

Egniol Guide

Why Early SuDS Integration is Key

to Sustainable
Development in
the UK



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Overview

Sustainable drainage systems (SuDS): policy has changed.
Has your process?

Across the UK, planning and environmental policy now expect developments to manage surface water at source, reduce flood risk, protect water quality, add biodiversity, and enhance place.

In **Wales**, SuDS Approval Body (SAB) sign-off has been mandatory for applicable schemes since **7 January 2019**; early integration is essential to secure timely approval. In **England**, policy has tightened via the **National Planning Policy Framework (NPPF)** and **Biodiversity Net Gain (BNG)**, with government also publishing **National standards for SuDS (2025)** and continuing to consider how best to implement or deliver Schedule 3 requirements. Scotland and Northern Ireland maintain strong expectations through planning policy, water legislation and adoption standards, and across the UK the **CIRIA SuDS Manual (C753)** remains the core technical reference document. [ciria.org](https://www.ciria.org)



This guide sets out **how** to integrate SuDS at an **early stage** - from site selection to outline design and delivery - so projects gain approvals smoothly, minimise redesign, and leave a resilient legacy for the environment and end-user. It is written for a **wider professional audience**: Developers, Planners, Designers, Local Authorities and Asset Owners. It is based on a clear, practical structure and as a guide, with suggested checklists, prompts and next steps.

1. Why “early” matters

SuDS are most effective - and most economical - when they proactively considered as part of the masterplan and not when they are reactively squeezed in to a corner of site to “solve” surface water runoff requirements late in the design stage.

Designing the site with surface water infiltration, conveyance and storage in mind from day one allows the design team to:

- **Place the right land uses in the right places** (e.g. reserve permeable soils for infiltration features; keep sensitive plots away from exceedance routes).
- **Minimise hard rework** (kerb lines, gradients, utility corridors) that occurs when drainage is retrofitted.
- **Unlock co-benefits** - playable landscapes, habitat corridors, micro-climate cooling, and better site character - often at lower cost than grey infrastructure and in keeping with SuDS philosophy of providing an amenity to the end-users.

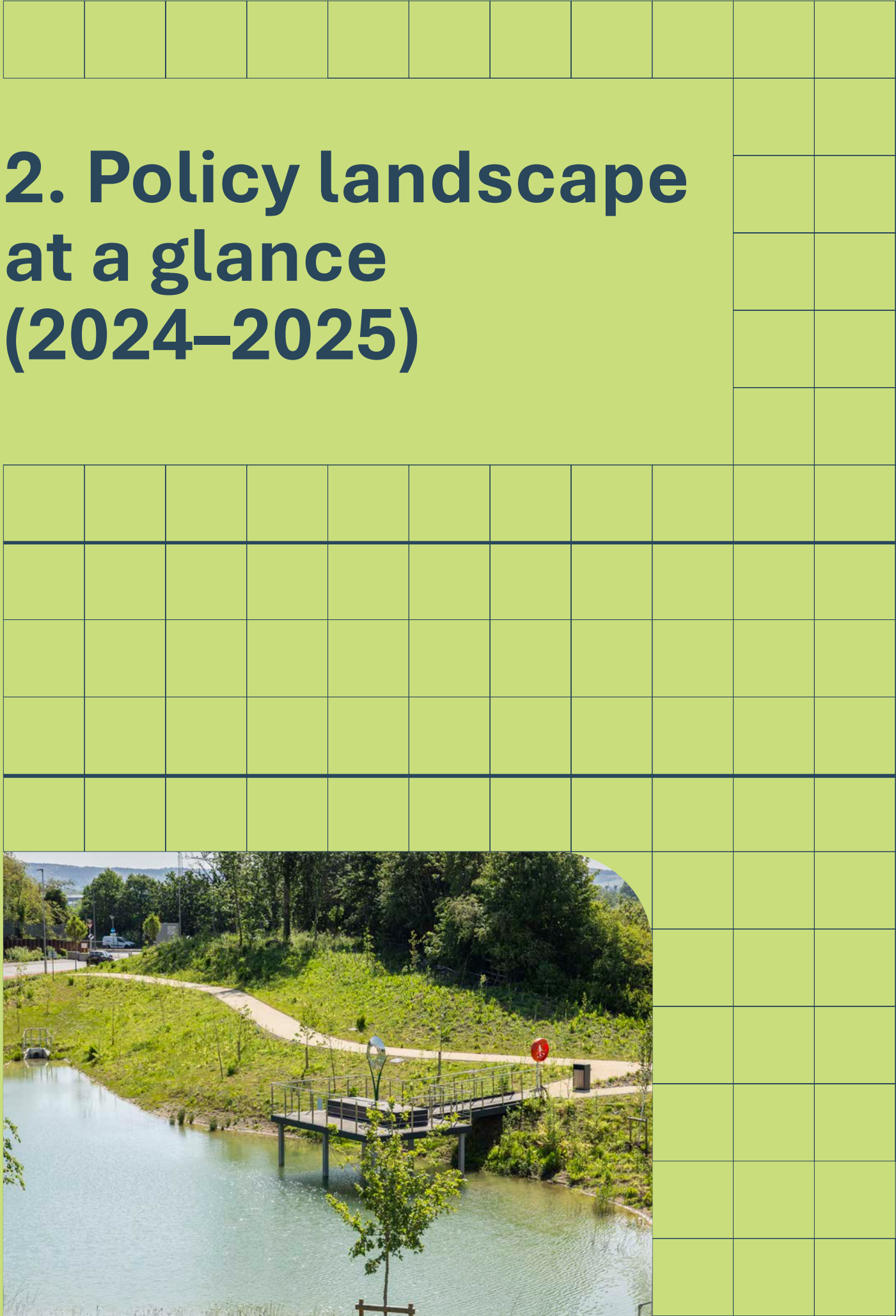
In Wales, late-stage SuDS can trigger SAB revisions, redesign and delay; planning for SuDS in concept and pre-app streamlines SAB determination.

In England, NPPF (Dec 2024/Feb 2025 updates) reinforces sustainable drainage within infrastructure design, with definitions and expectations that SuDS manage surface water runoff close to where it falls (known as source control) and account for climate change, again, this is best achieved when integrated early during the design stage.

Ask your team

- Are our **site layout and levels** already biasing against infiltration or conveyance?
- Have we protected potential SuDS “prime plots” (permeable soils, low spots suitable for basins, landscape edges for swales)?
- Where are we able to imaginatively use SuDS devices to provide storage and surface water treatment, as well as an amenity to the local area (blue green landscape access corridors, bioretention in the form of raingardens and tree pit storage, green storage devices to provide educational and leisure facilities to the end-users and promote site biodiversity)? **Act now.**
- Run a **SuDS-first sketch** of the masterplan (soils, exceedance paths, blue-green network) before fixing roads and parcels.
- Schedule **early dialogue** with SAB/LLFA (Local Lead Flood Authority) to confirm expectations on discharge hierarchy, climate allowances and adoption.
- Consult with the Client and end-user groups at an early stage to see what additional benefits SuDS can bring to a scheme, such as an educational tool within schools or local community gardens within the urban environment.





2. Policy landscape at a glance (2024–2025)



Wales:

Schedule 3 commenced in 2019 and states that SAB approval is required for new developments of more than a single dwelling or a construction area of more than 100m². Welsh statutory SuDS standards and guidance set the bar for design, construction, operation and maintenance.



England:

- BNG (Biodiversity Net Gain) is mandatory for most planning applications from 12th February 2024 (with staged roll-out), typically requiring 10% biodiversity net gain, influencing SuDS siting and habitat design.
- The NPPF (updated December 2024/ February 2025) clarifies SuDS expectations (manage runoff close to source; mix of nature-based (soft SuDS) and built techniques (hard SuDS)).
- The government has published National standards for SuDS (July 2025) and has been considering delivery routes for Schedule 3 in England; policy details are continuing to evolve. Teams should check the latest position and local LLFA guidance at the outset.



UK-wide technical reference:

CIRIA SuDS Manual (C753) remains the primary design guide. [ciria.org](https://www.ciria.org/)

Practical takeaway

Treat Welsh SAB requirements as a useful benchmark UK-wide; they bake in early integration, adoption and maintainability - principles that de-risk design everywhere.

3. Early-stage essentials (RIBA 0–2)

a. Understand the site

- Hydrogeology & soils: Target infiltration where feasible; avoid contaminated hotspots. Where infiltration is not possible look to discharge surface water run-off to a watercourse. Discharge to surface water sewers is to be a final resort only if discharge to ground (via infiltration) or to a watercourse is not feasible.
- Topography & exceedance: Map overland flow for extreme events; align streets and open space to safely route exceedance. Where possible move sensitive areas of site away from any possible overland flows.
- Constraints & utilities: Plan SuDS around public utility easements; protect tree root zones and existing habitats; consider utility corridors early within the design. Coordination between Architects, Civil Engineers and Building Services Engineers is essential.
- Local Policy: Review local authority guidance policies, such as Local Flood Risk Management Strategies (LFRMS) to gain an understanding of local flood risk policies and potential site constraints.

b. Define a clear drainage strategy

- Follow the discharge hierarchy: infiltrate → discharge to watercourse → to surface water sewer → to combined only as last resort.
- Align with policy & climate: Apply local climate allowances and event durations to storage. NPPF definition emphasises techniques that mimic natural drainage and “account for predicted impacts of climate change.” GOV.UK
- Co-design with landscape & streets: Plan swales, rain gardens, permeable paving and basins as place-making and movement elements, not afterthoughts to be fenced off from the public.

c. Engage the regulator early

- In Wales, book a SAB pre-app to test the outline concept (runoff destinations, adoption approach, maintenance plan).
- In England, agree principles with the LLFA and planning case officer, referencing the emerging national standards and local guidance.
- Contact with the local water authority is recommended at an early stage if Site discharges to a public surface water sewer, to gain an alignment with the SAB in regard to site discharge rates and locations. Where the site is to discharge to a watercourse, early engagement with Natural Resource Wales/Environment Agency is recommended.

Ask your team

- Do we have a **one-page SuDS concept** that everyone can read - Client, Planner, SAB/LLFA, Architect?
- Does the SuDS concept plan provide the Client with benefits throughout the site other than treatment and conveyance of surface water flows. Can it be more than just a drainage system?
- Are **street sections** showing where water goes (kerb-free edges, shallow swales, tree pits, raingardens)?

Act now

- Commission **infiltration testing** at feasibility (don't wait for detailed design).
- Agree **maintenance responsibilities** in principle (adoption, management company, or hybrid) before locking designs.
- Ensure all members of the Client and design team have 'bought into' the proposed SuDS philosophy for the site, and design coordination is carried out.

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4. From concept to outline: design principles that stick

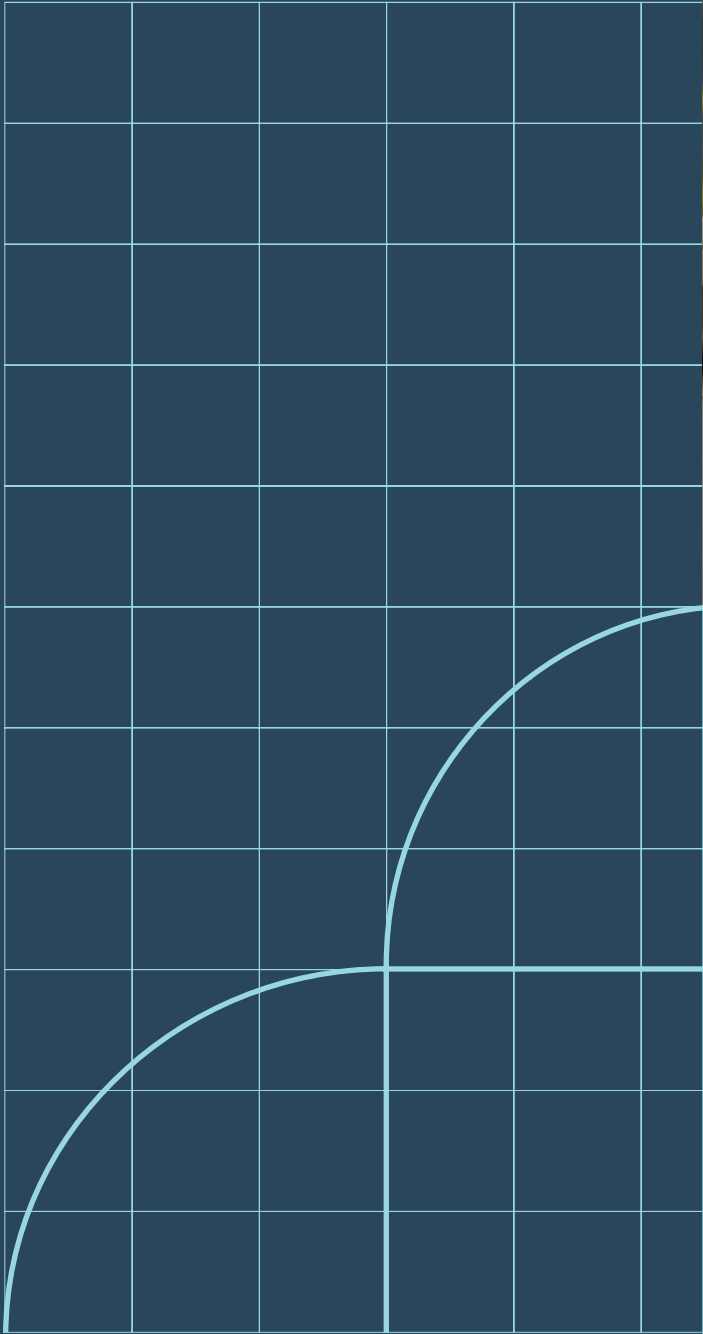
Make SuDS multifunctional

SuDS deliver surface water control, water quality treatment, amenity, and biodiversity. The CIRIA “treatment train” approach remains best practice - deal with water progressively through source, site and regional features.

- Source control: green/blue roofs, raingardens, bioretention tree pits, permeable paving, rainwater harvesting for toilet use or irrigation.
- Site control: swales, filter strips, bioretention cells, detention basins.
- Regional control: wetlands, ponds, basins.

Design for long-term care

- Provide safe access for routine tasks (sediment forebays, mowing margins, inlet/outlet checks).
- Select durable planting suited to the hydrological regime (drought and wet-tolerant mixes).
- Include inspection checklists and frequency tables; plan budget for whole-life maintenance. (Wales’ standards explicitly emphasise operation and maintenance.)



Integrate with BNG

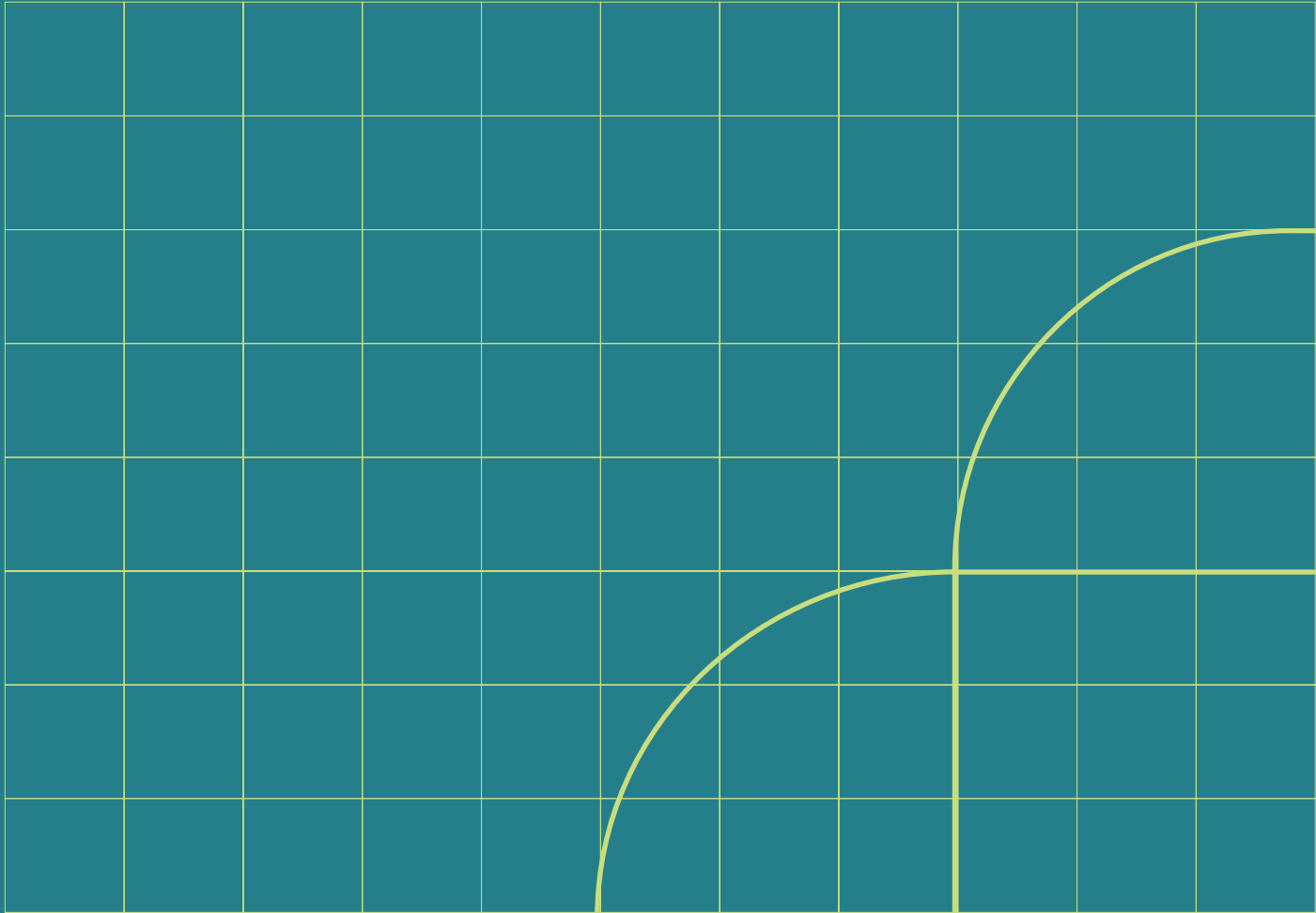
- ▣ Bioretention, wetlands and ponds can contribute to habitat units if designed with appropriate distinctiveness and condition - coordinate the drainage and ecology strategies from the outset to minimise land take and deliver BNG efficiently.

Ask your team

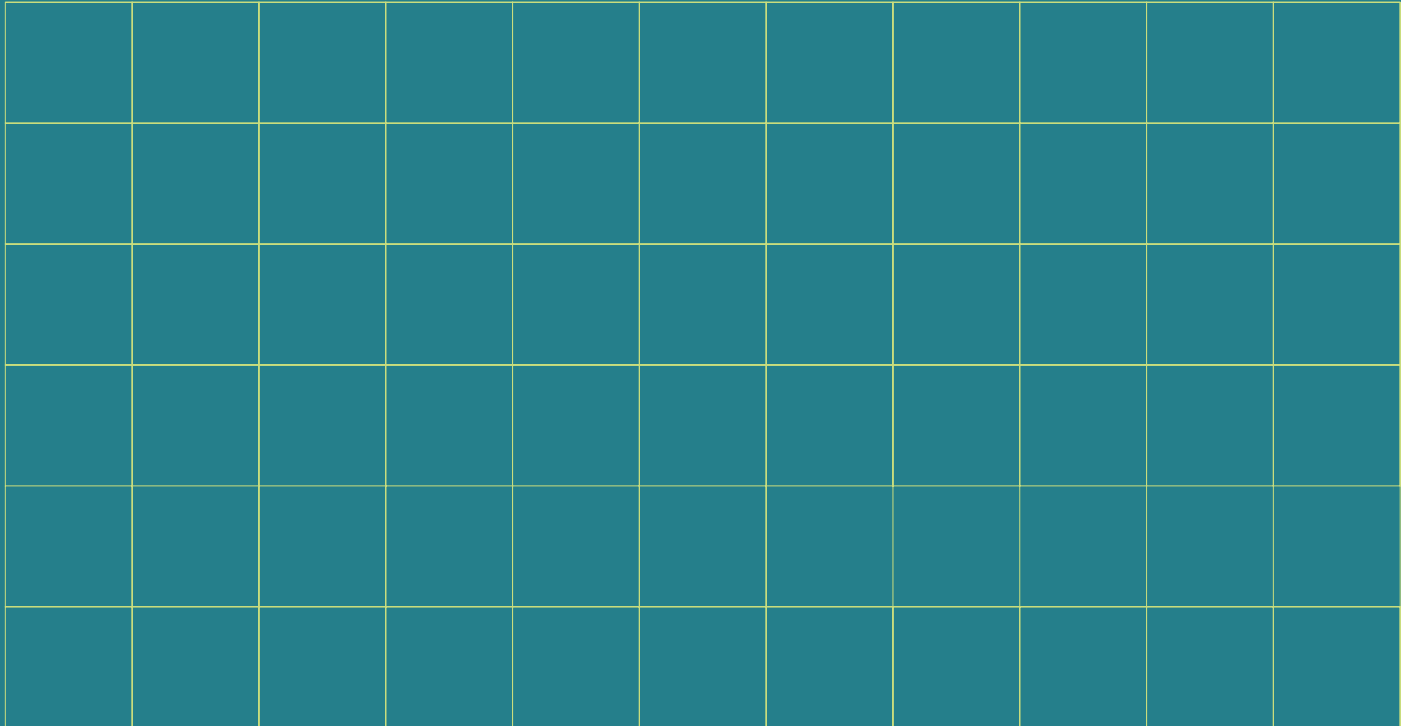
- Where is our **first line of treatment?** (If it’s all at the basin, you may be under-treating water quality upstream).
- Does our landscape spec include **maintenance notes** aligned to the drainage details?

Act now

- Run a **Simple Index Approach** (water quality) screen at concept to confirm treatment steps and materials.
- Produce a **one-page maintenance plan** for client sign-off - then carry it through to the SAB/LLFA submission.



6. Delivery and handover



- Protect SuDS during construction (temporary diversions, silt controls, fenced no-go zones).
- Sequence works to switch assets on last - avoid compacting soils or clogging permeable surfacing early.
- Commission features: confirm levels, freeboard, inlets/outlets, underdrains, planting and record with as-builts.
- Handover with clear O&M (tasks, frequencies, seasonal notes, health & safety).



Ask your team

Do we have a **construction phase plan** for SuDS protection and silt control?

Have we booked **post-storm inspections** in the first season?

Act now

Establish a **12-month aftercare schedule** with named responsibilities; set up quick-win training for grounds teams.

7. Common pitfalls - and how to avoid them

1

Designing pipes first, SuDS later

Fix: Start with the blue-green network; let roads and utilities adapt around it. SuDS is more than just drainage; it has the potential to define a site.

2

Under-estimating maintenance

Fix: Provide forebays/silt bays, access, and realistic mowing/clearing regimes in O&M.

3

Treating SuDS as pure engineering

Fix: Co-design with Architects, Landscape and Ecology; use SuDS to deliver BNG and place quality.

4

Inadequate early dialogue with SAB/LLFA

Fix: Use **pre-app** to agree principles and evidence up front; avoid iterative redesign later.

5

Single-point treatment

Fix: Apply the treatment train; manage water quality at source and along the route. Work with soft SuDS processes where possible to mimic the sites existing water cycle.

These echo the early-integration lessons highlighted in Egniol’s earlier position on SuDS and approvals.





8. Evidence and metrics that convince approvers

- Hydraulic checks: Event storage volumes including climate uplift; exceedance mapping to safe receptors.
- BNG accounting: Habitat units (baseline vs proposed), management plan and monitoring.
- Water quality: Source-to-outfall treatment steps using CIRIA indices; materials and filtration media specified.
- Operation & maintenance: Tasks, frequencies, responsibilities, and access drawings; (in Wales) align to statutory standards.

Ask your team

What **one-page evidence graphic** will make our case obvious to a time-pressed reviewer?

Are our calculations and drawings **consistent** (levels, sections, details) across disciplines?

Act now

Curate a **SAB/LLFA evidence pack**: strategy plan, sections, storage tables, treatment train, exceedance, O&M summary.

9. SuDS and climate resilience

SuDS mitigate surface water flood risk, reduce combined sewer overflows, and offer heat and drought resilience. NPPF language explicitly recognises the need to mimic natural drainage and consider climate impacts.

Designing for future climates
(intensity, duration, antecedent
conditions) is no longer optional

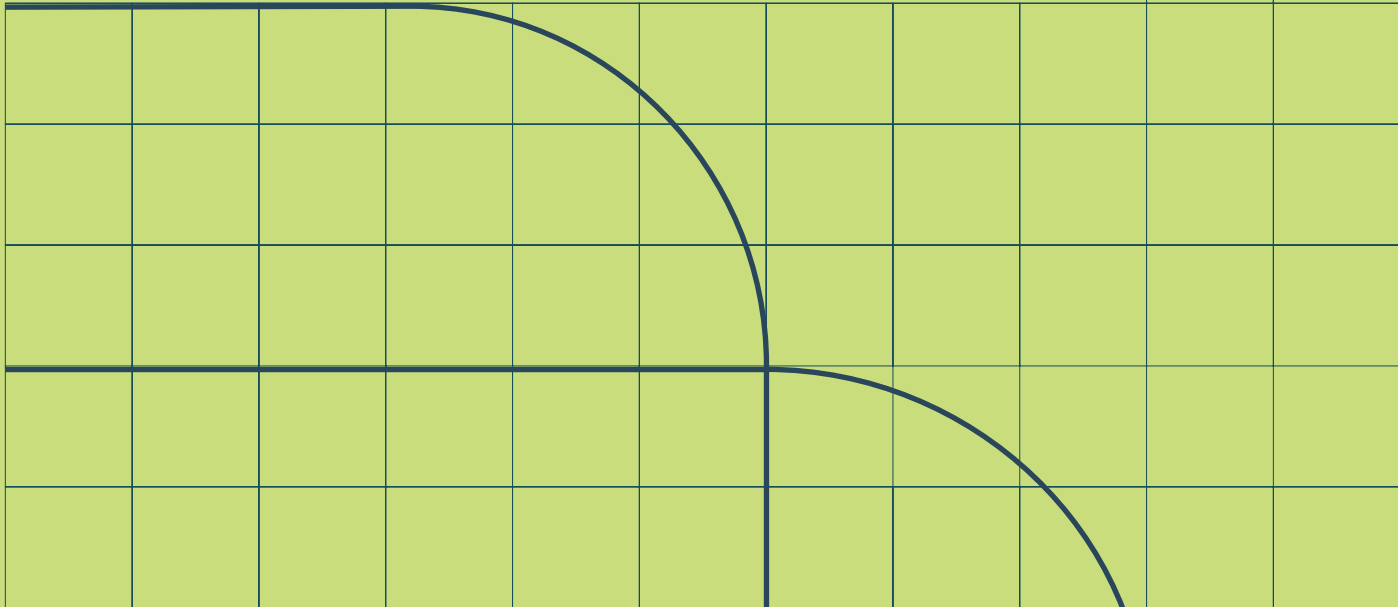
- use local LLFA guidance for allowances and ensure exceedance routes are safe when the system surcharges.



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10. Useful references

-  CIRIA SuDS Manual (C753) - planning, design, construction, maintenance. [ciria.org](https://www.ciria.org)
-  Welsh SuDS statutory standards & guidance (for principles applicable UK-wide).
-  NPPF (2024/2025 updates) - definitions and policy expectations in England. [GOV.UK](https://www.gov.uk)
-  BNG guidance - requirements and developer steps in England. [GOV.UK+1](https://www.gov.uk)
-  Government national SuDS standards (England, 2025) - emerging design baseline to check against. [GOV.UK](https://www.gov.uk)



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11. Mini checklist

Concept (RIBA 1–2)

- ☐ Soils/infiltration testing scoped
- ☐ Exceedance plan drafted
- ☐ Blue-green network sketched
- ☐ Pre-app scheduled (SAB/LLFA)

Outline (RIBA 3)

- ☐ Discharge hierarchy agreed
- ☐ Treatment train mapped
- ☐ Climate allowances applied
- ☐ Maintenance approach agreed in principle

Detailed (RIBA 4)

- ☐ Levels/sections coordinated
- ☐ O&M tasks, frequencies, access
- ☐ Planting specs matched to hydrology
- ☐ Adoption/legal routes defined

Construction & Handover (RIBA 5-6)

- ☐ SuDS protection plan in CPP
- ☐ Commissioning checks
- ☐ As-builts
- ☐ 12-month aftercare schedule



12. Egniol experience & how we help

Egniol is a UK engineering and environmental consultancy delivering integrated SuDS, Civil and Environmental design from concept through approval, delivery and aftercare.

Typical support includes: masterplanning and SuDS-first strategies; SAB/LLFA pre-app and submissions; treatment train and water quality design; BNG-aligned blue-green landscapes; construction protection and commissioning; and O&M plans and training. (For Wales, we routinely align to statutory standards and SAB adoption considerations.)

Next step: If you'd like a quick, no-obligation review of your drainage concept or SuDS strategy, we can provide a one-page risk and opportunity note within a week, highlighting early wins before designs harden.

“The most resilient projects are the ones that treat SuDS as core infrastructure from day one. When drainage, landscape and layout are designed together, approvals are smoother and the place performs better - on day one and in year twenty. **Early SuDS doesn't just manage water - it unlocks value. You get safer streets, greener spaces and clearer routes through planning because the thinking is embedded, not bolted on.**”

Dan Shoesmith
Civil Engineering Services Director, Egniol

“SuDS aren’t just a box ticking exercise, through careful consideration and coordination between the Client and Design team SuDS can provide all the betterments required in regards to water quality and discharge volumes from site whilst also helping to create places people want to interact with and help provide an identity to new and existing sites”.

Paul Nye
Principal Civil Engineer, Egniol

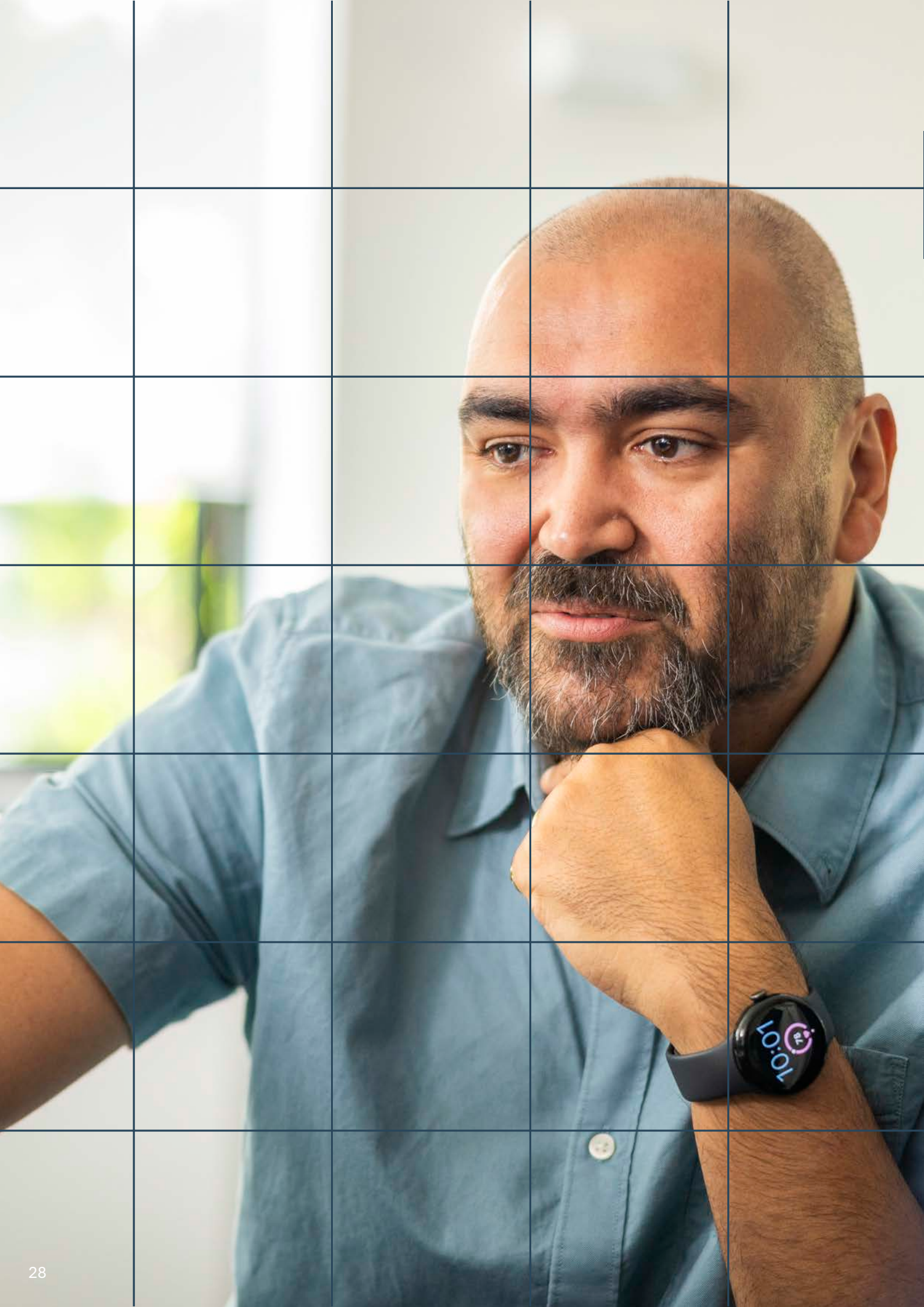


13. At-a-glance “Ask / Act” index

-  **Ask:** Have we preserved land for SuDS? **Act:** Sketch the blue-green network before roads.
-  **Ask:** Are SAB/LLFA expectations clear? **Act:** Book pre-app; confirm climate & hierarchy.
-  **Ask:** Where’s our first water-quality step? **Act:** Add source control (raingardens/permeable).
-  **Ask:** Who maintains what, when? **Act:** Draft O&M and adoption plan now, not later.
-  **Ask:** How will this perform in Year 20? **Act:** Use climate allowances; test exceedance safely.

Notes on sources

This guide reflects current UK policy and technical references as of **01.12.2025**, including Welsh SAB legislation (2019), **BNG (from 12 Feb 2024)**, **NPPF (Dec 2024/Feb 2025 updates)**, the **CIRIA SuDS Manual (C753)**, and the UK government’s **national SuDS standards (July 2025)** and ongoing policy process around Schedule 3 delivery in England.



About the Author

Paul is an Incorporated Civil Engineer with over 20 years' experience in Highway and Infrastructure design. He has led the successful delivery of land development and infrastructure projects, specialising in providing innovative solutions to design challenges, with a particular interest in SuDS and the provision of external works that add value to a development and an amenity to the end user.

Paul has extensive experience in the design of drainage networks and external spaces on a wide range of schemes, from school classroom extensions to high profile public realm works.

His personal aim is to provide spaces that meet a developments practical needs whilst also providing an environment for people to enjoy and interact with.

Contact the team

If you'd like a quick, no-obligation review of your SuDS concept or early drainage strategy, Egniol can provide a focused risk-and-opportunity note - highlighting where early integration can save time, avoid redesign, and strengthen your SAB/LLFA approvals pathway.

A simple, practical way to gain early clarity before key design decisions are locked in.



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