of surface water removal in entirety, this would be classified as 'previously developed.'

Greenfield

If you are proposing to install a new drainage system for surface water management on your development site then your drainage system must be designed to 'greenfield' standards, even if the land has been previously developed.

- **Example 1:** If you are proposing to construct buildings on land which has been previously developed (i.e. brownfield) but are installing a new surface water drainage system connecting to the existing outfall, this would be classified as 'greenfield.'
- **Example 2:** If you are proposing to construct buildings on unbuilt 'green' land and will be installing a new surface water drainage system connecting to a new or existing outfall, this would be classified as 'greenfield.'

How do I work out the expected lifetime of the development?

Under the Planning Practice Guidance, all residential developments have an expected minimum lifetime of 100 years, unless there is specific justification for considering a shorter period.

For non-residential development, you need to specify how long you expect the development to last taking account of the advice given in the [Planning Practice Guidance](#).



Do I need to submit a Site Specific Flood Risk Assessment (FRA)?

Under Footnote 20 [pdf version] / Footnote 5 [web version] of Paragraph 103 of the National Planning Policy Framework (NPPF) and Policy CS24 of the Knowsley MBC Local Plan, a site-specific flood risk assessment (FRA) is required if your development is:

- in Flood Zone 2 or 3 including [minor development](#) and [change of use](#)
- greater than 1 hectare (ha) in Flood Zone 1
- less than 1 ha in Flood Zone 1, including a change of use in development type to a more vulnerable class (e.g. from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (e.g. surface water, reservoirs)

If your development proposal meets any of these criteria, there are no exemptions to a site-specific FRA and you must submit one in order for your planning application to be validated by the Local Planning Authority.

What information does my Flood Risk Assessment need to include?

The information your site specific FRA needs to include is contained within [‘Flood risk assessment for planning applications’](#) and the [Planning Practice Guidance](#).

Reference should also be made to the Knowsley MBC Strategic Flood Risk Assessment (SFRA) for locally specific guidance and information.

The detail and technical complexity of any site-specific Flood Risk Assessment will reflect the scale, nature and location of your development proposal.

What if I am unable to complete a Site Specific Flood Risk Assessment?

It is recommended that someone appropriately qualified is employed to undertake an FRA.

Section 2: Impermeable Area and Existing Drainage

How do I work out the impermeable area?

Anything that has, or will have, impermeable surfaces within the curtilage of your development site must be included here. This includes impermeable roads, footpaths and buildings.

Section 3: Surface Water Discharge Method

What is the SuDS Hierarchy?

Policy CS24 of [Knowsley MBC’s Local Plan](#) states that proposals for the attenuated discharge of surface water into anything other than the ground must demonstrate why the other sequentially preferable alternatives cannot be implemented:

- into the ground (infiltration);**
- to a surface water body;**
- to a surface water sewer;**
- to a combined sewer.**



Where each level of the above hierarchy cannot be achieved applicants must submit a robust justification, along with acceptable evidence, as to why each level has been surpassed.

The evidence required at each stage of the hierarchy is specified in the 'Evidence Checklist' column of the pro-forma.

What is a Watercourse Survey Report?

This survey and report details the condition of the watercourse to which the site drains including cross-sections of any adjacent watercourses for appropriate distance upstream and downstream of the discharge point (as agreed with the LLFA and/or EA).

Knowsley MBC Council expects applicants to provide evidence of a condition survey of up- and down- stream watercourse condition traced as far as the connection.

Under what circumstances will I need watercourse permission?

If your development proposals are within 8 metres of the top of the banks of a watercourse or make changes to a watercourse, you may need a Consent or Permit **in addition to** planning permission.

The requirement for a Consent or Permit is **separate to and independent of** any planning permission given by the Local Planning Authority. This means that the grant of planning permission does not guarantee that Consent or a Permit will be given.

What type of watercourse permission do I need and how do I apply?

Watercourses have two classifications – 'ordinary' and 'main river' – and this determines what type of permission you require.

- **Main Rivers** are watercourses which **have** been designated as a 'Main River' on the Environment Agency's 'Main River' map. Works near to or on these watercourses may require a [Permit](#) from the Environment Agency.
- **Ordinary Watercourses** are watercourses which **have not** been designated as a 'Main River' on the Environment Agency's 'Main River' map. Works to these watercourses require consent from the Knowsley MBC Council LLFA.

You can identify whether a watercourse is classified as a 'main river' or 'ordinary watercourse', by viewing the Environment Agency's ['Main River Map'](#).

When do I need to apply for watercourse permission?

Knowsley MBC Council strongly advises that you obtain any required Consent or Permit **before or concurrently** as you apply for planning permission to avoid delays.

You **must** obtain your Consent or Permit before undertaking any work on site. You are breaking the law if you carry out activity without one and may be subject to enforcement action if you do not obtain the necessary permission.



How can I obtain agreement to discharge to the sewer from the Water and Sewerage Company Agreement?

You must have written approval from the Water and Sewerage Company before you can connect to a public sewer.

For Knowsley MBC, the Water and Sewerage Company is United Utilities. You can apply to discharge to their sewers [here](#).



What if part of my proposed Sustainable Drainage System is outside the curtilage of the development site?

If any part of your proposed sustainable drainage system is outside of the curtilage of the development site **AND** the applicant owns the land, you must submit a plan showing the amended curtilage of the development site to the Local Planning Authority.

If your point of discharge for your sustainable drainage system is through/via land that is **NOT** owned by the applicant, you must secure an appropriate legal agreement with the land owner for construction works, access, ownership and in perpetuity maintenance of the asset. Evidence of this must be supplied to the LLFA.

When would I need a Third Party Land Owner Agreement?

If you are constructing any part of your sustainable drainage system on land that is **NOT** owned by the applicant.

You must secure an appropriate agreement with the land owner for construction works, access, ownership and in perpetuity maintenance of the asset.

Evidence that this has been secured must be provided before the approval of your final confirmed sustainable drainage design.

How can I address water quality by treating surface water discharges from my development site?

All surface water runoff is, to some degree, contaminated.

You can take measures to reduce contamination and therefore negative impacts on the water quality of receiving water bodies by including an appropriate treatment train as part of your sustainable drainage system in accordance with The SuDS Manual.



Section 4: Calculating Peak Discharge Rates

What is the 'peak discharge rate'?

This is the maximum flow rate at which surface water runoff leaves the site during the critical storm event.

What values do I use for Qbar?

Mean annual Greenfield peak flow - QBAR is approx. 1 in 2.2 year rainfall events. $Qbar_{rural}$ should be used for this value.

If the site is currently developed, the appropriate figures should be used to calculate Qbar (and associated rates) in proportion to the amount of existing hardstanding present on the site.

Use $Qbar_{rural}$ and $Qbar_{urban}$ as appropriate and prorata'd to effectively model the site.

What must I limit proposed post-development surface water discharge rates to?

In line with Standard S2 and S3 of [DEFRA's Technical Standards for Sustainable Drainage Systems](#) and [Table 6.1 in Knowsley MBC's Level 2 Strategic FRA \(Page 73 of Volume 1\)](#) the following discharge rates from the development to any highway drain, sewer or surface water body must be achieved:

Greenfield Site: Proposed discharge rates from the development are to be limited to the equivalent pre-development greenfield runoff rate for ALL rainfall events up to and including the 1 in 100 year event (plus climate change allowance).

Previously Developed Site: Proposed discharge rates from the development for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must achieve a 50% reduction compared to the rate of discharge from the development prior to redevelopment for that event.

To mitigate for climate change the proposed 1 in 100 year (+ climate change) rainfall event must be no greater than the existing 1 in 100 year rainfall event runoff rate. If this cannot be achieved, surface water flood risk increases under climate change.

How can I restrict flow rates?

It is recommended that you refer to [The SuDS Manual \(C753\)](#) for options of how to restrict your flow rate(s), essentially the options available are:

- vortex control systems
- inlets, outlets and flow control systems



What about watercourses discharging to estuarial waters that are tidally affected?

Both watercourses in Knowsley MBC – Alt and Crossens – which could be tidally affected are controlled via pumping stations.

This means that the influence of tides on any watercourses eventually discharging into either of these rivers is greatly reduced, and any effect due to tides is minimal.

Watercourses upstream can be indirectly tidally affected by levels of the Alt.



Section 5: Calculating Discharge Volume

What is 'discharge volume' and why must I consider it?

Discharge volume is the total volume of water leaving the development site for a particular rainfall event.

Introducing new impermeable surfaces increases surface water runoff and therefore can increase flood risk within and outside the development. By understanding the increase in surface water runoff volume measures can be taken to attenuate flows and mitigate any potential flood risk outside of the development.

What must proposed post-development surface water discharge volume be limited to?

In line with S5 of [DEFRA's Technical Standards for Sustainable Drainage Systems](#) and [Table 6.1 in Knowsley MBC's Level 2 Strategic FRA \(Page 73 of Volume 1\)](#) the following discharge volumes from the development to any highway drain, sewer or surface water body must be achieved:

Greenfield Site: For greenfield developments the runoff volume from the development in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

Previously Developed Site: The runoff volume from the development in the 1 in 100 year, 6 hour rainfall event must achieve a 50% reduction compared to the runoff volume from the development site prior to redevelopment for that event.

Notwithstanding the above, the existing site drainage constraints will also be taken into account when agreeing discharge limits and the proposed flow should not exceed existing flows.

Proposed discharge volumes (without mitigation) should be no greater than existing volumes for all corresponding storm events.

How can I demonstrate that proposed post-development surface water discharge volume has taken account of climate change?

To mitigate for climate change, the volume discharge from site during the 1:100 year + climate change event must be no greater than the existing 1 in 100 year event.

The appropriate climate change allowance must be applied. See [guidance under Section 4](#) for what climate change allowance you need to apply.



Section 6: Infiltration

When can infiltration be used in drainage design?

Infiltration should be used where possible, subject to protection of groundwater against polluted runoff, to minimise whole life costs of the sustainable drainage scheme.

Why do I need to submit a 'Plan B' sustainable drainage design?

You should submit an alternative 'Plan B' sustainable drainage design utilising an alternative discharge method if site specific ground conditions are unknown at this stage.

This will become the default design in the event infiltration proposals are not feasible upon site specific ground investigation.

Section 7: Storage

How can I provide storage for surface water?

To slowly release surface water as a restricted (attenuated) rate you will need to provide storage where excess flows can be held.

The Council's [Sustainable Drainage & Surface Water Management Technical Guidance document](#) also provides further information.

Whilst it is recommended that you refer to [The SuDS Manual \(C753\)](#), essentially the more appropriate storage options available are considered to be:

- detention basins
- ponds and wetlands
- swales
- attenuation storage tanks

What climate change allowance do I need to provide?

The capacity of SuDS must provide effective drainage for the development, taking account of the likely impacts of climate change and the likely changes in impermeable area within the site over the lifetime of the development.

To establish the correct climate change allowance to apply to your sustainable drainage design, you must start by confirming the expected [lifetime of your development](#).

Taking this into account, Knowsley MBC Council requires you to apply the 'Upper End' allowance of 40% set out in Table 1 below.



Table 1: Climate change allowance to be applied

Maximum lifetime of the development	'2020s' (2015 to 2039)	'2050s' (2040 to 2069)	'2080s' (2070 to 2115)
Climate change allowance to be applied	10%	20%	40%

Taken from the Environment Agency's ['Climate Change Allowances'](#) guidance.



Section 8: Operation and Maintenance

What does 'sustainable drainage features are at property level' mean?

This refers to sustainable drainage features that only serve individual or a small number of properties and which are located within the boundary of the property.

An example is a soakaway located within the garden of a private property.



4. Pro-forma 2: Discharge of Condition

Section 1: Development Details

Where can I find my planning permission reference and approved sustainable drainage strategy reference?

You can find these references in your Planning Decision Notice.

What sort of changes to my SuDS design do I need to summarise?

If your SuDS design has changed in any way against what was contained with the approved Sustainable Drainage Strategy referenced in your planning conditions, then you need to summarise:

- why your design has changed (*e.g. because site investigations determined that infiltration was not feasible*).
- the key changes to your SuDS design (*e.g. no infiltration features, storage will now be provided via a balancing pond, change to proposed discharge point*).

Section 2: SuDS Design

Why do I need to consider runoff from outside of my development site?

Reducing flood risk requires an understanding of flows from both within the development site and elsewhere. This is important in ensuring that buildings are located outside existing surface water conveyance routes.

Where buildings are proposed over an existing surface water conveyance route sustainable drainage components, such as a swale, could be used along the site or building boundary to intercept and divert flows if required.

Why do I need to state the number of discharge outfalls?

In the case of large sites there may be outfalls at more than one location; either in the form of receiving sewers or receiving waters.

In these situations the pre-development or greenfield sub-catchments must be considered, and also whether further downstream the flows all pass into the same catchment.

In principle the fact that there is more than one outfall should not result in a greater flow rate or volume being discharged from the site compared to what would have been discharged for a single outfall for the whole site.



What if surface water runoff from my development site is contaminated / polluted?

All runoff is, to some degree, contaminated. Protection is provided by:

1. Ensuring that an appropriate treatment train is provided by the sustainable drainage system in accordance with The SuDS Manual, and;
2. The base of all infiltration units should be at least 1.0 metre above the highest expected groundwater level. This is often difficult to establish, so groundwater levels should be measured through at least one winter period and a judgement made as to how much higher it might get in a really wet winter, and;
3. Where there are important aquifers, or the runoff is particularly contaminated, there may be a need to prevent the use of infiltration, even where the infiltration rate is low. The SuDS Manual and other guidance should be followed where this situation applies.

The SuDS Manual provides a [Simple Index Approach \(SIA\) Tool](#) to support the implementation of water quality management design methods.

Section 3: Infiltration

What evidence do I need to provide to demonstrate that infiltration, as proposed, is feasible at my development site?

To demonstrate that infiltration is feasible you must submit the following evidence as a minimum:

- A completed Infiltration Checklist from CIRIA The SuDS Manual C753 Appendix B. An editable version of this form is available on [SusDrain website](#).
- Suitable mapping, for example from the [Environment Agency](#) and [British Geological Survey](#) maps, and/or site investigation results of:
 - SOIL type
 - Site geology
 - Groundwater table level
 - Source Protection Zones (SPZ) and/or Major Aquifers
 - Any evidence of contaminated land
- Infiltration rate calculations, tested in accordance with [BRE 365](#) or equivalent, demonstrating that the rate of infiltration is no lower than 1×10^{-6} m/s.

What is my 'Plan B' SuDS design?

When you submitted your application for planning permission and you indicated that your SuDS proposals included infiltration, you were asked to provide an alternative 'Plan B' drainage design utilising an alternative discharge method if site specific ground conditions are unknown at this stage.

This alternative design must now become the basis of your amended SuDS design if your infiltration proposals are not feasible following site specific ground investigation.



Section 4: Exceedance Planning

What if my hydraulic output predicts flooding in the 1 in 100 year rainfall event (+ climate change allowance)?

If the hydraulic output shows that the proposed sustainable drainage system will 'Flood' then the application must identify clear and appropriate exceedance routes, taking account of [S8 and S9 of Defra's Technical Standards for SuDS](#), the [flood risk vulnerability](#) of the development and ensuring the [development can be made safe](#) during a [design flood](#) for the lifetime of the development.

It may also be appropriate to consider the use of [flood resilience and flood resistance measures](#) in the [design](#) of the development should the calculated surface water flood depth, either in isolation or in combination with other flood sources, present a flood risk.

Section 5: Structural Integrity and Construction

What is the lifetime requirement of sustainable drainage components?

The Planning Practice Guidance states that the lifetime of all residential developments is a minimum of 100 years, unless subject to a time limiting planning condition. Therefore any sustainable drainage components must also have a design life of 100 years to satisfy S10 and S11 of Defra's Non-Statutory Technical Standards.

Section 6: Operation and Maintenance

When do I have to complete the Operation and Maintenance Plan?

You need to complete this document if you have provided any sustainable drainage which is not to be formally adopted by United Utilities.



5. Further Help and Advice

Knowsley MBC Council advises that you employ an appropriately qualified drainage engineer to design all aspects of your site drainage, including taking account of in perpetuity maintenance of the system.

The [UK SuDS](#) and [Susdrain](#) website are helpful in answering common questions on sustainable drainage design and also provide a range of tools, guidance and examples.

Knowsley MBC Council's Planning Services offers a 'pre-application' service which enables applicants to obtain advice from Planning and other specialist officers before submitting their planning application, including technical advice from the Lead Local Flood Authority. This service provides an opportunity for applicants to address potential issues before submitting planning applications reducing the risk of applications being refused or delayed due to the lack of required information. There is a charge for this service. For further information visit the **Knowsley Council Planning Website**.